LDW280-28559

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

LEM	LDW280-51553	LEM-1(31)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28559-5		GAEC SCH NO.	

LEM	LDW280-28553	LTA-5(18)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28559-3		GAEC SCH NO. 52-2	

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	B	GRUMMAN REL INFO A		
LAST DASH NO. USED	-3	PRIM NO.	JK(001)	
		207	V.P 10/11/66 A	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.030 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.		LINE ITEM	DOCUMENTATION TYPE
DRAWN BY	VAN COTT 7/21	RELIABIL	
LAYOUT BY		THERMO	
CHECKED BY			
GRP LDR.	7/21/66		
VDI	7/22		
STRUCT	7/23	PROJ ENGR	
STRUCT	Alderman 7/23	REL GROUP	10-11-66
WEIGHTS	7-30		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTL
DESCENT STAGE-QUAD II-COMPONENT ACCESS
THERMAL

SIZE	CODE IDENT NO.		
B	26512	LDW280-28559	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
							✓		RETRACED - NO CHANGE LAST REVISION NO CHANGE ADDED SH. 1.10. SH 1.00 OF 4 WAS 1.00 OF 3	LTA-8 LEM-1		-1	R.Y.C. 9-21-66		
A	1								REMOVED -1. ADDED -3 -5 -7 & -9. REMOVED NOTES 1, 2, 3 & 4						

FOR CONTINUATION OF REVISIONS SEE SHEET ________

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-28559	A
SCALE NONE		SHEET 1.10	

ENG 77.3 5-65

01 NAS 9-1100

CL			-9	-7	-5	-3	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					14	14		MS35206-226	E	SCREW	STD PART						
					14	14		AN960D6	E	WASHER	STD PART						
			1					LDW280-28763-5	E	SKIN ASSY	SEE DWG						
				1				LDW280-28763-3	E	SKIN ASSY.	SEE DWG						
					1			LDW280-28559 -9	↑	SHIELD ASSY							
						1		LDW280-28559 -7		SHIELD ASSY							
C								LDW280-28559-5	↓	SHIELD INSTL							
C								LDW280-28559-3	E	SHIELD INSTL					NONE	NONE	

QTY PER ASSEMBLY

CL = CLEANLINESS LEVEL PER LSP 14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28559	A

SCALE NONE

SHEET 2.00

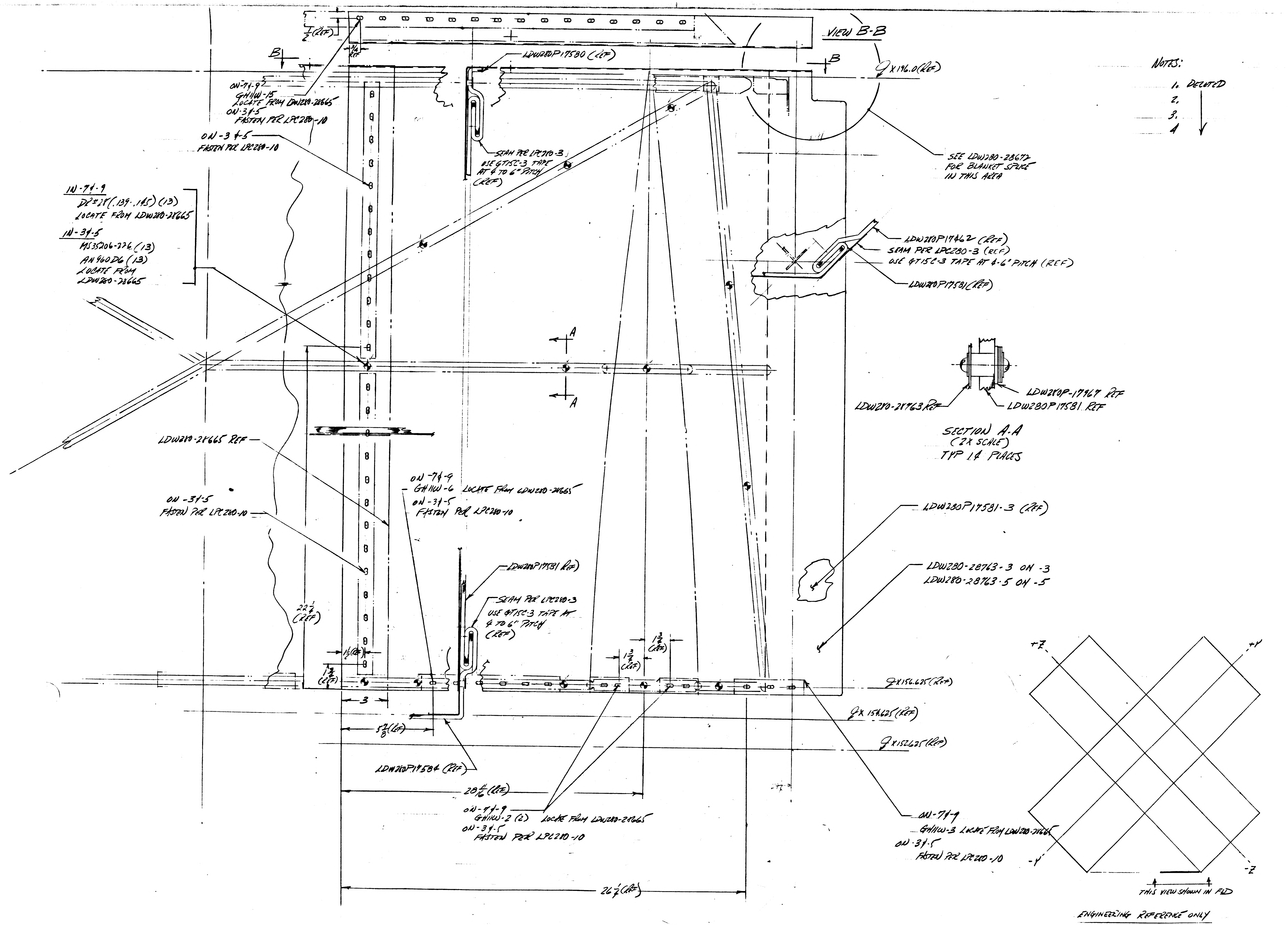
ENG 77.2 7-65

01

NAS 9-1100

NOTES:

1. DELETED
2.
3.
4.



VIEW B-B
B
B
A
A
1/2 (REF)
3/4 REF
ON-7 & -9
GH11W-15
LOCATE FROM LDW280-28665
ON-3 & -5
FASTEN PER LPC280-10
ON-3 & -5
FASTEN PER LPC280-10
IN-7 & -9
DR #28 (.139-.145) (13)
LOCATE FROM LDW280-28665
IN-3 & -5
MS35206-276 (13)
AN960D6 (13)
LOCATE FROM
LDW280-28665
LDW280P17580 (REF)
SEAM PER LPC280-3
USE GT15C-3 TAPE
AT 4 TO 6" PITCH
(REF)
9 x 196.0 (REF)
SEE LDW280-28672
FOR BLANKET SPLICE
IN THIS AREA
LDW280P17462 (REF)
SEAM PER LPC280-3 (REF)
USE GT15C-3 TAPE AT 4-6" PITCH (REF)
LDW280P17581 (REF)
LDW280-28763 REF
LDW280P-17967 REF
LDW280P17581 REF
SECTION A-A
(2X SCALE)
TYP 14 PLACES
LDW280P17581-3 (REF)
LDW280-28763-3 ON -3
LDW280-28763-5 ON -5
LDW280-28665 REF
ON-3 & -5
FASTEN PER LPC280-10
ON-7 & -9
GH11W-6 LOCATE FROM LDW280-28665
ON-3 & -5
FASTEN PER LPC280-10
LDW280P17581 (REF)
SEAM PER LPC280-3
USE GT15C-3 TAPE AT
4 TO 6" PITCH
(REF)
22 1/4 (REF)
1 1/2 (REF)
1 3/4 (REF)
3
5 7/8 (REF)
1 3/4 (REF)
1 3/4 (REF)
9 x 156.625 (REF)
9 x 154.625 (REF)
9 x 152.625 (REF)
LDW280P17584 (REF)
28 4/16 (REF)
ON-7 & -9
GH11W-2 (2) LOCATE FROM LDW280-28665
ON-3 & -5
FASTEN PER LPC280-10
ON-7 & -9
GH11W-3 LOCATE FROM LDW280-28665
ON-3 & -5
FASTEN PER LPC280-10
26 1/4 (REF)
+Z
+Y
-Y
-Z
THIS VIEW SHOWN IN FLD

ENGINEERING REFERENCE ONLY

LDW280-28559-3 SHIELD INSTL
-5 SHIELD INSTL
-7 SHIELD ASSY
-9 SHIELD ASSY

01

NAS 9-1100

LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGR. CORP., BETHPAGE, NEW YORK		
LEM	CODE IDENT NO. 26512	LDW280-28559	A
MODEL	SCALE 1/2		SHEET 3.00

01
NAS 9-1100

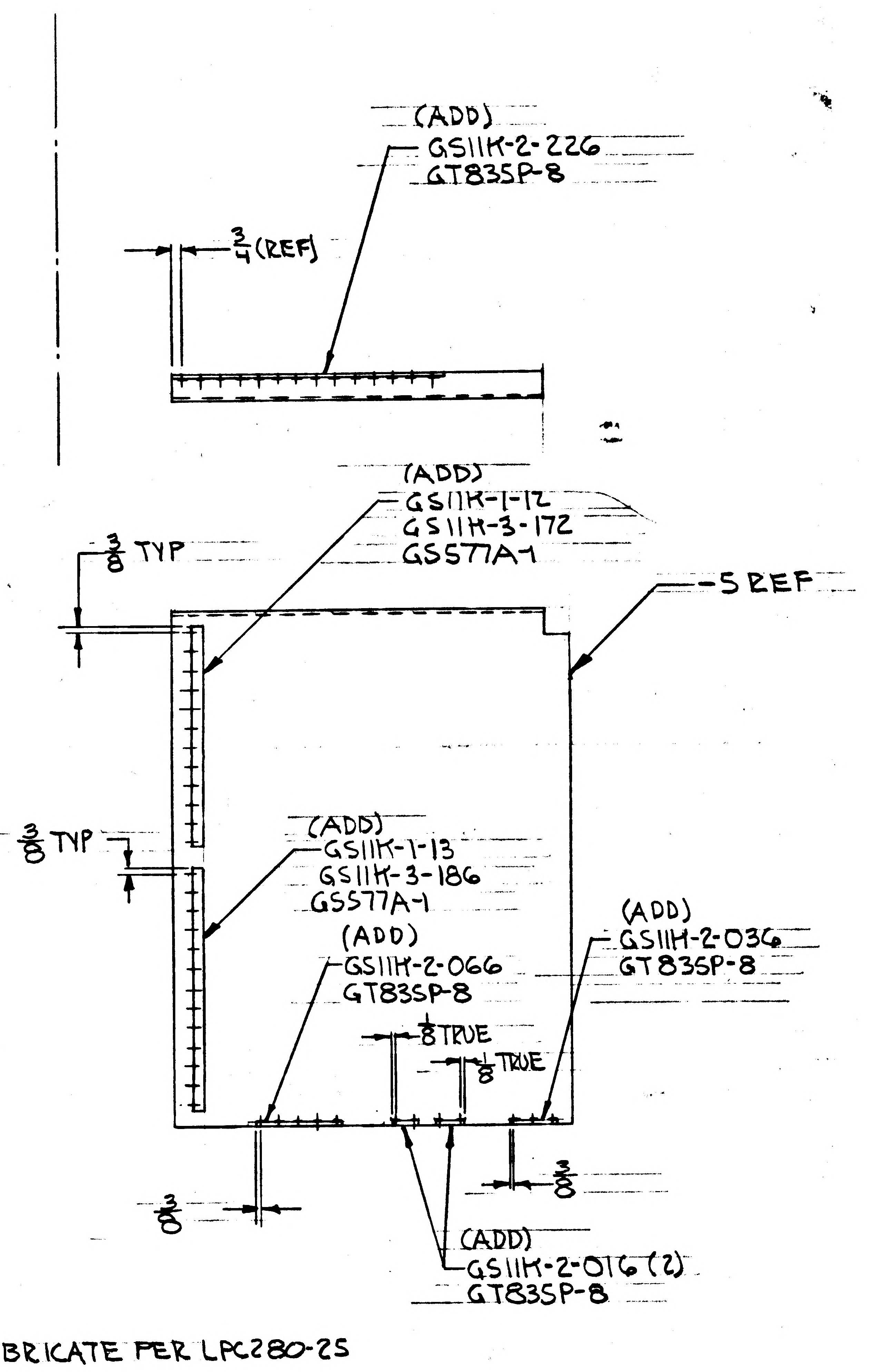
B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-28559
EO NO. B1
CONTROL INFO NO. LDW280A-5489

IN F/D & L/M FOR-5 ADD GS11K-2-226, GS11K-1-12, GS11K-3-172, GS11K-1-13, GS11K-3-186 GS11K-2-066, GS11K-2-036, GS11K-016(2), GS577A-1 & GT83SP-8 AS SHOWN BELOW


(ADD)
GS11K-2-226
GT83SP-8
3/4 (REF)
(ADD)
GS11K-1-12
GS11K-3-172
GS577A-1
3/8 TYP
-5 REF
3/8 TYP
(ADD)
GS11K-1-13
GS11K-3-186
GS577A-1
(ADD)
GS11K-2-066
GT83SP-8
(ADD)
GS11K-2-036
GT83SP-8
1/8 TRUE
1/8 TRUE
3/8
3/8
(ADD)
GS11K-2-016(2)
GT83SP-8

ADD NOTE # FABRICATE PER LPC280-25

- NEXT AVAILABLE NOTE NO.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: LCR 928 - INCREASED TAB THICKNESS REQ'D

DESCRIPTION OF EO: IN F/D & L/M FOR-5 ADDED GS11K-1--, GS11K-2--, GS11K-3--, GS577A-1 & GT83SP-8 ADDED NOTE #

GAEC EO RELEASE: C/ FR 2/23/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(3)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	DATE	
	2/21/67	5 YDI
		~~SUPPORT~~ THRMO
		RELIAB. GROUP
	2/17/67	GROUP LEADER
	2/21/67	STRESS GROUP
		LIAISON ENGRG
	2/21/67	PROJ ENGRG
	2-22-67	GOVT

PRIORITY: C
DRAWING TITLE: SHIELD INSTL DES. STAGE QUAD II COMPONENT ACCESS
DRAWING NO.: LDW280-28559
EO NO.: B1

ISSUED BY G ZEMAN/ J. STRAKOSCH SECTION YDI GROUP NO. 335 PL 35

3

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28559		EO NO. B2
CONTROL INFO NO. LDW280A-5821		

THIS IS A REVISION OF EO B1 LDW280-28559

IN F/D & LM GS11K-2-082 WAS GS11K-2-066

(5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	LCR-928

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LCR 928 - IMPROVE PAINT ADHESION	REVISED EO B1 · GS11K-2-082 WAS GS11K-2-066	C/ C 6 3/14/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		✓		APPROVED BY / DATE	3/7/67			3/7/67	3/8/67		3-14-67	3/14/67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL DES. STAGE QUAD II COMPONENT ACCESS	LDW280-28559	B2

ISSUED BY [illegible] SECTION [illegible] GROUP NO. [illegible]

B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-28559		EO NO. B2
CONTROL INFO NO. LDW280A-5821		

THIS IS A REVISION OF EO B1 LDW280-28559

IN F/D & LM GS11K-2-082 WAS GS11K-2-066

(5)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCR-928

REASON FOR EO	DESCRIPTION OF EO	C/L GAEC EO RELEASE C
LCR928 - IMPROVE PAINT ADHESION	REVISED EO B1 · GS11K-2-082 WAS GS11K-2-066	6 3/14/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓		DATE	3/7/67			3/7/67	3/8/67		3-14-67	3/14/67
REVISE DWG	RECORD EO	REWORK	SCRAP	S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CUST~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL DES. STAGE QUAD II COMPONENT ACCESS	LDW280-28559	B2

ISSUED BY G. ZEMAN/ J. STRAROSCH SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280
EO NO. 589
CONTROL INFO NO. LDW280A6772

ON THE DWGS LISTED BELOW IN L/M & F/D AT INSTL OF ALL GS11K-1--- TAB STRIPS REMOVE GS577A-1 & ADD GS577A-4 STAPLE

DWG No *	EFF	CHANGE No	TITLE
✓ LDW280-28559-5	LM-1(31)	B3	
✓ LDW280-28665-5	LM-1(31)	B10	
✓ LDW280-28733-3	LM-1(31) THRU LM-3(33)	A4	
✓ LDW280-28736-5 & -7	LM-1(31) THRU LM-15(45)	A5	
✓ LDW280-28748-11, -13 & -15	LM-1(31) THRU LM-15(45)	A10	
✓ LDW280-28754-7 & -9	LM-1(31) THRU LM-15(45)	A9	
✓ LDW280-28758-5 & -7	LM-1(31) THRU LM-3(33)	B3	SEE
✓ LDW280-28770-5	LM-1(31) THRU LM-15(45)	B5	
✓ LDW280-28773-11 & -13	LM-1(31) THRU LM-3(33)	A8	
✓ LDW280-28804-5	LM-1(31) THRU LM-15(45)	A6	
✓ LDW280-28817-7	LM-1(31) THRU LM-15(45)	A4	DWG
✓ LDW280-51742-3	LM-1(31)	A4	
✓ LDW280-51831-1	LM-1(31) THRU LM-15(45)	A2	
✓ LDW280-52739-3	LM-2(32) THRU LM-15(45)	A2	
✓ LDW280-52742-1, -3, -5, -7, -9 & -11	LM-2(32) THRU LM-15(45)	A7	
✓ LDW280-52763-9 & -11	LM-2(32) THRU LM-15(45)	A5	
✓ LDW280-52767-1 & -3	LM-2(32) THRU LM-15(45)	B3	
✓ LDW280-53600-3 & -5	LM-3(33)	A3	
✓ LDW280-54605-1	LM-4(34) THRU LM-15(45)	A2	
✓ LDW280-54714-1	LM-4(34) THRU LM-15(45) & DES. VER. 70	A5	
✓ LDW280-54733-1	LM-4(34) THRU LM-15(45)	A2	
✓ LDW280-54758-1 & -3	LM-4(34) THRU LM-15(45)	A1	
✓ LDW280-54784-1	LM-4(34) THRU LM-15(45) & DES. VER. 70	A2	
✓ LSK280-10993-17, -19 & -21	DES. VER. 70	A4	

CDR = 5/10/67

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD 928

REASON FOR EO: TO PROVIDE CORRECT STAPLE CALLOUT

DESCRIPTION OF EO: ON * REPLACED GS577A-1 WITH GS577A-4

Ⓡ GAEC EO RELEASE: 2 C JK 5/9/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		(NOTED ABOVE)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY				—			
DATE	5/4/67			—	5/4/67		5/6/67 5/8/67
5	VDI						

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 589

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

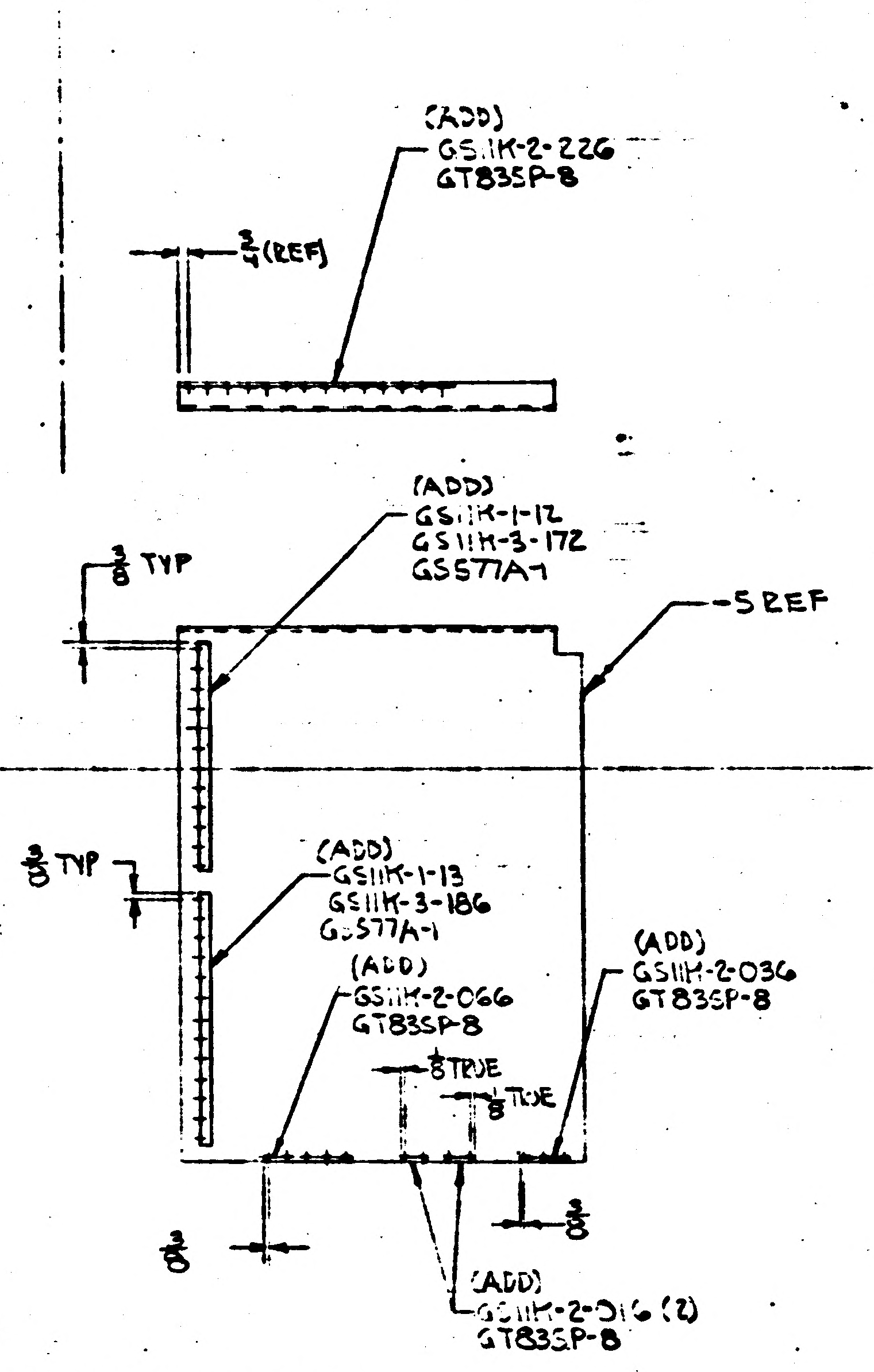
01
NAS 9-1100

b

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO LDW280-28559 EO NO 5
CONTROL INFO NO LDW280A-5489

IN F/D & L/M FOR-5 ADD GS11K-2-226, GS11K-1-12, GS11K-3-172, GS11M-1-13, GS11M-3-186
GS11M-2-066, GS11M-2-036, GS11K-016(2), GS577A-1 & GT8[illegible]SP-8 AS SHOWN BELOW


(ADD)
GS11K-2-226
GT835P-8
3/4 (REF)
3/8 TYP
(ADD)
GS11K-1-12
GS11K-3-172
GS577A-1
-5 REF
3/8 TYP
(ADD)
GS11K-1-13
GS11K-3-186
GS577A-1
(ADD)
GS11K-2-066
GT835P-8
(ADD)
GS11H-2-036
GT835P-8
1/8 TRUE
1/8 TRUE
3/8
3/8
(ADD)
GS11K-2-016 (2)
GT835P-8

ADD NOTE * FABRICATE PER LPC280-25

* - Next Available Note No.

DETAIL SPEC DWG | C. Z ENGR CHG | Z ENGR CHG

REASON FOR EO: CL928 INCREASED TAB THICKNESS REQ'D

DESCRIPTION OF EO: IN F/D & L/M FOR-5 ADDED GS11K-1--, GS11K-2--, GS11K-3--, GS577A-1 & GT835P-8
ADDED NOTE *

EFFECTIVITY: MODEL LM | LTA-1(3)

DWG NO. CHANGE REQ'D ✓ | DISPOSITION OF PARTS ✓ | APPROVED BY | DATE | 5 | YDI

C | SHIELD INSTL DES STAGE QUAD 2 COMPONENT ACCESS | LDW280-28559

ISSUED BY G. [illegible] / [illegible] SECTION [illegible] GROUP NO. [illegible]

LDW280 - 28559 A1

LDW280-28560 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28553	LTA-8 (18)	1
PART NO. LDW 280-28560-3		GAEC SCH NO. 52	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A

LAST SECT LTR USED	F
LAST DASH NO. USED	-5

GRUMMAN REL INFO

PRIM NO.	VE(001)
207	MP 9-20-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/8 ± .010 ± 0°30'

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100 | LINE ITEM I | DOCUMENTATION TYPE II

DRAWN BY	J. LOWNE 6/1/66	RELIABILITY	
LAYOUT BY	J. LOWNE	THERMO	AB 12/6/66
CHECKED BY			
GRP LEADER			
VEH DES INT	6/18		
STRUCTURES	W/H 6/18	PROJ ENGR	Plunkett 22 June
STRUCTURES	Hilogeman 6/18	REL GROUP	J. Pagliaro 12/8/66
WEIGHTS	6/22		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTALLATION - DESCENT STAGE ~ UPPER ENGINE COMPARTMENT-THERMAL

SIZE	CODE IDENT NO.		
B	26512	LDW280-28560	A
SCALE	NONE	SHEET 1.00 OF 4.00	

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
A	1	3							REMOVED SECT C-C, DETAIL 'G', NOTE #2 AND -1 INSTL. ADDED NOTE #4 AND -3 & -5.	LTA-8 (18)		✓	MARZELLA 9-14-66		

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-28560	A
SCALE NONE		SHEET 1.10	

FOR CONTINUATION OF REVISIONS SEE SHEET ______

ENG 77.3 5-65

01 NAS 9-1100

					48	48		GW10H-3	E	WASHER	GRUM. STD.						
					48	48		GR11B-1	E	RETAINER	GRUM. STD.						
					1	—		LDW280-18005-1	E	SKIN ASSY	SEE DWG						
					1			LDW280P17497-5	E	BLANKET	SEE DWG						
C						1		LDW280-28560-5	E	SHIELD ASSY							
C								LDW280-28560-3	E	SHIELD INSTL							
CL	QTY PER ASSEMBLY				-5	-3	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE

CL= CLEANLINESS LEVEL PER LSP 14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

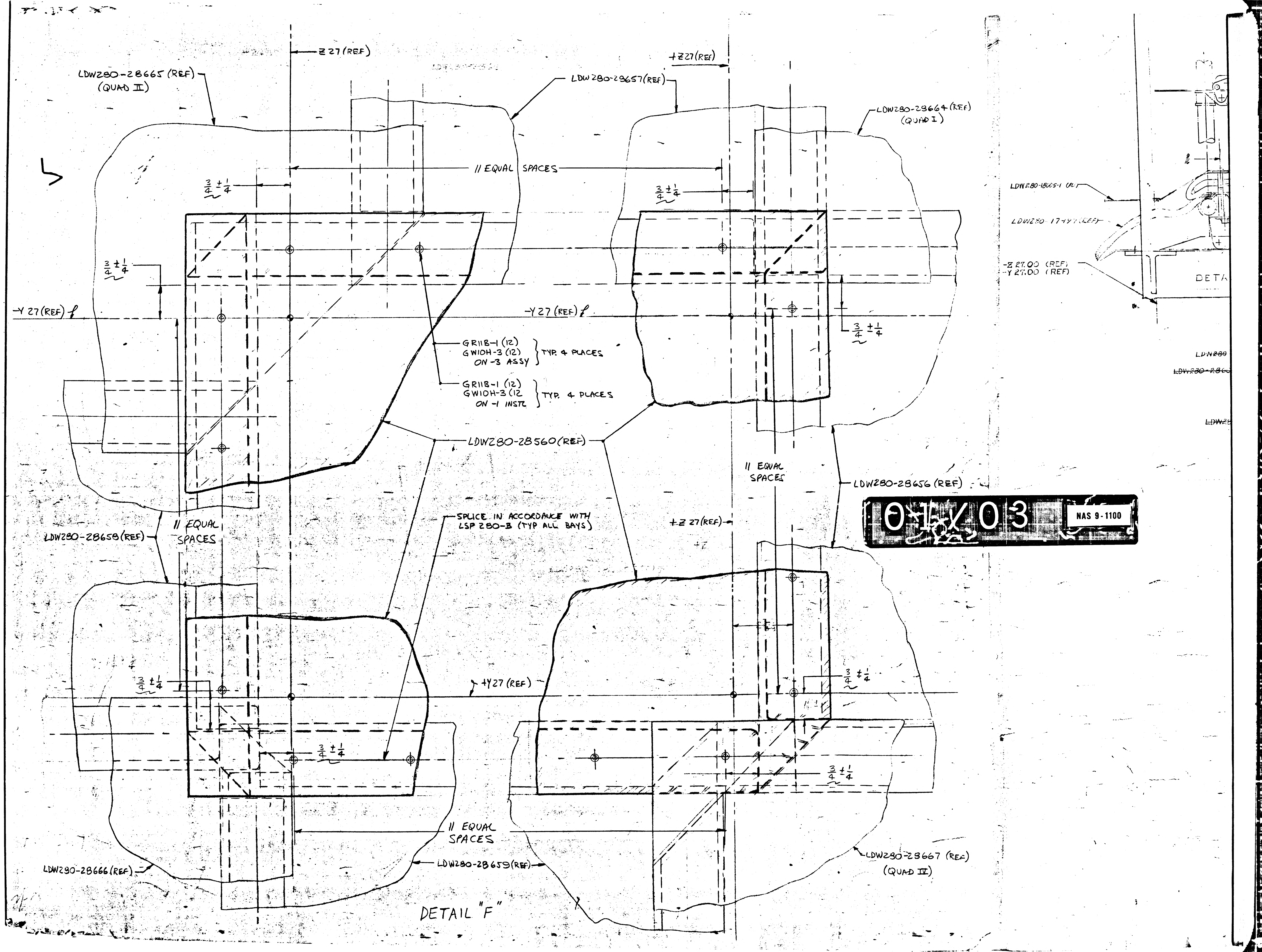
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28560	A
SCALE NONE			SHEET 2.00

77.2 7-65

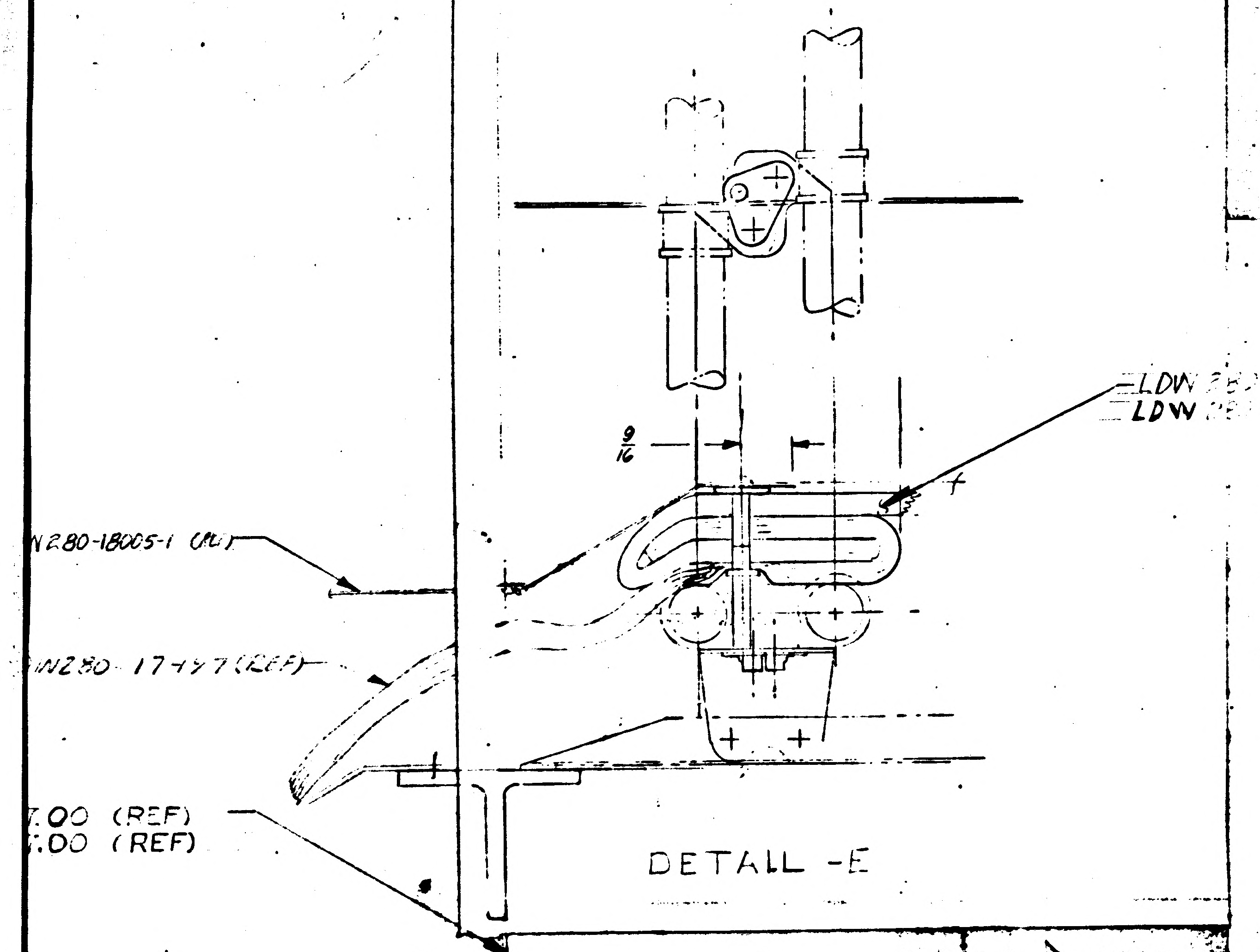
01

NAS 9-1100

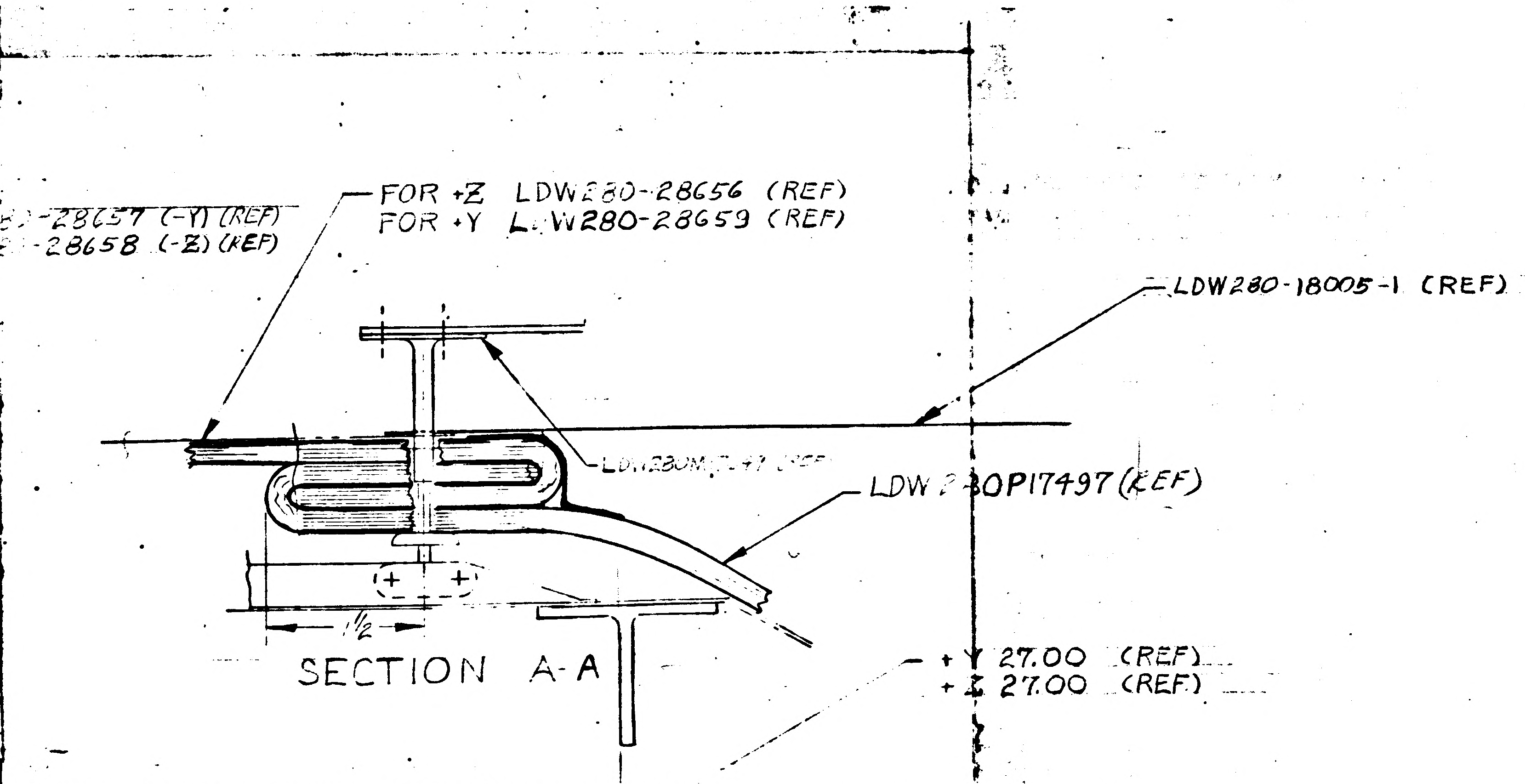

-Z 27 (REF)
+Z 27 (REF)
LDW280-28665 (REF) (QUAD II)
LDW280-29657 (REF)
LDW280-28664 (REF) (QUAD I)
11 EQUAL SPACES
3/4 ± 1/4
-Y 27 (REF) ℄
GR11B-1 (12)
GW10H-3 (12)
ON -3 ASSY
TYP. 4 PLACES
GR11B-1 (12)
GW10H-3 (12
ON -1 INSTL
TYP. 4 PLACES
LDW280-28560 (REF)
11 EQUAL SPACES
LDW280-28656 (REF)
LDW280-28658 (REF)
SPLICE IN ACCORDANCE WITH LSP 280-3 (TYP ALL BAYS)
+Z 27 (REF)
+Y 27 (REF)
LDW280-28666 (REF)
LDW280-28659 (REF)
LDW280-28667 (REF) (QUAD IV)
LDW280-18625-1 (ALT)
LDW280-17497 (REF)
-Z 27.00 (REF)
-Y 27.00 (REF)
DETA
9/16
LDW280
LDW280-2866
LDW28

DETAIL "F"

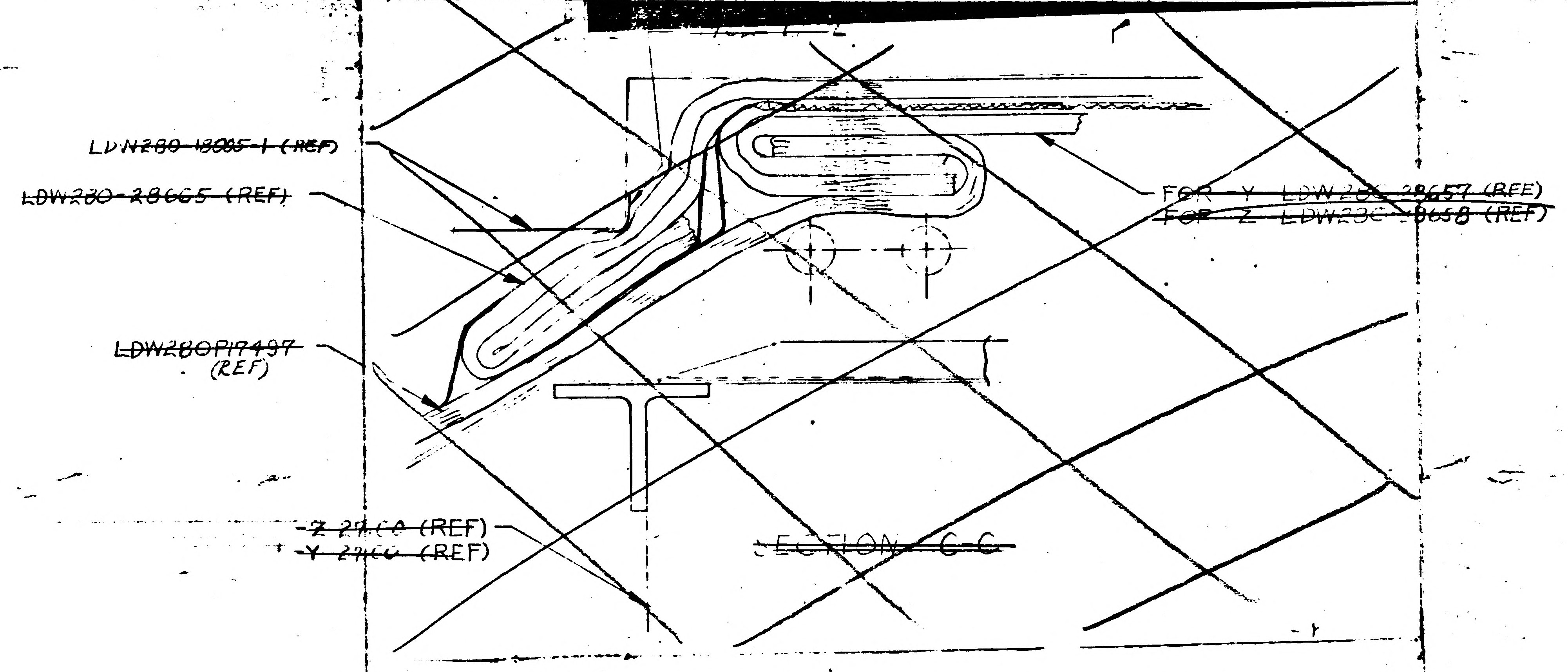
01/03
NAS 9-1100


LDW280-28657 (-Y) (REF)
LDW280-28658 (-Z) (REF)
9/16
N280-18005-1 (REF)
N280-17497 (REF)
.00 (REF)
.00 (REF)

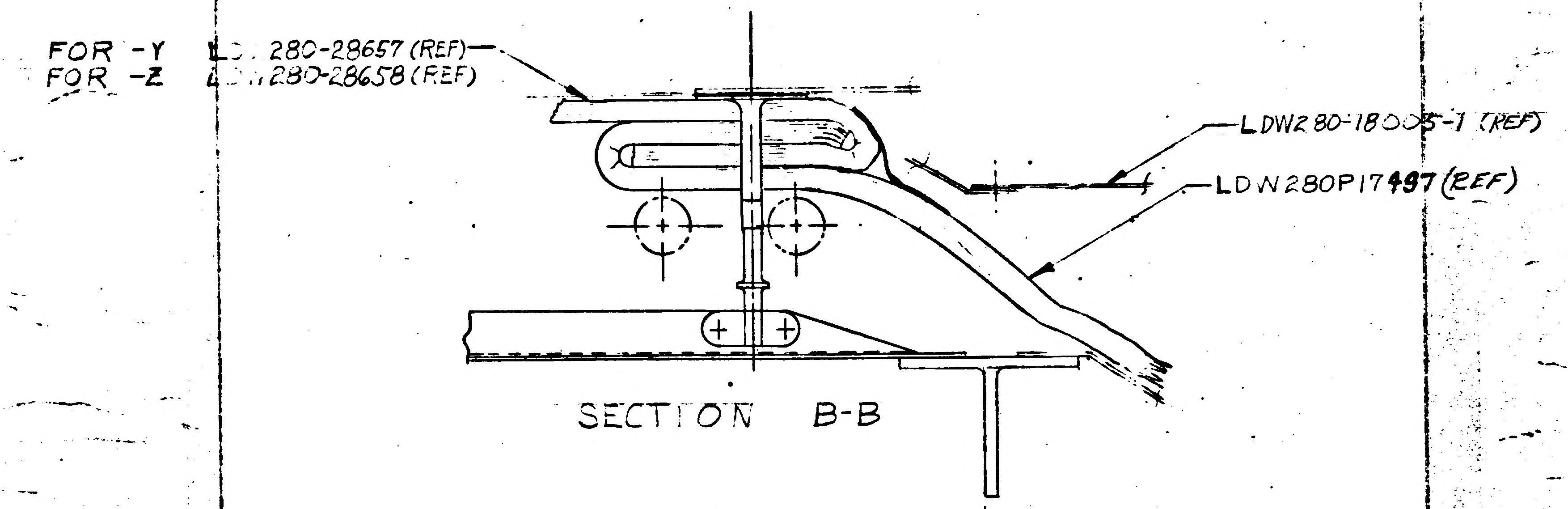
DETAIL -E


FOR +Z LDW280-28656 (REF)
FOR +Y LDW280-28659 (REF)
LDW280-18005-1 (REF)
LDW280P17497 (REF)
LDW280P17497 (REF)
1 1/2
+Y 27.00 (REF)
+Z 27.00 (REF)

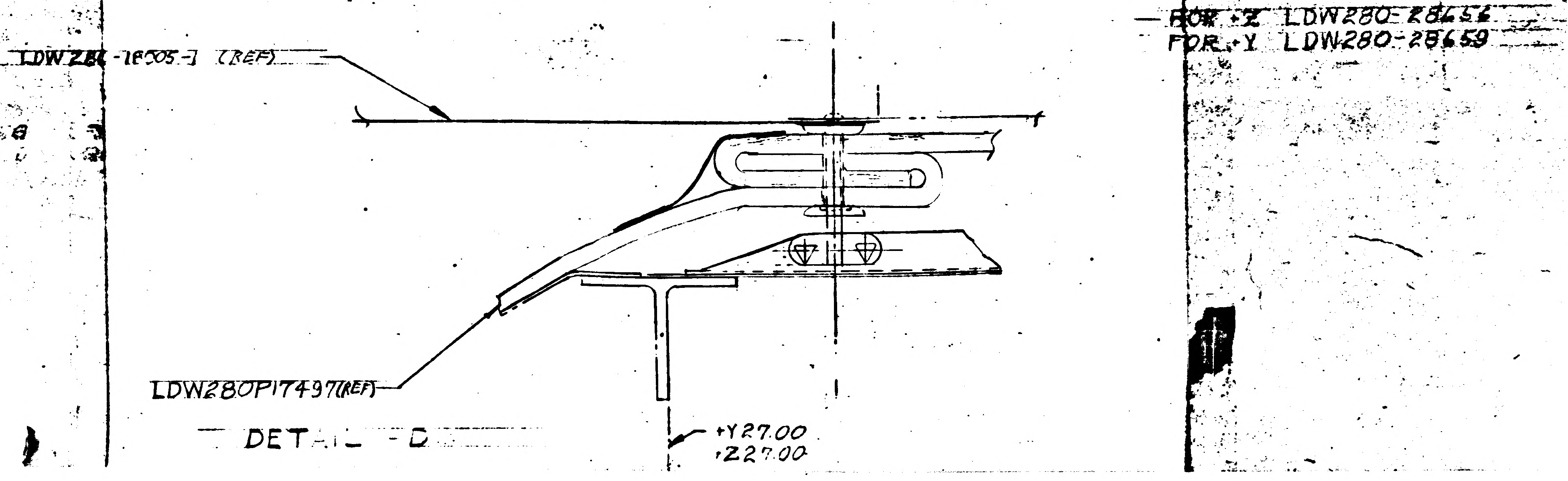
SECTION A-A


~~LDW280-18005-1 (REF)~~
~~LDW280-28665 (REF)~~
~~LDW280P17497 (REF)~~
~~FOR Y LDW280-28657 (REF)~~
~~FOR Z LDW280-28658 (REF)~~
~~-Z 27.00 (REF)~~
~~-Y 27.00 (REF)~~
-Y

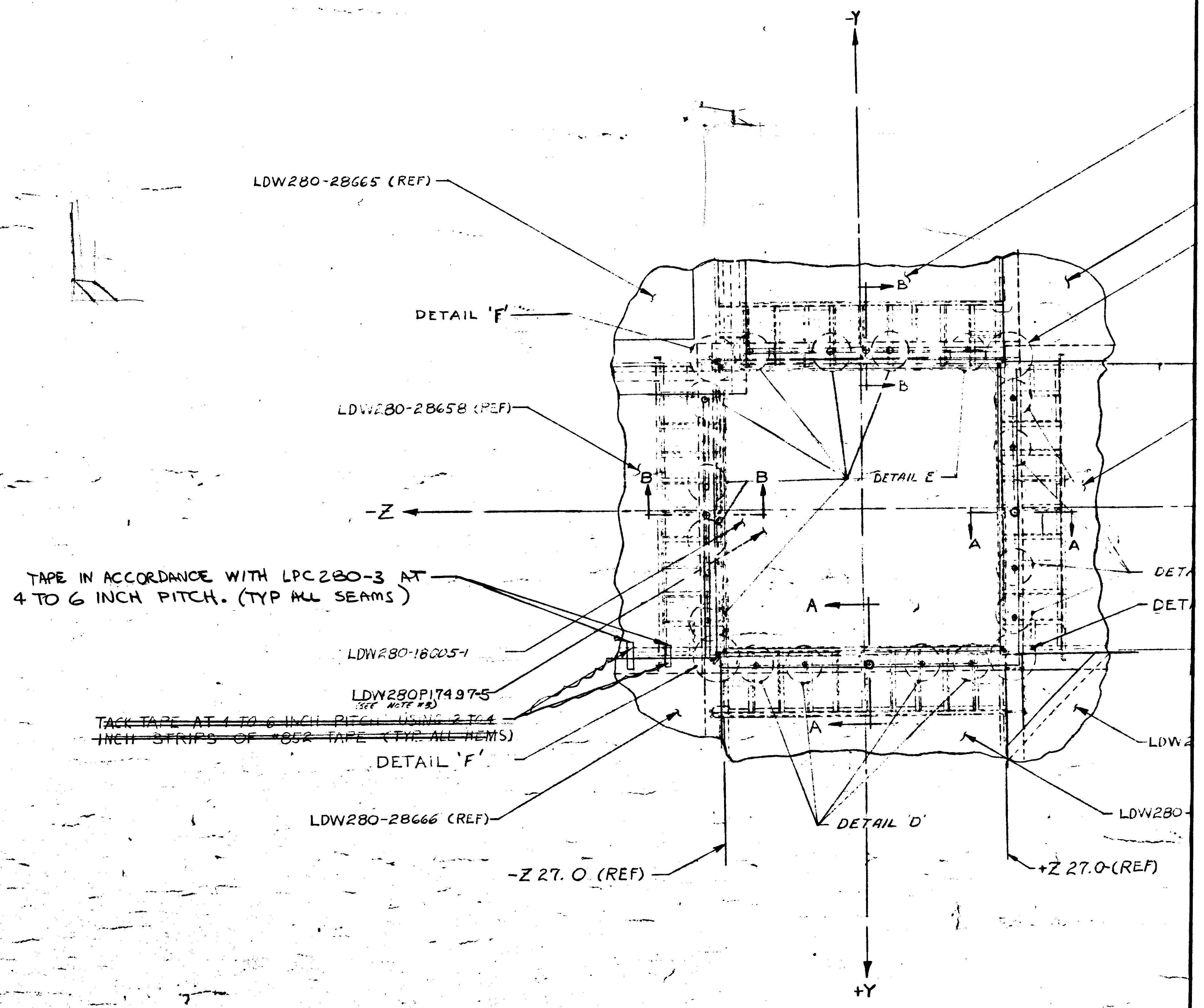
~~SECTION C-C~~


FOR -Y LDW280-28657 (REF)
FOR -Z LDW280-28658 (REF)
LDW280-18005-1 (REF)
LDW280P17497 (REF)
-Z 27.00 (REF)
-Y 27.00 (REF)

SECTION B-B


FOR +Z LDW280-28656
FOR +Y LDW280-28659
LDW280-18005-1 (REF)
LDW280P17497 (REF)
+Y 27.00
+Z 27.00

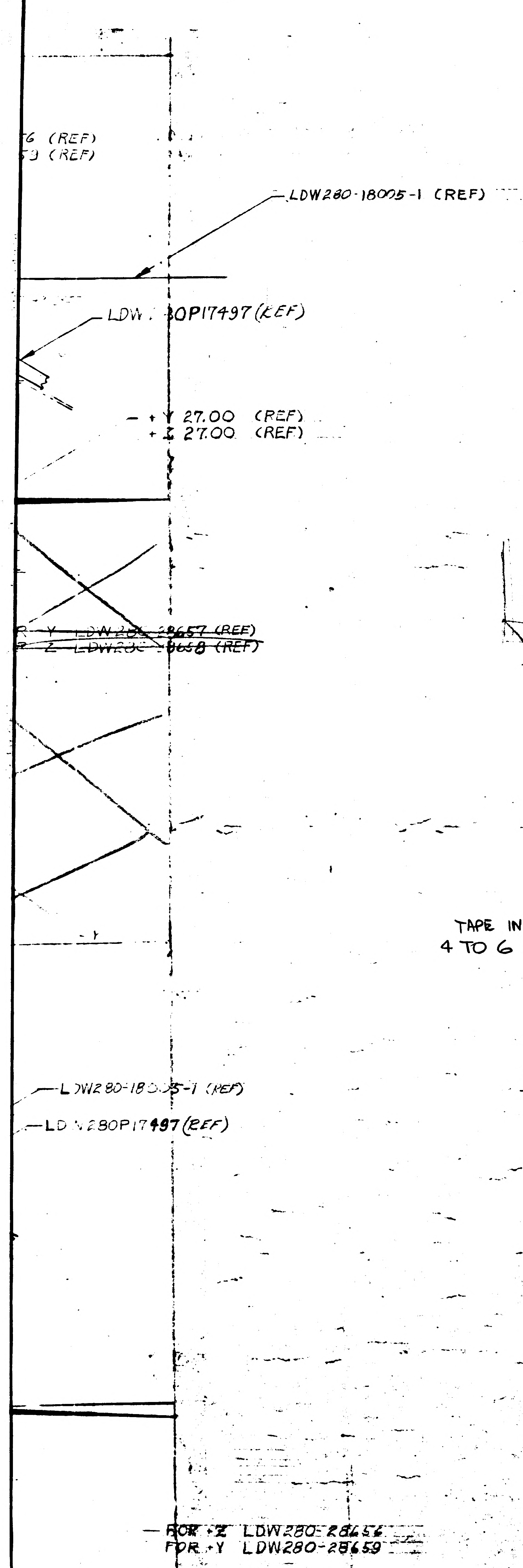
DETAIL D

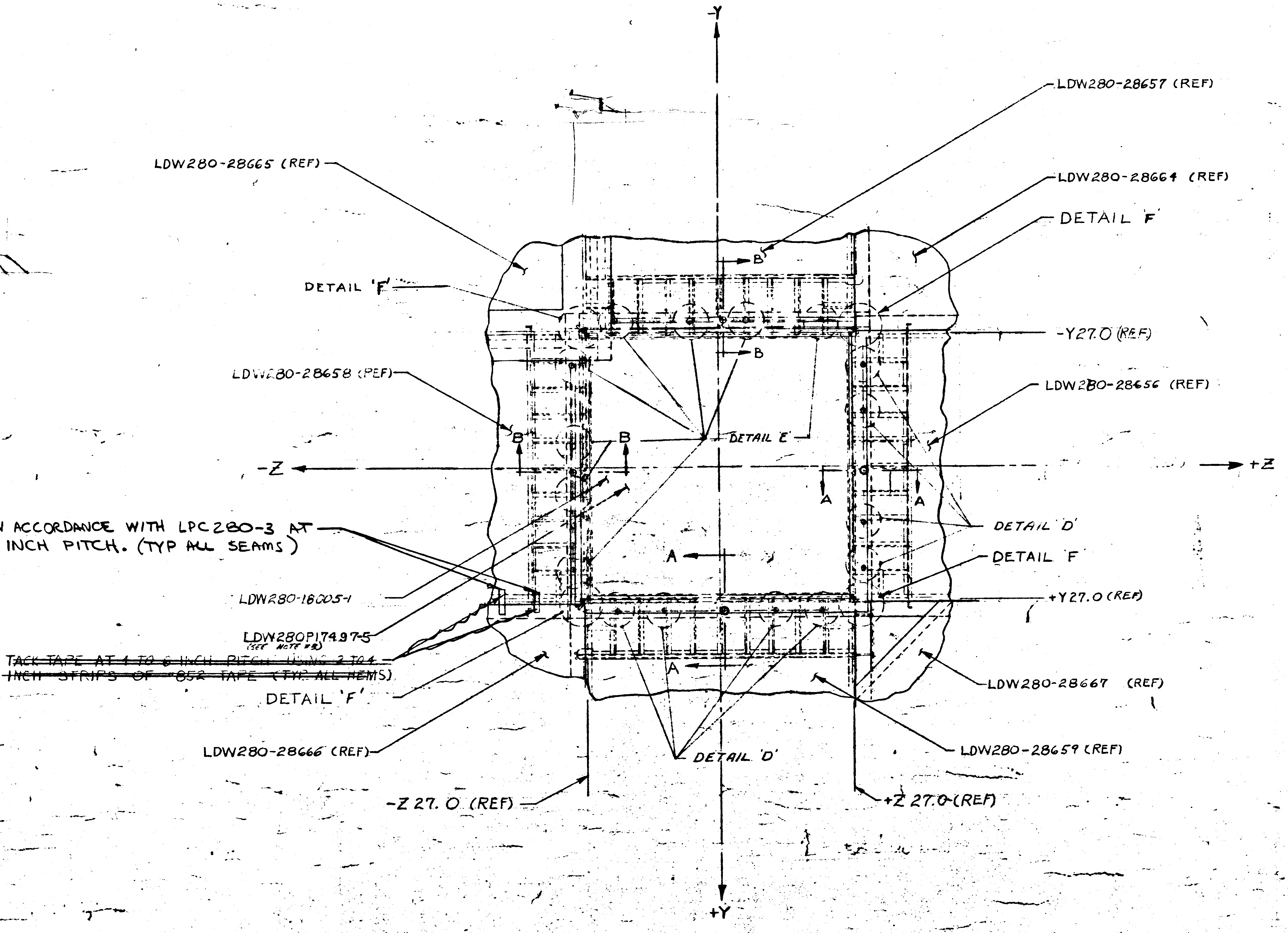

-Y
+Y
-Z
LDW280-28665 (REF)
DETAIL 'F'
LDW280-28658 (REF)
B
B
B
B
A
A
A
A
DETAIL E
TAPE IN ACCORDANCE WITH LPC280-3 AT 4 TO 6 INCH PITCH. (TYP ALL SEAMS)
LDW280-18005-1
LDW280P17497-5 (SEE NOTE #3)
~~TACK TAPE AT 4 TO 6 INCH PITCH USING 2 TO 4 INCH STRIPS OF #852 TAPE (TYP ALL SEAMS)~~
DETAIL 'F'
LDW280-28666 (REF)
DETAIL 'D'
-Z 27.0 (REF)
+Z 27.0 (REF)
DET
DET
LDW2
LDW280-

1/10 SCALE

02/03 NAS 9-1100

~~LDW280-28560-? INSTL~~
LDW280-28560-5 ASSY
LDW280-28560-3 INSTL


6 (REF)
9 (REF)
LDW280-18005-1 (REF)
LDW. 0P17497 (REF)
+ Y 27.00 (REF)
+ Z 27.00 (REF)
~~R Y LDW280-28657 (REF)~~
~~R Z LDW280-28658 (REF)~~
LDW280-18005-1 (REF)
LDW280P17497 (REF)
FOR +Z LDW280-28656
FOR +Y LDW280-28659


-Y
+Y
-Z
+Z
LDW280-28665 (REF)
LDW280-28657 (REF)
LDW280-28664 (REF)
DETAIL 'F'
DETAIL 'F'
-Y27.0 (REF)
LDW280-28658 (REF)
LDW280-28656 (REF)
B
B
B
B
DETAIL 'E'
A
A
A
A
A
DETAIL 'D'
DETAIL 'F'
+Y27.0 (REF)
LDW280-18005-1
LDW280P17497-5
(SEE NOTE #3)
DETAIL 'F'
LDW280-28667 (REF)
LDW280-28666 (REF)
DETAIL 'D'
LDW280-28659 (REF)
-Z 27.0 (REF)
+Z 27.0 (REF)

TAPE IN ACCORDANCE WITH LPC280-3 AT 4 TO 6 INCH PITCH. (TYP ALL SEAMS)

~~TACK TAPE AT 4 TO 6 INCH PITCH USING 2 TO 4 INCH STRIPS OF #852 TAPE (TYP ALL HEMS)~~

1/10 SCALE

~~LDW280-28560-3 INSTL~~
LDW280-28560-5 ASSY
LDW280-28560-3 INSTL

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X) = SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = SQ. FT.

PRINT TRIM LINE

NOTES:

1.) LAYOUT RELEASE. TO BE REDRAWN ON PRODUCTION FORMAT.

2.) ~~INSTALLATION OF BLANKET TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP 4-0011 LEVEL 6. IN ADDITION [illegible] NUMBER ON THE EXTERNAL SURFACE ARE TO BE REMOVED BY A HAND SOLVENT WIPE WITH ISOPROPYL ALCOHOL IN ACCORDANCE WITH LSP14-7011 PARA. 3.9.2~~

~~3.) LDW280P17497 BLANKET IS TO DRAPE FROM ±Y & ±Z STANDOFFS, DOWN INTO LDW280-28635 BLAST DEFLECTOR INSTALLATION.~~

3.) LDW280P17497 BLANKET IS TO DRAPE FROM ±Y & ±Z STANDOFFS, DOWN INTO LDW280-28635 BLAST DEFLECTOR INSTALLATION

4) TAPE AND FASTENERS TO BE INSTALLED PER LPC 280-3.

LDW280-28560 A

LDW280-28560 A

03/03

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
J	26512	LDW280-28560	A
MODEL OR END ITEM	SCALE FULL		SHEET 3 OF 3

THIS IS AN ORIG DWG

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER *

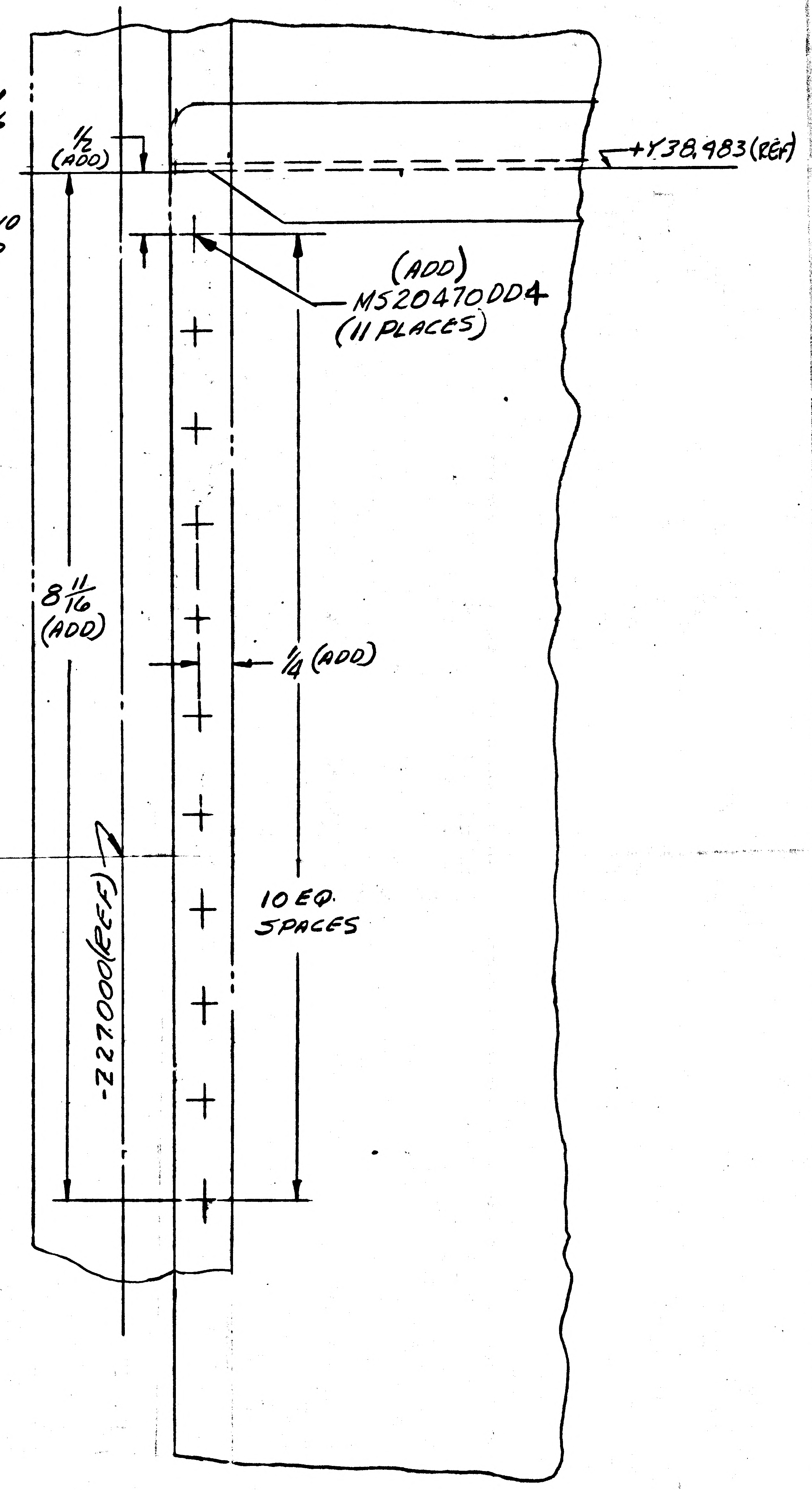
DWG. NO. LDW280-28520

EO NO. A1

CONTROL INFO NO. LDW280A-2153

CREATE: LDW280-28520-1
DECK INSTALLATION DESCENT
STAGE RIGHT HAND UPPER
IDENTICAL TO LDW280-25520-1
EXCEPT AS NOTED AS OF 10/13/66
NC REVISION PLUS EO A_1, A_2, A_3,
A_4, A_5, A_6, B_1, B_2, B_3, B_4, B_5 & C.

EFF: LTA8(18) N/A LDW280-28510
LM1(31) N/A LDW280-51510



* DRAWING NOT MADE

2

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG

REASON FOR EO	DESCRIPTION OF EO
INSTALLATION OF AMBIENT HELIUM TANK	EO A1 INITIAL DRAWING RELEASE PARTS MADE PER EO.

GAEC EO RELEASE		
6	10/27	51

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM1 (31)	
LM		LTA8 (18)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK / SCRAP
*		NOT REQ'D

	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JAS						RMC	
DATE	10/17/66				10/20/66		10-22-66	10/26/66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DECK INSTL D/S RT. HAND UPPER	LDW280-28520	A1

ISSUED BY R. CLARK / STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

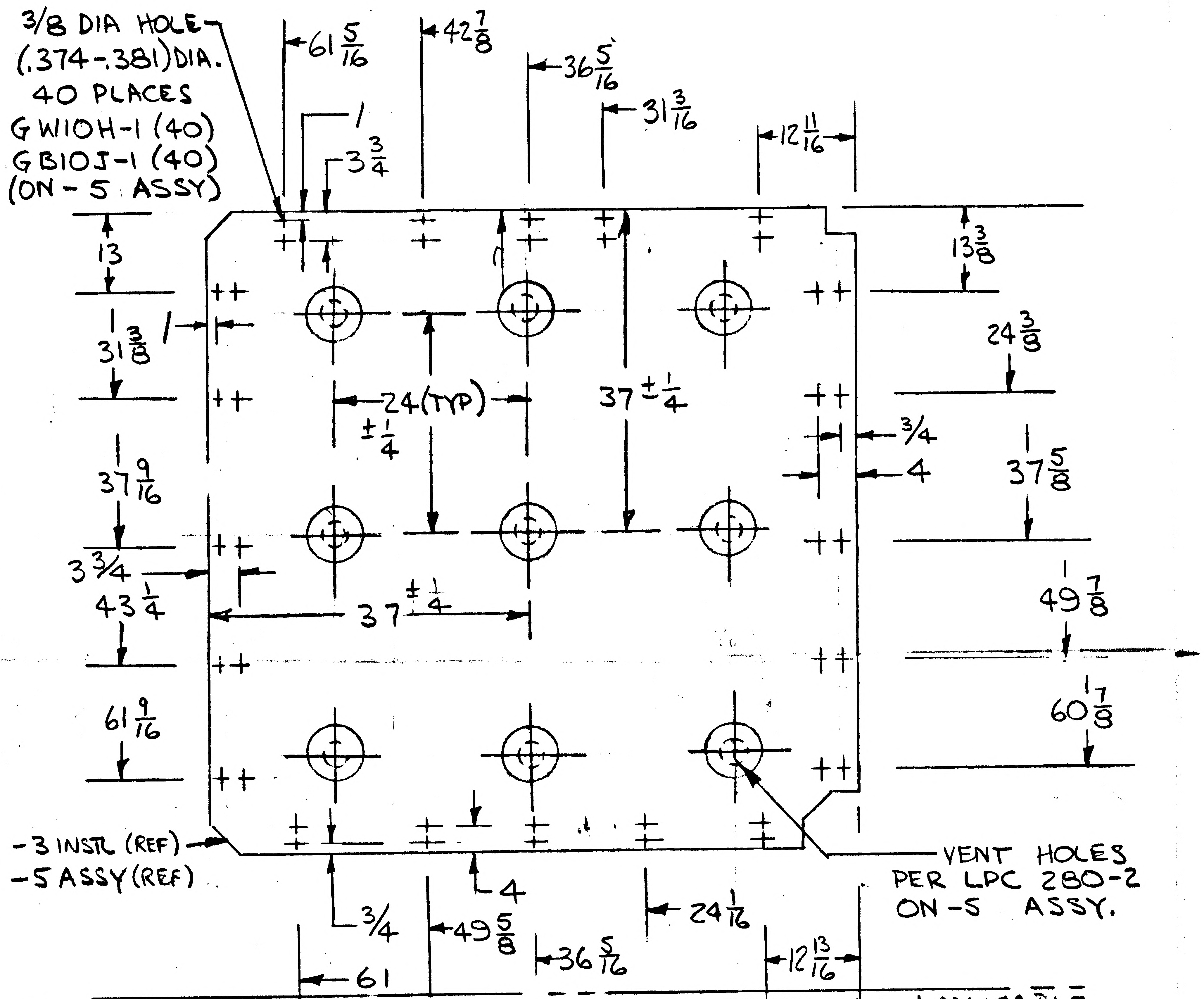
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

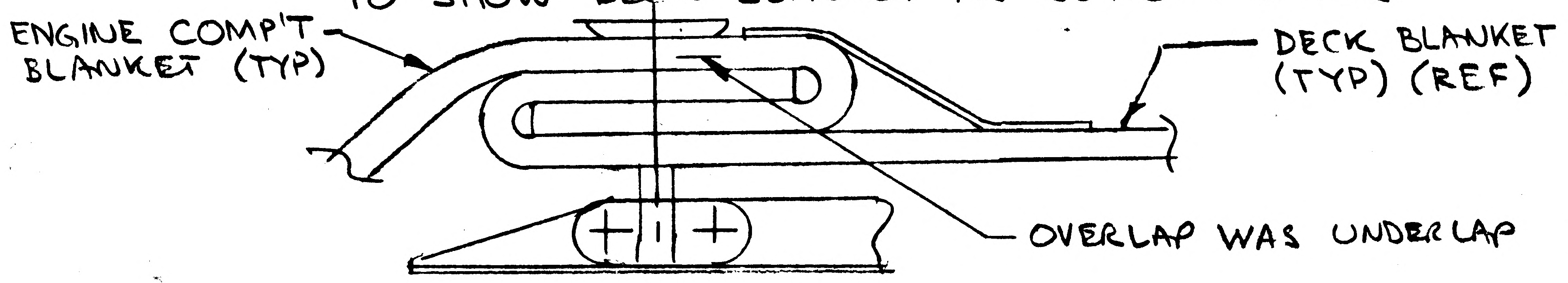
DWG. NO. LDW280-28560 | EO NO. B1
CONTROL INFO NO. LDW280A0887

1. ON LDW280-28560 -5 ASSY ADD 9 VENT HOLES PER LPC280-2 AND 3/8 DIA HOLES, GW10H-1 & GB10J-1 40 EA. AS SHN.

TOLERANCES ± 1/8 EXCEPT AS NOTED.


3/8 DIA HOLE (.374-.381) DIA. 40 PLACES GW10H-1 (40) GB10J-1 (40) (ON -5 ASSY)
61 5/16
42 7/8
36 5/16
31 3/16
12 11/16
1
3 3/4
13
13 3/8
31 3/8
1
24 3/8
24 (TYP) ± 1/4
37 ± 1/4
3/4
4
37 9/16
37 5/8
3 3/4
43 1/4
37 ± 1/4
49 7/8
61 9/16
60 1/8
-3 INSTL (REF)
-5 ASSY (REF)
VENT HOLES PER LPC 280-2 ON -5 ASSY.
3/4
4
49 5/8
36 5/16
24 1/16
12 13/16
61

2. REVISE PICTURE OF SPLICE AT ALL SECTIONS APPLICABLE TO SHOW DECK BLANKET AS BOTTOM LAYER.


ENGINE COMP'T BLANKET (TYP)
DECK BLANKET (TYP) (REF)
OVERLAP WAS UNDERLAP

2

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG

REASON FOR EO: VENT & STAND-OFF HOLES REQ'D

DESCRIPTION OF EO: ADDED 3/8 DIA HOLES, GW10H-1 & GB10J-1 (40) EA. ADDED VENT PER LPC280-2 (9). REVISED SPLICE PICTURE.

GAEC EO RELEASE: FK 9/11/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
					WJH		RMC	
DATE	10/3/66				10/4/66		10-10-66	11/11/66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL - DESCENT STAGE UPPER ENGINE COMP'T - THERMAL	LDW280-28560	B1

ISSUED BY A.F. MARZELLA\J. STRAKOSCH SECTION VEHICLE DESIGN & INT GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28560
EO NO. B2
CONTROL INFO NO. LM5-11369

IN F/D & B/M, REMOVE LDW 280-18005-1 SKIN ASSY FROM -5

RELEASED BY LIAISON

LM5-11369

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: INCORRECT N/A OF DTL PART

DESCRIPTION OF EO: ON -5: REMOVED LDW280-18005-1

GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY					WPB	CH	RMC(E)	JRP
DATE					12/12	12-12	12-15-66	12/22/66
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL ~ DESCENT STAGE UPPER ENG COMPT ~ THERMAL	LDW280-28560	B2

ISSUED BY A. Richer X1153 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53553	SEE NOTE*16	1

PART NO. LDW280-28561-47

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53553	LM-3 (33)	1

PART NO. LDW280-28561-7 — GAEC SCH NO. 52

LDW280-28561 C

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52553	LM-2 (32)	1
LM	LDW280-51553	LM-1 (31)	1

PART NO. LDW280-28561-43 — GAEC SCH NO. 52

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA-8(18)	1

PART NO. LDW280-28561-3 — GAEC SCH NO. 52

WORK PACKAGE FUNCTION NO 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	1.11	2.00	2.01	2.02	3.00	4.00	
REV	C	C	C	C	C	C	C	C	
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED: U
LAST DASH NO. USED: -53
GRUMMAN REL INFO Ⓑ C
PRIM NO. 207 — JK(001) MP-1C 9/26/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.010 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.
LINE ITEM
DOCUMENTATION TYPE

DRAWN BY	W. MAJUK	THERMO	AB. 11-8-66
LAYOUT BY	W. MAJUK		
CHECKED BY			
GR LEADER	J. STRAKOSCH 7-21-66		
VEH DES INT	W. BISCHOFF 7-23-66		
STRUCTURES	W. HAUCK 7-23-66	PROJ ENGR	R. CARBEE 8-8
STRUCTURES	HILDERMAN 7-23-66	REL GROUP	
WEIGHTS	D. ROBESCH 7-30-66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTL - DESCENT STAGE
QUAD IV ~ EPS BATTERY ACCESS
THERMAL

SIZE B — CODE IDENT NO. 26512 — LDW280-28561 C
SCALE NONE — SHEET 1.00 OF 8

SUPERSEDES LDW280-28561 REV A 3-2-67

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
									RETRACED NO CHANGE LAST REV.A ADDED SH 2.02 P.CARSTENSEN 3-2-67						
B	1	1.00, 1.10, 2.01 2.02 & 3.00	5A 4A					EO B1	ADDED LDW280P18138-15 ON-11 ADDED LDW280P17590-11 AS REQ'D ON-5 & -11	LM-1 & LM-2	✓		P.CARSTENSEN 3-3-67		
	2	2.00, 2.01 2.02 & 3.00	4A					EO B2	IN F/D & B/M ADDED -29, -31, -33, -35, -37, -39 & -41. REMOVED LM-4 THRU LM-15 FROM -7 EFF. ADDED NOTE 13 & 14.	LM-4 THRU LM-15		✓			
	3	2.01							IN B/M FOR -9, -11 & -13 LDW280P17479-13 (2 EA) WAS (1 EA) & -27 BLANKET (H FILM) (WAS) -27 BLANKET ASSY. DWG ERROR	LTA-8 LM-1, 2 & -3	NOT	REQ'D	JK		
C	1	1.00 1.10 2.01 3.00	3A 4A 4B 5A					EO C1	FOR -5 REMOVED LM-2 (32) EFF. ADDED NOTE 15. ADDED -43 FOR LM-2. ON -13 LDW280-28773-11 & -13 REPLACES LDW280-28773-7 & -9. ON -7 & -29 LDW280-28820-5 REPLACES LDW280-28820-3.	LM-1 THRU LM-15	✓		HERB. SCHWETER 9-24-68		
	2	1.10 2.01 2.02 3.00 4.00	6B 19C 21A					EO C2	IN FLD/DWG & B/M REMOVED FROM -5, -7 & -29 AND ADDED TO -11, -13 & -31: GS20D-06-8 (25) GS20D-06-14 (8), LDW280P17946-11 (37), LDW280P17575-11 (4), MS51957-26 (41), AN960D416L (A/R) MS20470AD5 (A/R), LDW280M17698-11 (8). IN FLD/DWG & B/M REMOVED FROM -5, -7 & -29 AND ADDED TO -11 & -13: GT535G-LCS-0006 (5). IN FLD/DWG & B/M REMOVED FROM -29 AND ADDED TO -31: MS35206-226 (8) AN960D6 (8), GT535G-LCS-0010, LDW280-18239-11 & -12, LDW280P17946-11 (4). REVISED EO B2, LDW280-17946-11 WAS -13. IN B/M FOR -5, -7 & -29 NAS1132V2 (6 REQD WAS 4). IN FLD/DWG SH 4.0 ADDED FOR -9 & -11 TO GT535G-LCS-0006 2 REQD. ADDED FOR -13 & -31 GT535G-LCS-0014. IN B/M FOR -9 & -11 ADDED GT535G-LCS-0006 (8); FOR -13 & -31 ADDED GT535G-LCS-0014 (4). IN B/M ADDED TO -13: LDW280P18091-3 & -7 (2) LDW280P18091-5 (5). IN B/M REMOVED FROM -5 & ADDED TO -11 LDW280P18091-3 & -7 (2) LDW280P18091-5 (5) IN B/M ADDED TO -31 LDW280P18091-3 & -7 (2).				ECG		

CHG APPROVED

LTR	GROUP LDR	VEH. DES. INT	STRUCTURES	STRUCTURES	WEIGHTS	THERMO	PROJ ENGR
B		J. Pusateri	7/21/67				
C							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28561	C
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01 NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ________

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
C	3	1.00 1.11 3.00	3A				✓	EO C3	REVISED EO C1; REMOVE -5 (WAS FOR-5 REMOVE LM-2 EFF) FOR-43 ADDED LM-1 EFF N/A LDW280-51553 1 REQD (ADDED SH 1.11)	LM-1 LM-2	✓		HERB. SCHWETER 9-24-68		
	4	1.11 3.00	8B			✓		EO C4 LCD 661	REF EO B2 ADDED DIM'S $5\frac{5}{8}{}^{+1/32}_{-0}$ & 1/4 ±1/16, LDW280-18239-15 & -16 X138.755 (REF) WAS X138.375 (REF) MS35206-226 (4) WAS (8), AN960D6 (4) WAS (8) REMOVED .220-226 (#2) 4 HOLES IN LDW280-54777-1 & LDW280P17946-11 (4), LDW280-18239-11 & -12.	LM-4 THRU LM-15					
	5	1.00 1.11 3.00	9A	S		✓		LEO280-793 LCD 2011 CCA 668	FOR -29, REMOVED LM-4 THRU LM-15 REQMTS			-29			
	6	1.11 2.01		P		✓		EO C6 LCD 1244	FOR -7 REMOVED LDW280-28820-5	LM-3	✓				
	7	1.11 2.00 3.00 4.00	10C 17A	LFM-155		✓		EO C7 LCD 2899	ADDED -47, -49, -51 & -53 (1EA REQD) ADDED NOTE 16		NOT	REQD			
	8	1.11 2.01 3.00	5B	P		✓		EO C8 LCD 2360	ON-7 INSTL ADDED LDW280P17496-65 (1)		✓		ECG		

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	THERMO					
	C											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28561	C

SCALE NONE

SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY												PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
-51	-49	-47	-45	-25	-23	-13	-43	-9	-7	-41	-3											
	1											LDW280-28561-51	E		BLANKET ASSY					NONE	NONE	15A
						1						-41			BLANKET ASSY							16A
1										1		-39			BLANKET	(MAKE FROM LDW280P17496-55)						17B
												-47			SHIELD INSTL							4A
				1	1					1		-27			BLANKET	(MAKE FROM LDW280P17496-31)						17A
			1									-25			BLANKET ASSY							16A
								1				-23			BLANKET ASSY							16A
1												-53			BLANKET	(MAKE FROM LDW280P17496-67)						17A
				1								-21			BLANKET	(MAKE FROM LDW280P17496-41)						17A
				1						1		-19			BLANKET	(MAKE FROM LDW280P17496-39)						17B
					1							-17			BLANKET	(MAKE FROM LDW280P17496-37)						17B
					1							-15			BLANKET	(MAKE FROM LDW280P17496-5)						17B
							1					-45			SHIELD ASSY							4A
									1			-13			SHIELD ASSY							4A
		1										-49			SHIELD ASSY							4A
											1	-9			SHIELD ASSY							4A
												-7			SHIELD INSTL							4A
												-43			SHIELD INSTL							4A
												LDW280-28561-3	E		SHIELD INSTL					NONE	NONE	4A

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28561	C ⓒ
SCALE NONE			SHEET 2.00

ENG 77.2 5-64

0 1

NAS 9-1100

-51	-49	-47	-45	-25	-23	-13	-43	-9	-7	-41	-3	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	1		1			1		1				LDW280P17967-83	E		STRAP	SEE DWG						4C
	37					37	37				37	LDW280P17946-11			STAND OFF							4C
			A/R				A/R					LDW280P17590-11			TAPE							5A
	4					4	4				4	LDW280P17575-11			WASHER							9D
	1		1			1		1				LDW280P17479-19			STRAP							5C
	2		2			2		2				LDW280P17479-13			STRAP							2B
		1										LDW280P17496-71			DOUBLER							9B
									1			LDW230P17496-65			DOUBLER							
				1	1							LDW280P17496-9			DOUBLER							22B
				1	1							LDW280P17496-7			DOUBLER							12A
	8					8	8					LDW280M17698-11			WASHER							3C
																						8A
							1					LDW280-28820-5			SHIELD ASSY							3C
											1	LDW280-28820-1			SHIELD ASSY							3C
				1	1							LDW280-28777-1			DOOR JAMB							12D
				1	1							LDW280-28776-1			DOOR JAMB							20C
	1		1			1						LDW280-28773-13			SHIELD ASSY							5B
	1		1			1						-11										3C
								1				-5										3C
								1				LDW280-28773-3			SHIELD ASSY							5B
	1		1			1		1				LDW280-28757-14			STRAP ASSY							5C
	1		1			1		1				LDW280-28757-13			STRAP ASSY							3D
	1		1			1		1				LDW280-28757-3			STRAP ASSY							4B
																						9B
													E			SEE DWG						9B

QTY PER ASSEMBLY

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28561	C

SCALE NONE

SHEET 2.01

ENG 77.2 5-64

01

NAS 9-1100

-51	-49	-47	-45	-25	-23	-13	-43	-9	-7	-41	-3	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
							4		6		4	NAS1132V2	E		BOLT	STD PART						
		2					2		2		2	NAS697A08L	↑		NUT PLATE	↑						
	41					41	41				74	MS51957-26			SCREW							
												MS20470AD5			RIVET							
												MS20426AD3			RIVET							
		A/R					A/R		AS R.		AS R.	AN960D8			WASHER	↓						
		A/R					A/R		AS R.		AS R.	AN960D6			↑							
	A/R					A/R	A/R				AS R.	AN960D416L			↓	STD PART						
AS R.		A/R		AS.R.	AS R.		A/R		AS R.	AS R.	AS R.	GW10H-3			WASHER	GRUMMAN STD						
A/R	A/R	A/R		AS R.	AS R.							GT835P-8			TAPE (POLYIMIDE)	↑						
	5					5	5	8			5	GT535G-LSC-0006			TAPE							
	4					4						GT535-LSC-0014			TAPE							
		A/R					A/R		AS R		AS R.	GT535B-2-100			TAPE (PATCH)							
				AS R.	AS R.							GS577A-1			STAPLE							
	8					8	8					GS20D-06-14			SCREW							
	25					25	25					GS20D-06-8			SCREW	↓						
AS R		A/R		AS R	AS R		A/R		AS R	AS R.	AS R.	GR11B-1			RETAINER	GRUMMAN STD						
			1									LDW280P18138-15			SKIN	SEE DWG						5A
	2					2	2				2	LDW280P18091-7			PATCH	↕						20D
	5					5	5				5	LDW280P18091-5	↓		PATCH	↓						11C
	2					2	2				2	LDW280P18091-3	E		PATCH	SEE DWG						19B

QTY PER ASSEMBLY

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28561	C

SCALE NONE

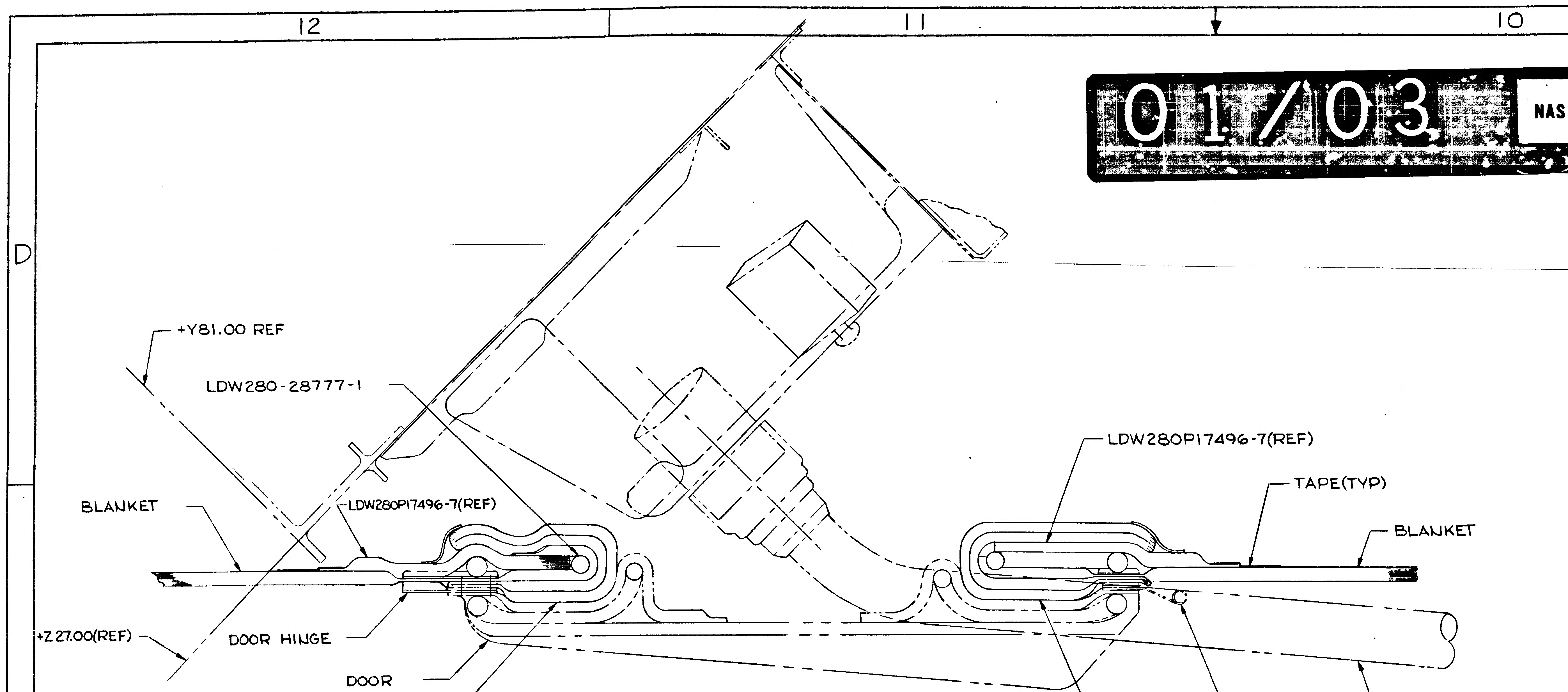
SHEET 2.02

ENG 77.2 5-64

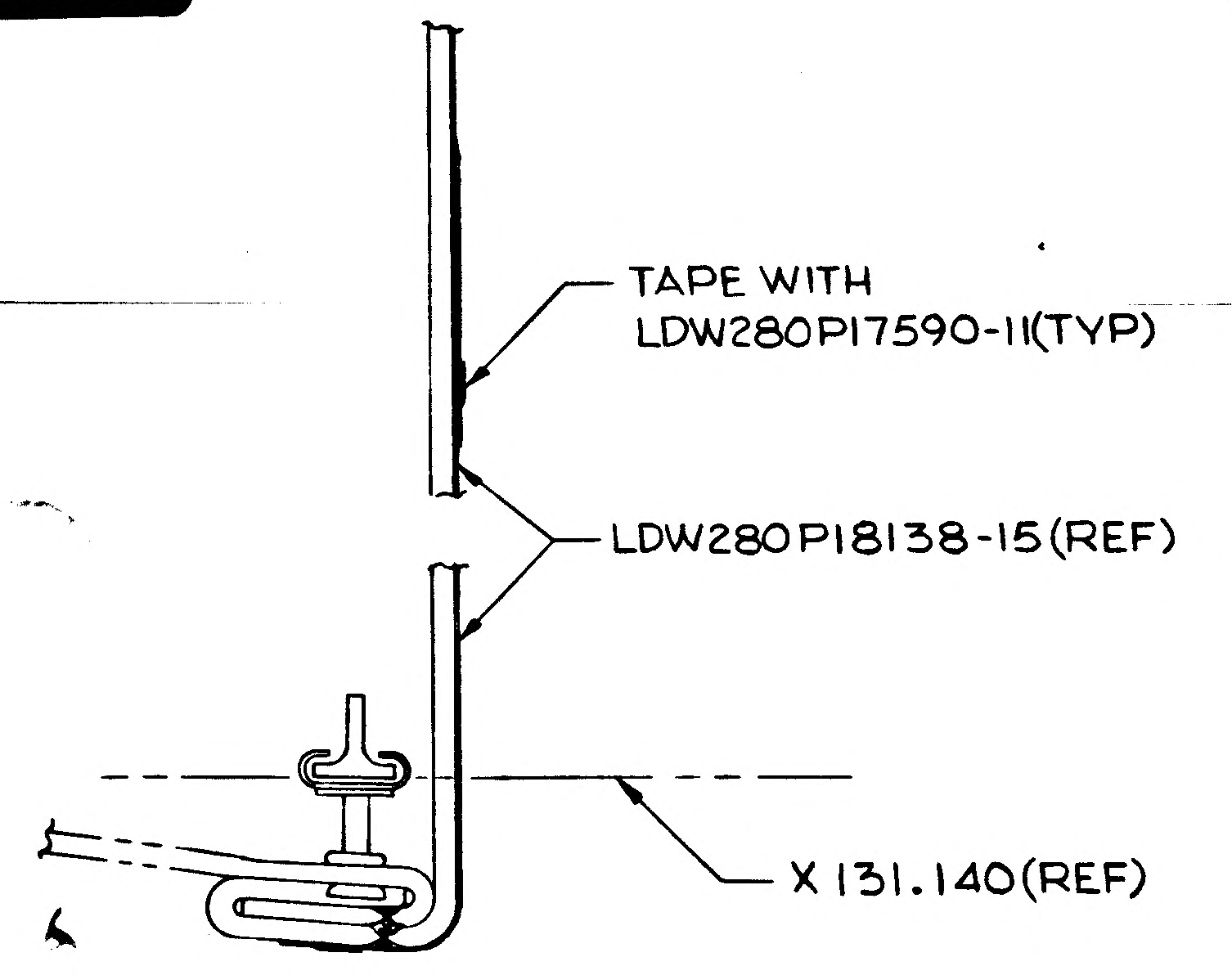
01

NAS 9-1100

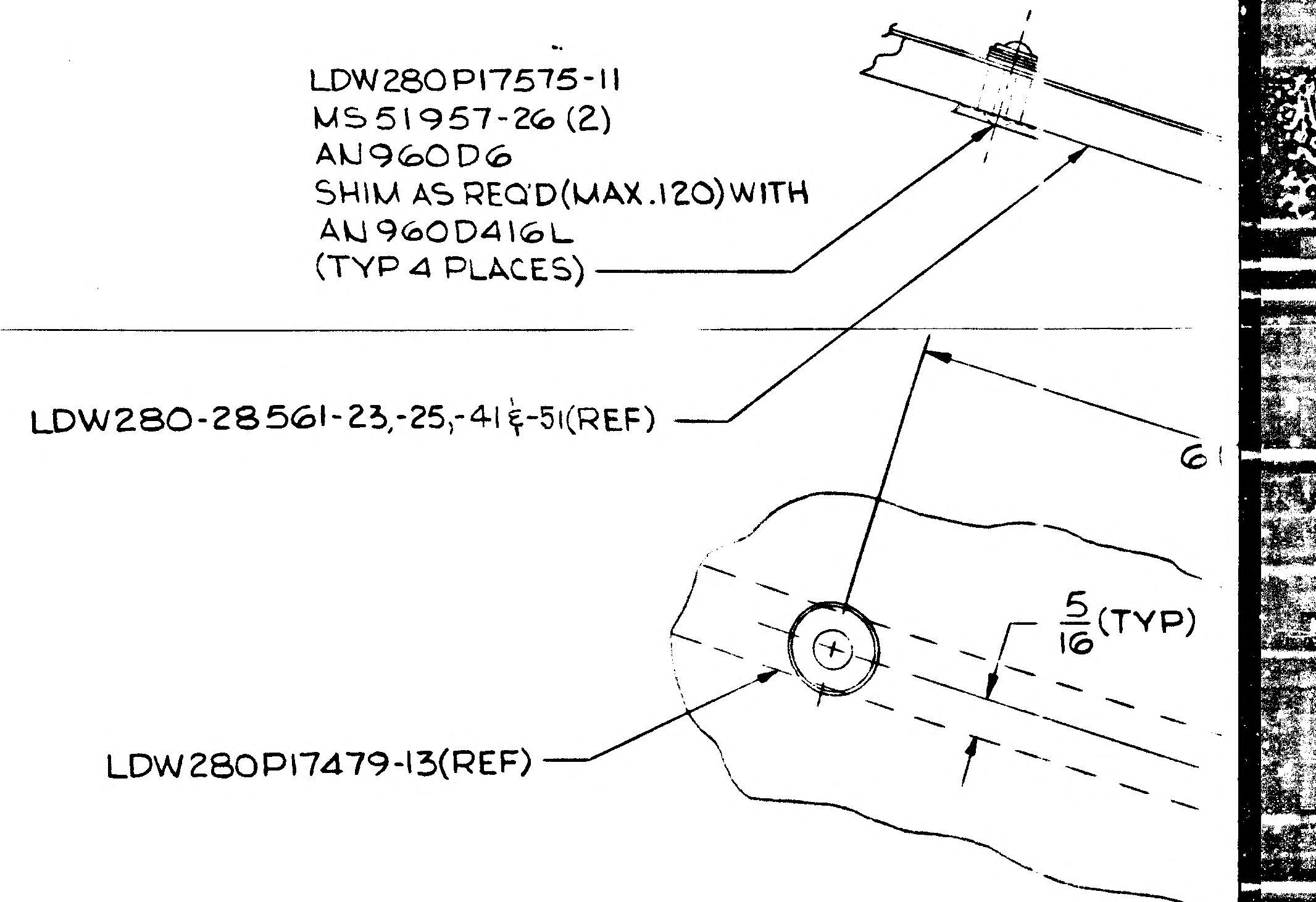
01/03 NAS 9-1100


+Y81.00 REF
LDW280-28777-1
BLANKET
LDW280P17496-7(REF)
+Z 27.00(REF)
DOOR HINGE
DOOR
LDW280P18091-5(REF)
LDW280P17496-7(REF)
TAPE(TYP)
BLANKET
TAB (REF)
POWER CABLE (REF)
LDW280P18091-5 (REF)

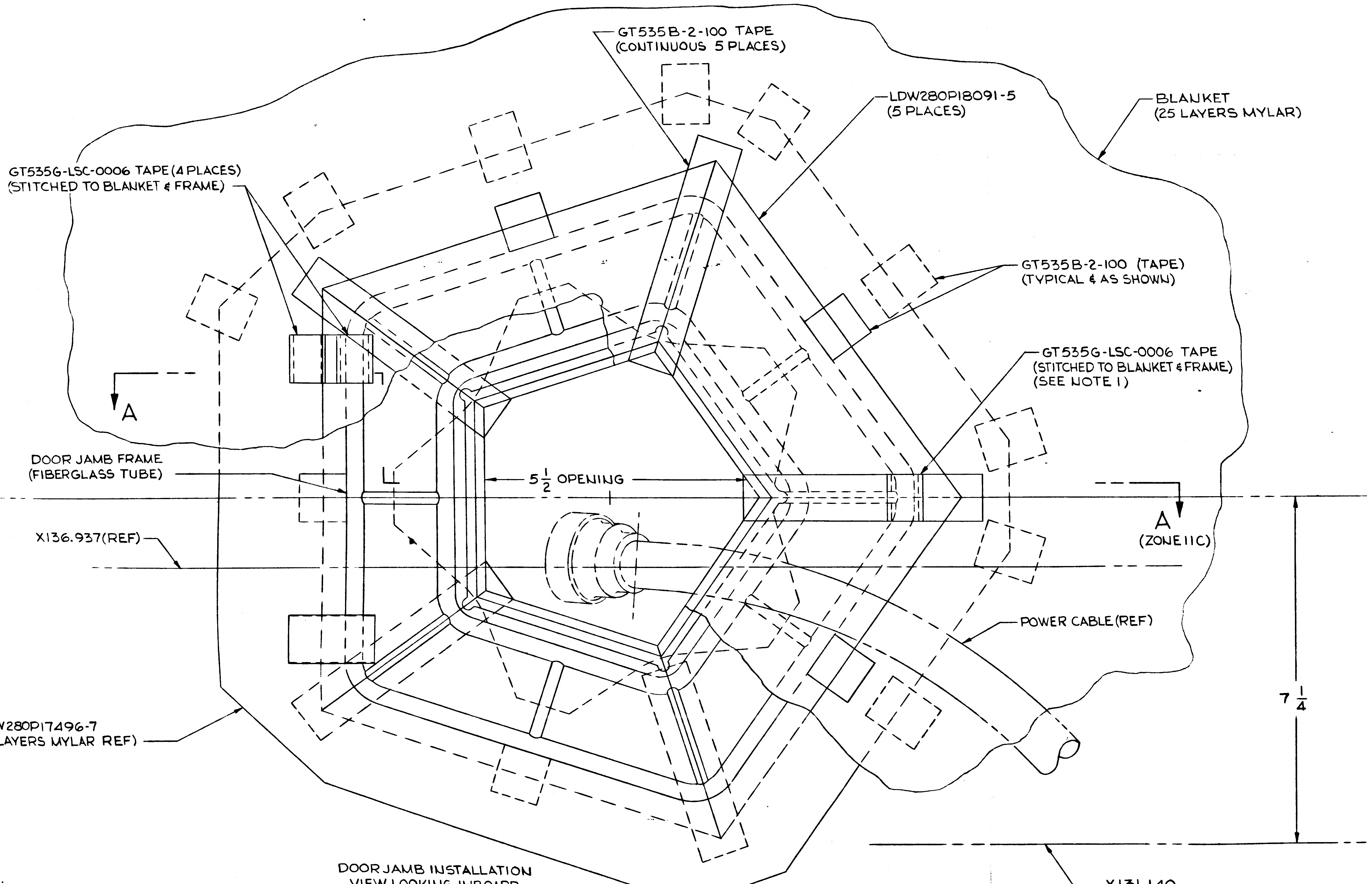
SECTION A-A
(ZONE 10 B)


TAPE WITH
LDW280P17590-11(TYP)
LDW280P18138-15(REF)
X 131.140(REF)

SECTION T-T (ZONE 4A)
(B1) HALF SIZE


LDW280P17575-11
MS51957-26 (2)
AN960D6
SHIM AS REQ'D(MAX.120) WITH
AN960D416L
(TYP 4 PLACES)
LDW280-28561-23,-25,-41 & -51(REF)
6
$\frac{5}{16}$(TYP)
LDW280P17479-13(REF)

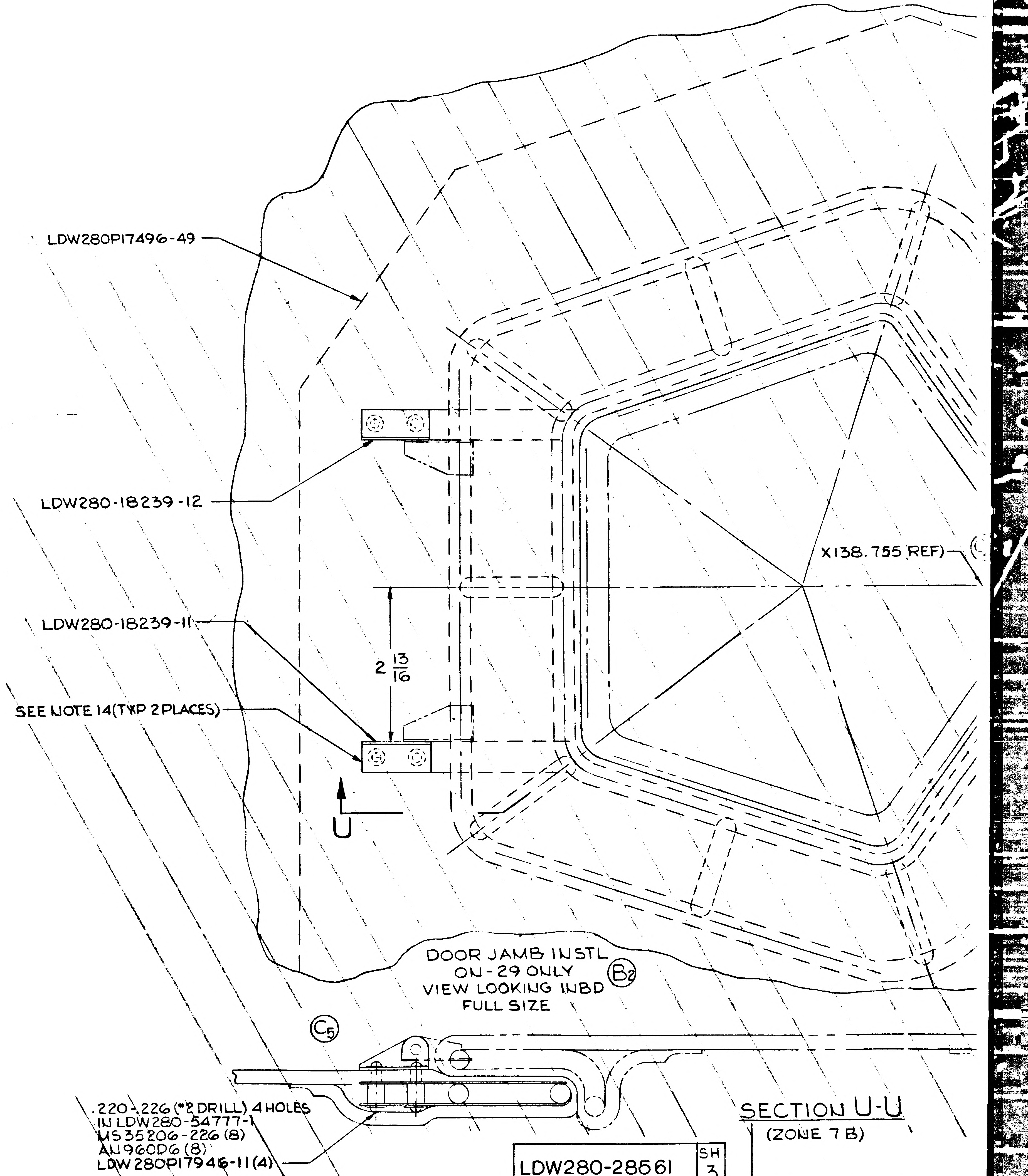
DETAIL K
FULL SIZE


GT535B-2-100 TAPE
(CONTINUOUS 5 PLACES)
LDW280P18091-5
(5 PLACES)
BLANKET
(25 LAYERS MYLAR)
GT535G-LSC-0006 TAPE (4 PLACES)
(STITCHED TO BLANKET & FRAME)
GT535B-2-100 (TAPE)
(TYPICAL & AS SHOWN)
GT535G-LSC-0006 TAPE
(STITCHED TO BLANKET & FRAME)
(SEE NOTE 1)
A
DOOR JAMB FRAME
(FIBERGLASS TUBE)
$5\frac{1}{2}$ OPENING
A
(ZONE 11C)
X136.937(REF)
POWER CABLE (REF)
$7\frac{1}{4}$
LDW280P17496-7
(25 LAYERS MYLAR REF)

DOOR JAMB INSTALLATION
VIEW LOOKING INBOARD
(DOOR NOT SHOWN)
FULL SIZE

X131.140
BOTTOM OF LWR DIAGONAL
AS SHOWN IN SECTION D-D

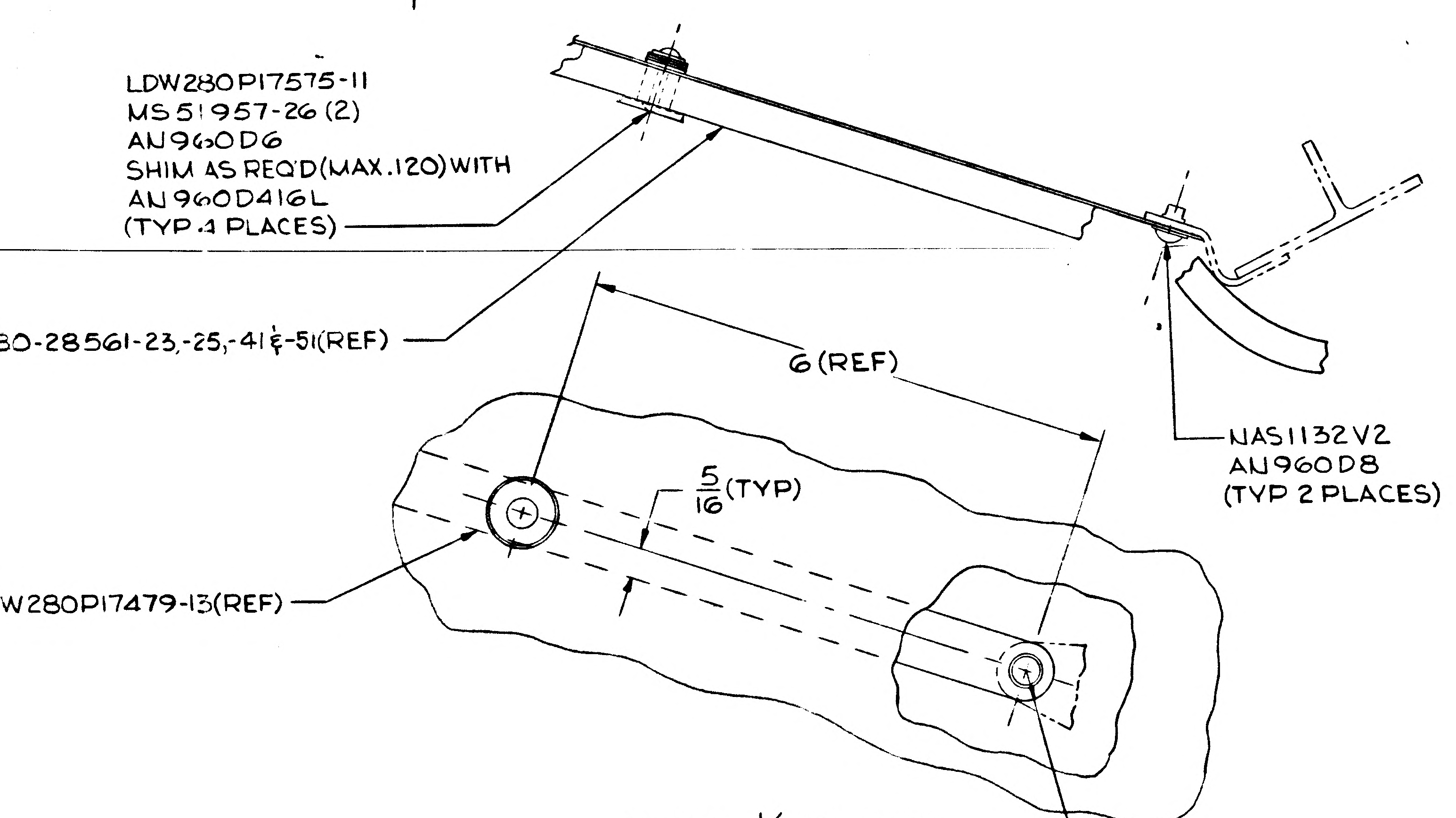
DETAIL F (ZONE 5A)


LDW280P17496-49
LDW280-18239-12
X138.755 REF)
LDW280-18239-11
$2\frac{13}{16}$
SEE NOTE 14(TYP 2 PLACES)
U
(C5)
.220-.226 (#2 DRILL) 4 HOLES
IN LDW280-54777-1
MS35206-226 (8)
AN960D6 (8)
LDW280P17946-11(4)

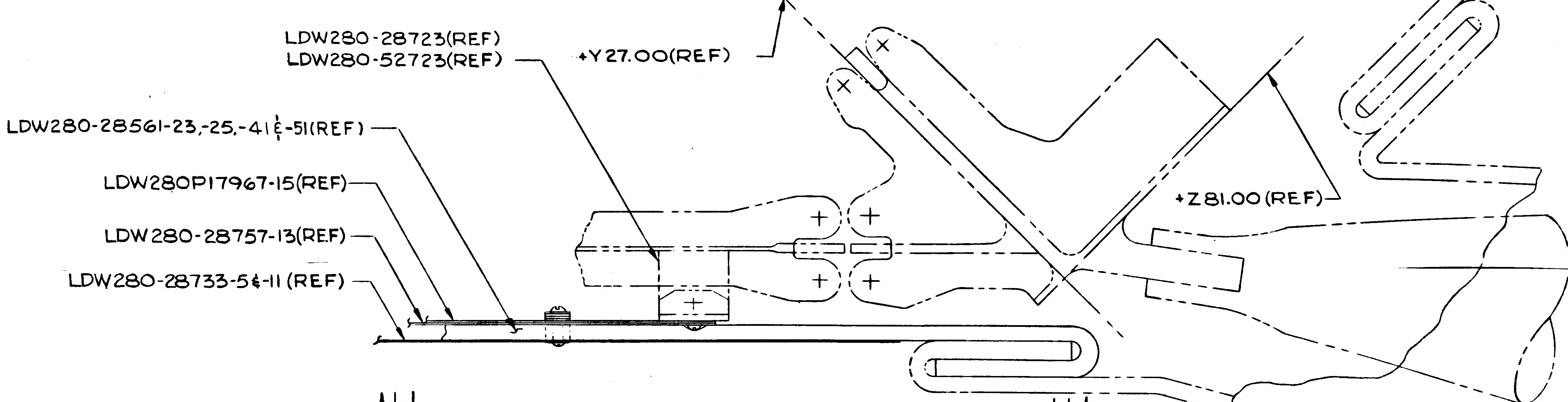
DOOR JAMB INSTL
ON-29 ONLY (B2)
VIEW LOOKING INBD
FULL SIZE

SECTION U-U
(ZONE 7 B)

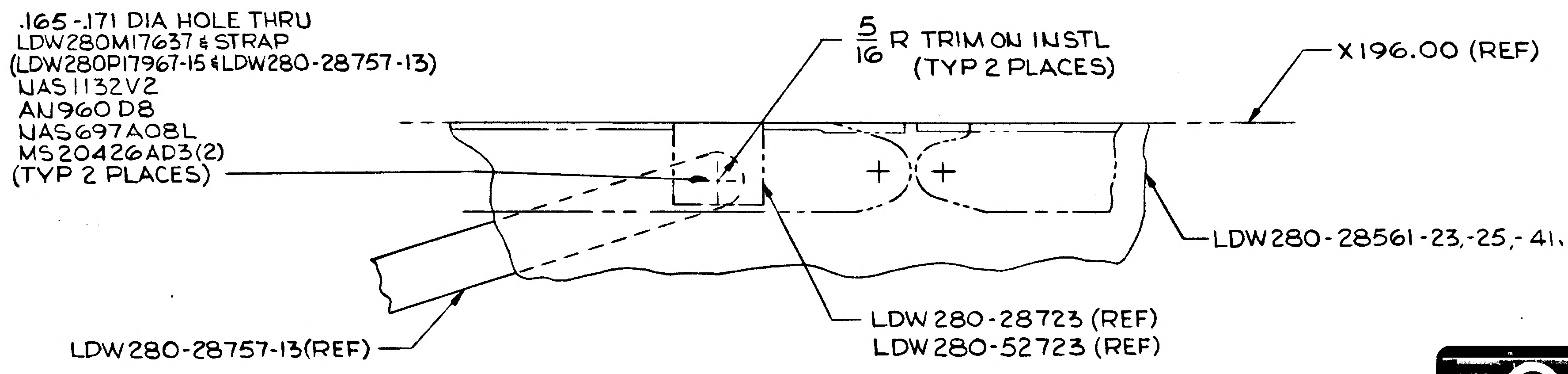
LDW280-28561	SH 3


LDW280P17575-11
MS51957-26(2)
AN960D6
SHIM AS REQ'D(MAX.120)WITH
AN960D416L
(TYP 4 PLACES)
0-28561-23,-25,-41&-51(REF)
6(REF)
NAS1132V2
AN960D8
(TYP 2 PLACES)
5/16(TYP)
W280P17479-13(REF)
5/16 R TRIM ON INSTL
(TYP 2 PLACES)

DETAIL K (ZONE 3B)
FULL SIZE

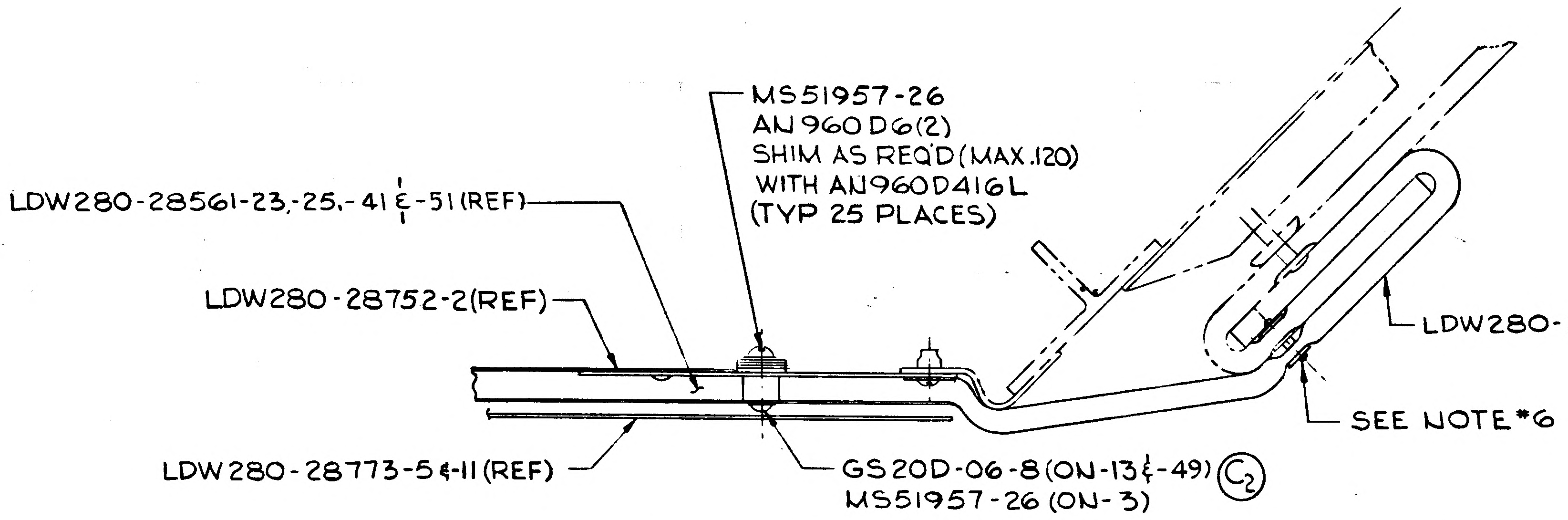

LDW280-28723(REF)
LDW280-52723(REF)
+Y27.00(REF)
LDW280-28561-23,-25,-41&-51(REF)
LDW280P17967-15(REF)
LDW280-28757-13(REF)
LDW280-28733-5&-11(REF)
+Z81.00(REF)
H
H

DETAIL G (ZONE 3D)
FULL SIZE

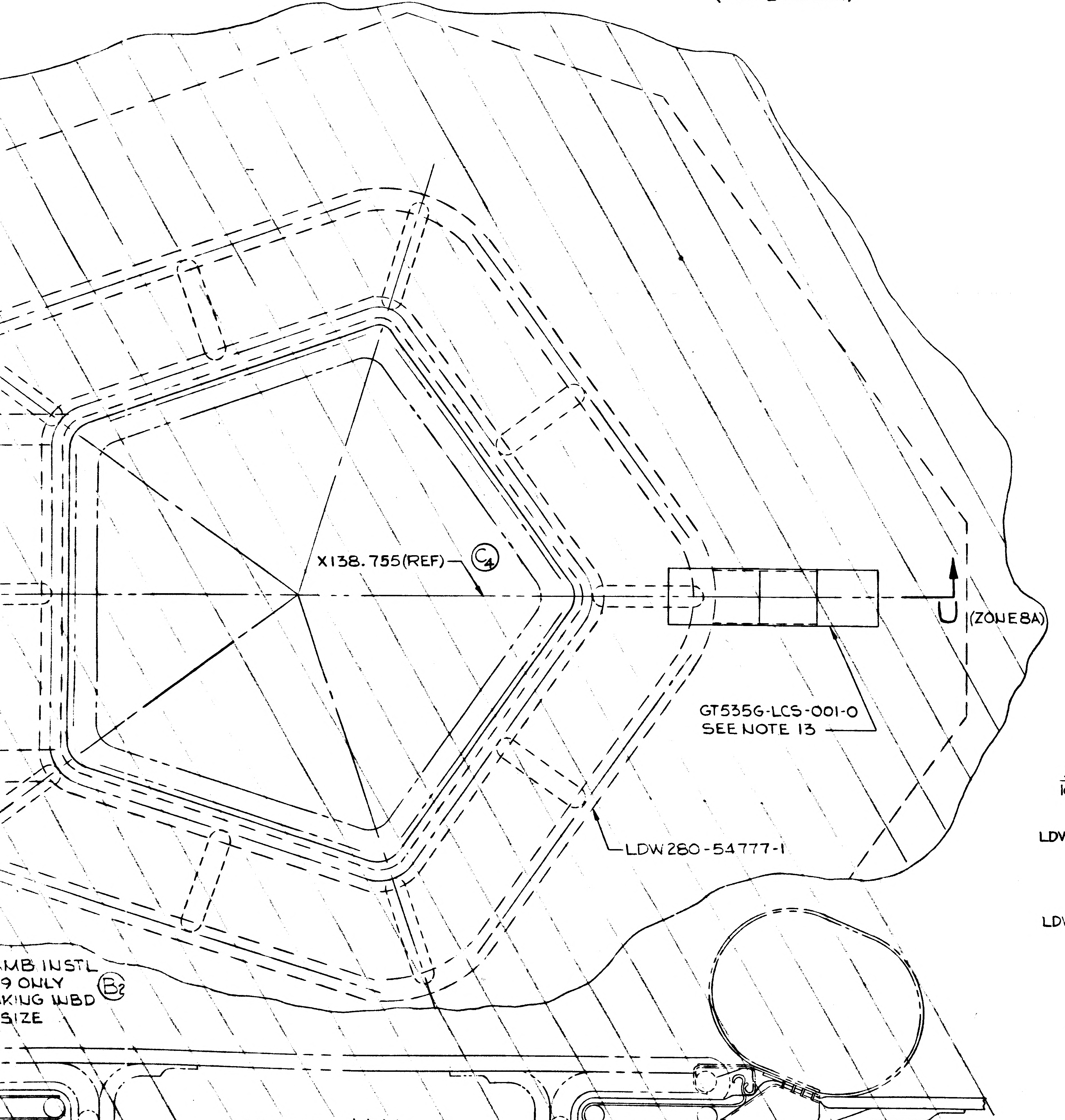

.165-.171 DIA HOLE THRU
LDW280M17637 & STRAP
(LDW280P17967-15 & LDW280-28757-13)
NAS1132V2
AN960D8
NAS697A08L
MS20426AD3(2)
(TYP 2 PLACES)
5/16 R TRIM ON INSTL
(TYP 2 PLACES)
X196.00 (REF)
LDW280-28561-23,-25,-41,&51(REF)
LDW280-28723 (REF)
LDW280-52723 (REF)
LDW280-28757-13(REF)

VIEW H-H

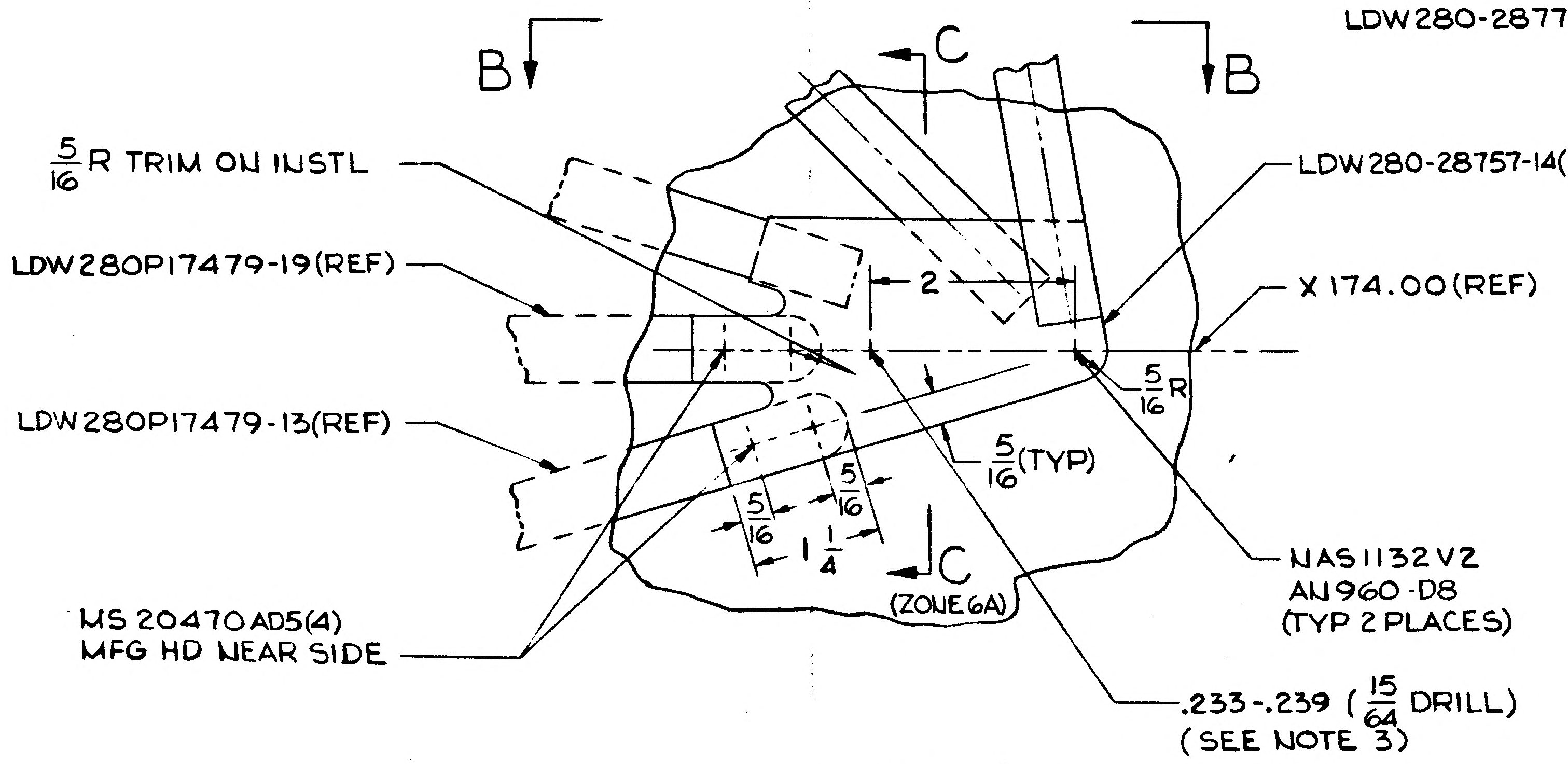
0-2/0-3 **NAS 9-1100**


MS51957-26
AN960D6(2)
SHIM AS REQ'D(MAX.120)
WITH AN960D416L
(TYP 25 PLACES)
LDW280-28561-23,-25,-41&-51(REF)
LDW280-28752-2(REF)
LDW280-28561-23,-25,-41&-51 (REF)
SEE NOTE*6
LDW280-28773-5&-11(REF)
GS20D-06-8(ON-13&-49) C2
MS51957-26 (ON-3)

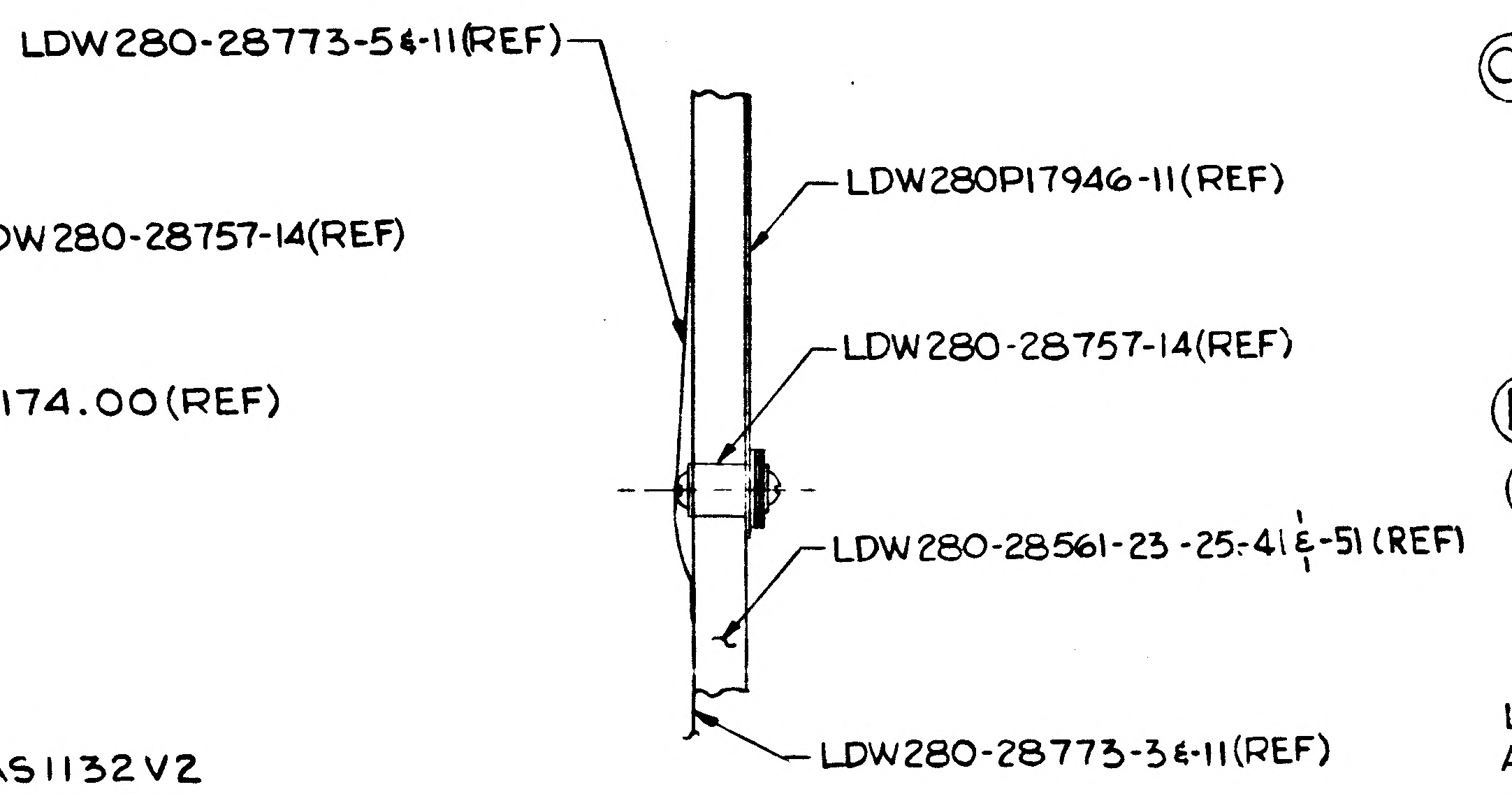
VIEW B-B


X138.755(REF) C4
U (ZONE 8A)
GT535G-LCS-001-0
SEE NOTE 13
LDW280-54777-1
MB INSTL
9 ONLY
KING INBD B2
SIZE

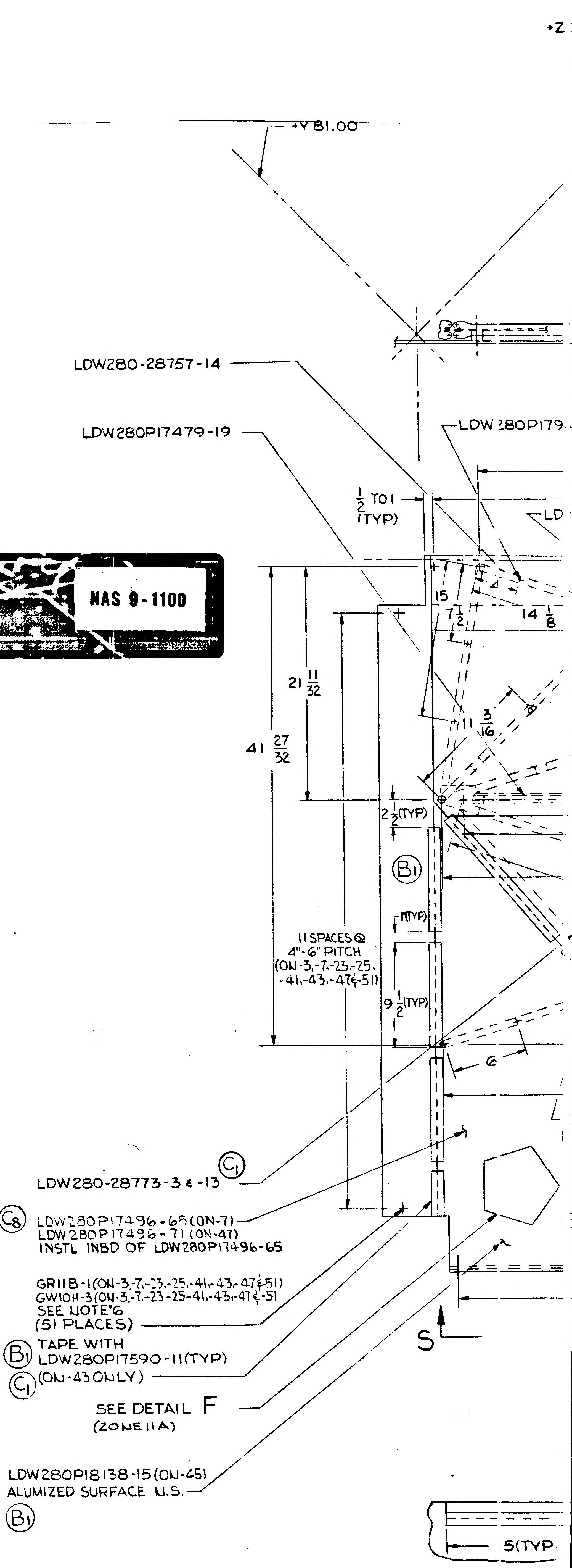
SECTION U-U
(ZONE 7B)

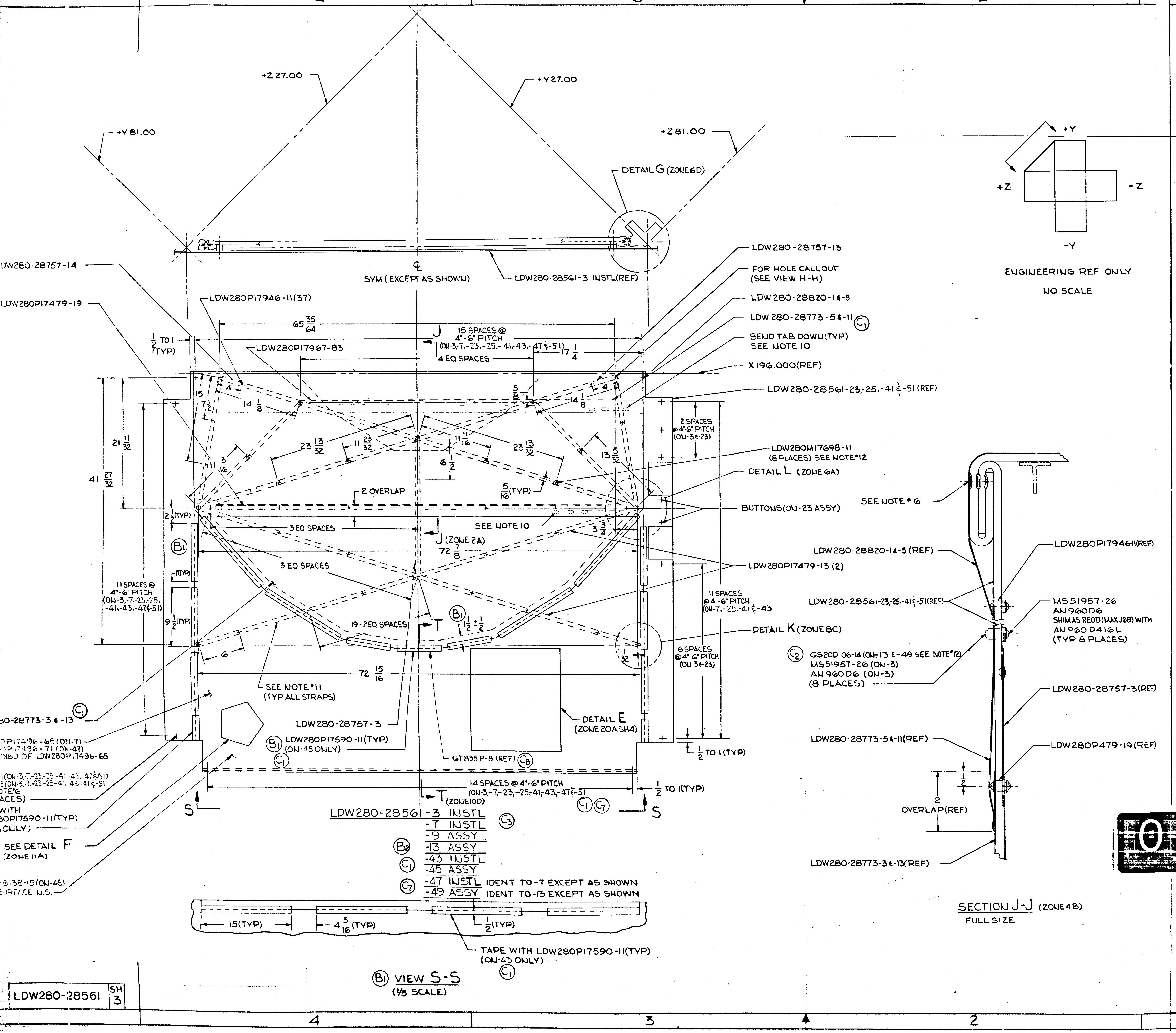

B
C
B
5/16 R TRIM ON INSTL
LDW280P17479-19(REF)
LDW280P17479-13(REF)
LDW280-28757-14(REF)
X174.00(REF)
2
5/16 R
5/16(TYP)
5/16
1 1/4
5/16
C
(ZONE 6A)
NAS1132V2
AN960-D8
(TYP 2 PLACES)
MS20470AD5(4)
MFG HD NEAR SIDE
.233-.239 (15/64 DRILL)
(SEE NOTE 3)

DETAIL L (ZONE 3C)
FULL SIZE


LDW280-28773-5&-11(REF)
LDW280P17946-11(REF)
LDW280-28757-14(REF)
LDW280-28561-23-25-41&-51(REF)
LDW280-28773-3&-11(REF)

SECTION C-C
(ZONE 6A)


+Z
+Y81.00
LDW280-28757-14
LDW280P17479-19
LDW280P179
LD
1/2 TO 1
(TYP)
15
7 1/2
14 1/8
21 11/32
41 27/32
11 3/16
2 1/2(TYP)
B1
1(TYP)
11 SPACES @
4"-6" PITCH
(ON-3,-7,-23,-25,
-41,-43,-47&-51)
9 1/2(TYP)
6
LDW280-28773-3&-13 C1
C8 LDW280P17496-65(ON-7)
LDW280P17496-71(ON-47)
INSTL INBD OF LDW280P17496-65
GR11B-1(ON-3,-7,-23,-25,-41,-43,-47&-51)
GW10H-3(ON-3,-7,-23-25-41,-43,-47&-51
SEE NOTE 6
(51 PLACES)
B1 TAPE WITH
LDW280P17590-11(TYP)
C1 (ON-43 ONLY)
SEE DETAIL F
(ZONE 11A)
LDW280P18138-15(ON-45)
ALUMIZED SURFACE N.S.
B1
S
5(TYP


4
3
2
+Z 27.00
+Y27.00
+Y 81.00
+Z 81.00
DETAIL G (ZONE 6D)
℄
SYM (EXCEPT AS SHOWN)
LDW280-28561-3 INSTL(REF)
DW280-28757-14
DW280P17479-19
LDW280P17946-11(37)
LDW280-28757-13
FOR HOLE CALLOUT (SEE VIEW H-H)
LDW 280-28820-1 & -5
LDW 280-28773-5 & -11 (C1)
BEND TAB DOWN(TYP) SEE NOTE 10
X196.000(REF)
LDW280-28561-23,-25,-41 & -51 (REF)
LDW280M17698-11 (8 PLACES) SEE NOTE*12
DETAIL L (ZONE 6A)
BUTTONS(ON-23 ASSY)
LDW280P17479-13 (2)
DETAIL K(ZONE 8C)
DETAIL E (ZONE 20A SH4)
65 35/64
1/2 TO 1 (TYP)
J
15 SPACES @ 4"-6" PITCH (ON-3,-7,-23,-25,-41,-43,-47 & -51)
LDW280P17967-83
4 EQ SPACES
17 1/4
2 SPACES @4"-6" PITCH (ON-3 & -23)
21 11/32
41 27/32
23 13/32
11 23/32
11 11/16
6 1/2
13 5/32
5/16(TYP)
2 OVERLAP
SEE NOTE 10
3 EQ SPACES
J (ZONE 2A)
72 7/8
3 3/4
11 SPACES @ 4"-6" PITCH (ON-3,-7,-23,-25,-41,-43,-47 & -51)
11 SPACES @4"-6" PITCH (ON-7,-25,-41 & -43)
6 SPACES @4"-6" PITCH (ON-3 & -23)
19-2 EQ SPACES
T
1 1/2
72 15/16
SEE NOTE*11 (TYP ALL STRAPS)
80-28773-3 & -13 (C1)
0P17496-65(ON-7)
0P17496-71 (ON-47)
INBD OF LDW280P17496-65
1(ON-3,-7,-23,-25,-41,-43,-47 & -51)
3(ON-3,-7,-23-25-41,-43,-47 & -51
OTE*6
ACES)
WITH
80P17590-11(TYP)
ONLY)
SEE DETAIL F (ZONE 11A)
8138-15(ON-45)
SURFACE N.S.
LDW280-28757-3
LDW280P17590-11(TYP) (ON-45 ONLY) (C1)
GT835 P-8 (REF) (C8)
14 SPACES @ 4"-6" PITCH (ON-3,-7,-23,-25,-41,-43,-47 & -51)
T (ZONE 10D)
1/2 TO 1(TYP)
S
S
+Y
+Z
-Z
-Y
ENGINEERING REF ONLY
NO SCALE
SEE NOTE*6
LDW280-28820-1 & -5 (REF)
LDW280P17946-11(REF)
LDW280-28561-23,-25,-41 & -51(REF)
MS 51957-26
AN960D6
SHIM AS REQD (MAX.128) WITH
AN960 D416L
(TYP 8 PLACES)
(C2) GS20D-06-14 (ON-13 & -49 SEE NOTE*12)
MS51957-26 (ON-3)
AN960D6 (ON-3)
(8 PLACES)
LDW280-28757-3(REF)
LDW280-28773-5 & -11(REF)
LDW280P479-19(REF)
2 OVERLAP(REF)
LDW280-28773-3 & -13(REF)
SECTION J-J (ZONE 4B)
FULL SIZE
LDW280-28561-3 INSTL (C3)
-7 INSTL
-9 ASSY
(B8) -13 ASSY
(C1) -43 INSTL
-45 ASSY
(G7) -47 INSTL IDENT TO -7 EXCEPT AS SHOWN
-49 ASSY IDENT TO -13 EXCEPT AS SHOWN
15(TYP)
4 3/16 (TYP)
1/2 (TYP)
TAPE WITH LDW280P17590-11(TYP) (ON-43 ONLY) (C1)
(B1) VIEW S-S
(1/5 SCALE)

03/03

NAS 9-1100

NOTES

1. SEW TAPE, GT535G-HCS(SEE DWG) AT 3/16 ± 1/16 FROM EDGE OF TAPE IN ACCORDANCE WITH FED STD.*751a & STITCH TYPE 301. THREAD TO BE SAGE GREEN, SIZE E, MILT-7807, TYPE II, CLASS I NYLON THREAD. MAY BE PURCHASED FROM THREADS, INC. GASTONIA N. CAROLINA, CODE IDENT 19937.
2. BOND LDW280P17946-11 TO STRAPS USING EPON *934 ADHESIVE PER LSP14-22500.
3. HOLE SIZES AT STANDOFFS SHALL BE AS FOLLOWS:
   STRAPS: .233-.239 DIA(15/64 DRILL)
   BLANKETS: 17/32 DIA
   PLUME IMPINGEMENT SHIELD: .139-.145 DIA (*28 DRILL).
4. DELETED
5. ALL INFORMATION NOT REQ,D FOR MFG OF THIS INSTALLATION FOR ENGINEER REFERENCE ONLY.
6. INSTALL PER LPC-280-3.
7. INSTALL PER LPC-280-2.
8. ✱ INDICATES 5% EXPANDED DIM'S (ON-17,-21 & -39).
9. ✱✱ INDICATES 7% EXPANDED DIM'S (ON-15,-19 & -53).
10. BEND TAB DOWN PER LPC 280-10.
11. WRAP STRAPS WITH GT835M-8 TAPE.
12. △ INDICATES LOCATION OF LDW280M17698-11 WASHER (ON-13,-43 & -49)
13. STITCH TAPE TO FRAME, THREAD TO BE SAGE GREEN SIZE E SPEC MIL-T-7807 TYPE II, CLASS I NYLON THREAD MAY BE PURCHASED FROM THREAD INC. GASTONIA NORTH CAROLINA CODE IDENT 19937 SEW TAPE GT535G AT 3/16 ± 1/16 FROM EDGE OF TAPE IN ACCORDANCE WITH FED STD * 751a & STITCH TYPE 301.
14. TAPE ALL EXPOSED ALUMINUM & OR FIBERGLASS SURFACES WITH LDW280P17590-11 TAPE.
15. FABRICATE PER LPC280-25.
16. THIS DWG AFFECTED BY LFM-155 WHICH MAY BE USED ON LM-3(33)

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES ~~2 IMPERFECT THREADS MAX.~~	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 132

PRINTING INFO ONLY

FULL SIZE SHEET AREA (36 X 134)= 33.5 SQ. FT.

1/2 SIZE SHEET AREA (1/4 OF FULL)= 8.37 SQ. FT.

PRINT TRIM LINE

D

C

B

A

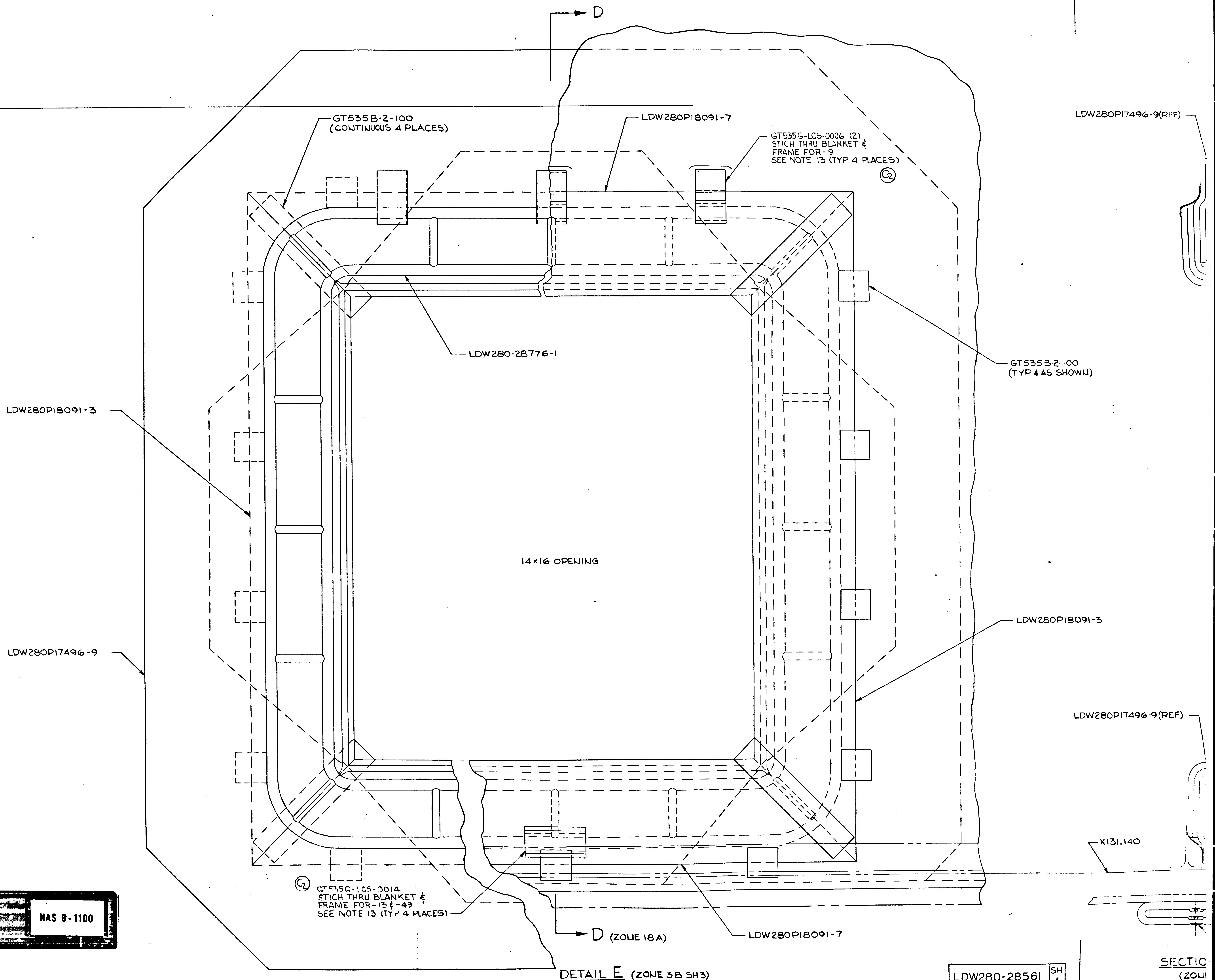
LDW280-28561 C

LDW280-28561 C

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK				
SIZE J	CODE IDENT NO. 26512	LDW280-28561	C	
LM MODEL OR END ITEM	SCALE 1/5 & NOTED		SHEET 3.00	

LDW280-28561 SH 3

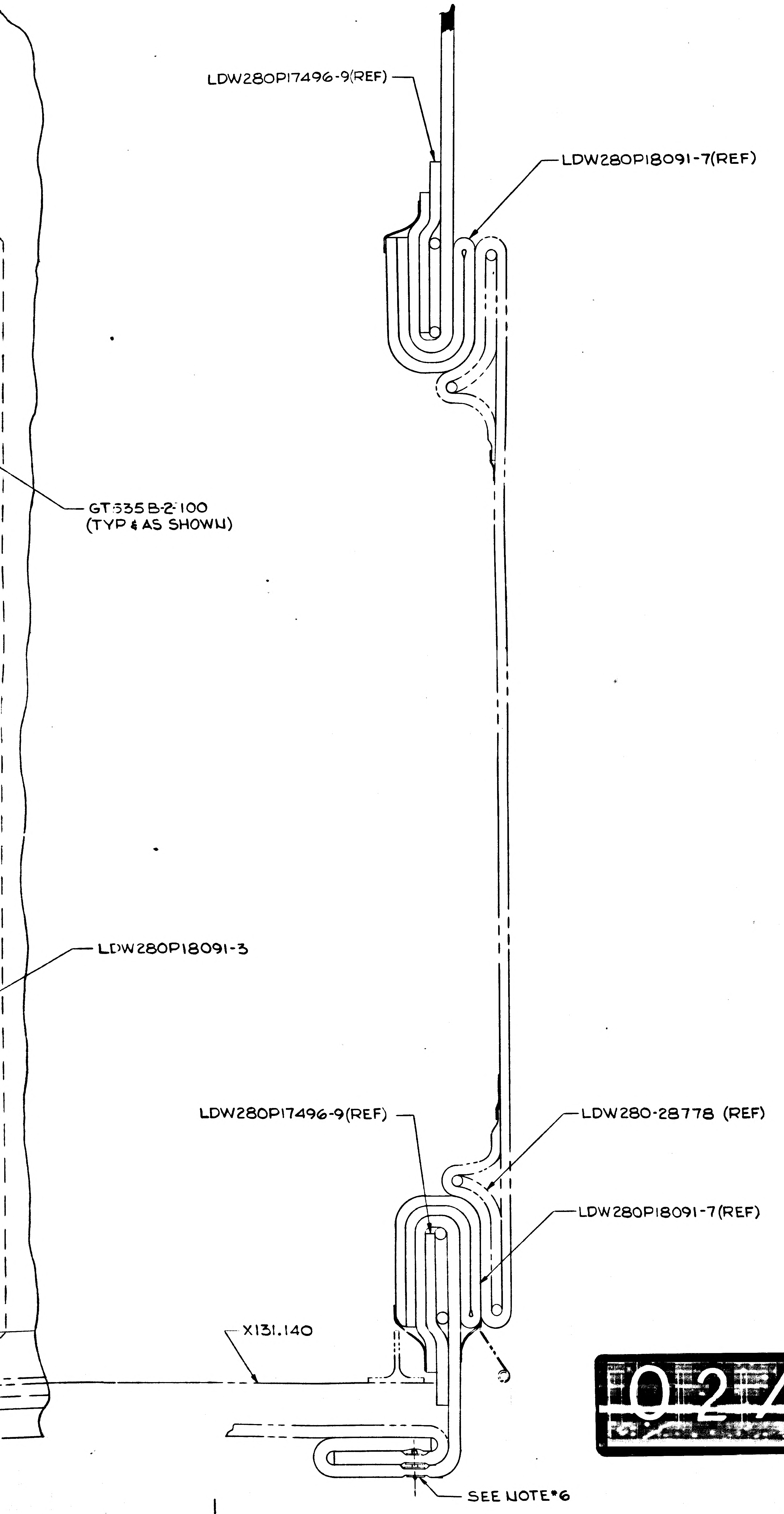
1


D
GT535B-2-100 (CONTINUOUS 4 PLACES)
LDW280P18091-7
GT535G-LCS-0006 (2) STICH THRU BLANKET & FRAME FOR-9 SEE NOTE 13 (TYP 4 PLACES)
C2
LDW280P17496-9(REF)
LDW280-28776-1
GT535B-2-100 (TYP & AS SHOWN)
LDW280P18091-3
14×16 OPENING
LDW280P17496-9
LDW280P18091-3
LDW280P17496-9(REF)
X131.140
C2
GT535G-LCS-0014 STICH THRU BLANKET & FRAME FOR-13 & -49 SEE NOTE 13 (TYP 4 PLACES)
D (ZONE 18A)
LDW280P18091-7
SECTIO
(ZON

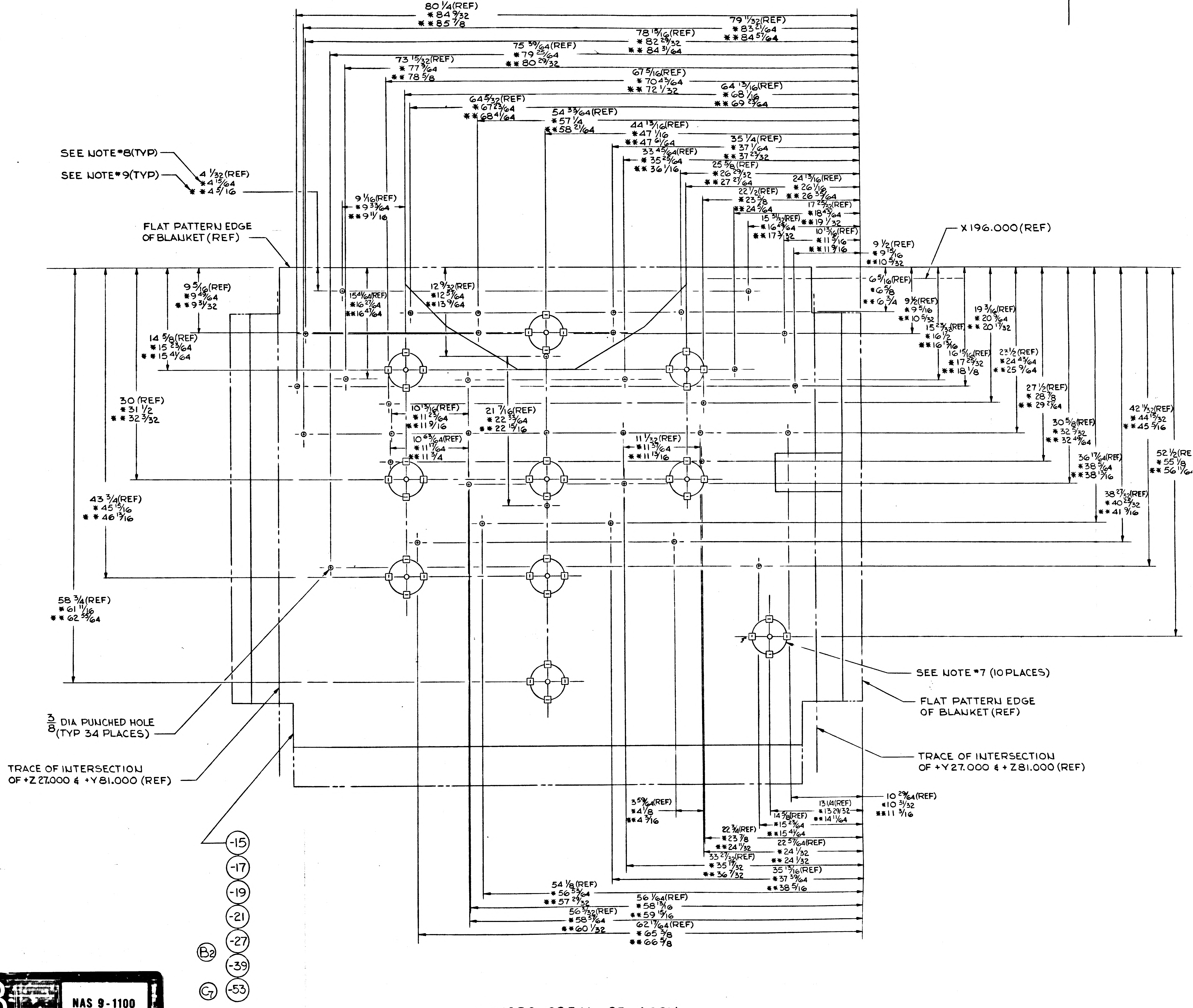
DETAIL E (ZONE 3B SH3)
FULL SIZE

LDW280-28561 SH 4

01/03 NAS 9-1100

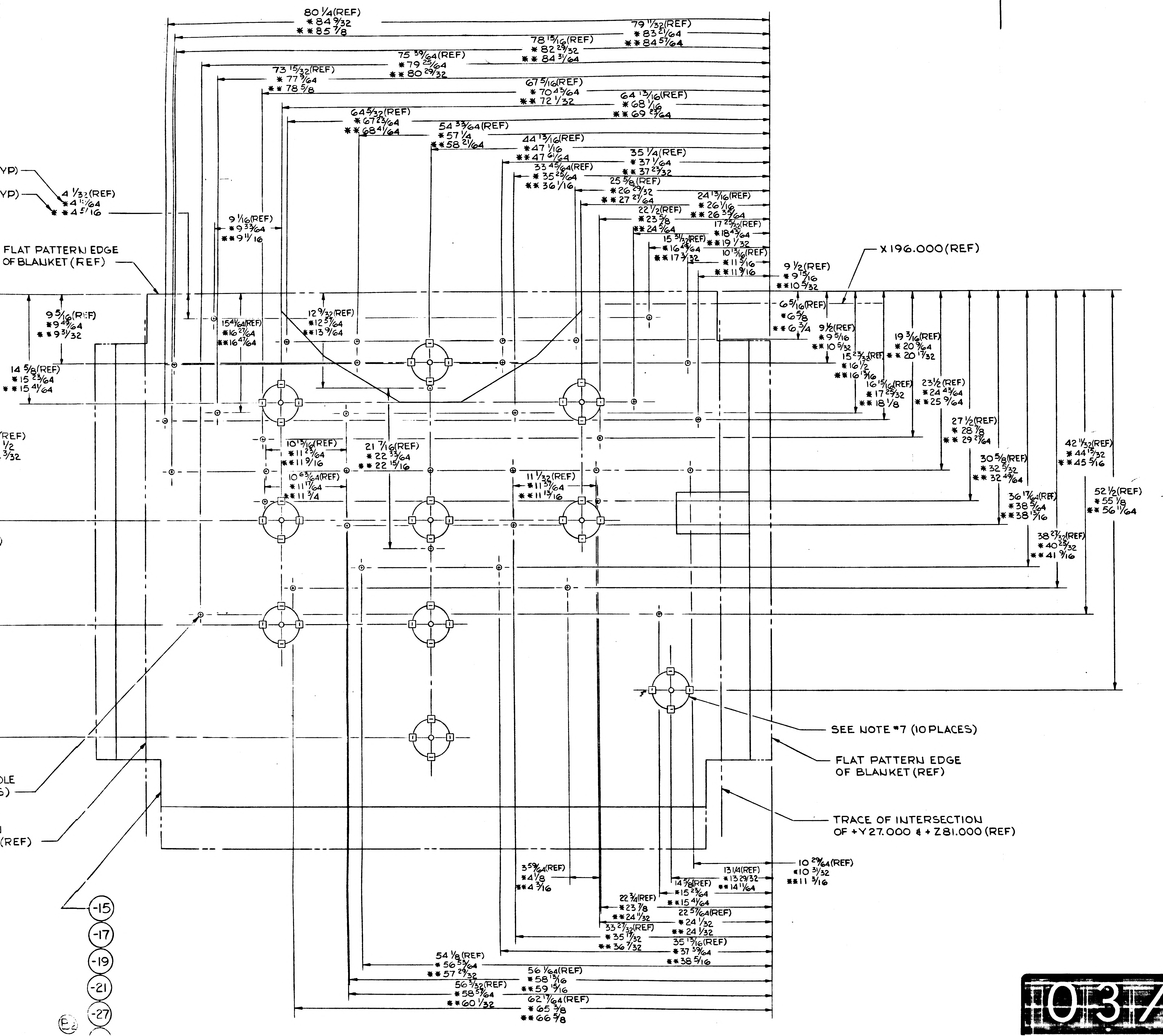

LDW280P17496-9(REF)
LDW280P18091-7(REF)
GT535B-2-100
(TYP & AS SHOWN)
LDW280P18091-3
LDW280P17496-9(REF)
LDW280-28778 (REF)
LDW280P18091-7(REF)
X131.140
SEE NOTE*6

SECTION D-D
(ZONE 20A)


SEE NOTE*8(TYP)
SEE NOTE*9(TYP)
FLAT PATTERN EDGE OF BLANKET (REF)
X196.000(REF)
SEE NOTE*7 (10 PLACES)
FLAT PATTERN EDGE OF BLANKET (REF)
TRACE OF INTERSECTION OF +Y27.000 & +Z81.000 (REF)
3/8 DIA PUNCHED HOLE (TYP 34 PLACES)
TRACE OF INTERSECTION OF +Z27.000 & +Y81.000 (REF)
80 1/4(REF)
79 11/32(REF)
78 13/16(REF)
75 39/64(REF)
73 15/32(REF)
67 5/16(REF)
64 13/16(REF)
64 5/32(REF)
54 33/64(REF)
44 13/16(REF)
35 1/4(REF)
33 45/64(REF)
25 5/16(REF)
24 13/16(REF)
22 1/2(REF)
17 25/32(REF)
15 31/32(REF)
10 13/16(REF)
9 1/2(REF)
6 5/16(REF)
4 1/32(REF)
9 1/16(REF)
9 5/16(REF)
14 5/8(REF)
15 49/64(REF)
12 9/32(REF)
30 (REF)
43 3/4(REF)
58 3/4(REF)
10 15/16(REF)
21 7/16(REF)
10 63/64(REF)
11 1/32(REF)
19 3/16(REF)
15 29/64(REF)
16 15/16(REF)
23 1/2(REF)
27 1/2(REF)
30 5/8(REF)
36 17/64(REF)
38 27/32(REF)
42 1/32(REF)
52 1/2(REF)
10 29/64(REF)
13 1/4(REF)
14 5/8(REF)
3 59/64(REF)
22 3/4(REF)
22 59/64(REF)
33 27/32(REF)
35 15/16(REF)
54 1/8(REF)
56 1/64(REF)
56 5/32(REF)
62 11/64(REF)
-15
-17
-19
-21
-27
-39
-53
B2
G7

LDW280-28561-23 ASSY
-25 ASSY
-41 ASSY
B2 -51 ASSY G7

02/03 NAS 9-1100


16
15
14
13
D
C
B
A
80 1/4(REF)
*84 9/32
**85 7/8
79 11/32(REF)
*83 21/64
**84 57/64
78 15/16(REF)
*82 29/32
**84 31/64
75 39/64(REF)
*79 25/64
**80 29/32
73 15/32(REF)
*77 9/64
**78 5/8
67 5/16(REF)
*70 43/64
**72 1/32
64 13/16(REF)
*68 1/16
**69 23/64
64 5/32(REF)
*67 23/64
**68 41/64
54 33/64(REF)
*57 1/4
**58 21/64
44 13/16(REF)
*47 1/16
**47 61/64
35 1/4(REF)
*37 1/64
**37 23/32
33 45/64(REF)
*35 25/64
**36 1/16
25 5/8(REF)
*26 29/32
**27 27/64
24 13/16(REF)
*26 1/16
**26 35/64
22 1/2(REF)
*23 5/8
**24 5/64
17 25/32(REF)
*18 43/64
**19 1/32
15 31/32(REF)
*16 49/64
**17 3/32
10 13/16(REF)
*11 5/16
**11 9/16
9 1/2(REF)
*9 15/16
**10 5/32
YP)
YP)
4 1/32(REF)
*4 15/64
**4 5/16
9 1/16(REF)
*9 33/64
**9 11/16
FLAT PATTERN EDGE OF BLANKET (REF)
X196.000(REF)
9 5/16(REF)
*9 49/64
**9 31/32
15 41/64(REF)
*16 27/64
**16 47/64
12 9/32(REF)
*12 57/64
**13 9/64
14 5/8(REF)
*15 23/64
**15 41/64
(REF)
1/2
3/32
6 5/16(REF)
*6 5/8
**6 3/4
9 1/2(REF)
*9 5/16
**10 5/32
19 3/16(REF)
*20 9/64
**20 17/32
15 23/32(REF)
*16 1/2
**16 13/16
16 15/16(REF)
*17 25/32
**18 1/8
23 1/2(REF)
*24 43/64
**25 9/64
27 1/2(REF)
*28 7/8
**29 27/64
10 13/16(REF)
*11 23/64
**11 9/16
21 7/16(REF)
*22 33/64
**22 15/16
10 63/64(REF)
*11 17/64
**11 3/4
11 1/32(REF)
*11 33/64
**11 13/16
30 5/8(REF)
*32 5/32
**32 49/64
42 11/32(REF)
*44 15/32
**45 5/16
52 1/2(REF)
*55 1/8
**56 11/64
36 17/64(REF)
*38 5/64
**38 13/16
38 27/32(REF)
*40 25/32
**41 9/16
SEE NOTE *7 (10 PLACES)
FLAT PATTERN EDGE OF BLANKET (REF)
OLE
S)
(REF)
TRACE OF INTERSECTION OF +Y27.000 & +Z81.000 (REF)
10 29/64(REF)
*10 31/32
**11 3/16
3 59/64(REF)
*4 1/8
**4 3/16
13 1/4(REF)
*13 29/32
**14 11/64
14 5/8(REF)
*15 23/64
**15 41/64
22 3/4(REF)
*23 7/8
**24 11/32
22 57/64(REF)
*24 1/32
**24 1/32
33 27/32(REF)
*35 17/32
**36 7/32
35 13/16(REF)
*37 39/64
**38 5/16
54 1/8(REF)
*56 53/64
**57 29/32
56 1/64(REF)
*58 13/16
**59 15/16
56 3/32(REF)
*58 57/64
**60 1/32
62 17/64(REF)
*65 3/8
**66 5/8
-15
-17
-19
-21
-27
B2
G

LDW280-28561-23 ASSY
-25 ASSY
-41 ASSY
Ⓑ2 -51 ASSY Ⓖ

03/03 NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 110

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 112)= 28 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 7 SQ. FT.

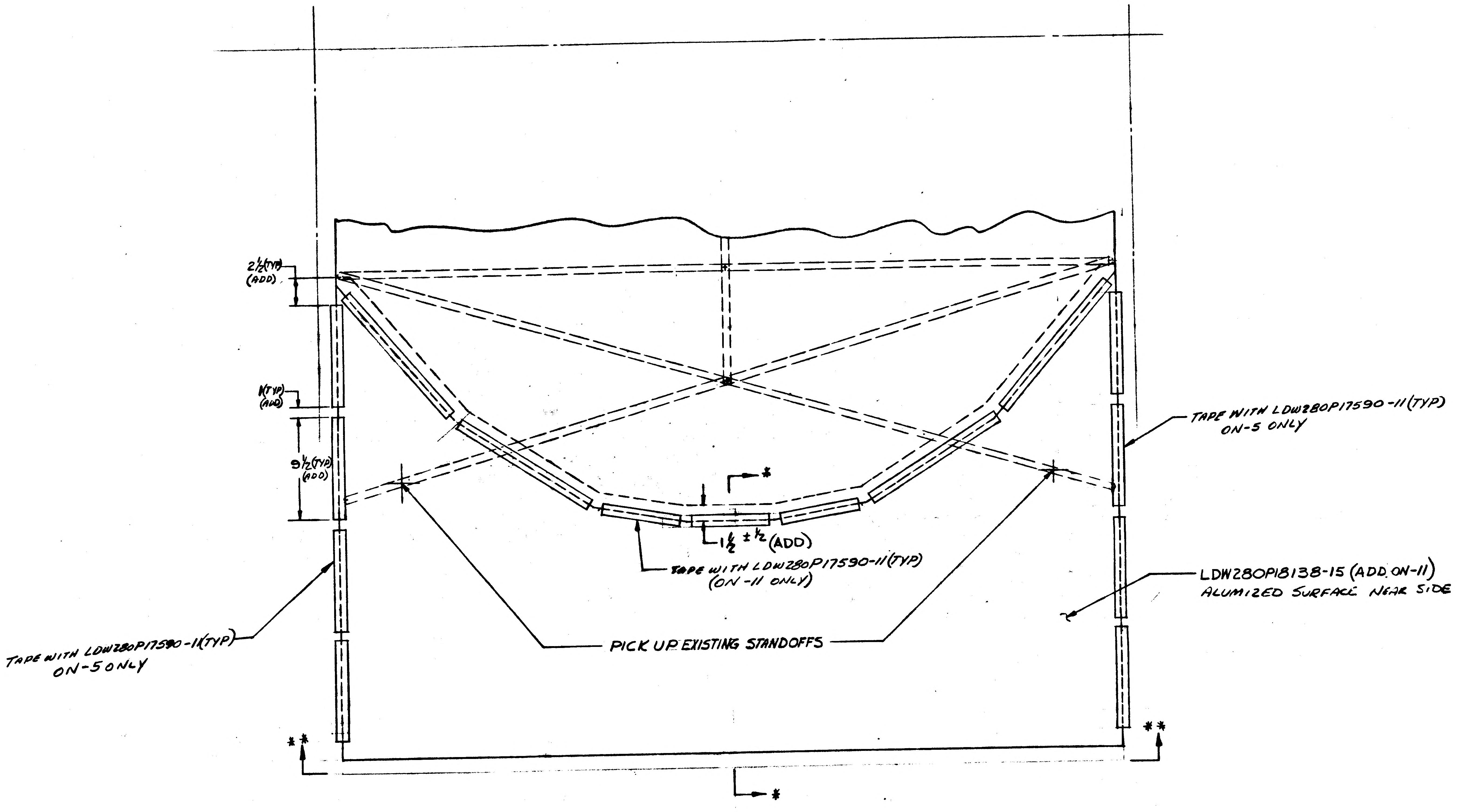
PRINT TRIM LINE

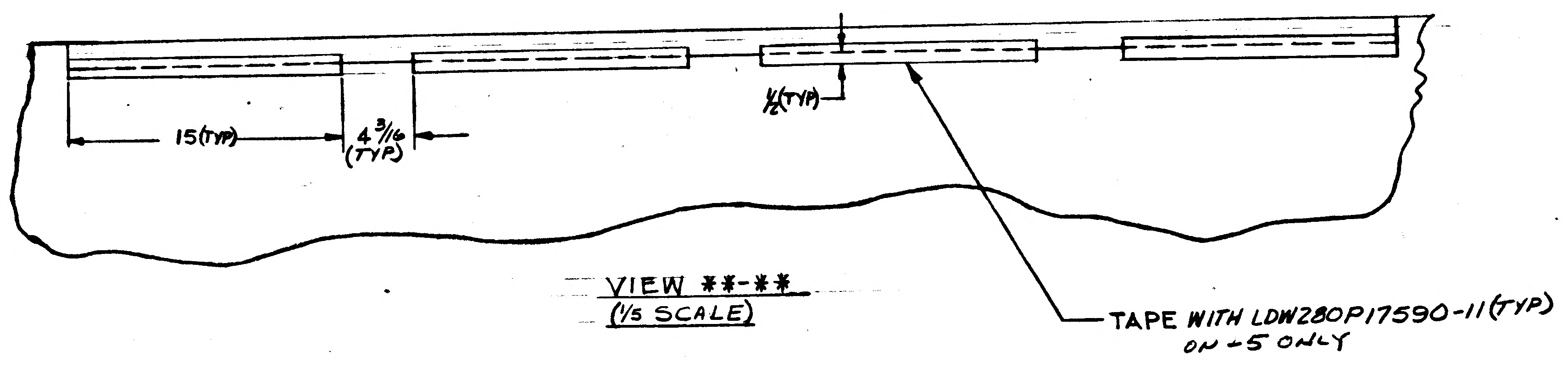
LDW280-28561 C

LDW280-28561 C

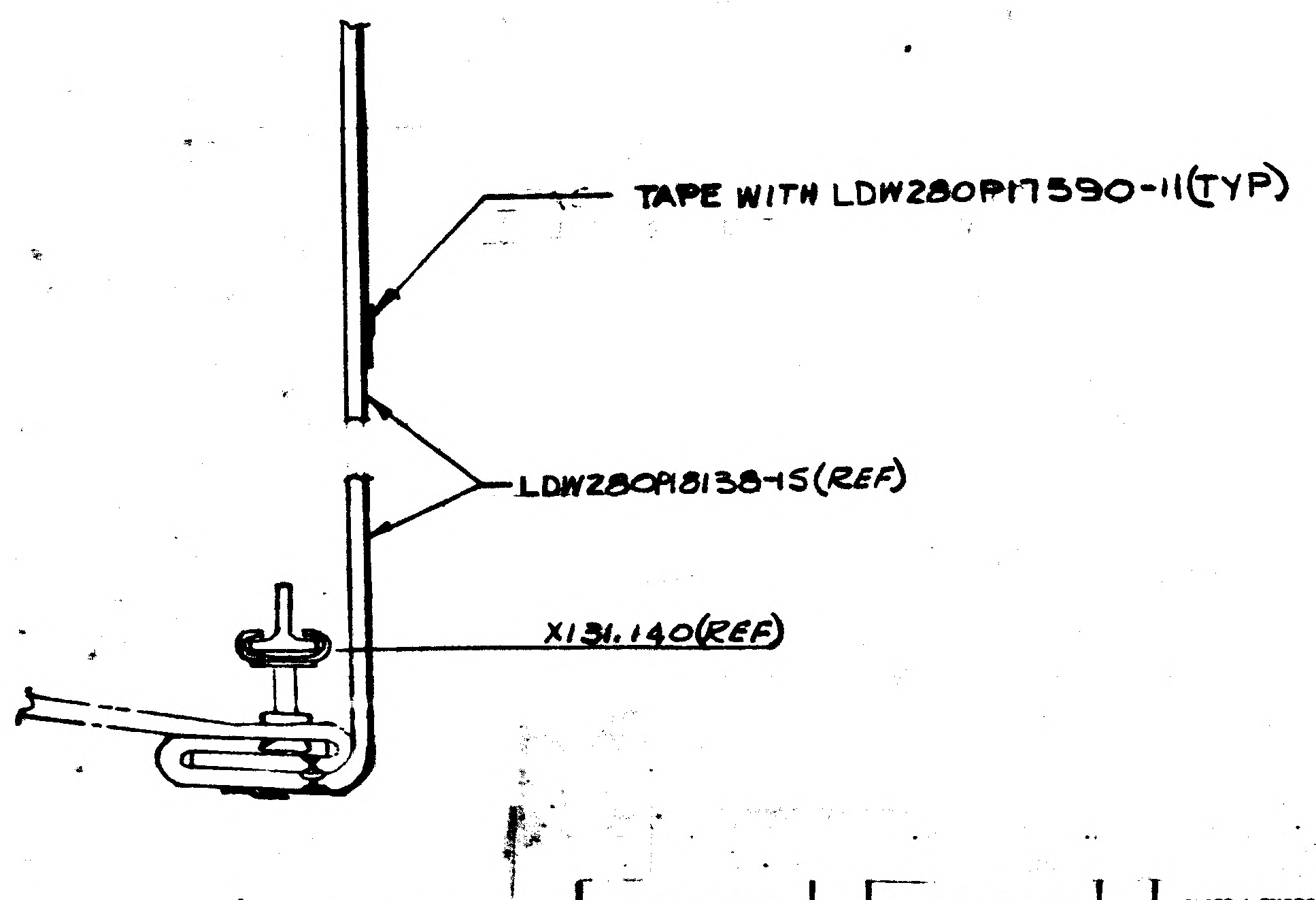
LDW280-28561 SH 4

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28561	C
MODEL OR END ITEM	SCALE		SHEET 4.00	


2½(TYP)
(ADD)
1(TYP)
(ADD)
9½(TYP)
(ADD)
1½ ± ½ (ADD)
TAPE WITH LDW280P17590-11(TYP)
(ON-11 ONLY)
TAPE WITH LDW280P17590-11(TYP)
ON-5 ONLY
LDW280P18138-15 (ADD ON-11)
ALUMIZED SURFACE NEAR SIDE
TAPE WITH LDW280P17590-1(TYP)
ON-5 ONLY
PICK UP EXISTING STANDOFFS
**
**
*
*


15(TYP)
4 3/16
(TYP)
½(TYP)
TAPE WITH LDW280P17590-11(TYP)
ON-5 ONLY

VIEW **-**
(1/5 SCALE)


TAPE WITH LDW280P17590-11(TYP)
LDW280P18138-15(REF)
X131.140(REF)

SECTION *-*
HALF SIZE

01 NAS 9-1100

(2)

DETAIL SPEC REQD	CLASS II ENGRG CHG	CLASS I ENGRG CHG ✓	CONTROL INFO NO. LDW28L A3067

REASON FOR EO: TO PROVIDE ADDITIONAL PLUME IMPINGEMENT PROTECTION

DESCRIPTION OF EO: ADDED LDW280P18138-15 ON-11 ADDED LDW280P17590-11 AS REQD ON-5 & -11

GRUMMAN EO RELEASE: FR 11/10/6

MODEL	EFFECTIVITY PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
		LM-2(32)	

DRAWING REVISION REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

		THERMO SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	
BY							RP	
DATE	11/3/66	11/10		11/3/66			11-9-66	
5	VDI							

PRIORITY: C

DRAWING TITLE: SHIELD INSTL - D.S. QUAD IV EPS BATTERY ACCESS THERMAL

ENGINEERING ORDER

DRAWING NO. LDW280-28561

EO NO. B1

ISSUED BY R. CLARK/J STRAKOSCH SECTION VDI GROUP NO. 335 PL 35

CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 22.3 REV 3-65

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-28561 | EO NO. C1
CONTROL INFO NO. LDW280A-5510

IN F/D & B/M
FOR-5 REMOVE LM-2(32) EFF ADD -43 SHIELD INSTL IDENT TO -5 EXCEPT -45 SHIELD ASSY REPLACES -11 SHIELD ASSY & LDW280-28820-5 SHIELD ASSY REPLACES LDW280-28820-3. -45 SHIELD ASSY IDENT TO -11 EXCEPT LDW280-28773-11 & -13 SHIELD ASSY'S REPLACE LDW280-28773-7 & -9 RESP EFF FOR-43 - LM-2(32). N/A FOR-43 - LDW280-52553 1 REQD

FOR-13 & -31 SHIELD ASSY'S REMOVE LDW280-28773-7 & -9 & REPLACE WITH LDW280-28773-11 & -13 RESP.

FOR-7 & -29 REMOVE LDW280-28820-3 & REPLACE WITH LDW280-28820-5

ADD NOTE # FABRICATE PER LPC280-25

= NEXT AVAILABLE NOTE NO.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: LCR 928 TO IMPROVE PAINT ADHESION

DESCRIPTION OF EO: FOR-5 REMOVED LM-2 (32) EFF. ADDED NOTE # ADDED -43 FOR LM-2. ON-13 & -31 - LDW280-28773-11 & -13 REPLACE LDW280-28773-7 & 9 ON-7 & -29 - LDW280-28820-5 REPLACES LDW280-28820-3

GAEC EO RELEASE: C/E FR 2/23/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-1(31) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY	Jep								
DATE	2/21/67			2/16/67	2/21/67		2/21/67	2-22-67
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: SHIELD INSTL DES. STAGE QUAD IV EPS BATT. ACCESS
DRAWING NO. LDW280-28561
EO NO. C1

ISSUED BY J. STRAKOSCH/ G ZEMAN SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

01 NAS 9-1100

B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28561 | EO NO. C2
CONTROL INFO NO. LM5-11862

IN F/D & B/M REMOVE THE FOLLOWING FROM -5,-7&-29 SHIELD INSTL AND ADD TO -11,-13&-31 SHIELD ASSY:

GS20D-06-8 SCREW 8 REQD
GS20D-06-14 SCREW 25 REQD
LDW280P17946-11 STANDOFF 37 REQD
LDW280P17575-11 WASHER 4 REQD
MS51957-26 SCREW 41 REQD
AN960D416L WASHER A/R
MS20470AD5 RIVET A/R
LDW280M17698-11 WASHER 8 REQD

NOTE: EXISTING HOLES MAY REMAIN OPEN

RELEASED BY LIAISON

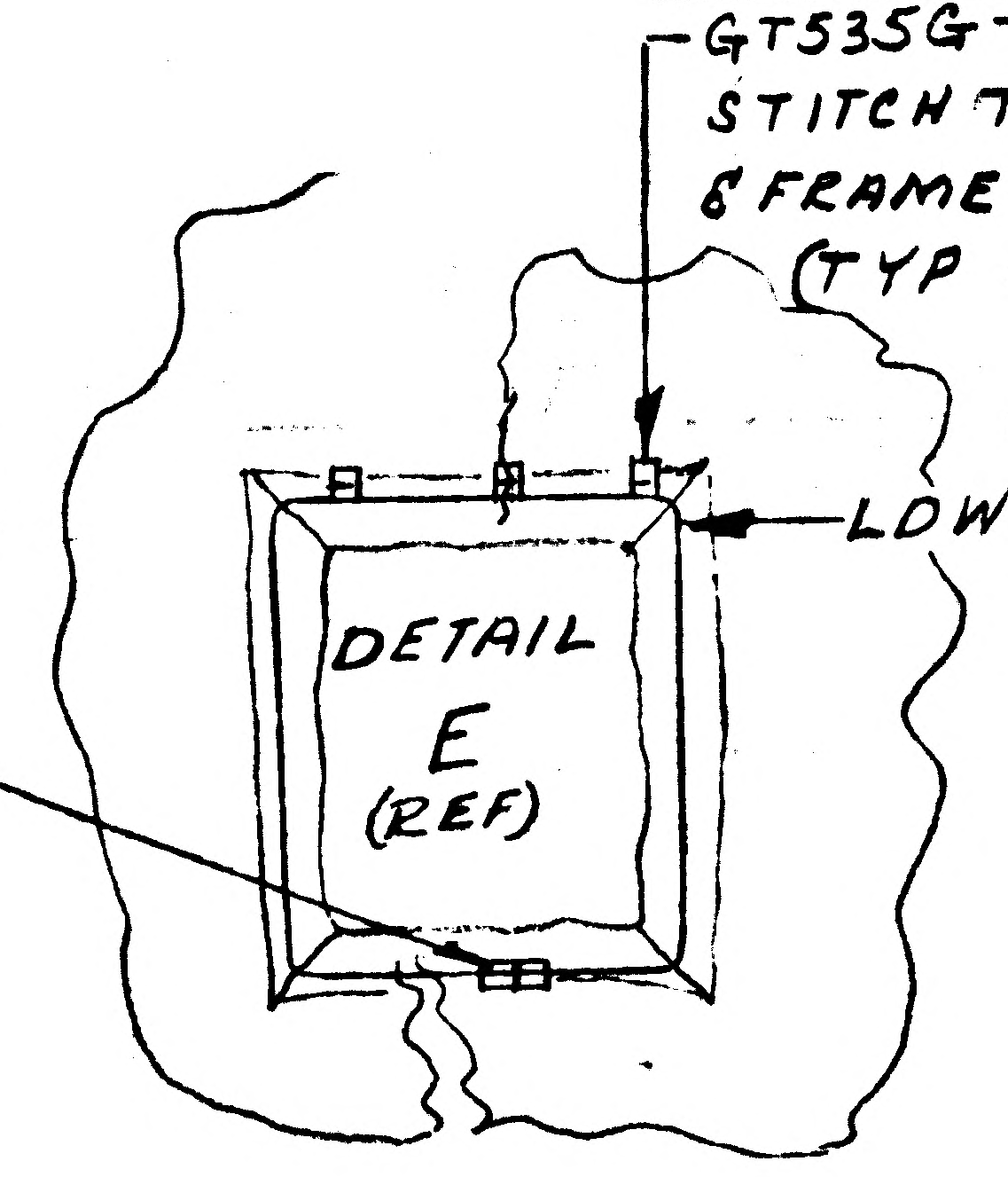
IN F/D & B/M REMOVE FROM -5,-7&-29 AND ADD TO -11&-13
GT535G-LCS-0006 5 REQD

IN F/D & B/M REMOVE FROM -29 AND ADD TO -31
MS35206-226 8 REQD
AN960D6 8 REQD
GT535G-LCS-0010
LDW280-18239-11&-12
LDW280P17946-11 4 REQD

{THIS IS A REVISION OF EO B2
LDW280P17946-11 WAS LDW280P17946-13

IN B/M FOR-5,-7&-29
NAS1132V2 BOLT 6 REQD WAS 4 REQD {AS PER ADDITION IN F/D VIEW H-H, DETAIL K & DETAIL L 2 REQD IN EACH

IN F/D SHEET 4 REVISE TAPE C/O



(ADD)
FOR-9&-11
GT535G-LCS-0006 2 REQD
STITCH THRU BLANKET & FRAME-SEE NOTE *
(TYP 4 PLACES)

LDW280-28776
(REF)

(ADD)
FOR -13&-31
GT535G-LCS-0014
STITCH THRU BLANKET AND FRAME
TYP 4 PLACES
SEE NOTE *

IN B/M FOR-9&-11 ADD
GT535G-LCS-0006 8 REQD

IN B/M FOR -13&-31 ADD
GT535G-LCS-0014 4 REQD

NOTE * = "STITCH TAPE TO FRAME ----- (ALREADY ADDED BY EO B2)

IN B/M ADD TO -13 {LDW280P18091-3&-7 2 REQD EACH
LDW280P18091-5 5 REQD

IN B/M REMOVE FROM-5 & ADD TO -11 {LDW280P18091-3&-7 2 REQD EACH
LDW280P18091-5 5 REQD

IN B/M ADD TO -31 LDW280P18091-3&-7 2 REQD EACH

DESCRIPTION CONTINUED- IN F/D & B/M REMOVE FROM -29 AND ADD TO -31: MS35206-226 (8), AN960D6 (8), GT535G-LCS-0010, LDW280-18239-11&-12, LDW280P17946-11 (4). REVISED EO B2, LDW280-17946-11 WAS -13. IN B/M FOR-5,-7&-29 NAS1132V2 (6 REQ WAS 4). IN F/D SH.4 ADDED "FOR-9&-11 TO GT535G-LCS-0006 2 REQ ADDED FOR-13&-31 GT535G-LCS-0014. IN B/M FOR-9&-11 ADDED GT535G-LCS-0006 (8); FOR-13&-31 ADDED GT535G-LCS-0014 (4). IN B/M ADDED TO -13: LDW280P18091-3&-7 (2) LDW280P18091-5 (5), IN B/M REMOVED FROM -5& ADDED TO -11 LDW280P18091-3&-7 (2) LDW280P18091-5(5) IN B/M ADDED TO -31 LDW280P18091-3&-7 (2)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO FACILITATE QUALITY CONTROL ACCEPTENCE OF ASSY IN PLANT 29

DESCRIPTION OF EO: IN F/D & B/M REMOVED FROM -5,-7&-29 AND ADDED TO -11,-13&-31: GS20D-06-8(8), GS20D-06-14(25), LDW280P17946-11(37), LDW280P17575-11(4), MS51957-26(41), AN960D416L(A/R) MS20470AD5(A/R), LDW280M17698-11(8). IN F/D & B/M REMOVED FROM-5,-7&-29 AND ADDED TO-11&-13: GT535G-LCS-0006(5) (SEE ABOVE FOR CONTINUATION)

GAEC EO RELEASE: C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~ACT~~
APPROVED BY	WT			~	JF	JF	RMC(E)	
DATE	2-18			~	2-21-67	2-21-67	3-2-67	2/23/67
	VOI	SUPPORT	RELIAB. GROUP					

PRIORITY: C
DRAWING TITLE: SHIELD INSTL D/S QUAD III EPS BATTERY ACCESS-THERMAL
DRAWING NO.: LDW280-28561
EO NO.: C2

ISSUED BY H. PALLMEYER X1153 X1724 SECTION VEH DES INT GROUP NO. 335 PL 5

ENG 22.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-28561
EO NO. C3
CONTROL INFO NO. LDW280A-5725

THIS IS A REVISION OF EO C1 LDW280-28561

REMOVE -5 (WAS FOR-5 REMOVE LM-2(32) EFF)
FOR-43 ADD LM-1(31) EFF N/A LDW280-51553 1 REQD

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		3

REASON FOR EO: LCR928 IMPROVE PAINT ADHESION

DESCRIPTION OF EO: REVISED EO C1. REMOVE -5 (WAS FOR-5 REMOVE LM-2 EFF) FOR-43 ADDED LM-1 EFF N/A LDW280-51553 1 REQD

GAEC EO RELEASE: JK 3/14/67 C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) & LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	3/6/67			3/4/67	3/6/67		3-11-67	3.14.67
5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL QUAD III DES STAGE BATTERY ACCESS	LDW280-28561	C3

ISSUED BY G. ZEMAN / J. STRAHOSCH SECTION YD1 GROUP NO. 335 PL 35

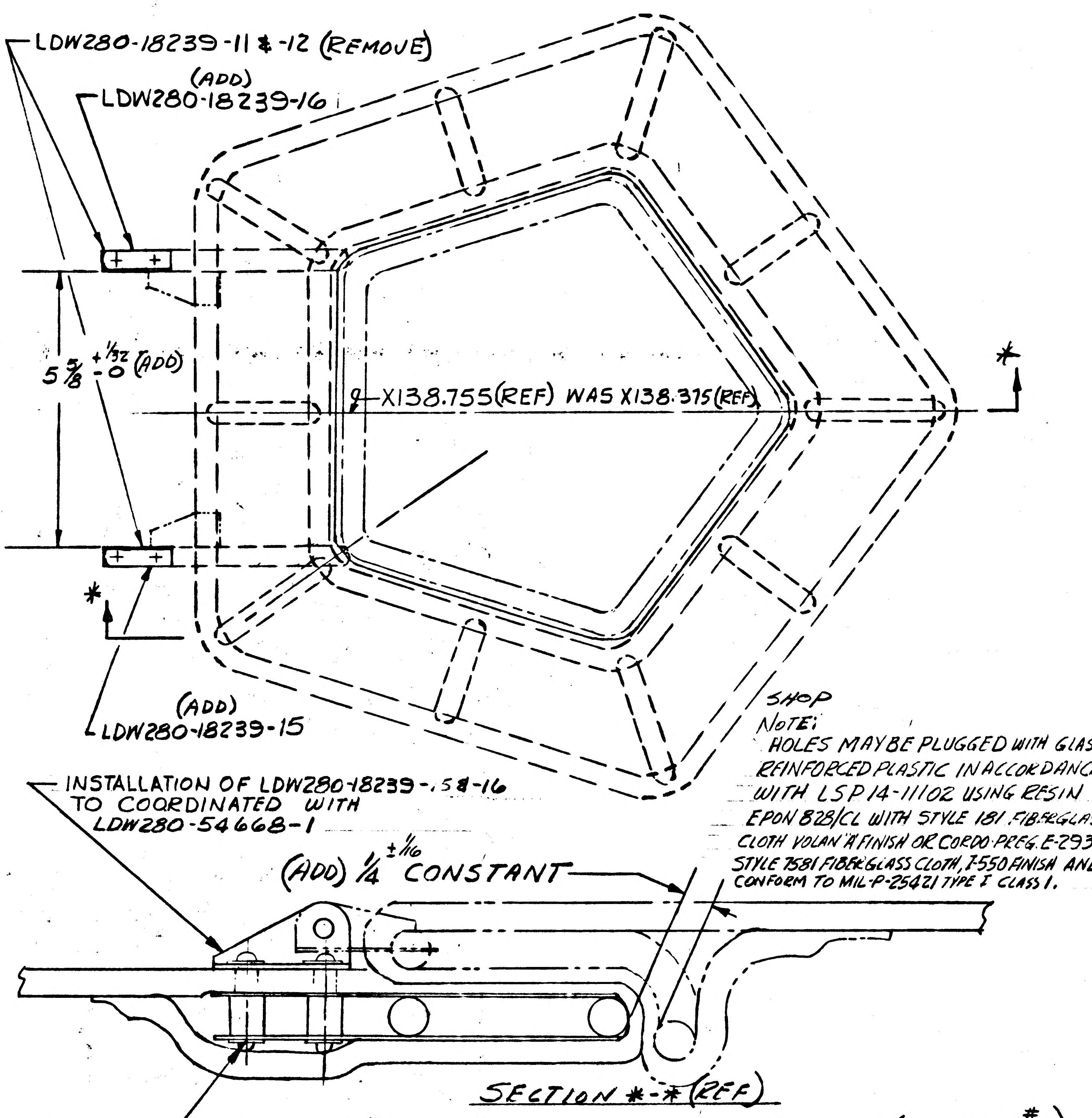
01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW28028561 | EO NO. C4
CONTROL INFO NO. LDW280AG033

THIS E O IS A REVISION OF E O B2


LDW280-18239-11 & -12 (REMOVE)
(ADD) LDW280-18239-16
$5\frac{5}{8}{}^{+1/32}_{-0}$ (ADD)
⊈ X138.755 (REF) WAS X138.375 (REF)
*
*
(ADD) LDW280-18239-15
INSTALLATION OF LDW280-18239-15 & -16 TO COORDINATED WITH LDW280-54668-1
(ADD) $\frac{1}{4}{}^{\pm 1/16}$ CONSTANT
SECTION *-* (REF)
.220-.226 (#2) (4 HOLES) IN LDW280-54777-1 (REMOVE) (SEE NOTE # △)
LDW280P17946-11 (4) (REMOVE)
MS35206-226 (4) WAS (8)
AN960D6 (4) WAS (8)
TAPE FASTENERS HEAD WITH LDW280P17590-11 TAPE (ADD)

SHOP NOTE:
HOLES MAYBE PLUGGED WITH GLASS REINFORCED PLASTIC IN ACCORDANCE WITH LSP14-11102 USING RESIN EPON 828/CL WITH STYLE 181 FIBERGLASS CLOTH VOLAN "A" FINISH OR CORDO PREG. E-293 RESIN, STYLE 7581 FIBERGLASS CLOTH, I-550 FINISH AND CONFORM TO MIL-P-25421 TYPE I CLASS I.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 661 5

REASON FOR EO: TO PROVIDE PROPER CLEARANCE FOR ASTRONAUT ACCESS LCD 661

DESCRIPTION OF EO: REF E.O. B2
ADDED DIM'S $5\frac{5}{8}{}^{+1/32}_{-0}$ & $\frac{1}{4}{}^{\pm 1/16}$, LDW280-18239-15 & -16
X138.755 (REF) WAS X138.375 (REF), MS35206-226 (4) WAS (8), AN960D6 (4) WAS (8)
REMOVED .220-.226 (#2) 4 HOLES IN LDW280-54777-1 & LDW280P17946-11 (4), LDW280-18239-11 & -12

GAEC EO RELEASE: C JS 3-30-7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP									
✓		✓		APPROVED BY	[illegible]			[illegible]	W/H		[illegible]	[illegible]
				DATE	3/22/67			3/24/67	3/23/67		3-23-67	3/30/67
				5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL D/S QUAD III EPS BATTERY ACCESS THERMAL	LDW280-28561	C4

ISSUED BY R. CLARK / J. STRIKOSCH
SECTION VD1
GROUP NO. 335 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280		EO NO. 793	
CONTROL INFO NO. LDW280B0053			

ENG 32.2 REV 3-65

FOR THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS* THAT ARE EFF ON LM-4(34), REMOVE LM-4(34) THRU LM-15(45) REQMTS.

DRAWING NO. *	NEXT ASSY	TITLE	CHG NO.
LDW280-28561	LDW280-54553	SEE DWG	C5
-28773	-28561		A9
-28774	-28773		B1
-28775	-28773		B8
-28820	-28561		B2
-28819	-28820		A3
-18129	-28820		A4
-28776	-28561		A2
P17465	-28776		B3
P17514	-28776		B1
P17516	-28776		B4
P17535	-28776		B3
-28669	-54553		B1
-18239	-28561		A2
-54777			A2
P17496			A8
M17698			B7
P17479			A9
P17946			B3
P17967			B10
P18091			A3
-28757	-28561		B1
LDW280	LDW280	SEE DWG	

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	*LCD 2011 CCA668	(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
REDESIGN OF THERMAL SHIELDING FOR EQUIP STOWAGE.	FOR *, REMOVED LM-4 THRU LM-15 REQMTS	JK 11/8/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
✓			✓

APPROVED BY								
DATE	11/7/67			11-6-67	11/7/67		11/7/67	11-7-67
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO280	793

11-10
ISSUED BY S. TAMRES/P. THORJUSEN x7033 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65 3

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28561
EO NO. C6
CONTROL INFO NO. LDW280B0037

FOR -7
REMOVE LDW280-28820-5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 1244 (5)

REASON FOR EO: TO PROVIDE FOR F.I.T.H. SHIELD

DESCRIPTION OF EO: FOR -7 REMOVED LDW280-28820-5

GAEC EO RELEASE: JK 11/16/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	JAS				RJF				
DATE	11/13/67				11/11/67	11/13/67		11/14/67	11-16-67
P	VDI	~~SUPPORT~~ 2330	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT.~~

PRIORITY: C
DRAWING TITLE: SHIELD INSTL- D/S QUAD IV - EPS BATTERY ACCESS THERMAL
DRAWING NO.: LDW280-28561
EO NO.: C6

CDR 11/17/67
ISSUED BY ROESSLER / THORGUSEN x1153 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28561
EO NO. C7
CONTROL INFO NO. LDW280B3060

ADD -53 IDENT TO -19 EXCEPT LDW280P17496-67(1) ON-53 REPLACES LDW280P17496-39 ON-19

ADD -51 IDENT TO-41 EXCEPT -53(1) ON -51 REPLACES -19 & -27 ON -41

ADD -49 IDENT TO -13 EXCEPT -51(1) ON-49 REPLACES -41 ON -13

ADD -47 INST IDENT TO -7 INSTL EXCEPT -49(1) ON-47 REPLACES -13 ON-7
& ADD: LDW280P17496-71(1) ON-47 INB'D OF LDW280P17496-65(REF) ON-7

-47 INSTL (1 REQD/MOD)
N/A TO LDW280-53553

ADD NOTE * (USE NEXT AVAILABLE NOTE NUMBER)
THIS DWG. AFFECTED BY LFM-155 WHICH MAY BE USED ON LM-3 (33)

USE GT835P-8 TAPE (AS REQD)

LFM (5) (PKG Y)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2899

REASON FOR EO	DESCRIPTION OF EO	EO RELEASE
PLUME IMPINGEMENT PROTECTION SEVEN SECOND DOCKING	ADDED -47, -49, -51, -53 (1 EACH REQD) ADDED NOTE *	JK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 155	LM-3(33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT REQD	

APPROVED BY								
DATE	4/19/68	4-4		4/19/68	4/22/68	4/22/68	4-26-68	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL D/S QUAD IV EPS BATTERY ACCESS THERMAL	LDW280-28561	C7

042668
ISSUED BY V.A, CHRISTINA/ P.THORJUSEN SECTION VDI X1153 GROUP NO. 335 PL 25

01

NAS 9-1100

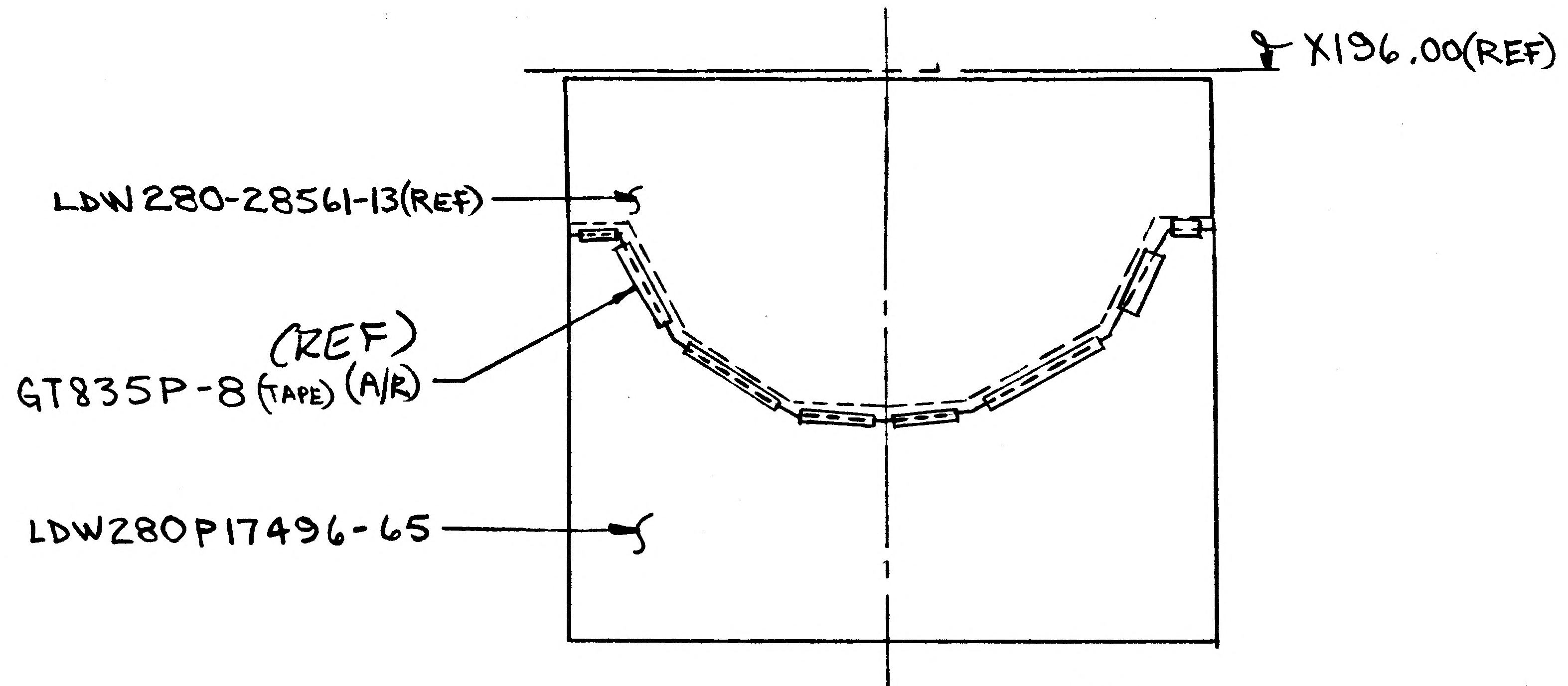
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28561		EO NO. C8
CONTROL INFO NO. LDW280B 3086		

ON-7 INSTL ADD LDW 280P17496-65 (1 REQD/INSTL)



-7 INSTL

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2360	(5) (PKG 30)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO UP DATE NEXT ASSY	ON-7 INSTL ADDED LDW 280P17496-65(1)	JK 5/2/68

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JWS	mu		RGR	NM		JAP	JK
DATE	4/24/68	4/24/68		4/24/68	4/30		4/30/68	5-1-68
P	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL D/S QUAD IV EPS BATTERY ACCESS THERMAL	LDW280-28561	C8

CDR 4/30/68

ISSUED BY V.A. CHRISTINA/ P. THORJUSEN SECTION VDI X1153 GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-28569 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28510	LTA-8 (18)	1
PART NO. LDW280-28569-3		GAEC SCH NO. 51-1	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51510	LM-1(31)	1
PART NO. LDW280-28569-1		GAEC SCH NO. 51-1	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00		3.00			
REV	A	A		A		A			
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED A

LAST DASH NO. USED -3

GRUMMAN REL INFO A

PRIM NO. 207 JK(001) MP-14A 6/26/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	CARSTENSEN 4/19/67	RELIABILITY	
LAYOUT BY	D.WINK		
CHECKED BY	4-21-67		
GRP LEADER	6/9/7		
VEH DES INT			
STRUCTURES	W/H 4/21/6	PROJ ENGR	6/22
STRUCTURES	6/20	REL GROUP	6/26/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SUPPORT INSTALLATION
DESCENT STAGE
SCIENTIFIC EQUIP BAY

SIZE B
CODE IDENT NO. 26512
LDW280-28569 A
Ⓐ
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
A	1	1.00, 1.10						EO A1	EO A1 INITIAL DWG RELEASE PARTS MADE PER EO.	LTA-8 & LM-1	NOT	REQ'D	CARSTENSEN 4-19-67		
	2	2.00 & 3.00	6D					EO A2	IN F/D & B/M ADDED -3 INSTL. IN M/B FOR-1 REMOVED EFF LTA-8(18). FOR-3 ADDED EFF: N/A LDW280-28510 EFFECTIVE LTA-8(18)	LTA-8					
	3		3F				✓	EO A3	IN F/D & B/M FOR-3: LDW280-28586-3 (WAS)-1		✓				
	4	1.00							REF EO A1: N/A FOR-1 IS LDW280-51510	LM-1	NOT	REQ'D	JK		

FOR CONTINUATION OF REVISIONS SEE SHEET ____

ENG 77.3 5-65

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-28569	A
SCALE NONE		SHEET 1.10	

01

NAS 9-1100

QTY PER ASSEMBLY -3	QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
4	4		MS21042L4	E	NUT	STD PART						
			MS20426AD3	↑	RIVET	↕						
4	4		AN960D416L		WASHER	STD PART						
2	2		LDW280M17272-3		PIN	SEE DWG						2D
2	2		LDW280M17272-1		PIN	↑						2C
1			LDW280-28586-3		END CLOSURE							3F
	1		LDW280-28586-1		↑							3F
1			LDW280-28579-1		↓							6D
	1		LDW280-25579-1		END CLOSURE							6E
1	1		LDW280-25578-1		BULKHEAD							4D
1	1		LDW280-25577-1		REAR BEAM							5H
1			LDW280-25576-5		LOWER DECK							4D
	1		LDW280-25576-1		LOWER DECK							4D
1			LDW280-25575-5		UPPER DECK							6E
	1		LDW280-25575-1		UPPER DECK							6E
1	1		LDW280-25634-3		REAR PANEL							6F
1	1		LDW280-25634-1		REAR PANEL	↓						4G
4	4		LDW280-17720-11		PLATE	SEE DWG						3A
			LDW280-28569-3	↓	SUPPORT INSTL					NONE	NONE	6D
			LDW280-28569-1	E	SUPPORT INSTL					NONE	NONE	6D

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28569	A

SCALE NONE SHEET 2.00

(A)

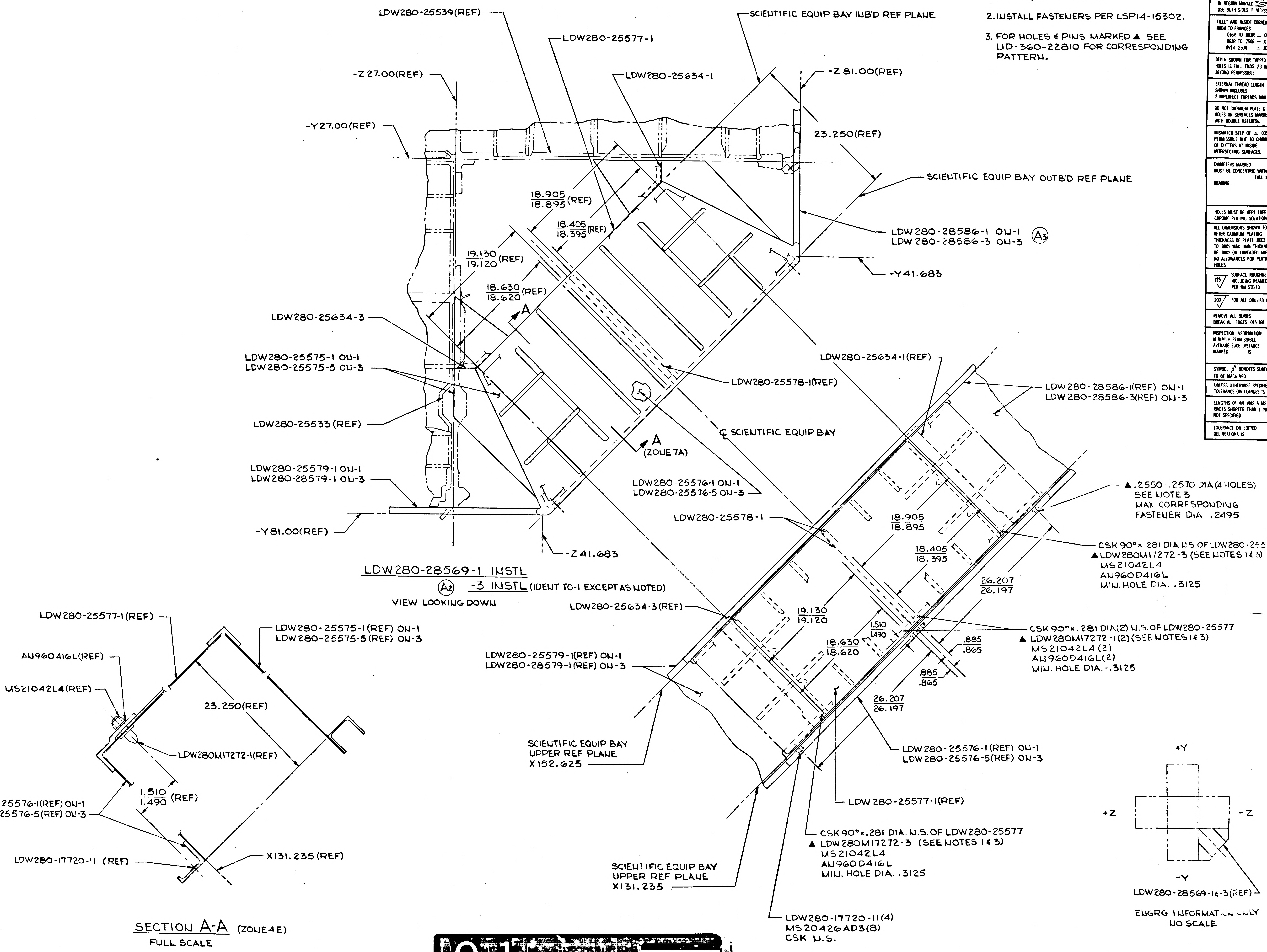
ENG 77.2 7-65

01

NAS 9-1100

NOTES:

1. FINAL HOLE SIZE FOR LDW280M17272 TO BE (.2497-.2507).
2. INSTALL FASTENERS PER LSP14-15302.
3. FOR HOLES & PINS MARKED ▲ SEE LID-360-22810 FOR CORRESPONDING PATTERN.



LDW280-25539(REF)
LDW280-25577-1
-Z 27.00(REF)
LDW280-25634-1
SCIENTIFIC EQUIP BAY INB'D REF PLANE
-Z 81.00(REF)
-Y27.00(REF)
23.250(REF)
SCIENTIFIC EQUIP BAY OUTB'D REF PLANE
18.905 / 18.895 (REF)
18.405 / 18.395 (REF)
19.130 / 19.120 (REF)
18.630 / 18.620 (REF)
LDW280-28586-1 ON-1
LDW280-28586-3 ON-3 (A3)
-Y41.683
A
LDW280-25634-3
LDW280-25575-1 ON-1
LDW280-25575-5 ON-3
LDW280-25634-1(REF)
LDW280-25578-1(REF)
LDW280-28586-1(REF) ON-1
LDW280-28586-3(REF) ON-3
LDW280-25533(REF)
℄ SCIENTIFIC EQUIP BAY
A (ZONE 7A)
LDW280-25579-1 ON-1
LDW280-28579-1 ON-3
LDW280-25576-1 ON-1
LDW280-25576-5 ON-3
▲.2550-.2570 DIA (4 HOLES)
SEE NOTE 3
MAX CORRESPONDING
FASTENER DIA .2495
-Y81.00(REF)
LDW280-25578-1
18.905 / 18.895
18.405 / 18.395
-Z41.683
CSK 90°×.281 DIA N.S. OF LDW280-25577
▲LDW280M17272-3 (SEE NOTES 1 & 3)
MS21042L4
AN960D416L
MIN. HOLE DIA. .3125
26.207 / 26.197
LDW280-25634-3(REF)
19.130 / 19.120
1.510 / 1.490
CSK 90°×.281 DIA(2) N.S. OF LDW280-25577
▲LDW280M17272-1(2) (SEE NOTES 1 & 3)
MS21042L4 (2)
AN960D416L(2)
MIN. HOLE DIA. .3125
18.630 / 18.620
.885 / .865
.885 / .865
LDW280-25577-1(REF)
LDW280-25575-1(REF) ON-1
LDW280-25575-5(REF) ON-3
LDW280-25579-1(REF) ON-1
LDW280-28579-1(REF) ON-3
AN960416L(REF)
MS21042L4(REF)
23.250(REF)
26.207 / 26.197
LDW280M17272-1(REF)
LDW280-25576-1(REF) ON-1
LDW280-25576-5(REF) ON-3
SCIENTIFIC EQUIP BAY
UPPER REF PLANE
X152.625
+Y
+Z
-Z
-Y
1.510 / 1.490 (REF)
LDW280-25577-1(REF)
LDW280-25576-1(REF) ON-1
LDW280-25576-5(REF) ON-3
CSK 90°×.281 DIA. N.S. OF LDW280-25577
▲ LDW280M17272-3 (SEE NOTES 1 & 3)
MS21042L4
AN960D416L
MIN. HOLE DIA. .3125
LDW280-17720-11 (REF)
X131.235 (REF)
SCIENTIFIC EQUIP BAY
UPPER REF PLANE
X131.235
LDW280-28569-1&-3(REF)
LDW280-17720-11(4)
MS20426AD3(8)
CSK N.S.

LDW280-28569-1 INSTL

(A2) -3 INSTL (IDENT TO-1 EXCEPT AS NOTED)

VIEW LOOKING DOWN

SECTION A-A (ZONE 4E)

FULL SCALE

ENGRG INFORMATION ONLY

NO SCALE

01

NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL STD 10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	✓
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	E	26512	LDW280-28569	A
	SCALE [illegible]		SHEET 3.00	

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 -28569
EO NO. A3
CONTROL INFO NO. LM5-13094

IN F/D & B/M

ON -3 : LDW280-28586 -3 WAS -1

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG ☐

REASON FOR EO: TO PROVIDE CLEARANCE FOR SEQB CONTAINER

DESCRIPTION OF EO: IN F/D & B/M FOR -A3 LDW280-28586-3 WAS -1

GAEC EO RELEASE: JK 5 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

	APPROVED BY	DATE	
1	WT	4/9/67	VDI
SUPPORT			
RELIAB. GROUP			
GROUP LEADER			
STRESS GROUP		4/4/67	
LIAISON ENGRG	CH	4-4-67	
PROJ ENGRG	RMC	4-6-67	
~~GOVT~~		4-4-67	

PRIORITY: C

DRAWING TITLE: SUPT INST D/S-SEQB -

DRAWING NO.: LDW280-28569

EO NO.: A3

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM111	LDW280-28508	LTA-8 (18)	1
PART NO. LDW280-28570-3		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28528	LEM-1 (31)	1
LEM	LDW280-28528	LTA-8 (18)	1
PART NO. LDW280-28570-1		GAEC SCH NO.	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	1.11			
REV	B	B	B			
SHEET	2.00	2.01	2.02	2.03	2.04	2.05
REV	B	B	B	B	B	B
SHEET	3.00	4.00	5.00	6.00	7.00	
REV	B	B	B	B	B	

LAST SECT LTR USED AL-AL

LAST DASH NO. USED -3

GRUMMAN REL<INFO "B"

PRIM NO. 207

K(001)

MP-16B-4/

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED

FRACTIONS	DECIMALS	ANGLES
±1/16	±.020	±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM 1

DOCUMENTATION TYPE II

DRAWN BY	A. SCHMADTKE 1/12/66	~~RELIABILITY~~	
LAYOUT BY	J ROGERS 1-25-66		
CHECKED BY	EG 1-19-66		
GR LEADER	[illegible]		
VEH DES INT	[illegible] 1/2/66		
STRUCTURES	Feb 2/18/66	PROJ ENGR	1/24
STRUCTURES	2/21/66	REL GROUP	2/26
WEIGHTS	[illegible]		

®

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

COLD RAIL INSTL-DESCENT STAGE-RH FWD
BEAM PANEL-E.P.S. & E.D.B.S. & E.P.S.
ELECTRONIC CONTROL ASSY SPT

SIZE	CODE IDENT NO.		
B	26512	LDW280-28570	B

SCALE NONE

SHEET 1.00 OF 14

77.1 9-64

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00 1.10 2.00 2.03 3,4,5,6	2F 8F 5B					EO A1	IN FLD FOR-1, ADDED SHIM CALLOUTS, IN FLD & B/M LDW 280-17435 -21-22-23-25 WAS LDW 280-17435-13-14-15-19, CORRECTED I & T REQ. "S" WAS "E" FOR LDW 280-17274-1-2-3, ADDED NOTE 10 SH 1 OF 11 WAS SH 1 OF 10 ADDED SH 1.10	LTA-8 LEM-1	✓		L. DIXON 5-24-66		
	2	1.00 1.10 2.03,3,4,5	2G 2H 2F 6J 7J					EO A2	ON-1 INSTL ADDED LDW 280-17375-11-12, REMOVED LDW 280-23581 ADDED ALTERNATE GR500A-4E FOR MS20470DD4 REVISED DIRECTION OF RIVET HEAD	LTA-8 LEM-1	✓				
	3	1.00 1.10 2.04 6.00	9L					EO A3	IN FLD, FOR-1 MS20470DD4(14) WAS(18), ADDED NAS1097AD4(2) CSK NEAR SIDE LDW 280-17279-13-14(REF) WAS LDW 280-17362-17-18(REF)	LTA-8 LEM-1	✓				
	4	1.10 2.04 5.00 6.00	6A 6C 5D 5J					EO A4	IN FLD & B/M ADDED LDW 280-17666-11-13-14 (4 EA REQD) GR500A-4D(8) WAS GR500A-4C(8), ADDED GR500A-4F(8) ADDED VIEW AC-AC, SH 1 OF 12 WAS SH 1 OF 11, ADDED SH 2.05	LTA-8 LEM-1			W. CONROY 6-28-66		
	5								REF EO A2, MS20470DD4(10) WAS(13) SHOULD BE MS20470DD4(12) WAS(15)	LTA-8 LEM-1	NOT	REQD			
	6							Ⓡ	DELETED NOTES 3 & 8 AND ADDED NOTE #12	NOT REQD	NOT	REQD			
B	1	2.05, 3.00 & 5.00	3C 2H				✓	EO B1	ON SH # 3 & 5 TO -1 INSTL, ADDED LDW280-18054-11 MS20470-DD4 (3) & DRILL 3/8 (.374-.381)	LTA-8 LM-1	✓		J. BIANCHINO 3-25-68		
	2	2.04, 4.00 5.00	2F 2H					EO B2	IN F/D & B/M ON-1 NAS1097AD4(9) WAS NAS 1097DD4 (9)		✓				
	3	2.04 3.00 5.00	6C 5J					EO B3	IN F/D RELOCATED LDW280-17666-11, -13 & -14, GR500A-4E WAS GR500A-4C(4) ADDED GR500A-4E(2), GR500A-4C(3) WAS GR500A-4E(3)		✓				

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	PROJ ENG	REL GROUP
A	—	—	FEB 8/17				
B	—	yat 1/25	WH 4/25	WH for FEB 4/25/68			

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28570	B Ⓑ
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
B	4	3.00	2C					D.E.C.# 2-LEM-34	ON-1 IN FLD SHEET 3 ZONE 2C REVISED NOTE #7 TO AGREE : 7. UNLESS ______ LDW280-17275 -11,-13,-15,-17,-19 &-21 & LDW280-17276-13 _________ PER LSP14-14102. WAS , 7. UNLESS _____ LDW280-17275-11,-13,-15,-17 &-19 & LDW280-17276-11 ____PER LSP14-14102. ADDED SH 1.11	LTA-8 LM-1	NOT	REQD	J. BIANCHINO 3-25-68		4-26-68
	5	3.00	5A	LFM111			✓	LCD 1021-5 C.D.R. 5/5/68	ADDED -3 INSTL & NOTES 13 & 14 17, 18. (-3 SHALL BE MADE BY REWORKING -1)	LTA-8	NOTED	NOTED			

FOR CONTINUATION OF REVISIONS SEE SHEET ________

ENG 77.3 5-66

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-28570	B
SCALE NONE		SHEET 1.11	

01

NAS 9-1100

QTY PER ASSEMBLY		CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
-3	-1											
	2		LDW280-17360-20	E	CLIP	SEE DWG						6A/7B
	2		-19									6B/6C
	1		-18									4A
	1		-17									4C
	1		-16									6B
	1		-15		CLIP							6B
	2		13		ANGLE							4B/8B
	1		LDW280-17360-11		CLIP							4B
	3		LDW280-17359-19		DOUBLER							3A/3C
	1		-17		ANGLE							4C
	4		-15									6A/7A
	1		-13									10C
	1		LDW280-17359-11		ANGLE							10C
	1		LDW280-17276-13		WEB							5B
	1		LDW280-17275-21		WEB							5B
	4		-19									6B/8C
	2		-17									8A/8C
	2		-15									4A/4C
	2		-13									5A/5C
	2		LDW280-17275-11	E	WEB							4A/7C
	1		LDW280-17274-3	S	COLD RAIL ASSY							5B
	1		LDW280-17274-2	S	COLD RAIL ASSY							4C
	1		LDW280-17274-1	S	COLD RAIL ASSY							4A
			LDW280-28570-3	E	COLD RAIL INSTL		SEE NOTE # 14			NONE	NONE	
1			LDW280-28570-1	E	COLD RAIL INSTL	SEE DWG				NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28570	B

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

QTY PER ASSEMBLY -3	QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	1		LDW280-17370-19	E	STIFFENER	SEE DWG						8B
	1		-17									8B
	1		-16									4B
	1		-15									8B
	1		-14									4B
	1		-13									8B
	1		LDW280-17370-11		STIFFENER							9B
	3		LDW280-17368-20		STIFFENER							5C/8A
	3		-19									5A/8A
	2		-18									4A/9C
	2		-17		STIFFENER							4C/9A
	1		-15		FILLER							8H
	1		LDW280-17368-13		FILLER							8H
	1		LDW280-17364-19		ANGLE							9B
	1		-17									3B
	1		-15									9B
	1		-13									9A
	1		LDW280-17364-11		ANGLE							9A
	3		LDW280-17361-19		STIFFENER							6C/7C
	5		-18									4C/5A
	5		-17									4A/5C
	1		-15		STIFFENER							3B
	1		-14		CLIP							9A/9B
	1		-13									9A/9B
	1		-12									8C
	1		LDW280-17361-11	E	CLIP	SEE DWG						8A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28570	B

SCALE NONE

SHEET 2.01

ENG 77.2 7-66

01

NAS 9-1100

QTY PER ASSEMBLY												
-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	1		LDW280-17374-16	E	STIFFENER	SEE DWG						6B
	1		-15									7B
	1		-14									6B
	1		-13									7B
	2		-12									6A/6C
	2		LDW280-17374-11		STIFFENER							5A/6C
	1		LDW280-17373-20		STIFFENER							9C
	1		-19									9A
	5		-18									4C/5A
	5		-17									4A/5C
	6		-16									4A/5C
	8		-15									4C/5A
	1		-13									3C
	1		LDW280 17373-11		STIFFENER							3B
	1		LDW280-17372-14		STIFFENER							8C
	1		-13									9A
	2		-12									6A/7B
	2		LDW280-17372-11		STIFFENER							6B/7B
	1		LDW280-17371-20		STIFFENER							4B
	1		-19									4A
	2		-18									4B/6B
	3		-17									5B/7B
	2		-16									4B/6B
	3		-15									5B/7B
	2		-13									5B/8B
	2		LDW280-17371-11	E	STIFFENER	SEE DWG						5B/8B

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-28570 | B ⑬

SCALE NONE | SHEET 2.02

ENG 77.2 7-65

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					-3	-1											
																	7C
						1		LDW280-17375-12	E	ANGLE	SEE DWG						6C
						1		LDW280-17375-11	E	ANGLE	SEE DWG						5B/9B
						9		LDW280M17288-1	E	TEE	SEE DWG						5A
						1		LDW280M17323-2	↑	↑	↑						3B
						1		LDW280M17323-1									3B
						2		LDW280M17322-1									6B/7C
						1		LDW280M17321-2		↓							3A
						1		LDW280M17321-1		TEE							3C
						2		LDW280M17320-2		ANGLE							9A/9B
						2		LDW280M17320-1		ANGLE							9B/8C
						1		LDW280-17459-17		SHIM							10B
						1		LDW280-17459-15		ANGLE							4B
						2		LDW280-17459-13		SPACER							10A
						4		LDW280-17459-11		DOUBLER							10A
						4		LDW280-17455-19		PLATE							3A
						1		↑ -17		PLATE							3B
						2		-15		ANGLE							4A/4B
						2		↓ -13		ANGLE							8A/8B
						11		LDW280-17455-11		ANGLE							4A
						1		LDW280-17435-25		CLIP							8B
						1		↑ -23		↑							8B
						1		-22									8B
						1		-21									63
						1		↓ -17		↓							7B
						1		LDW280-17435-11		CLIP							4B
						1		LDW280-17374-19	↓	ANGLE	↓						3B
						1		LDW280-17374-17	E	ANGLE	SEE DWG						3B

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28570	B

⑬

SCALE NONE

SHEET 2.03

ENG 77.2 7-65

01

NAS 9-1100

QTY PER ASSEMBLY -3	QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	11		NAS1097AD4	E	RIVET	STD PART						
			MS20470DD5		RIVET							
			MS20470DD4		RIVET							
			MS20470AD4		RIVET	STD PART						
	6		GR501A-5F		BLIND RIVET	GRUMMAN STD						
	6		GR500A-6H									
	24		GR500A-5K									
	4		GR500A-5H									
	8		GR500A-5F									
	20		GR500A-5E									
	4		GR500A-5C									
	2		GR500A-4H									
	6		GR500A-4G									
	15		GR500A-4F									
	46		GR500A-4E									
	104		GR500A-4D									
	425		GR500A-4C		BLIND RIVET							
	10		GF510A-5-4		BLIND FASTENER							
	11		GF510A-5-3		BLIND FASTENER							
	3		GF510A-5-2	E	BLIND FASTENER	GRUMMAN STD						

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-28570 | B

SCALE NONE | SHEET 2.04

ENG 77.2 7-65

01

NAS 9-1100

						1		LDW280-18054-11	E	PLATE	SEE DWG						3C
						4		LDW280-17666-14	E	CLIP	SEE DWG						D5
						4		LDW280-17666-13	E	CLIP	SEE DWG						D5
						4		LDW280-17666-11	E	BRACKET	SEE DWG						D5
					-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
QTY PER ASSEMBLY																	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

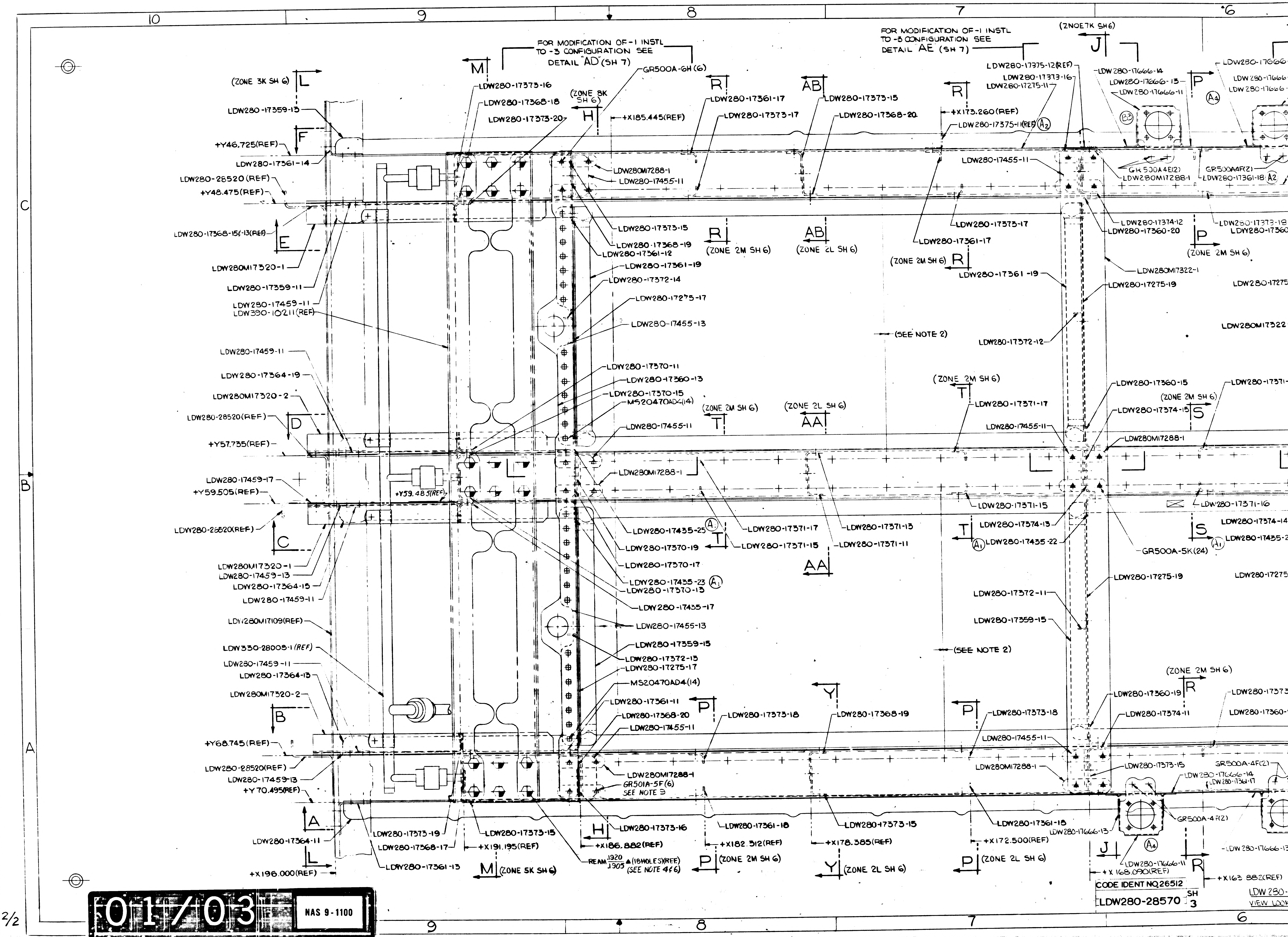
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28570	B (B)
SCALE	NONE		SHEET 2.05

ENG 77.2 7-65

01

NAS 9-1100


10
9
8
7
6
FOR MODIFICATION OF -1 INSTL TO -3 CONFIGURATION SEE DETAIL "AD" (SH 7)
FOR MODIFICATION OF -1 INSTL TO -3 CONFIGURATION SEE DETAIL AE (SH 7)
(ZONE 3K SH 6)
L
LDW280-17359-13
F
+Y46.725(REF)
LDW280-17361-14
LDW280-28520(REF)
+Y48.475(REF)
LDW280-17368-15&-13(REF)
E
LDW280M17320-1
LDW280-17359-11
LDW280-17459-11
LDW330-10211(REF)
LDW280-17459-11
LDW280-17364-19
LDW280M17320-2
LDW280-28520(REF)
D
+Y57.735(REF)
LDW280-17459-17
+Y59.505(REF)
LDW280-28520(REF)
C
LDW280M17320-1
LDW280-17459-13
LDW280-17364-15
LDW280-17459-11
LDW280M17109(REF)
LDW330-28008-1(REF)
LDW280-17459-11
LDW280-17364-13
LDW280M17320-2
B
+Y68.745(REF)
LDW280-28520(REF)
LDW280-17459-13
+Y70.495(REF)
A
LDW280-17364-11
L
+X196.000(REF)
M
LDW280-17373-16
LDW280-17368-18
LDW280-17373-20
(ZONE 8K SH 6)
H
+X185.445(REF)
GR500A-6H(6)
LDW280M17288-1
LDW280-17455-11
LDW280-17373-15
LDW280-17368-19
LDW280-17361-12
LDW280-17361-19
LDW280-17372-14
LDW280-17275-17
LDW280-17455-13
LDW280-17370-11
LDW280-17360-13
LDW280-17370-15
MS20470AD4(14)
LDW280-17455-11
+Y59.485(REF)
LDW280M17288-1
LDW280-17435-25 (A1)
LDW280-17370-19
LDW280-17370-17
LDW280-17435-23 (A1)
LDW280-17370-13
LDW280-17435-17
LDW280-17455-13
LDW280-17359-15
LDW280-17372-13
LDW280-17275-17
MS20470AD4(14)
LDW280-17361-11
LDW280-17368-20
LDW280-17455-11
LDW280M17288-1
GR501A-5F(6) SEE NOTE 3
LDW280-17373-19
LDW280-17368-17
LDW280-17361-13
+X191.195(REF)
M (ZONE 5K SH 6)
LDW280-17373-15
H
LDW280-17373-16
+X186.882(REF)
REAM .1920/.1905 ▲(18 HOLES)(REF) (SEE NOTE 4&6)
R
LDW280-17361-17
LDW280-17373-17
AB
LDW280-17373-15
LDW280-17368-20
R (ZONE 2M SH 6)
AB (ZONE 2L SH 6)
T (ZONE 2M SH 6)
(ZONE 2L SH 6) AA
LDW280-17371-17
T
LDW280-17371-15
LDW280-17371-13
LDW280-17371-11
AA
P
LDW280-17373-18
Y
LDW280-17368-19
LDW280-17361-18
+X182.312(REF)
P (ZONE 2M SH 6)
LDW280-17373-15
+X178.385(REF)
Y (ZONE 2L SH 6)
R
+X173.260(REF)
LDW280-17375-11(REF) (A2)
LDW280-17375-12(REF)
LDW280-17373-16
LDW280-17275-11
LDW280-17455-11
LDW280-17373-17
LDW280-17361-17
(ZONE 2M SH 6) R
LDW280-17361-19
(SEE NOTE 2)
LDW280-17372-12
(ZONE 2M SH 6)
T
LDW280-17371-17
LDW280-17455-11
LDW280-17371-15
T
LDW280-17374-13
(A1) LDW280-17435-22
LDW280-17372-11
LDW280-17359-15
(SEE NOTE 2)
P
LDW280-17373-18
LDW280-17455-11
LDW280M17288-1
LDW280-17361-18
LDW280-17666-13
+X172.500(REF)
P (ZONE 2L SH 6)
(ZNOE 7K SH 6)
J
LDW280-17666-14
LDW280-17666-13
LDW280-17666-11
P
(A4)
(B3)
GR500A4E(2)
LDW280M17288-1
GR500A4F(2)
LDW280-17361-18 (A2)
LDW280-17374-12
LDW280-17360-20
LDW280-17373-18
LDW280-17360
P (ZONE 2M SH 6)
LDW280M17322-1
LDW280-17275-19
LDW280-17275
LDW280M17322
LDW280-17360-15
(ZONE 2M SH 6)
LDW280-17374-15
S
LDW280-17371
LDW280M17288-1
LDW280-17371-16
S
LDW280-17374-14
(A1) LDW280-17435-2
GR500A-5K(24)
LDW280-17275-19
LDW280-17275
(ZONE 2M SH 6)
LDW280-17360-19
R
LDW280-17373
LDW280-17374-11
LDW280-17360
LDW280-17373-15
GR500A-4F(2)
LDW280-17666-14
LDW280-17361-17
GR500A-4F(2)
LDW280-17666-13
J
(A4)
LDW280-17666-11
+X168.090(REF)
R
+X163.882(REF)
CODE IDENT NO 26512
LDW280-28570
SH 3
LDW280-
VIEW LOOK
C
B
A

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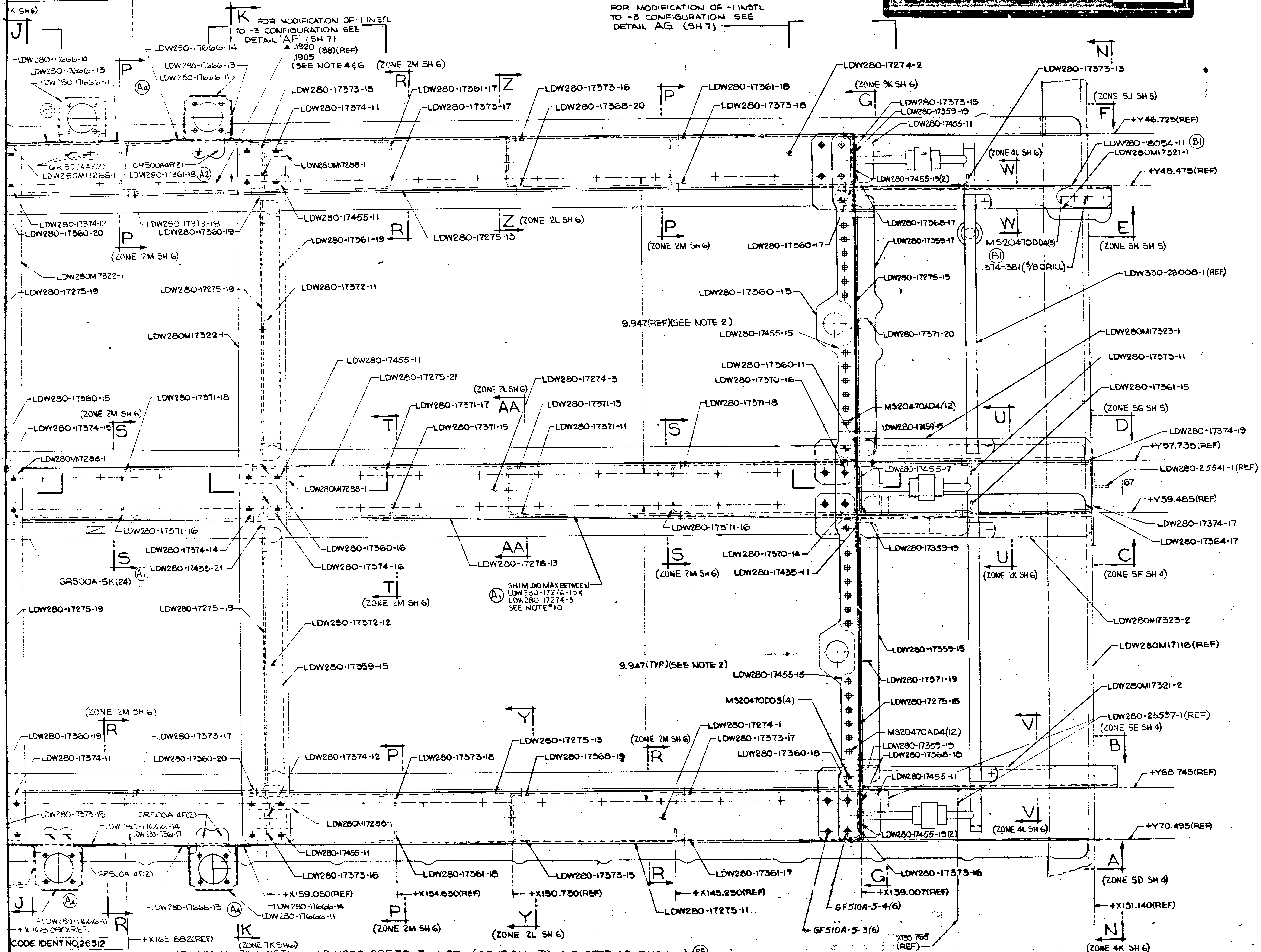
NAS 9-1100


FOR MODIFICATION OF -1 INSTL TO -3 CONFIGURATION SEE DETAIL "AF" (SH 7)
FOR MODIFICATION OF -1 INSTL TO -3 CONFIGURATION SEE DETAIL "AG" (SH 7)
.1920 .1905 (88)(REF) (SEE NOTE 4 & 6)
LDW280-17666-14
LDW280-17666-13
LDW280-17666-11
LDW280-17361-17
LDW280-17373-15
LDW280-17374-11
LDW280-17373-16
LDW280-17373-17
LDW280-17368-20
LDW280-17361-18
LDW280-17373-18
LDW280-17274-2
LDW280-17373-13
LDW280-17373-15
LDW280-17359-19
LDW280-17455-11
GR500A4E(2)
GR500A4F(2)
LDW280M17288-1
LDW280-17361-18
LDW280-18054-11
LDW280M17321-1
+Y46.725(REF)
+Y48.475(REF)
LDW280-17455-19(2)
LDW280-17374-12
LDW280-17360-20
LDW280-17373-19
LDW280-17360-19
LDW280-17361-19
LDW280-17275-13
LDW280-17368-17
LDW280-17359-17
MS20470DD4(3)
.374-.381 (3/8 DRILL)
LDW280M17322-1
LDW280-17275-19
LDW280-17372-11
LDW280-17275-15
LDW280-17360-17
LDW280-17360-13
LDW330-28008-1(REF)
9.947(REF)(SEE NOTE 2)
LDW280-17455-15
LDW280-17371-20
LDW280M17322-1
LDW280M17323-1
LDW280-17373-11
LDW280-17360-11
LDW280-17370-16
LDW280-17455-11
LDW280-17275-21
LDW280-17274-3
LDW280-17361-15
LDW280-17360-15
LDW280-17371-18
LDW280-17371-17
LDW280-17371-13
LDW280-17371-15
LDW280-17371-11
MS20470AD4(12)
LDW280-17459-15
LDW280-17374-15
LDW280-17374-19
+Y57.735(REF)
LDW280M17288-1
LDW280-17455-17
LDW280-25541-1(REF)
+Y59.485(REF)
LDW280-17371-16
LDW280-17374-17
LDW280-17364-17
LDW280-17374-14
LDW280-17435-21
LDW280-17360-16
LDW280-17374-16
LDW280-17276-13
LDW280-17370-14
LDW280-17435-11
LDW280-17359-19
GR500A-5K(24)
SHIM .010 MAX BETWEEN LDW280-17276-13 & LDW280-17274-3 SEE NOTE 10
LDW280-17275-19
LDW280-17372-12
LDW280-17359-15
LDW280M17323-2
LDW280M17116(REF)
9.947(TYP)(SEE NOTE 2)
LDW280-17455-15
LDW280-17371-19
LDW280M17321-2
MS20470DD5(4)
LDW280-17275-15
LDW280-25597-1(REF)
MS20470AD4(12)
LDW280-17274-1
LDW280-17373-17
LDW280-17359-19
LDW280-17368-18
LDW280-17360-18
LDW280-17360-19
LDW280-17374-11
LDW280-17360-20
LDW280-17374-12
LDW280-17373-18
LDW280-17275-13
LDW280-17368-19
LDW280-17455-11
+Y68.745(REF)
LDW280-17373-15
LDW280-17666-14
LDW280-17361-17
GR500A-4F(2)
LDW280M17288-1
LDW280-17455-19(2)
+Y70.495(REF)
LDW280-17455-11
LDW280-17373-16
LDW280-17361-18
LDW280-17373-15
LDW280-17361-17
LDW280-17373-16
LDW280-17666-13
LDW280-17666-14
LDW280-17666-11
LDW280-17275-11
GF510A-5-4(6)
GF510A-5-3(6)
+X159.050(REF)
+X154.630(REF)
+X150.730(REF)
+X145.250(REF)
+X139.007(REF)
+X131.140(REF)
+X163.882(REF)
+X168.090(REF)
X135.765 (REF)
(ZONE 2M SH 6)
(ZONE 9K SH 6)
(ZONE 5J SH 5)
(ZONE 4L SH 6)
(ZONE 2L SH 6)
(ZONE 5H SH 5)
(ZONE 5G SH 5)
(ZONE 2K SH 6)
(ZONE 5F SH 4)
(ZONE 5E SH 4)
(ZONE 5D SH 4)
(ZONE 4K SH 6)
(ZONE 7K SH 6)
J K P R Z G N F W E S T U AA D C Y V B A

LDW280-28570-1 INSTL
VIEW LOOKING FWD-RH SIDE

LDW280-28570-3 INSTL (IDENTICAL TO -1 EXCEPT AS SHOWN) (B5)

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INSTALLATION CORRESPONDING HOLES IN ADJACENT COLD RAILS SHALL BE WITHIN .006 AS SHOWN.
3. ~~FINAL HOLE SIZE FOR GR500A-5 & GR501A-5 SHALL B~~ ~~GR500A-6 SHALL BE (.192-.196)~~
4. FOR HOLES MARKED ▲ SEE LSC390-26(E.C.A), LSC390-22000(E & LDW390-28065(E.D. BATTERY BRKT.) FOR CORRESPONDING H
5. ALL ABBREVIATIONS ARE PER MIL-STD12 EXCEPT AS NOTED:-
E.P.S. - ELECTRICAL POWER SYSTEMS
E.D.B.S. - EXPLOSIVE DEVICES BATTERIES SUPPORT
E.C.A - ELECTRONIC CONTROL ASSY.
6. FOR MAX. FASTENER DIA. (.1895).
7. UNLESS OTHERWISE SPECIFIED ALL RIVETING THRU LDW280-17275-11, -13, -15 -17, -19 & -21 & LDW280-17276-1 WEBS TO HAVE MFG HD OF RIVET ON WEB SIDE INSTALL RIVETS WET AND OVERCOAT RIVET HEADS EPON 919 PER LSP14-14102.
8. ~~FINAL HOLE SIZE FOR GR500A-4 SHALL BE (.129-.13~~ ~~GF510A-5 SHALL BE (.164-.167~~
9. C'SK LDW280-17274-1, -2 & -3 TO ALLOW MFG HEAD OF .002-.010 BELOW THE SURFACE. NO TRIMMING OF F ALLOWED AFTER ASSEMBLY.
10. SHIM MATL AL. ALLOY, QQ-A-250/4, 2024-T3, FIN 88
11. FOR LTA-8, GR500A4E MAY BE USED AS AN ALTERNATE F
12. INSTALL GR500A & GF510A-5 PER LSP14-15303 & LS

SYMBOL LEGEND

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SYMBOLS ARE FOR QUANTITY AND LOCATION ONLY

13. FOR REWORK OF -1 INST TO -3 CONFIGUR FASTENERS MARKED ● ARE TO BE REMOVED, HOLES NEED NOT BE PLUGGED.
14. -3 SHALL BE MADE FROM -1 BY REWOR AS FOLLOWS:

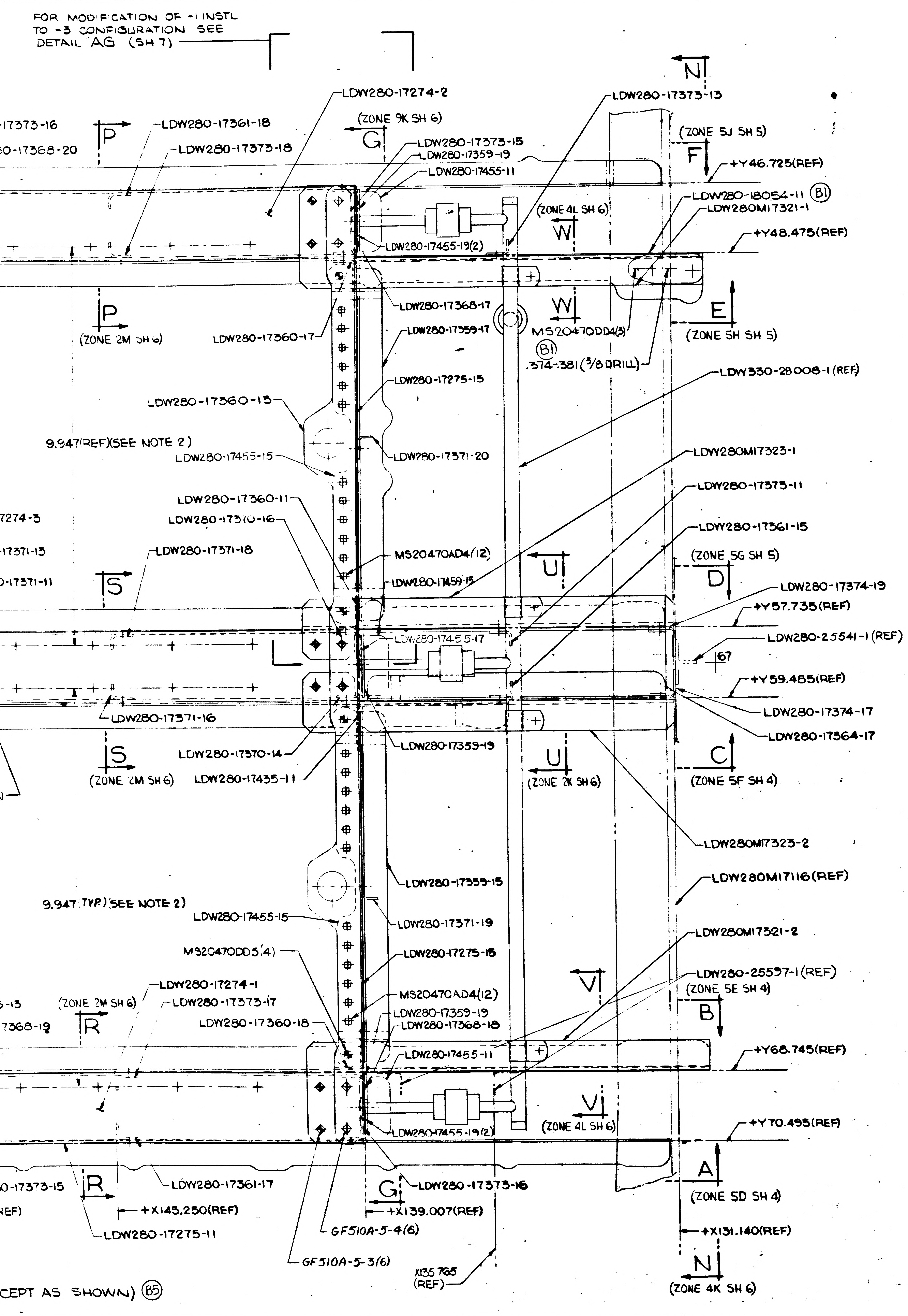
REMOVE LDW280-17275-15 (1)
LDW280-17275-17 (1)
LDW280-17275-19 (2)
LDW280-17371-20
LDW280-17372-11, -12 & -14 (1EA
LDW280-17455-13 (1)
LDW280-17455-15 (1)

& ATTACHING HARDWARE, TRIM EXIST PARTS AS SHOWN (SEE SHEET 7)

CODE IDENT NO 26512
LDW280-28570 SH 3

CODE IDENT NO 26512
LDW280-28570A SH 3

GEOM LOVERLAY D.S. Tran JD

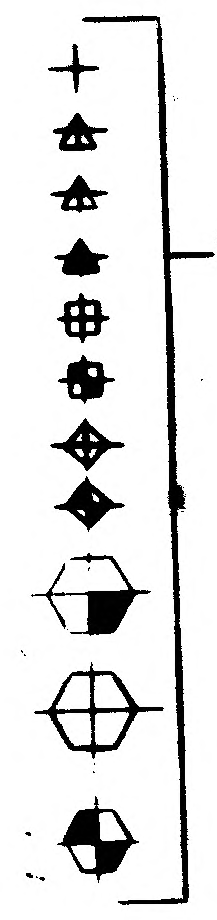

4
3
2
FOR MODIFICATION OF -1 INSTL TO -3 CONFIGURATION SEE DETAIL AG (SH 7)
LDW280-17274-2
-17373-16
-17368-20
P
LDW280-17361-18
LDW280-17373-18
(ZONE 9K SH 6)
G
LDW280-17373-15
LDW280-17359-19
LDW280-17455-11
N
LDW280-17373-13
(ZONE 5J SH 5)
F
+Y46.725(REF)
LDW280-18054-11 (B1)
LDW280M17321-1
(ZONE 4L SH 6)
W
+Y48.475(REF)
LDW280-17455-19(2)
LDW280-17368-17
P
(ZONE 2M SH 6)
LDW280-17360-17
LDW280-17359-17
W
MS20470DD4(3)
(B1)
.374-.381(3/8 DRILL)
E
(ZONE 5H SH 5)
LDW330-28008-1(REF)
LDW280-17275-15
LDW280-17360-13
9.947(REF)(SEE NOTE 2)
LDW280-17455-15
LDW280-17371-20
LDW280M17323-1
LDW280-17360-11
LDW280-17370-16
LDW280-17375-11
7274-3
-17371-13
-17371-11
LDW280-17371-18
LDW280-17361-15
MS20470AD4(12)
U
(ZONE 5G SH 5)
D
S
LDW280-17459-15
LDW280-17374-19
+Y57.735(REF)
LDW280-17455-17
LDW280-25541-1(REF)
L
67
+Y59.485(REF)
LDW280-17371-16
LDW280-17374-17
LDW280-17364-17
LDW280-17370-14
LDW280-17359-19
S
(ZONE 2M SH 6)
LDW280-17435-11
U
(ZONE 2K SH 6)
C
(ZONE 5F SH 4)
LDW280M17323-2
LDW280-17359-15
LDW280M17116(REF)
9.947 (TYP.)(SEE NOTE 2)
LDW280-17455-15
LDW280-17371-19
LDW280-17275-15
MS20470DD5(4)
LDW280M17321-2
LDW280-25597-1(REF)
(ZONE 5E SH 4)
V
-13
(ZONE 2M SH 6)
LDW280-17274-1
LDW280-17373-17
MS20470AD4(12)
7368-19
R
LDW280-17360-18
LDW280-17359-19
LDW280-17368-18
B
LDW280-17455-11
+Y68.745(REF)
V
(ZONE 4L SH 6)
LDW280-17455-19(2)
+Y70.495(REF)
-17373-15
R
LDW280-17361-17
G
LDW280-17373-16
A
(ZONE 5D SH 4)
REF)
+X145.250(REF)
+X139.007(REF)
LDW280-17275-11
GF510A-5-4(6)
+X131.140(REF)
GF510A-5-3(6)
X135.765 (REF)
N
(ZONE 4K SH 6)
CEPT AS SHOWN) (B5)
4
3

90
30

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. ON INSTALLATION CORRESPONDING HOLES IN ADJACENT COLD RAILS SHALL BE WITHIN .006 AS SHOWN.
3. ~~FINAL HOLE SIZE FOR GR500A-5 & GR501A-5 SHALL BE (.160-.164) GR500A-6 SHALL BE (.192-.196)~~
4. FOR HOLES MARKED ▲ SEE LSC390-26 (E.C.A), LSC390-22000 (BATTERY), & LDW390-28065 (E.D. BATTERY BRKT.) FOR CORRESPONDING HOLE PATTERN.
5. ALL ABBREVIATIONS ARE PER MIL-STD12 EXCEPT AS NOTED:-
   E.P.S. - ELECTRICAL POWER SYSTEMS
   E.D.B.S. - EXPLOSIVE DEVICES BATTERIES SUPPORTS
   E.C.A - ELECTRONIC CONTROL ASSY.
6. FOR MAX. FASTENER DIA. (.1895).
7. UNLESS OTHERWISE SPECIFIED ALL RIVETING THRU LDW280-17275-11, -13, -15 -17, -19 & -21 & LDW280-17276-13 WEBS TO HAVE MFG HD OF RIVET ON WEB SIDE. INSTALL RIVETS WET AND OVERCOAT RIVET HEADS WITH EPON 919 PER LSP14-14102.
8. ~~FINAL HOLE SIZE FOR GR500A-4 SHALL BE (.129-.132) GF510A-5 SHALL BE (.164-.167)~~
9. C'SK LDW280-17274-1, -2 & -3 TO ALLOW MFG. HEAD OF GR501A RIVETS .002-.010 BELOW THE SURFACE. NO TRIMMING OF RIVET HEADS ALLOWED AFTER ASSEMBLY.
10. SHIM MATL AL. ALLOY, QQ-A-250/4, 2024-T3, FIN 88
11. FOR LTA-8, GR500A4E MAY BE USED AS AN ALTERNATE FOR MS20470DD4
12. INSTALL GR500A & GF510A-5 PER LSP14-15303 & LSP14-15304

SYMBOL LEGEND



SYMBOLS ARE FOR QUANTITY AND LOCATION ONLY

13. FOR REWORK OF -1 INST TO -3 CONFIGURATION FASTENERS MARKED ⊕ ARE TO BE REMOVED, HOLES NEED NOT BE PLUGGED.
14. -3 SHALL BE MADE FROM -1 BY REWORKING AS FOLLOWS:
    REMOVE LDW280-17275-15 (1)
    LDW280-17275-17 (1)
    LDW280-17275-19 (2)
    LDW280-17371-20
    LDW280-17372-11, -12 & -14 (1EA)
    LDW280-17455-13 (1)
    LDW280-17455-15 (1)

& ATTACHING HARDWARE, TRIM EXISTING PARTS AS SHOWN (SEE SHEET 7)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE EDGE DISTANCE IS 1.5 FASTENER DIA FROM FASTENER ℄	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN. NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/16	✓

DWG SIZE 34x 108

PRINTING INFO ONLY

FULL SIZE SHEET AREA (36x108) = 27.0 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 6.8 SQ. FT.

PRINT TRIM LINE

C

B

LDW280-28570 B

LDW280-28570 B A

03/03

NAS 9-1100

CODE IDENT NO. 26512
LDW280-28570A SH 3

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-28570	B
LEM MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

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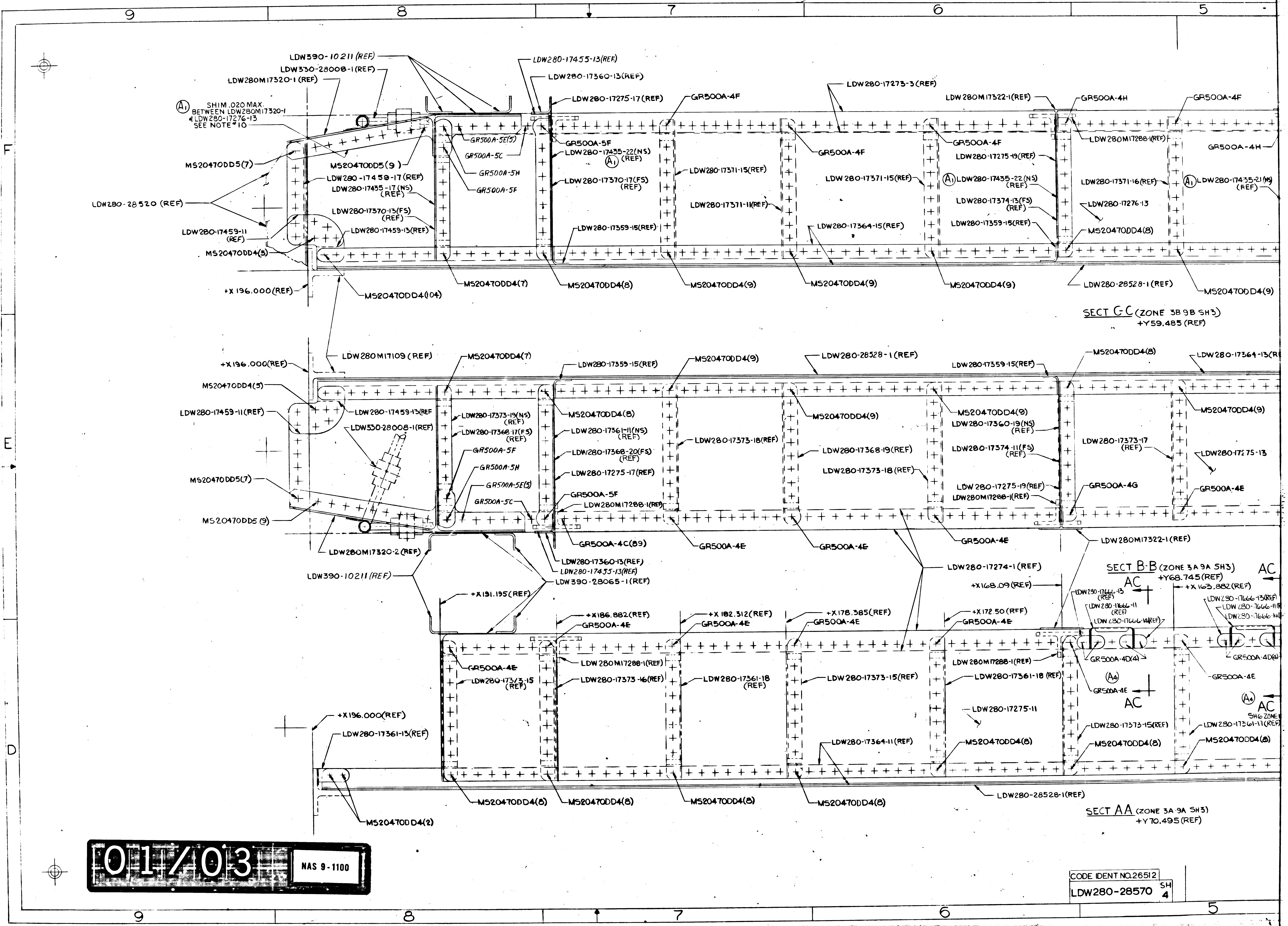
FOR PHOTO REPRODUCTION

ENG 73-7 6-64


9
8
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F
E
D
LDW390-10211 (REF)
LDW330-28008-1 (REF)
LDW280M17320-1 (REF)
(A1) SHIM .020 MAX. BETWEEN LDW280M17320-1 & LDW280-17276-13 SEE NOTE 10
LDW280-17455-13 (REF)
LDW280-17360-13 (REF)
LDW280-17275-17 (REF)
GR500A-4F
LDW280-17273-3 (REF)
LDW280M17322-1 (REF)
GR500A-4H
GR500A-4F
MS20470DD5(7)
MS20470DD5(9)
GR500A-5E(5)
GR500A-5C
GR500A-5H
GR500A-5F
GR500A-5F
LDW280-17435-22 (NS) (A1) (REF)
LDW280-17371-15 (REF)
GR500A-4F
GR500A-4F
LDW280M17288-1 (REF)
GR500A-4H
LDW280-28520 (REF)
LDW280-17459-17 (REF)
LDW280-17435-17 (NS) (REF)
LDW280-17370-13 (FS) (REF)
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LDW280-17371-11 (REF)
LDW280-17371-15 (REF)
LDW280-17275-19 (REF)
(A1) LDW280-17435-22 (NS) (REF)
LDW280-17374-13 (FS) (REF)
LDW280-17359-15 (REF)
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(A1) LDW280-17435-21 (NS) (REF)
LDW280-17276-13
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LDW280-17459-11 (REF)
MS20470DD4(5)
LDW280-17359-15 (REF)
LDW280-17364-15 (REF)
+X 196.000 (REF)
MS20470DD4(104)
MS20470DD4(7)
MS20470DD4(8)
MS20470DD4(9)
MS20470DD4(9)
MS20470DD4(9)
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MS20470DD4(9)
SECT C-C (ZONE 3B 9B SH3)
+Y59.485 (REF)
+X196.000 (REF)
LDW280M17109 (REF)
MS20470DD4(7)
LDW280-17359-15 (REF)
MS20470DD4(9)
LDW280-28528-1 (REF)
LDW280-17359-15 (REF)
MS20470DD4(8)
LDW280-17364-13 (REF)
MS20470DD4(5)
LDW280-17459-11 (REF)
LDW280-17459-13 (REF)
LDW280-17373-19 (NS) (REF)
LDW280-17368-17 (FS) (REF)
MS20470DD4(8)
MS20470DD4(9)
MS20470DD4(9)
LDW280-17360-19 (NS) (REF)
MS20470DD4(9)
LDW330-28008-1 (REF)
LDW280-17361-11 (NS) (REF)
LDW280-17373-18 (REF)
LDW280-17368-20 (FS) (REF)
LDW280-17368-19 (REF)
LDW280-17374-11 (FS) (REF)
LDW280-17373-17 (REF)
LDW280-17275-13
GR500A-5F
GR500A-5H
LDW280-17275-17 (REF)
LDW280-17373-18 (REF)
MS20470DD5(7)
GR500A-5E(5)
GR500A-5C
GR500A-5F
LDW280M17288-1 (REF)
LDW280-17275-19 (REF)
LDW280M17288-1 (REF)
GR500A-4G
GR500A-4E
MS20470DD5(9)
GR500A-4C(89)
GR500A-4E
GR500A-4E
GR500A-4E
LDW280M17322-1 (REF)
LDW280M17320-2 (REF)
LDW280-17360-13 (REF)
LDW280-17455-13 (REF)
LDW390-10211 (REF)
LDW390-28065-1 (REF)
LDW280-17274-1 (REF)
SECT B-B (ZONE 3A 9A SH3)
+Y68.745 (REF)
AC
AC
+X168.09 (REF)
+X 163.882 (REF)
LDW280-17666-13 (REF)
LDW280-17666-11 (REF)
LDW280-17666-14 (REF)
LDW280-17666-13 (REF)
LDW280-17666-11 (REF)
LDW280-17666-14 (REF)
+X191.195 (REF)
+X186.882 (REF)
GR500A-4E
+X 182.312 (REF)
GR500A-4E
+X178.385 (REF)
GR500A-4E
+X172.50 (REF)
GR500A-4E
GR500A-4D(4)
GR500A-4D(4)
GR500A-4E
LDW280M17288-1 (REF)
LDW280M17288-1 (REF)
GR500A-4E
LDW280-17373-15 (REF)
LDW280-17373-16 (REF)
LDW280-17361-18 (REF)
LDW280-17373-15 (REF)
LDW280-17361-18 (REF)
(A4) GR500A-4E
AC
(A4) AC SH6 ZONE
+X196.000 (REF)
LDW280-17361-13 (REF)
LDW280-17275-11
LDW280-17373-15 (REF)
LDW280-17361-11 (REF)
LDW280-17364-11 (REF)
MS20470DD4(8)
MS20470DD4(8)
MS20470DD4(8)
MS20470DD4(8)
MS20470DD4(8)
MS20470DD4(8)
MS20470DD4(8)
MS20470DD4(2)
LDW280-28528-1 (REF)
SECT AA (ZONE 3A 9A SH3)
+Y70.495 (REF)
9
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NAS 9-1100

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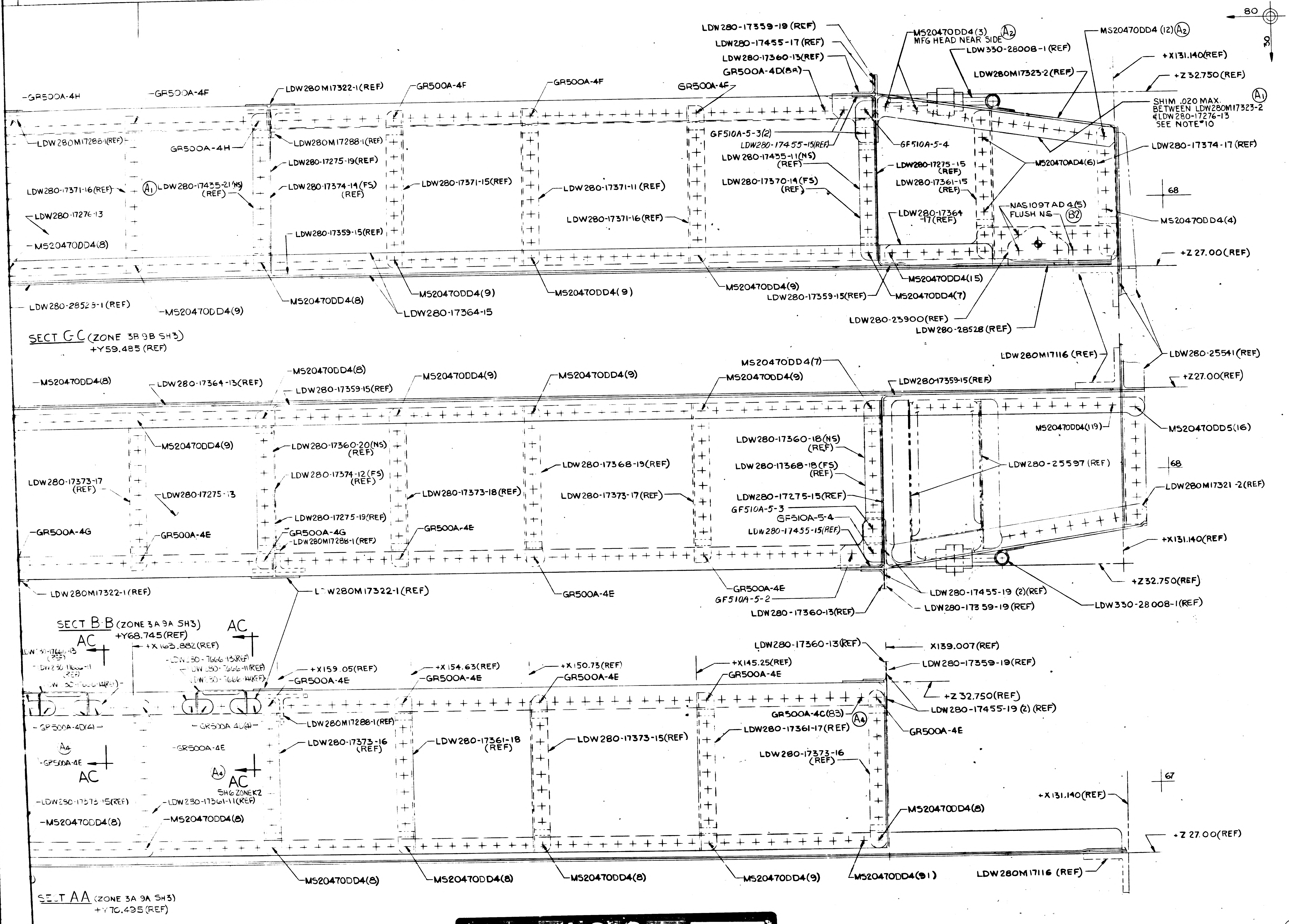
CODE IDENT NO. 26512

LDW280-28570 SH 4



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4
3
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80
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LDW280-17359-19 (REF)
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02/03

NAS 9-1100

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W280-28570 SH 4

CODE IDENT NO. 26512
LDW280-28570 SH 4

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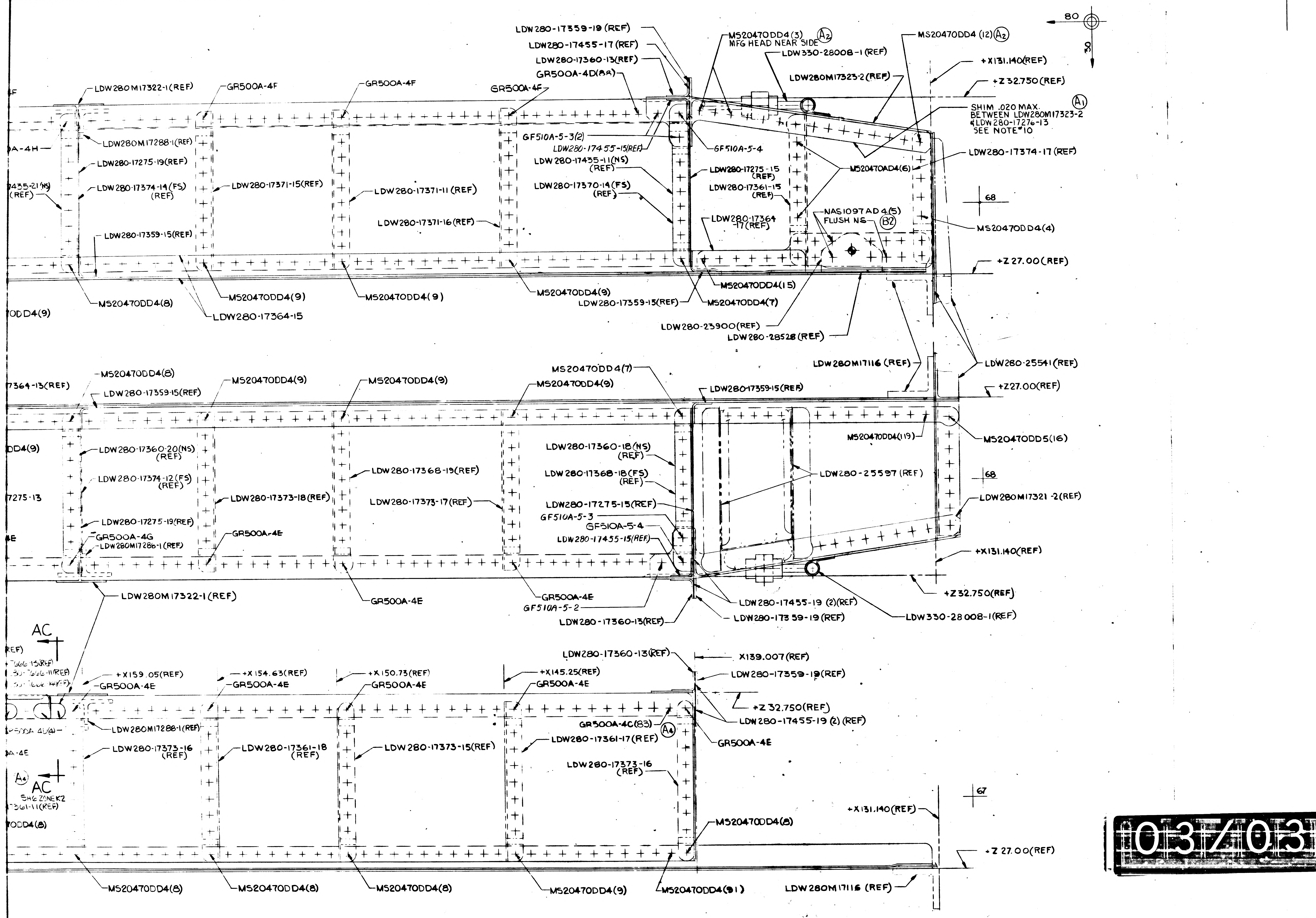
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(A4)
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MS20470DD4(9)
MS20470DD4(91)
LDW280M17116 (REF)
4
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03/03

NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34x 94
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36x 96) = 24.0 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 6.0 SQ. FT.
PRINT TRIM LINE

LDW280-28570 B

LDW280-28570 B

TRAM
L3

CODE IDENT NO. 26512
LDW280-28570 SH 4

LEM
MODEL OR END ITEM
GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
J	26512	LDW280-28570	B ③
SCALE FULL		SHEET 4.00	

K2

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ENG 73-7 6-64

9 8 7 6 5

J

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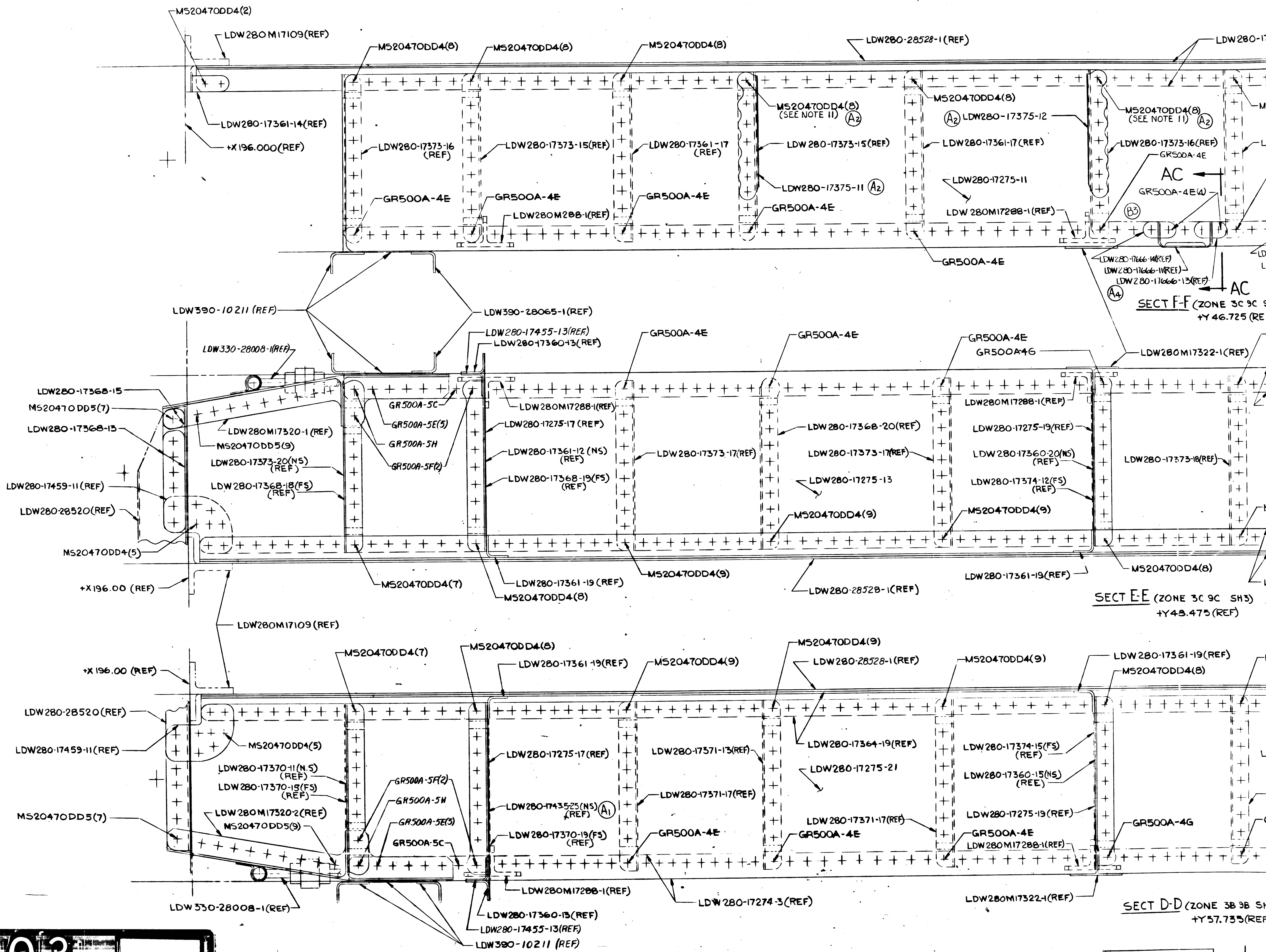
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01/03 NAS 9-1100

CODE IDENT NO.26512
LDW280-28570 SH 5

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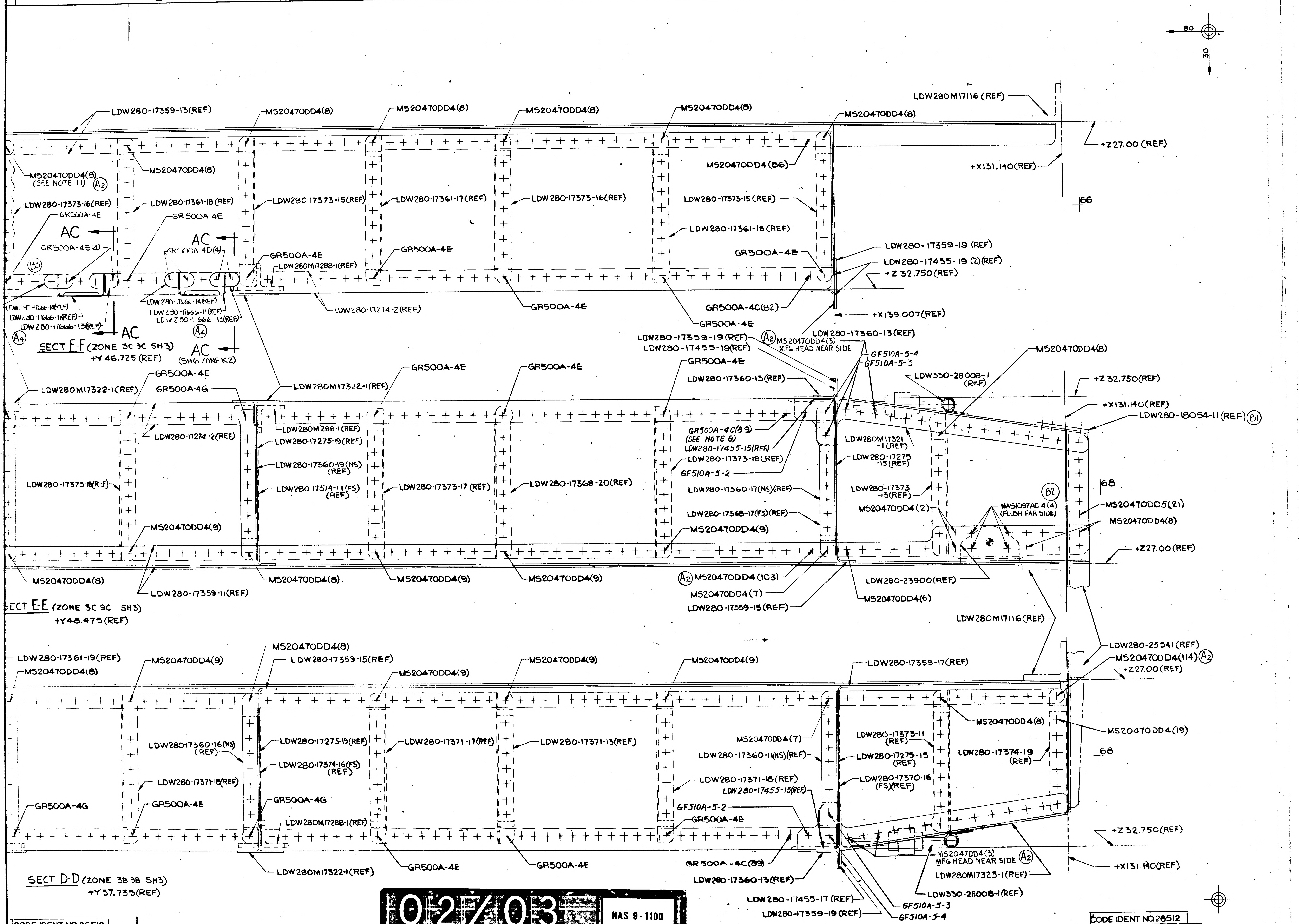
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+Y57.735(REF)

02/03

NAS 9-1100

CODE IDENT NO.26512
LDW280-28570 SH 5

CODE IDENT NO.26512
LDW280-28570 SH 5

LEM
MODEL OR END ITEM
GRUMMAN AIRCRAFT ENGRG CORP. BETH
SIZE J CODE IDENT NO. 26512 LDW280
SCALE FULL

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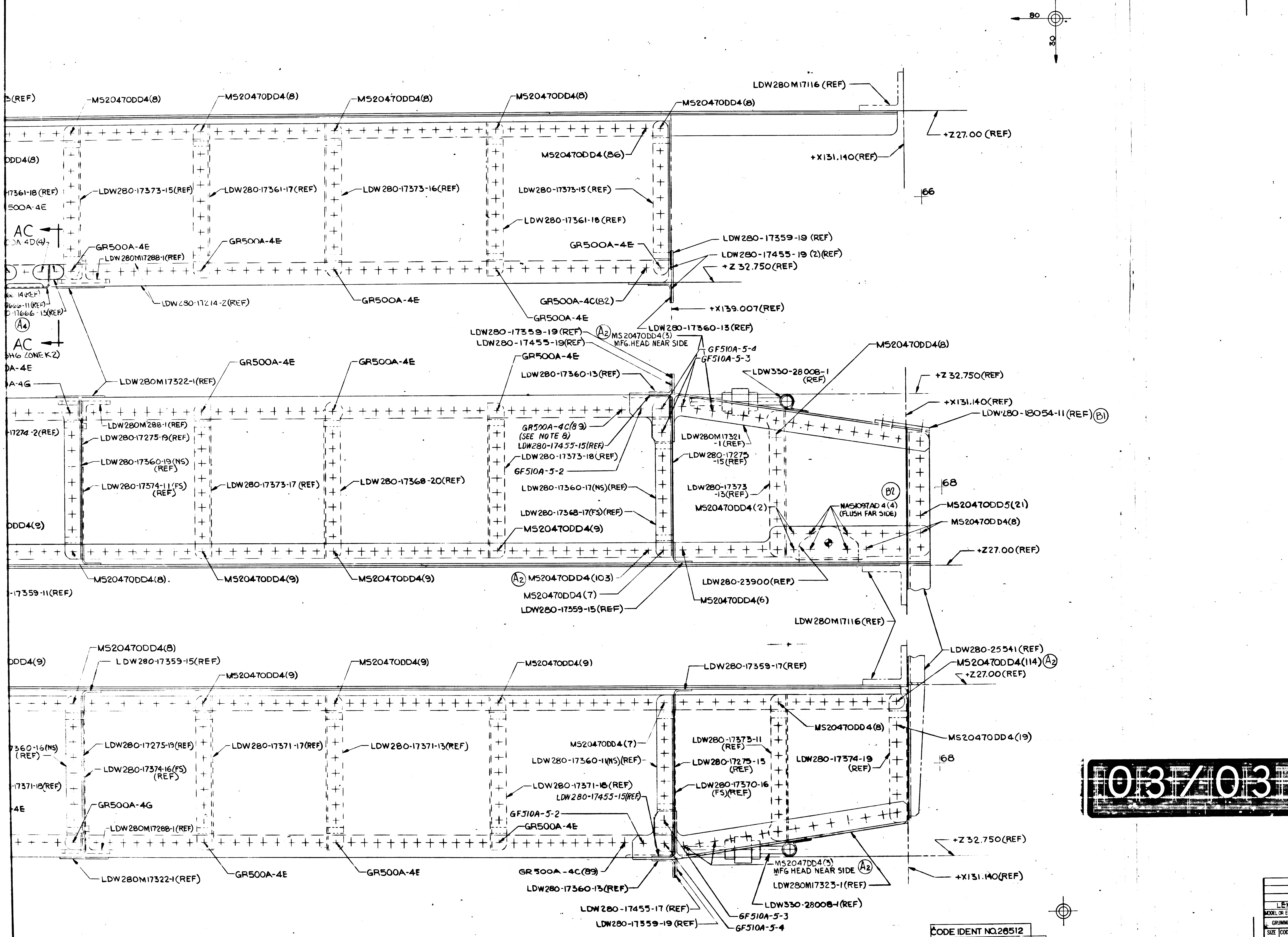

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GR500A-4E
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SH6 ZONE K2
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(FLUSH FAR SIDE)
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LDW280-17359-19(REF)
GF510A-5-4

03/03

NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ☒
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING.

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34x 94

PRINTING INFO ONLY

FULL SIZE SHEET AREA (36x 96) = 24.0 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 6.0 SQ. FT.

PRINT TRIM LINE

J

H

LDW280-28570 B

G

LDW280-28570 B

CODE IDENT NO.26512
LDW280-28570 SH 5

LEM
MODEL OR END ITEM

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

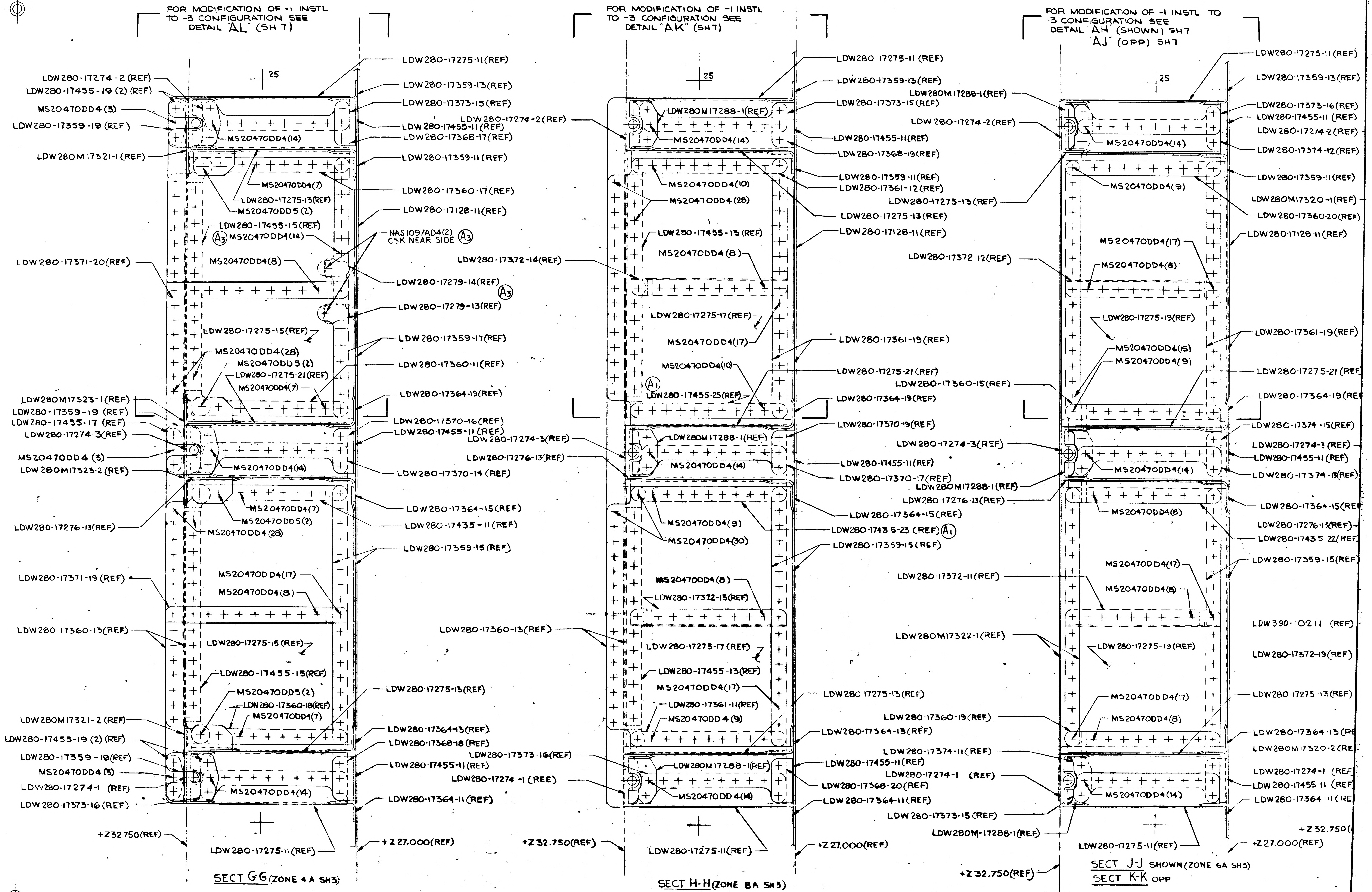
SIZE	CODE IDENT NO.		
J	26512	LDW280-28570	B

SCALE FULL
SHEET 5.00

K2

FOR PHOTO REPRODUCTION

ENG 73-7 6-64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M
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K
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SECT G-G (ZONE 4 A SH3)

SECT H-H (ZONE 8A SH3)

SECT J-J SHOWN (ZONE 6A SH3)
SECT K-K OPP

3/3

01Z03 NAS 9-1100

CODE IDENT NO. 26512	
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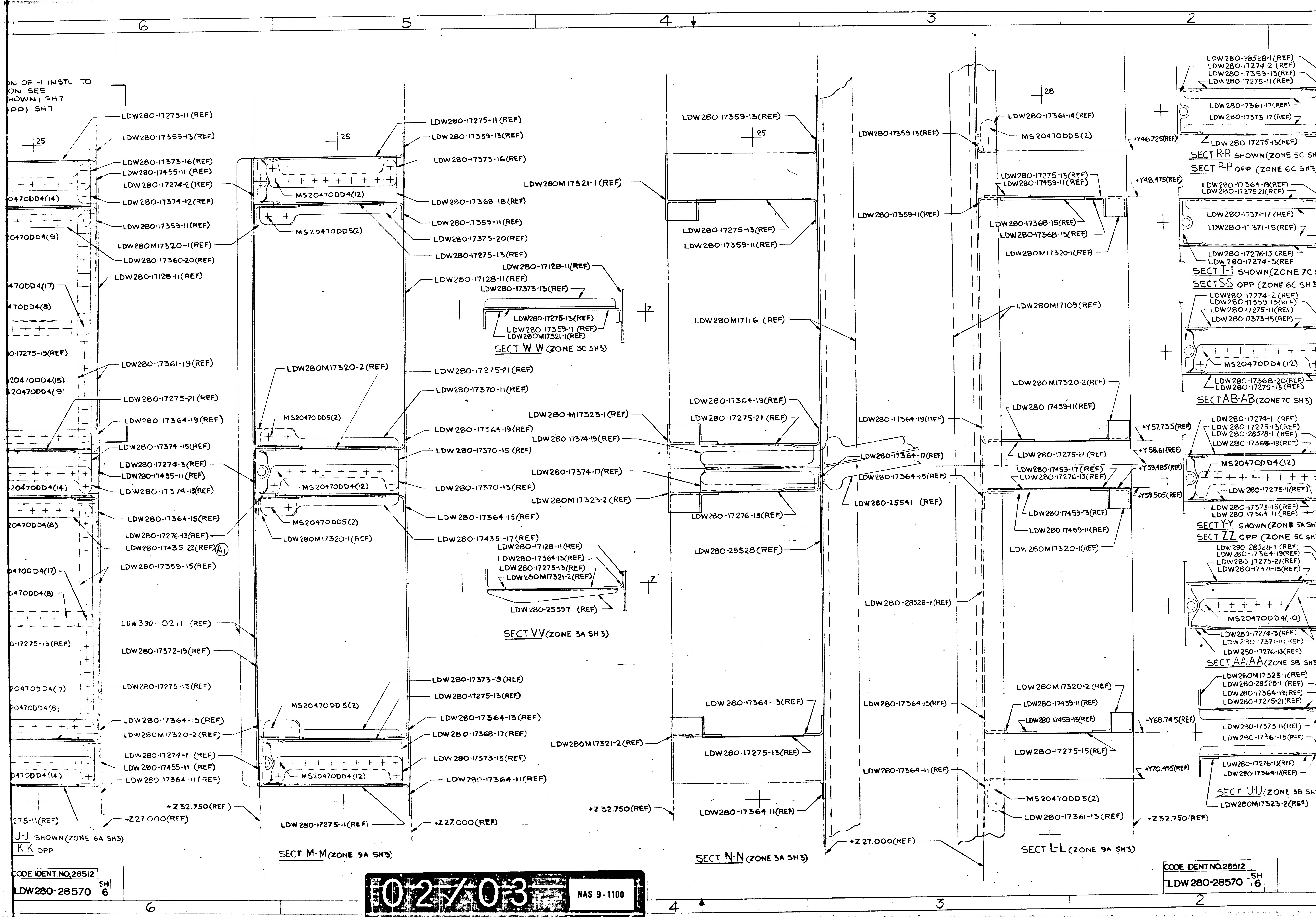

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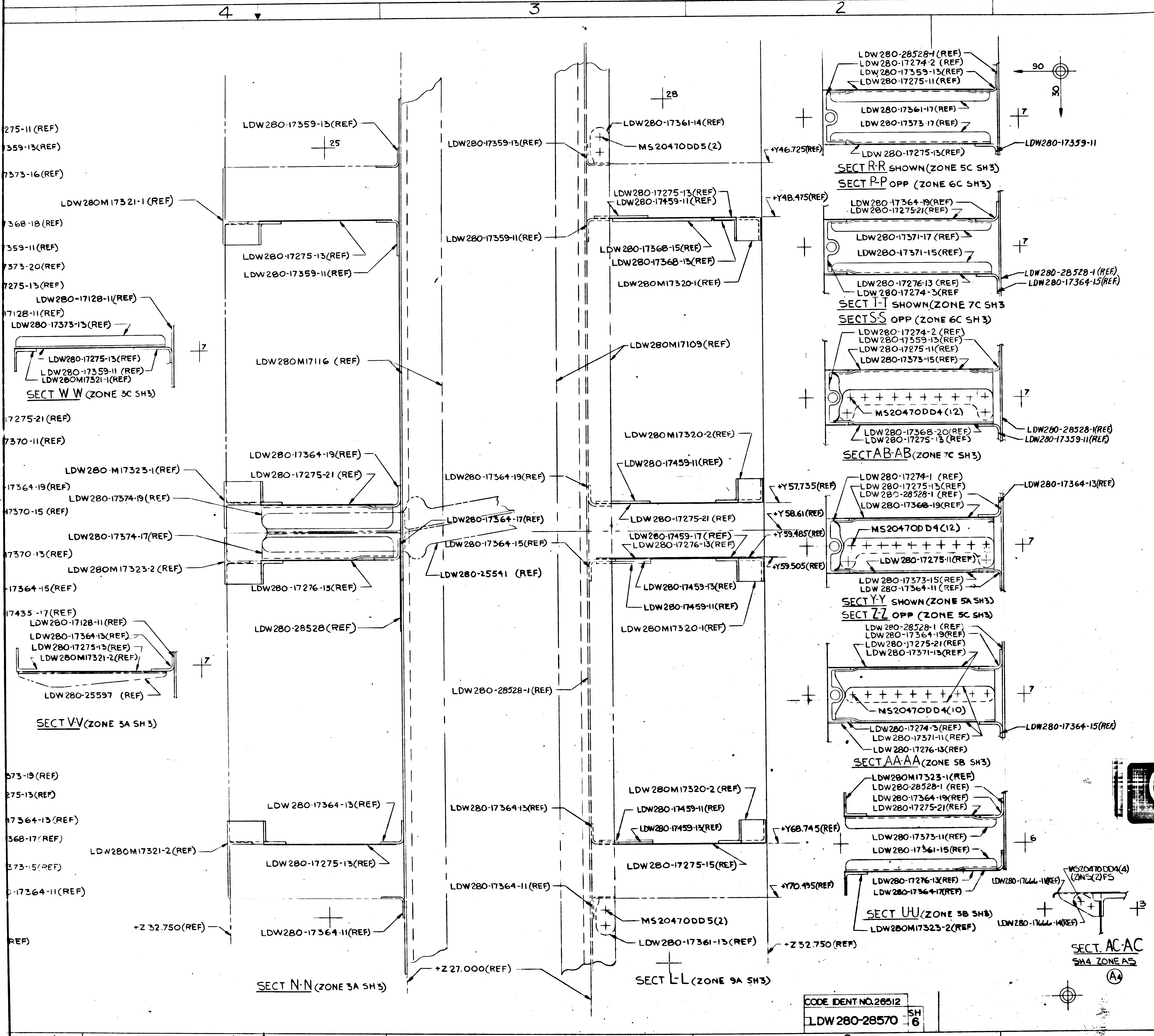
02/03

NAS 9-1100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LDW280-17361-14(REF)
MS20470DD5(2)
+Y46.725(REF)
LDW280-17275-13(REF)
LDW280-17459-11(REF)
+Y48.475(REF)
LDW280-17359-11(REF)
LDW280-17368-15(REF)
LDW280-17368-13(REF)
LDW280M17320-1(REF)
LDW280M17109(REF)
LDW280M17320-2(REF)
LDW280-17459-11(REF)
LDW280-17364-19(REF)
+Y57.735(REF)
LDW280-17364-17(REF)
LDW280-17275-21 (REF)
+Y58.61(REF)
LDW280-17459-17(REF)
LDW280-17276-13(REF)
+Y59.485(REF)
LDW280-17364-15(REF)
+Y59.505(REF)
LDW280-25541 (REF)
LDW280-17459-13(REF)
LDW280-17459-11(REF)
LDW280M17320-1(REF)
LDW280-28528-1(REF)
LDW280M17320-2 (REF)
LDW280-17364-13(REF)
LDW280-17459-11(REF)
LDW280-17459-13(REF)
+Y68.745(REF)
LDW280-17275-15(REF)
LDW280-17364-11(REF)
+Y70.495(REF)
MS20470DD5(2)
LDW280-17361-13(REF)
+Z 32.750(REF)
+Z 27.000(REF)
SECT L-L (ZONE 9A SH3)
90
30
LDW280-28528-1(REF)
LDW280-17274-2 (REF)
LDW280-17359-13(REF)
LDW280-17275-11(REF)
LDW280-17361-17(REF)
LDW280-17373-17(REF)
LDW280-17359-11
LDW280-17275-13(REF)
SECT R-R SHOWN (ZONE 5C SH3)
SECT P-P OPP (ZONE 6C SH3)
7
LDW280-17364-19(REF)
LDW280-17275-21(REF)
LDW280-17371-17 (REF)
LDW280-17371-15(REF)
LDW280-28528-1(REF)
LDW280-17364-15(REF)
LDW280-17276-13 (REF)
LDW280-17274-3(REF
SECT T-T SHOWN (ZONE 7C SH3)
SECT S-S OPP (ZONE 6C SH3)
LDW280-17274-2 (REF)
LDW280-17359-13(REF)
LDW280-17275-11(REF)
LDW280-17373-15(REF)
MS20470DD4(12)
LDW280-28528-1(REF)
LDW280-17359-11(REF)
LDW280-17368-20(REF)
LDW280-17275-13 (REF)
SECT AB-AB (ZONE 7C SH3)
LDW280-17274-1 (REF)
LDW280-17275-13(REF)
LDW280-28528-1 (REF)
LDW280-17368-19(REF)
LDW280-17364-13(REF)
MS20470DD4(12)
LDW280-17275-11(REF)
LDW280-17373-15(REF)
LDW280-17364-11 (REF)
SECT Y-Y SHOWN (ZONE 5A SH3)
SECT Z-Z OPP (ZONE 5C SH3)
LDW280-28528-1 (REF)
LDW280-17364-19(REF)
LDW280-17275-21(REF)
LDW280-17371-13(REF)
MS20470DD4(10)
LDW280-17364-15(REF)
LDW280-17274-3(REF)
LDW280-17371-11(REF)
LDW280-17276-13(REF)
SECT AA-AA (ZONE 5B SH3)
LDW280M17323-1(REF)
LDW280-28528-1 (REF)
LDW280-17364-19(REF)
LDW280-17275-21(REF)
6
LDW280-17373-11(REF)
LDW280-17361-15(REF)
LDW280-17276-13(REF)
LDW280-17364-17(REF)
SECT U-U (ZONE 5B SH3)
LDW280M17323-2(REF)
LDW280-17666-11(REF)
MS20470DD4(4)
(2)NS(2)FS
LDW280-17666-14(REF)
3
SECT AC-AC
SH4 ZONE A5
A4

CODE IDENT NO. 26512
LDW 280-28570 SH 6

03/03 NAS 9-1100

M
L
LDW280-28570 B
LDW280-28570 B
K

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

~~PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.~~

~~FILLET AND INSIDE CORNER RADII TOLERANCES~~
~~.016R TO .062R ± .010~~
~~.063R TO .250R ± .015~~
~~OVER .250R ± .030~~

~~DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE~~

~~EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.~~

~~DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.~~

~~MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.~~

~~DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING.~~

~~HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.~~

~~ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES~~

~~125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10~~

~~200 FOR ALL DRILLED HOLES~~

~~REMOVE ALL BURRS. BREAK ALL EDGES .015-.031~~

~~INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS~~

~~SYMBOL ✓ DENOTES SURFACE TO BE MACHINED~~

~~UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32~~

~~LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED~~

~~TOLERANCE ON LOFTED DELINEATIONS IS~~

DWG SIZE 34x
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36x 108) = 27 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = 6.75 SQ. FT.
PRINT TRIM LINE

	R GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK
LEM	SIZE J · CODE IDENT NO. 26512 · LDW 280-28570 · B
MODEL OR END ITEM	SCALE FULL · SHEET 6.00

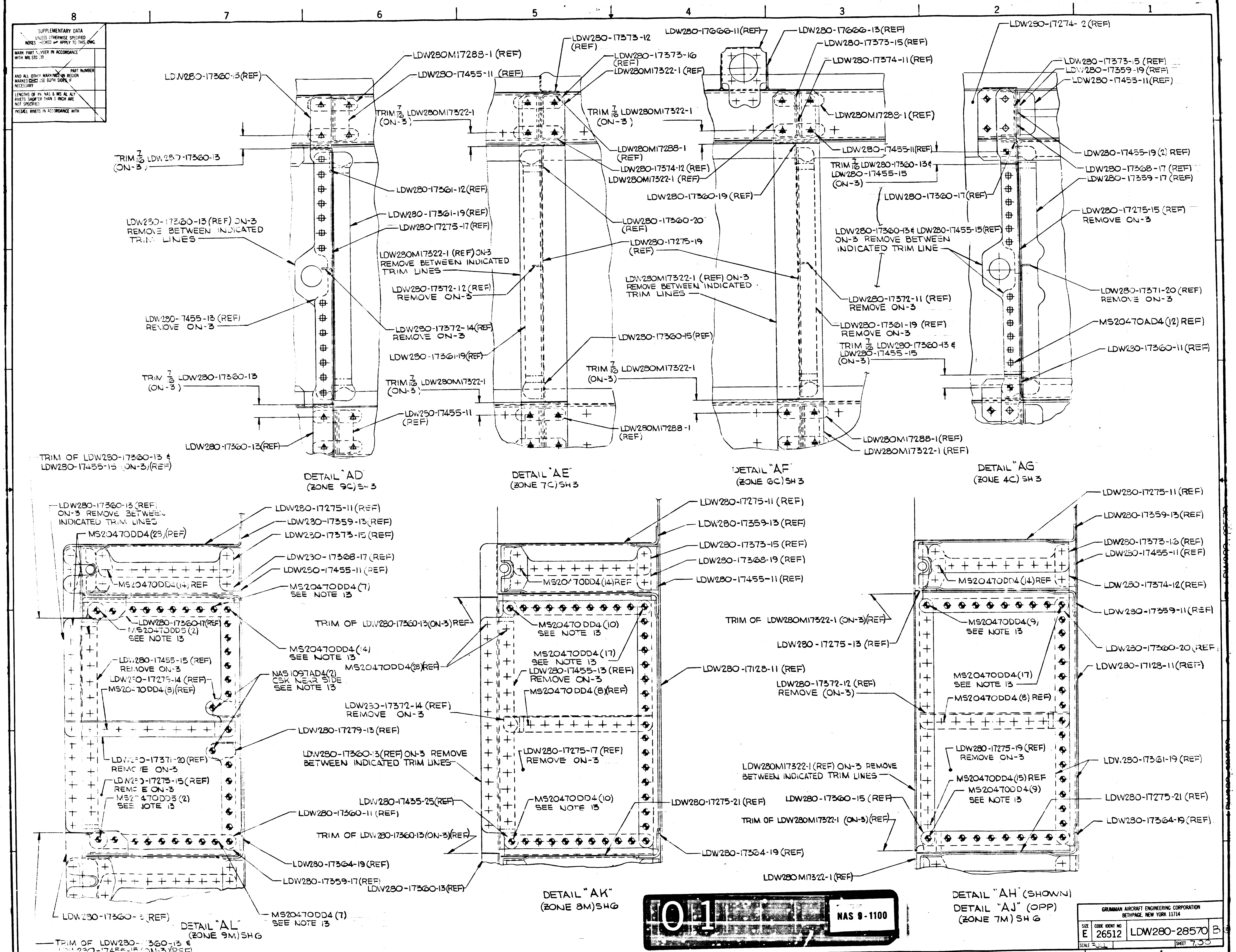
Ⓑ

FOR PHOTO REPRODUCTION K2

ENG 73-7 6-64

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	
LENGTHS OF AN NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	


8
7
6
5
4
3
2
1
LDW280-17360-13(REF)
LDW280M17288-1 (REF)
LDW280-17455-11 (REF)
TRIM 7/16 LDW280M17322-1 (ON-3)
TRIM 7/16 LDW280-17360-13 (ON-3)
LDW280-17361-12(REF)
LDW280-17361-19(REF)
LDW280-17275-17(REF)
LDW280-17360-13 (REF) ON-3 REMOVE BETWEEN INDICATED TRIM LINES
LDW280M17322-1 (REF) ON-3 REMOVE BETWEEN INDICATED TRIM LINES
LDW280-17372-12 (REF) REMOVE ON-3
LDW280-17455-13 (REF) REMOVE ON-3
LDW280-17372-14(REF) REMOVE ON-3
LDW280-17361-19(REF)
TRIM 7/16 LDW280-17360-13 (ON-3)
TRIM 7/16 LDW280M17322-1 (ON-3)
LDW280-17455-11 (REF)
LDW280-17360-13(REF)
TRIM OF LDW280-17360-13 & LDW280-17455-15 (ON-3)(REF)
DETAIL "AD" (ZONE 9C) SH 3
LDW280-17373-12 (REF)
LDW280-17373-16 (REF)
LDW280M17322-1 (REF)
TRIM 7/16 LDW280M17322-1 (ON-3)
LDW280M17288-1 (REF)
LDW280-17374-12 (REF)
LDW280M17322-1 (REF)
LDW280-17360-20 (REF)
LDW280-17275-19 (REF)
LDW280M17322-1 (REF) ON-3 REMOVE BETWEEN INDICATED TRIM LINES
LDW280-17360-15(REF)
TRIM 7/16 LDW280M17322-1 (ON-3)
LDW280M17288-1 (REF)
DETAIL "AE" (ZONE 7C) SH 3
LDW280-17666-11(REF)
LDW280-17666-13(REF)
LDW280-17373-15(REF)
LDW280-17374-11(REF)
LDW280M17288-1(REF)
LDW280-17455-11(REF)
TRIM 7/16 LDW280-17360-13 & LDW280-17455-15 (ON-3)
LDW280-17360-19 (REF)
LDW280-17372-11 (REF) REMOVE ON-3
LDW280-17361-19 (REF) REMOVE ON-3
TRIM 7/16 LDW280-17360-13 & LDW280-17455-15 (ON-3)
LDW280M17288-1(REF)
LDW280M17322-1 (REF)
DETAIL "AF" (ZONE 6C) SH 3
LDW280-17274-2 (REF)
LDW280-17373-15 (REF)
LDW280-17359-19 (REF)
LDW280-17453-11(REF)
LDW280-17455-19 (2) REF)
LDW280-17368-17 (REF)
LDW280-17359-17 (REF)
LDW280-17360-17(REF)
LDW280-17275-15 (REF) REMOVE ON-3
LDW280-17360-13 & LDW280-17455-15(REF) ON-3 REMOVE BETWEEN INDICATED TRIM LINE
LDW280-17371-20 (REF) REMOVE ON-3
MS20470AD4 (12) REF)
LDW280-17360-11 (REF)
DETAIL "AG" (ZONE 4C) SH 3
LDW280-17360-13 (REF) ON-3 REMOVE BETWEEN INDICATED TRIM LINES
MS20470DD4(28)(REF)
LDW280-17275-11(REF)
LDW280-17359-13(REF)
LDW280-17373-15(REF)
LDW280-17368-17 (REF)
LDW280-17455-11 (REF)
MS20470DD4(14) REF
MS20470DD4 (7) SEE NOTE 13
LDW280-17360-17(REF)
MS20470DD5 (2) SEE NOTE 13
MS20470DD4(14) SEE NOTE 13
LDW280-17455-15 (REF) REMOVE ON-3
LDW280-17275-14 (REF)
MS20470DD4(8)(REF)
NAS1097AD4(2) CSK NEAR SIDE SEE NOTE 13
LDW280-17279-13 (REF)
LDW280-17371-20 (REF) REMOVE ON-3
LDW280-17275-15 (REF) REMOVE ON-3
MS20470DD5 (2) SEE NOTE 13
LDW280-17360-11 (REF)
LDW280-17364-19(REF)
LDW280-17359-17(REF)
LDW280-17360-3 (REF)
MS20470DD4 (7) SEE NOTE 13
DETAIL "AL" (ZONE 9M) SH 6
TRIM OF LDW280-17360-13 & LDW280-17455-15(ON-3)(REF)
TRIM OF LDW280-17360-13(ON-3)(REF)
MS20470DD4(28)(REF)
LDW280-17372-14 (REF) REMOVE ON-3
LDW280-17360-13(REF) ON-3 REMOVE BETWEEN INDICATED TRIM LINES
LDW280-17435-25(REF)
TRIM OF LDW280-17360-13(ON-3)(REF)
LDW280-17360-13(REF)
LDW280-17275-11 (REF)
LDW280-17359-13 (REF)
LDW280-17373-15 (REF)
LDW280-17368-19 (REF)
LDW280-17455-11 (REF)
MS20470DD4(14)REF
MS20470 DD4 (10) SEE NOTE 13
MS20470DD4 (17) SEE NOTE 13
LDW280-17455-13 (REF) REMOVE ON-3
MS20470 DD4 (8)(REF)
LDW280-17275-17 (REF) REMOVE ON-3
MS20470DD4 (10) SEE NOTE 13
LDW280-17275-21 (REF)
LDW280-17364-19 (REF)
LDW280-17128-11 (REF)
DETAIL "AK" (ZONE 8M) SH 6
TRIM OF LDW280M17322-1 (ON-3)(REF)
LDW280-17275-13 (REF)
LDW280-17372-12 (REF) REMOVE (ON-3)
LDW280M17322-1 (REF) ON-3 REMOVE BETWEEN INDICATED TRIM LINES
LDW280-17360-15 (REF)
TRIM OF LDW280M17322-1 (ON-3)(REF)
LDW280M17322-1 (REF)
LDW280-17275-11 (REF)
LDW280-17359-13 (REF)
LDW280-17373-13 (REF)
LDW280-17455-11 (REF)
MS20470DD4 (14) REF
LDW280-17374-12 (REF)
LDW280-17359-11 (REF)
MS20470DD4 (9) SEE NOTE 13
LDW280-17360-20 (REF)
LDW280-17128-11 (REF)
MS20470DD4 (17) SEE NOTE 13
MS20470DD4 (8) REF
LDW280-17275-19 (REF) REMOVE ON-3
MS20470DD4 (15) REF
MS20470DD4 (9) SEE NOTE 13
LDW280-17361-19 (REF)
LDW280-17275-21 (REF)
LDW280-17364-19 (REF)
DETAIL "AH" (SHOWN) DETAIL "AJ" (OPP) (ZONE 7M) SH 6
01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
E	26512	LDW280-28570	B
SCALE FULL		SHEET 7.30	

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28570
EO NO. B2
CONTROL INFO NO. LEM-2-2565

IN F/D & B/M. ON-1 REPLACE; NAS1097DD4(9) WITH: NAS1097AD4(9) TO AGREE WITH E.O.

SHEET 2.04 B/M

NAS1097AD4 (WAS) NAS1097DD4

SHEET 4.00 ZONE 2-F

NAS1097AD4(5) (WAS) NAS1097DD4(5)
(FLUSH NS.) (FLUSH NS.)

SHEET 5.00 ZONE 2-H

NAS1097AD4(4) (WAS) NAS1097DD4(4)
(FLUSH FAR SIDE) (FLUSH FAR SIDE)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

2

REASON FOR EO: CALLED OUT MATERIAL NOT IN STOCK

DESCRIPTION OF EO: IN F/D & B/M. ON-1 NAS1097AD4(9) WAS NAS1097DD4(9)

GAEC EO RELEASE: ② C FR

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LEM		LEM-1(31)	
		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY								
DATE	8/1	10-4			3/11/66	3/11/66	8-13	8-12-66
8-8-66	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C2
DRAWING TITLE: COLD RAIL INSTL.-DESCENT STAGE R.H. FWD. BEAM PANEL-E.P.S. & E.D.S.
DRAWING NO.: LDW280-28570
EO NO.: B2

ISSUED BY LIAISON T.J.MARTIN -X3604 SECTION V.D.I. GROUP NO. 335 PL 35

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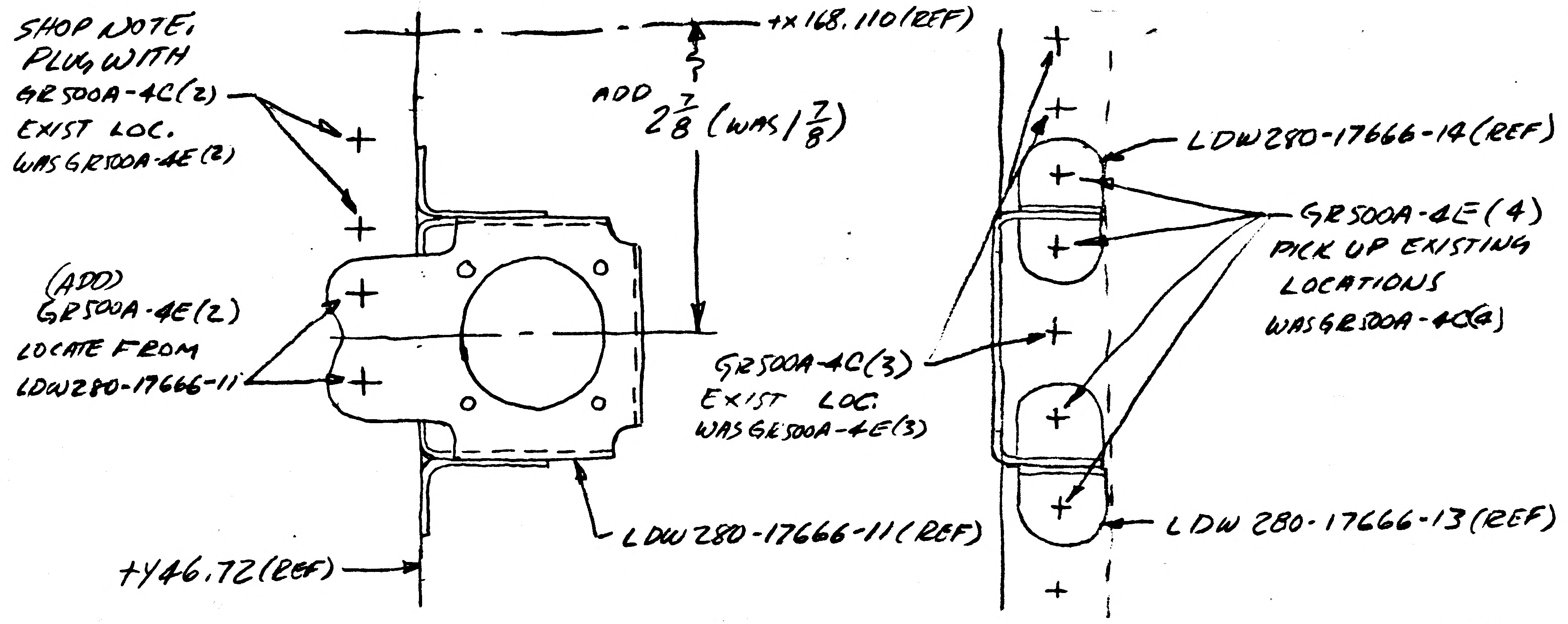
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28570
EO NO. B3
CONTROL INFO NO. LM5-9249

RELOCATE LDW280-17666-11-13 & -14 AS SHOWN;


SHOP NOTE: PLUG WITH GR500A-4C(2) EXIST LOC. WAS GR500A-4E(2)
+X168.110 (REF)
ADD 2 7/8 (WAS 1 7/8)
(ADD) GR500A-4E(2) LOCATE FROM LDW280-17666-11
GR500A-4C(3) EXIST LOC. WAS GR500A-4E(3)
LDW280-17666-14 (REF)
GR500A-4E(4) PICK UP EXISTING LOCATIONS WAS GR500A-4C(4)
LDW280-17666-11 (REF)
LDW280-17666-13 (REF)
+Y46.72 (REF)

LM5-9249

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: INTERFERENCE WITH CONNECTORS ON E.D. RELAY BOX

DESCRIPTION OF EO: IN F/D RELOCATED LDW280-17666-11 -13 & -14
ADDED GR500A-4E(2) ; GR500A-4E(4) WAS GR500A-4C(4)
GR500A-4C(3) WAS GR500A-4E(3)

GAEC EO RELEASE: C
FR

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	WT			~	wjm	JH	RM	
/ DATE	10/4/66			~	10/6/66	10-6-66	10-11-66	10-10-66
10/4/66	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: COLD RAIL INSTL-D/S-R.H. FWD BEAM PAN EPS, EDS & EPS ECLS SPT.
DRAWING NO. LDW280-28570
EO NO. B3

ISSUED BY T DALY / W TRAUT X6455 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28570
EO NO. C1
CONTROL INFO NO. LDW280B3981

REMOVE -3 INSTL FOR N/A LDW 280-28508
ON LTA-8 (18).

LFM

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☑	CL I ENGRG CHG ☐

LCD1021-5 PKG #2 (5)

REASON FOR EO: REV "C" OF LCR 1021-5 DELETES REQ'MT TO REMOVE THIRD COLD RAIL IN QII

DESCRIPTION OF EO: REMOVED -3 INSTL.

GAEC EO RELEASE: JK 6/19/68

MODEL	EFFECTIVITY	GAEC UNIT NO.	SUB CONTR UNIT NO.
	EI		
	~~[illegible]~~		
LM	LFM111	LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			-3
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY		MD		PST				Bauman
DATE	6/18/6	6-18-68		6-18-68	6/ /68		6/18/68	6/19/68
	VDI	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COLD RAIL INSTL ~ R.H. FWD BM PNL E.R.A. SPT, ~ QII (MOD)	LDW280-28570	C1

6-21-68
ISSUED BY J.J. Rogers / P. Thorjusen X1392 SECTION VEH DES & INT. GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-28579 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

LM	LDW280-28569	LTA-8(18)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28579-1		GAEC SCH NO. 51-2	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	2.01	3.00				
REV	A	A	A	A	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED F

LAST DASH NO. USED -1

GRUMMAN REL INFO

PRIM NO.	YK(601)		
207	MP-16A-10/3/		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED

FRACTIONS - DECIMALS – ANGLES

± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	H. DEUTSCH	RELIABILITY	
LAYOUT BY	C. DE ANGELIS		
CHECKED BY	M 5-4-67		
GR. LEADER	4/20/67		
VEH DES INT			
STRUCTURE	W/H 6/20	PROJ ENGR	9/29
STRUCTURE	6/20	REL GROUP	10/3/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PANEL INSTALLATION
DESCENT STAGE - SCIENTIFIC EQUIP
BAY - SUPPORT - L.H. END CLOSURE

SIZE	CODE IDENT NO.		
B	26512	LDW280-28579	A
SCALE	NONE	SHEET 1.00 OF 5	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 1.10 2.00, 2.01 3.00						EO A1	ADDED SH 1.10, 2.00, 2.01 & 3.00 EO A1, INITIAL DWG RELEASE PARTS MADE PER EO	LTA-8(18)	NOT	REQ'D	H. DEUTSCH 4-27-67		10/3/67
	2	1.10, 2.01 3.00	3D					EO A2	ON-1 REMOVED MS20470DD5(1) & REPLACED WITH GB511K-08-4 (1) & GN512H-08 (1). ADDED NOTE 2.		✓				
	3	1.10, 2.01 3.00	6C 5B 3B 5A						REF EO A1: LDW280-17215-17 (1 REQ'D) WAS (2 REQ'D). MS20426AD4 (CSK F.S.) WAS MS20426AD4. IN SECTION E-E ADDED GB511K-4-5 (2) & GN512H-4(2).		NOT	REQ'D			

	LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS	RELIABILITY
CHG APPROVED	A						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B CODE IDENT NO. 26512 LDW280-28579 A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1		LDW280-18055-19	E	PLATE	SEE DWG						3D
1		-17		PLATE							2B
1		-15		ANGLE							2A
1		-13		ANGLE							2B
1		LDW280-18055-11		ANGLE							2C
1		LDW280-17299-21		PLATE							4C
1		-19		GUSSET							5C
1		-17		PLATE							5B
4		-15		PLATE							6C
2		-13		PLATE							6C
1		LDW280-17299-11		GUSSET							3B
1		LDW280-17298-21		ANGLE							4B
1		-19		TEE							5C
1		-17		ANGLE							5C
1		-15		ANGLE							5C
1		LDW280-17298-13		ANGLE							3B
2		LDW280-17714-23		PLATE							3B
1		LDW280-17293-13		WEB							4B
1		LDW280-17714-21		PLATE							3B
1		LDW280-17215-19		PLATE							6B
1		-17		PLATE							6C
1		-16		ANGLE							3D
1		LDW280-17215-15		ANGLE							3D
1		LDW28C 17214-12		CHANNEL							3C
1		LDW280-17214-11		CHANNEL	SEE DWG						4C
		LDW280-28579-1	E	PANEL INSTL					NONE	NONE	4A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP 14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28579	A

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AS REQD		SEE NOTE 1	E	SHIM							
		MS20470DD5		RIVET	STD PART						
		MS20470DD4									
		MS20470AD4									
		MS20426AD4		RIVET	STD PART						
4		GN512H-4		COLLAR	GRUMMAN STD						
4		GN512H-08		COLLAR							
2		GB511K-4-3		BOLT							
2		GB511K-4-5		BOLT							
1		GB511K-08-4		BOLT							
3		GB511K-08-3		BOLT							
2		G120-.110-5-14A		SHIM							4C
1		G120-.075-4-5A		SHIM							3A
2		G120-.063-5-10A		SHIM	GRUMMAN STD						4B
1		LDW280M17548-1		FITTING	SEE DWG						5C
1		LDW280-18057-19		ANGLE							7B
1		-17		ANGLE							7C
1		-15		ANGLE							5B
1		-13		ANGLE							3A
1		LDW280-18057-11		PLATE							3A
1		LDW280-18056-11	E	ANGLE	SEE DWG						5B

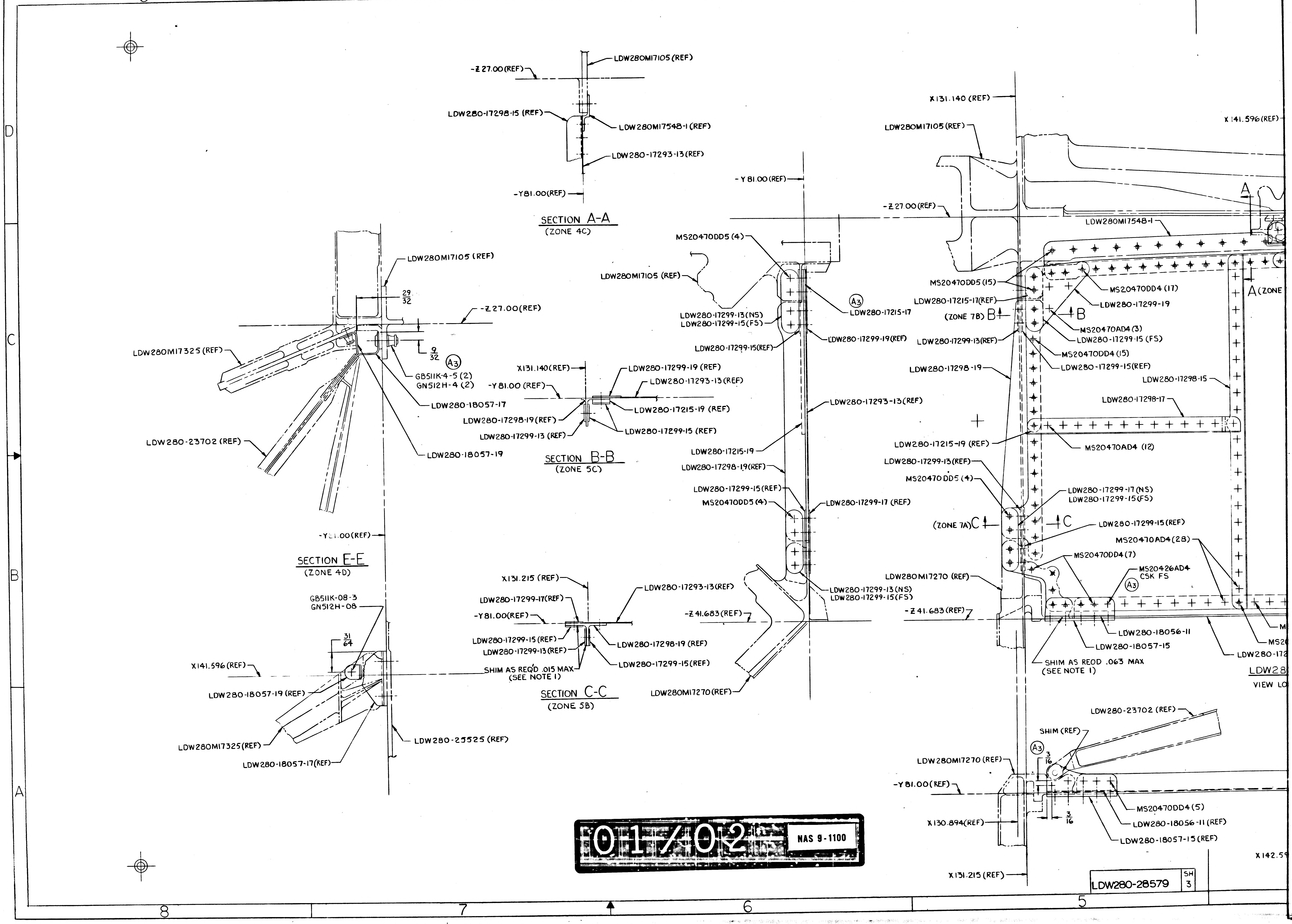
SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

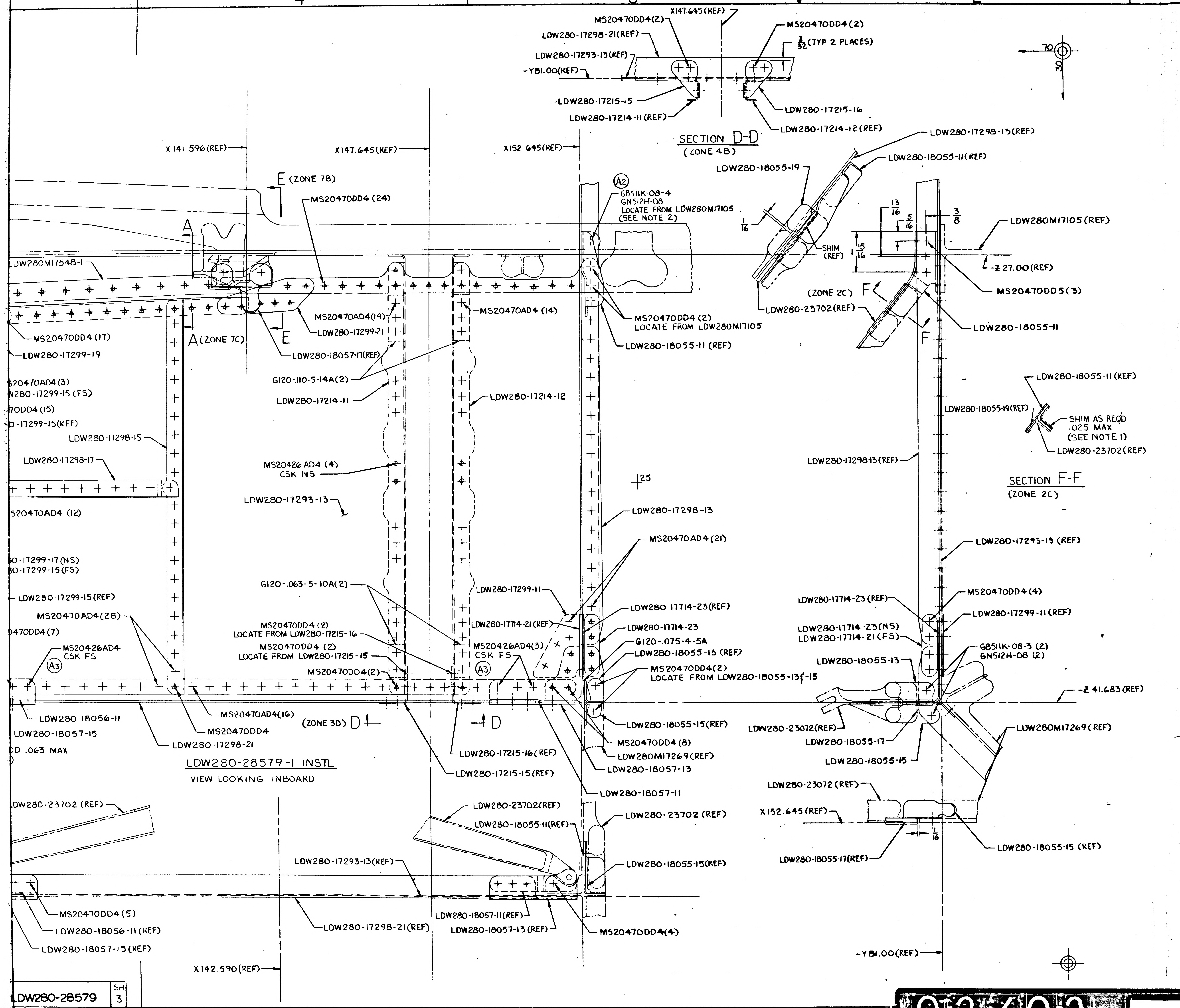
I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK
SIZE B
CODE IDENT NO. 26512
LDW280-28579
A
SCALE NONE
SHEET 2.01

ENG 77.2 7-65

01

NAS 9-1100


8
7
6
5
D
C
B
A
LDW280M17105 (REF)
-Z 27.00 (REF)
LDW280-17298-15 (REF)
LDW280M17548-1 (REF)
LDW280-17293-13 (REF)
-Y81.00 (REF)
SECTION A-A
(ZONE 4C)
X131.140 (REF)
LDW280M17105 (REF)
X 141.596 (REF)
-Y 81.00 (REF)
A
-Z 27.00 (REF)
LDW280M17548-1
MS20470DD5 (4)
LDW280M17105 (REF)
A3
LDW280-17215-17
LDW280-17299-13 (NS)
LDW280-17299-15 (FS)
LDW280-17299-15 (REF)
LDW280-17299-19 (REF)
MS20470DD5 (15)
LDW280-17215-17 (REF)
(ZONE 7B) B
B
MS20470DD4 (17)
LDW280-17299-19
A (ZONE
MS20470AD4 (3)
LDW280-17299-15 (FS)
LDW280-17299-13 (REF)
MS20470DD4 (15)
LDW280-17299-15 (REF)
LDW280-17298-19
LDW280-17298-15
LDW280-17298-17
LDW280M17105 (REF)
29/32
-Z 27.00 (REF)
LDW280M17325 (REF)
9/32
A3
GB511K-4-5 (2)
GN512H-4 (2)
LDW280-18057-17
X131.140 (REF)
LDW280-17299-19 (REF)
-Y 81.00 (REF)
LDW280-17293-13 (REF)
LDW280-17215-19 (REF)
LDW280-17298-19 (REF)
LDW280-17299-13 (REF)
LDW280-17299-15 (REF)
LDW280-17293-13 (REF)
LDW280-23702 (REF)
LDW280-18057-19
SECTION B-B
(ZONE 5C)
LDW280-17215-19
LDW280-17298-19 (REF)
LDW280-17215-19 (REF)
MS20470AD4 (12)
LDW280-17299-13 (REF)
MS20470DD5 (4)
LDW280-17299-15 (REF)
MS20470DD5 (4)
LDW280-17299-17 (REF)
LDW280-17299-17 (NS)
LDW280-17299-15 (FS)
(ZONE 7A) C
C
LDW280-17299-15 (REF)
MS20470AD4 (28)
-Y81.00 (REF)
SECTION E-E
(ZONE 4D)
MS20470DD4 (7)
MS20426AD4
CSK FS
A3
LDW280M17270 (REF)
X131.215 (REF)
LDW280-17293-13 (REF)
LDW280-17299-17 (REF)
-Y81.00 (REF)
GB511K-08-3
GN512H-08
LDW280-17299-13 (NS)
LDW280-17299-15 (FS)
-Z 41.683 (REF)
-Z 41.683 (REF)
31/64
LDW280-17299-15 (REF)
LDW280-17299-13 (REF)
LDW280-17298-19 (REF)
LDW280-18056-11
LDW280-18057-15
X141.596 (REF)
LDW280-17299-15 (REF)
SHIM AS REQ'D .015 MAX
(SEE NOTE 1)
SHIM AS REQD .063 MAX
(SEE NOTE 1)
LDW280-172
LDW28
VIEW LO
LDW280-18057-19 (REF)
SECTION C-C
(ZONE 5B)
LDW280M17270 (REF)
LDW280-23702 (REF)
LDW280M17325 (REF)
LDW280-25525 (REF)
LDW280-18057-17 (REF)
SHIM (REF)
A3
3/16
LDW280M17270 (REF)
-Y81.00 (REF)
3/16
MS20470DD4 (5)
LDW280-18056-11 (REF)
LDW280-18057-15 (REF)
X130.894 (REF)
01/02
NAS 9-1100
X 142.5
X131.215 (REF)
LDW280-28579
SH
3


4
3
2
1
MS20470DD4(2)
X147.645(REF)
MS20470DD4(2)
LDW280-17298-21(REF)
3/32 (TYP 2 PLACES)
LDW280-17293-13(REF)
-Y81.00(REF)
LDW280-17215-15
LDW280-17214-11(REF)
LDW280-17215-16
LDW280-17214-12(REF)
SECTION D-D
(ZONE 4B)
LDW280-17298-13(REF)
LDW280-18055-11(REF)
LDW280-18055-19
X141.596(REF)
X147.645(REF)
X152.645(REF)
E (ZONE 7B)
MS20470DD4 (24)
A2
GB511K-08-4
GN512H-08
LOCATE FROM LDW280M17105
(SEE NOTE 2)
1/16
SHIM (REF)
1 15/16
13/16
5/16
3/8
LDW280M17105(REF)
-Z 27.00(REF)
MS20470DD5(3)
(ZONE 2C)
F
LDW280-23702(REF)
LDW280-18055-11
A
LDW280M17548-1
MS20470AD4(14)
LDW280-17299-21
MS20470AD4 (14)
MS20470DD4 (2)
LOCATE FROM LDW280M17105
LDW280-18055-11 (REF)
MS20470DD4 (17)
LDW280-17299-19
A (ZONE 7C)
E
LDW280-18057-17(REF)
G120-110-5-14A(2)
S20470AD4(3)
280-17299-15 (FS)
70DD4 (15)
-17299-15(REF)
LDW280-17214-11
LDW280-17214-12
LDW280-18055-11 (REF)
LDW280-18055-19(REF)
SHIM AS REQ'D
.025 MAX
(SEE NOTE 1)
LDW280-23702(REF)
LDW280-17298-15
LDW280-17298-17
MS20426 AD4 (4)
CSK NS
LDW280-17298-13(REF)
SECTION F-F
(ZONE 2C)
S20470AD4 (12)
LDW280-17293-13
25
LDW280-17298-13
LDW280-17293-13 (REF)
MS20470AD4(21)
0-17299-17 (NS)
0-17299-15(FS)
LDW280-17299-15 (REF)
G120-.063-5-10A(2)
LDW280-17299-11
MS20470DD4(4)
MS20470AD4(28)
LDW280-17714-23(REF)
LDW280-17714-23 (REF)
LDW280-17299-11 (REF)
MS20470DD4 (2)
LOCATE FROM LDW280-17215-16
LDW280-17714-21 (REF)
LDW280-17714-23
0470DD4(7)
MS20470DD4 (2)
LOCATE FROM LDW280-17215-15
MS20426AD4(3)
CSK FS
G120-.075-4-5A
LDW280-18055-13 (REF)
LDW280-17714-23(NS)
LDW280-17714-21 (FS)
GB511K-08-3 (2)
GN512H-08 (2)
MS20426AD4
CSK FS
A3
MS20470DD4(2)
A3
MS20470DD4(2)
LOCATE FROM LDW280-18055-13 & -15
LDW280-18055-13
-Z 41.683(REF)
LDW280-18056-11
MS20470AD4(16)
(ZONE 3D) D
D
LDW280-18055-15(REF)
LDW280-23072(REF)
LDW280M17269(REF)
LDW280-18057-15
MS20470DD4
MS20470DD4 (8)
LDW280-18055-17
DD .063 MAX
LDW280-17298-21
LDW280-17215-16 (REF)
LDW280M17269(REF)
LDW280-18055-15
LDW280-17215-15(REF)
LDW280-18057-13
LDW280-18057-11
LDW280-23072 (REF)
LDW280-23702 (REF)
LDW280-23702(REF)
LDW280-23702 (REF)
LDW280-18055-11(REF)
X152.645 (REF)
1/16
LDW280-18055-15 (REF)
LDW280-17293-13(REF)
LDW280-18055-15(REF)
LDW280-18055-17(REF)
MS20470DD4(5)
LDW280-17298-21(REF)
LDW280-18057-11(REF)
LDW280-18056-11 (REF)
LDW280-18057-13 (REF)
MS20470DD4(4)
LDW280-18057-15 (REF)
-Y81.00(REF)
X142.590(REF)
70
30

LDW280-28579-1 INSTL

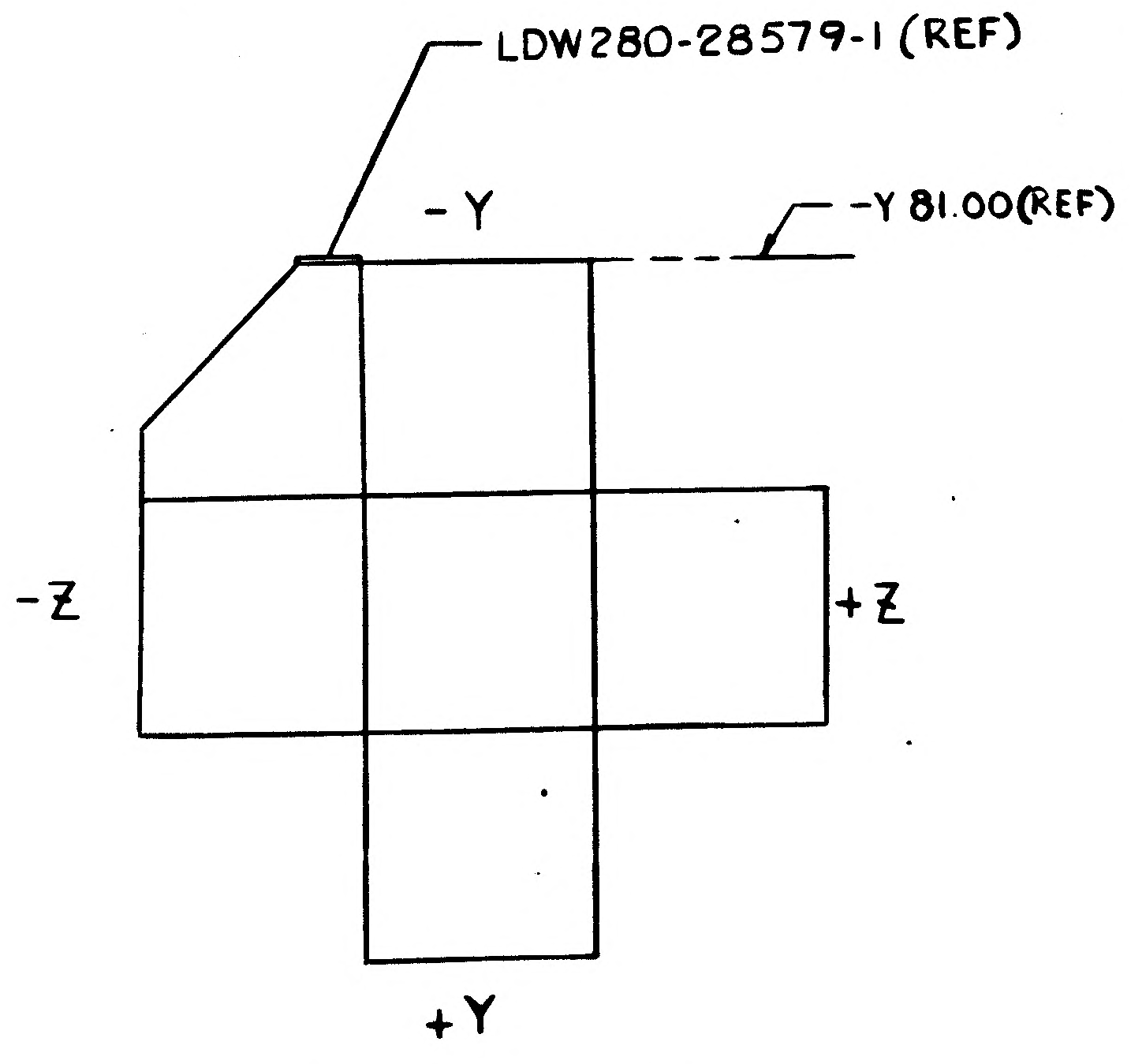
VIEW LOOKING INBOARD

NOTES:

1. SHIM AS REQ'D USING AL ALLOY 2024-T3, QQ-A-250/4, FIN.88.
2. INSTALL FASTENERS PER LSP-14-15302 & LSP-14-15306.

SYMBOL LEGEND

SYMBOLS ARE FOR QUANTITY AND LOCATION ONLY


LDW280-28579-1 (REF)
-Y
-Y 81.00(REF)
-Z
+Z
+Y

FOR ENGINEERING REF ONLY

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE [redacted] EDGE DISTANCE [redacted] IS 1 1/2 FASTENER DIA FROM FASTENER ℄	✓
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6 SQ. FT.

PRINT TRIM LINE

D
C
B
A

LDW280-28579 A

LDW280-28579 A

LDW280-28579 SH 3

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L.I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-28579	A
	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION 2FR. K2

02/02

NAS 9-1100

* LIAISON ENGINEERING #5

ENG 32.1 REV 3-65

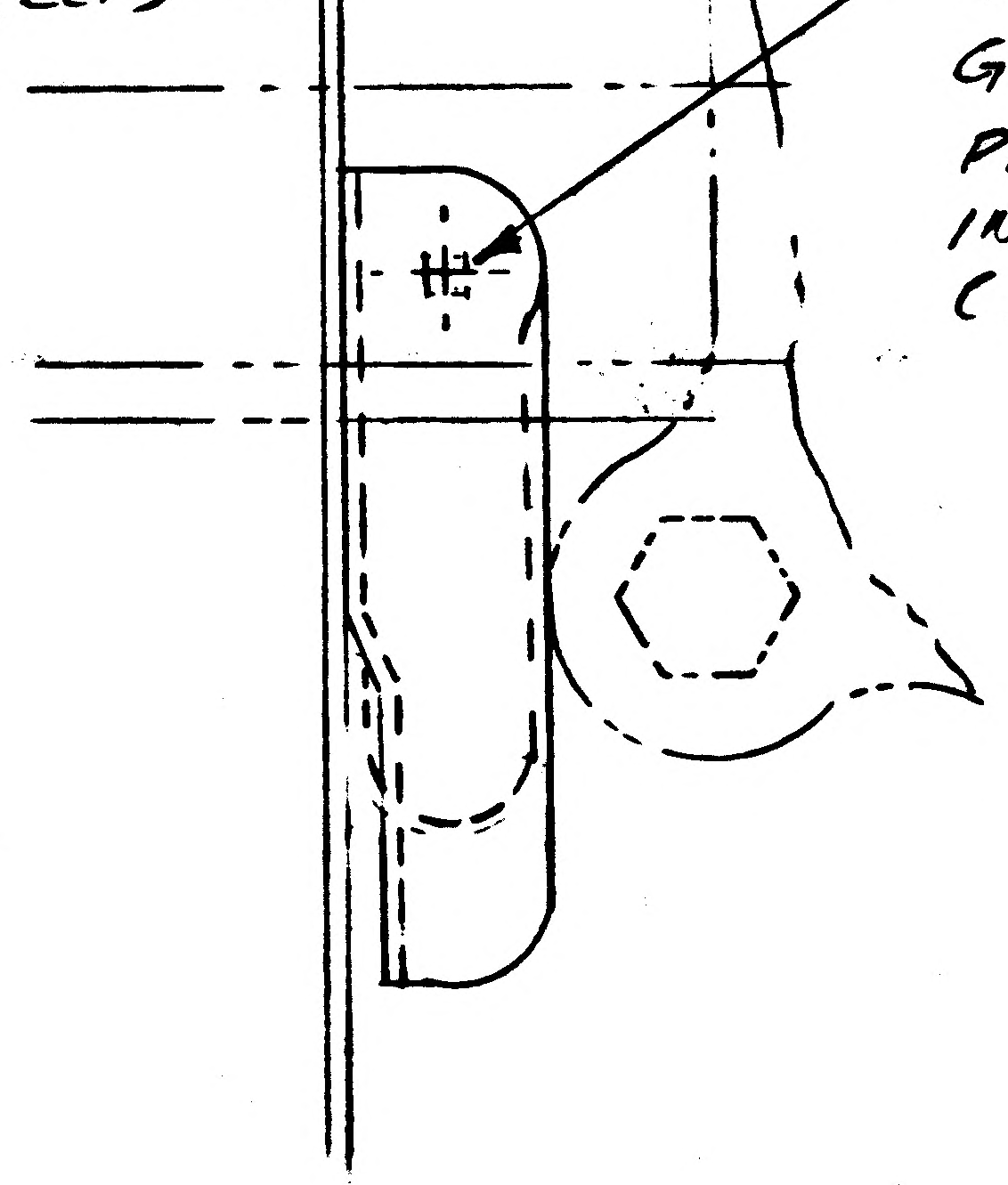
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28579
EO NO. A2
CONTROL INFO NO. LDW280-A-0055

IN F/D & B/M ADD HI-LOK BOLT & COLLAR & REMOVE MS20470DD5 RIVET AS SHOWN:

ON-1

X152.645(REF) →



GB511K-08-4 }
GN512H-08 } (WAS MS20470DD5)
PICK UP EXISTING HOLE
IN LDW280M17105
(SEE NOTE *)

IN GEN NOTES ADD NOTE #*

NOTE * INSTALL GB511K FASTENERS
PER LSP 12-15306

* NEXT AVAILABLE NOTE NO.

LDW280-A-0055

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		

REASON FOR EO
RIVET HEAD NOT ACCESSABLE FROM OUTSIDE DUE TO BLOCKING FLANGE OF CHANNEL

DESCRIPTION OF EO
ON-1 REMOVED MS20470DD5(1) & REPLACED WITH GB511K08-4(1) & GN512H-08(1)
ADDED NOTE #*

2 GAEC EO RELEASE ① FR 9/28/6

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	WT			~			RMcE	
DATE	9/16/66	9/6/66		~	9/16/66		9-28	9/27/66
	VDI	~~SUPPORT~~ MTS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PANEL INSTL - DESCENT STAGE - SCIENTIFIC EQUIP BAY SUPPORT - LH END CLOSURE	LDW280-28579	A2

ISSUED BY T. DALY / W. TRAUT SECTION VDI GROUP NO. 335 PL 5 WT

01

NAS 9-1100

LDW280-28583 B

LFM

PART NO. LDW280-28583-9&-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54553	LM-15 (45)	2 EA
		LM-14 (44)	
		LM-13 (43)	
		LM-12 (42)	
		LM-11 (41)	
		LM-10 (40)	
		LM-9 (39)	
		LM-8 (38)	
		LM-7 (37)	
		LM-6 (36)	
		LM-5 (35)	
	LDW280-54553	LM-4 (34)	
LM	LDW280-53553	LM-3 (33)	
LFM 192	LDW280-66553	LTA-8 (18)	2 EA

PART NO. LDW280-28583-5&-7

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52553	LM-2 (32)	2 EA
LM	LDW280-51553	LM-1 (31)	2 EA

PART NO. LDW280-28583-6

GAEC SCH NO. 52-1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52553	LM-2 (32)	4
LM	LDW280-51553	LM-1 (31)	4

PART NO. LDW280-28583-53

GAEC SCH NO. 52-1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54553	LM-4 (34)	8

PART NO. LDW280-28583-10

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54553	LM-15 (45)	4
		LM-14 (44)	
		LM-13 (43)	
		LM-12 (42)	
		LM-11 (41)	
		LM-10 (40)	
		LM-9 (39)	
		LM-8 (38)	
		LM-7 (37)	
		LM-6 (36)	
		LM-5 (35)	
	LDW280-54553	LM-4 (34)	
LM	LDW280-53553	LM-3 (33)	
LFM 192	LDW280-66553	LTA-8 (18)	4

PART NO. LDW280-28583-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA-8 (18)	1

PART NO. LDW280-28583-2

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA-8 (18)	3

PART NO. LDW280-28583-1&-3

GAEC SCH NO. 52-1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA-8 (18)	2 EA

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	B	B	B	B
SHEET		1.11	2.01	
REV		B	B	
SHEET				
REV				

LAST SECT LTR USED A

LAST DASH NO. USED -53

GRUMMAN REL INFO B

PRIM NO. 207

JK(001)

ME-168-11/4/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	H.DEUTSCH 2/2/67	THERMO	3/2/67
LAYOUT BY	PALLMEYER		
CHECKED B	WCG 2/6/67		
GR. LEADER			
VEH DES INT	3/2/67		
STRUCTURE	3/2/67	PROJ ENGR	3-3-67
STRUCTURE	FB 3/4/67	REL GROUP	3-8-67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BLANKET INSTALLATION
DESCENT STAGE- LANDING GEAR
PENETRATION - LOWER

SIZE B

CODE IDENT NO. 26512

LDW280-28583 B

SCALE NONE

SHEET 1.00 OF 6

NG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	[illegible] APPD
A	1	1.00,1.10 200&3.00						EO A1	EO A1 INITIAL DWG RELEASE. PARTS MADE PER EO.	LTA-8 (18 LM-1 (31) THRU LM-2(45)	NOT	REQ'D	H. DEUTSCH 2-2-67 WCG	ab	3-8-67
B	1	1.00, 1.10 2.00, 2.01 3.00		P		✓		EO B1 LCD2360	IN FLD & B/M ADDED -9,-10 & -11 WAS -5,-6 & -7 RESPECTIVELY. ADDED LDW280P18220-13,-15,-16,-17 & -18 WAS LDW280P18220-7,-9,-10,-11 & -12 RESPECTIVELY. IN MOD/BLK ADDED EFF LM-3 THRU LM-15 FOR -9,-10 & -11. RESTRICTED -5,-6 & -7. ADDED SH 2.01	LM-3 (33) THRU LM-15 (45)		-5 -6 -7	P. KOCHLING 10-16-68		
	2	1.00,1.10,2.00 2.01,3.00				✓		EO B2 LCD3133	ADDED -13 INSTL ON-2 INSTL FOR N/A LDW280-28553 (3) REQD WAS (4) REQD. -13 MAY BE MADE BY REWORKING -2	LTA-8 (18)	NOTED				
	3	,1.10,2.00 3.00,2.01		P		✓		EO B3 LCD 2360	FOR -9 & -11 ADDED LDW280P18220-33,-35,-37 & -47. FOR -10 ADDED LDW280P18220-33,-36,-38 & -47.	LM-3 THRU LM-15	✓				
	4	,1.10,2.00 3.00, 2.01		P		✓		EO B4 LCD 2360	IN B/M & F/D ON-9 & -11 REMOVED LDW280P18220-33(1) -35(1) -37(1) AND -47 (2) WAS -47(1). ON-10 REMOVED LDW280P18220-33 (1) -36(1) -38(1) AND -47 (4) WAS -47 (1).	LM-3 THRU LM-15	✓				
	5	1.00, 1.10, 2.00 2.01, 3.00		LFM-192 P		✓		EO B5 LCD3238	ON-9 -10 & -11 REMOVED LDW280P18220-13 & -47. IN MOD BLK FOR -13 ADD EFF: LFM 192-LDW280-53553-LM3 8 REQD/MOD. LM -LDW280-54553-LM 4 THRU 15 8 REQD/MOD.	LM-3 THRU LM-15	✓				
	6	1.00, 1.10, 2.01 3.00,		P		✓		EO B6 LCD 3248	IN FLD B/M & MOD BLK ADDED -51 & -52	LM-4 THRU LM-15	✓				
	7	1.00, 1.10, 2.00 2.01, 3.00		LFM 192 P		✓		EO B7 LCD 3238	REF EO B5: REPLACED LDW280P18220-13 WITH LDW280P18220-43 & -45 & REMOVED LDW280P18220-47 (WAS) REMOVED LDW280P18220-13 & -47. FOR -13, REMOVED LM-3 (LFM 192) THRU LM-15 REQMTS (WAS) ADDED LM-3 (LFM 192) THRU LM-15 REQMTS.	LM-3 THRU LM-15	✓				
	8	1.00 1.10		LFM-192 P		✓		EO B8 LCD3238	IN MOD BLK FOR -9,-10 & -11, ADDED LFM 192-LTA-8 REQ.	LTA-8 (18)	NOT	REQD			
	9	1.00, 1.10, 2.01 3.00		Q		✓		EO B9 LCD 3248	IN FLD B/M & MOD BLK ON-51 & -52. REMOVED LM4(34) REQ ADDED -53 & DETAIL "A"	LM-4 (34)	✓				
	10	1.00,1.10 2.01,3				✓		EO B10 LCD 3248	IN FLD B/M & MOD BLK REMOVED -51 INSTL. & -52 INSTL.	LM-5 (35) THRU LM-15 (45)		-51 -52	L.D.		

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS	THERMO					
A		JHS 2/20/67	NJ 3/2/67								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28583	B
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
B	11	2.00,3.00		LFM 192 P				LCD 3238	REF EO B5 & B7 LDW280P18220-47 WAS PREVIOUSLY REMOVED IN EO B4. ADDED SH 1.11.	LM-3 THRU LM-15	✓	11-44	KOCHLING 10-16-68	F. [illegible] 10-16-68 L.D.	

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS	THERMO
B	10-23-68	10/23/68		10/25/68		10/25/68

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28583	B

SCALE NONE SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY										PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
-13	-11	-10	-9	-7	-6	-5	-3	-2	-1											
										LDW280-28583-13	E		BLANKET INSTL					NONE	NONE	
										-11										
										-10										
										LDW280-28583-9			BLANKET INSTL					NONE	NONE	
AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	GS577A-1	E		STAPLE	GRUMMAN STD						
AS REQD							AS REQD	AS REQD	AS REQD	GT835P-8			TAPE							
	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD				GT15C-3			TAPE							
AS REQD							AS REQD	AS REQD	AS REQD	GT15C-2			TAPE	GRUMMAN STD						
					1					LDW280P18220-12			BLANKET	SEE DWG						
				1		1				-11										
					1					-10										
				1		1				-9										
				1	1	1				-7										
1								1		-6										
							1		1	-5										
1								1		-4										
							1		1	-3										
							1	1	1	LDW?80P18220-1			BLANKET							
	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD				LDW280P17590-11			TAPE	SEE DWG						
										LDW280-28583-7			BLANKET INSTL					NONE	NONE	
										-6										
										-5										
										-4										
										-3										
										-2										
										LDW280-28583-1	E		BLANKET INSTL					NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28583	B ⑤
SCALE NONE			SHEET 2.00

ENG 77.2 5-64

01 NAS 9-1100

-53	-13	-11	-10	-9	-7	-6	-5	-4	-3	-2	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AS REQD													GT835P-8	E	TAPE	GRUMMAN STD						
1													LDW280P18220-51		BLANKET	SEE DWG						
	1	1	1	1									LDW280P18220-45		BLANKET	SEE DWG						
	1	1	1	1									-43									
			1										-18									
		1		1									-17									
			1										-16									
		1		1									LDW280P18220-15		BLANKET	SEE DWG						
													LDW280-28583-53	E	COVER INSTL					NONE	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28583	B (B)
SCALE NONE		SHEET 2.01	

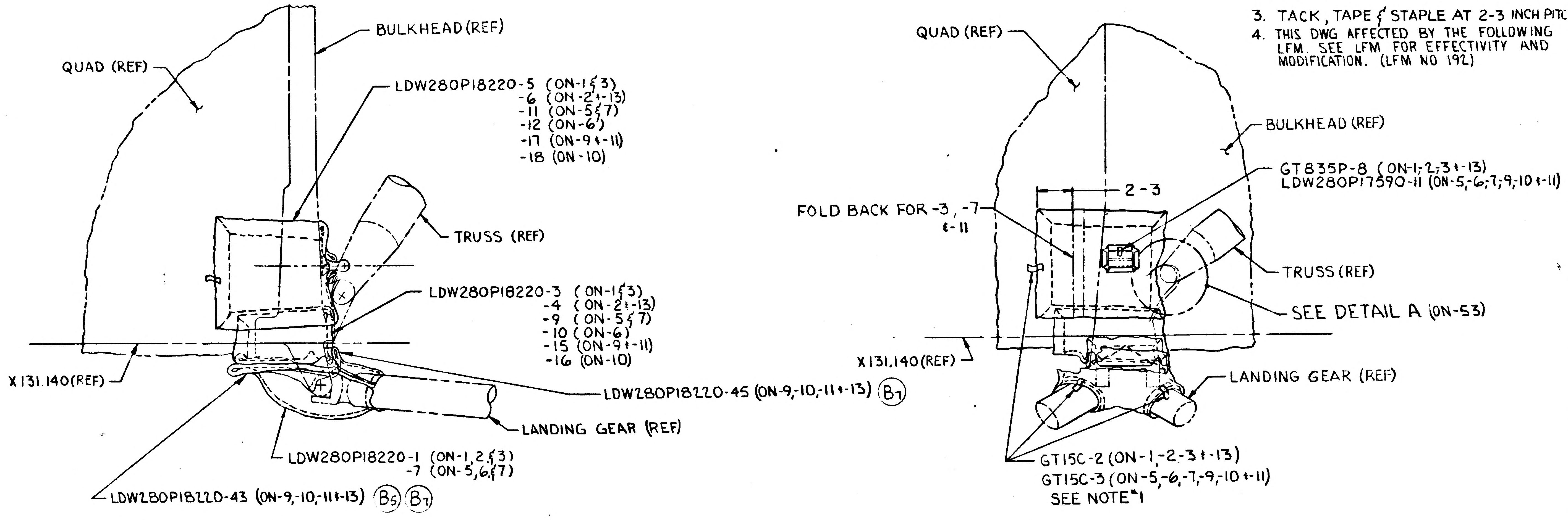
ENG 77.2 7-65

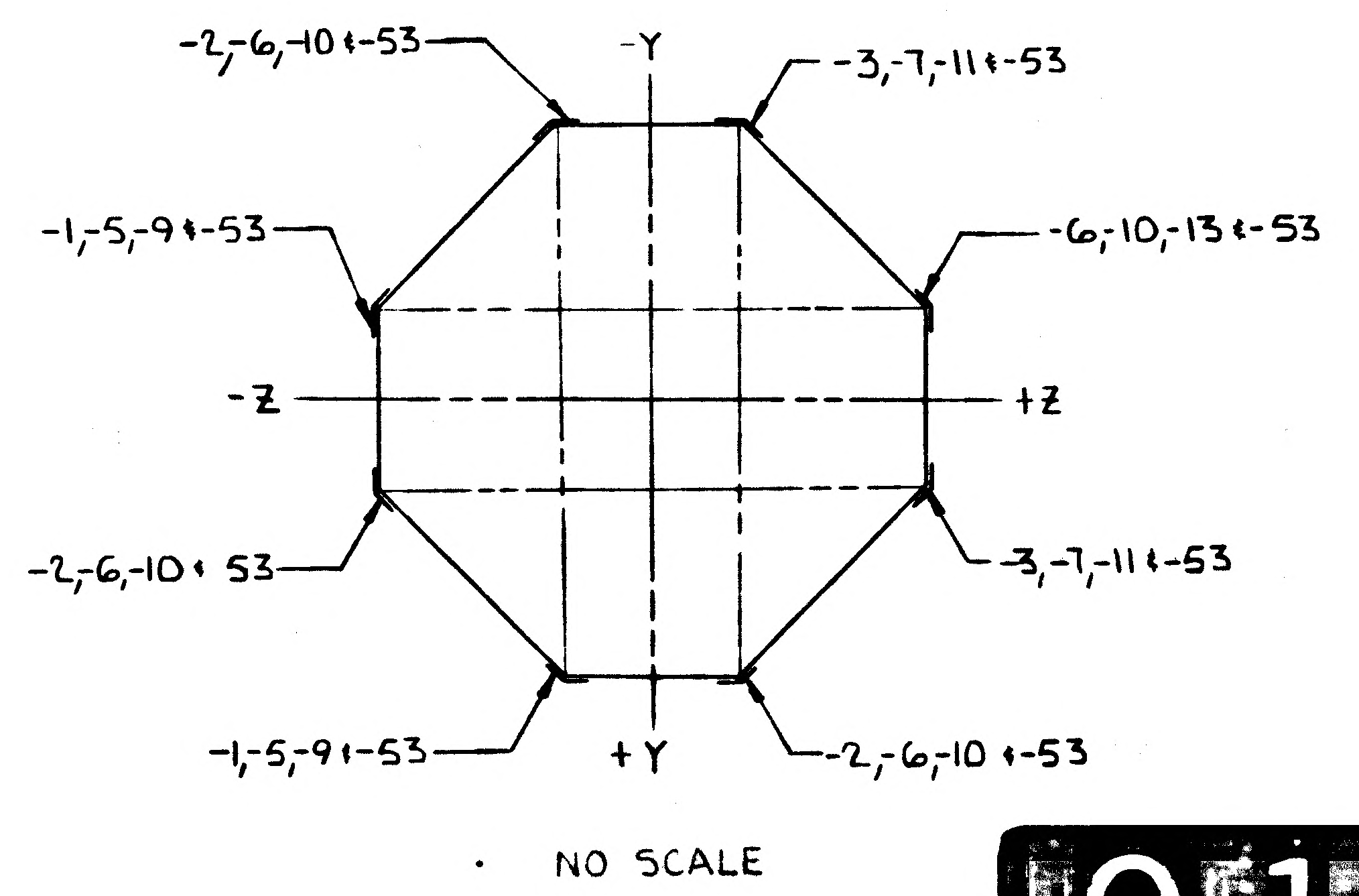
01

NAS 9-1100

NOTES:

1. TACK TAPE TO QUAD, BULKHEAD BLANKET & LANDING GEAR AT 4 TO 6 INCH PITCH.
2. MINIMUM BLANKET OVERLAP ON INSTALLATION TO BE 2 INCHES.
3. TACK, TAPE & STAPLE AT 2-3 INCH PITCH
4. THIS DWG AFFECTED BY THE FOLLOWING LFM. SEE LFM FOR EFFECTIVITY AND MODIFICATION. (LFM NO 192)

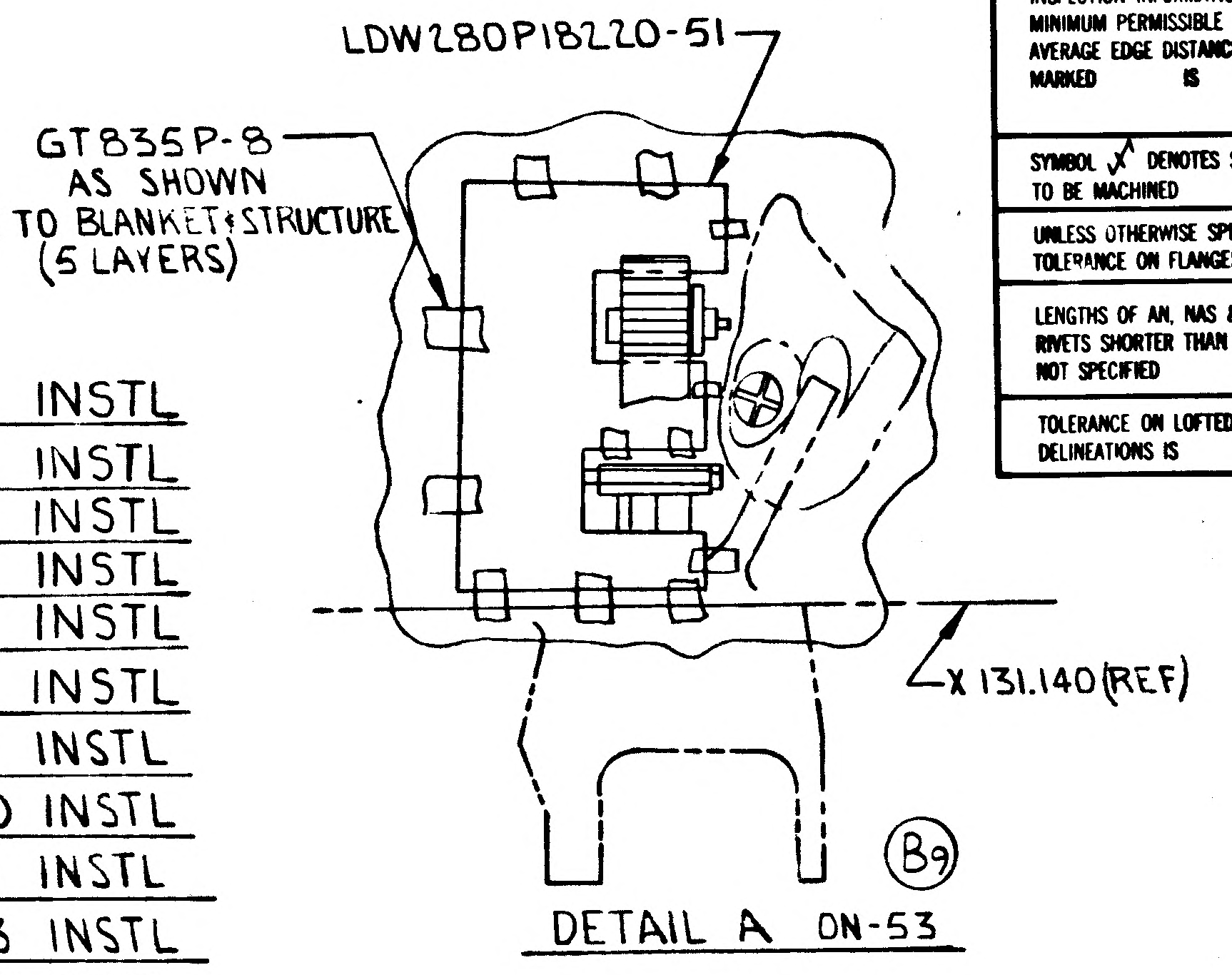

BULKHEAD (REF)
QUAD (REF)
LDW280P18220-5 (ON-1 & 3)
-6 (ON-2 & -13)
-11 (ON-5 & 7)
-12 (ON-6)
-17 (ON-9 & -11)
-18 (ON-10)
TRUSS (REF)
LDW280P18220-3 (ON-1 & 3)
-4 (ON-2 & -13)
-9 (ON-5 & 7)
-10 (ON-6)
-15 (ON-9 & -11)
-16 (ON-10)
X 131.140 (REF)
LDW280P18220-45 (ON-9,-10,-11 & -13) B7
LANDING GEAR (REF)
LDW280P18220-1 (ON-1, 2 & 3)
-7 (ON-5, 6 & 7)
LDW280P18220-43 (ON-9,-10,-11 & -13) B5 B7
QUAD (REF)
BULKHEAD (REF)
2-3
GT835P-8 (ON-1,-2,-3 & -13)
LDW280P17590-11 (ON-5,-6,-7,-9,-10 & -11)
FOLD BACK FOR -3, -7 & -11
TRUSS (REF)
SEE DETAIL A (ON-53)
X 131.140 (REF)
LANDING GEAR (REF)
GT15C-2 (ON-1,-2-3 & -13)
GT15C-3 (ON-5,-6,-7,-9,-10 & -11)
SEE NOTE #1


-2,-6,-10 & -53
-Y
-3,-7,-11 & -53
-1,-5,-9 & -53
-6,-10,-13 & -53
-Z
+Z
-2,-6,-10 & 53
-3,-7,-11 & -53
-1,-5,-9 & -53
+Y
-2,-6,-10 & -53

NO SCALE

LDW280-28583-1 INSTL
-2 INSTL
-3 INSTL
-5 INSTL
-6 INSTL
-7 INSTL
-9 INSTL
-10 INSTL
-11 INSTL
-13 INSTL
-53 INSTL

Ⓑ9 Ⓑ2 Ⓑ1 Ⓑ6


LDW280P18220-51
GT835P-8 AS SHOWN
TAPE TO BLANKET & STRUCTURE (5 LAYERS)
X 131.140 (REF)
B9

DETAIL A ON-53

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED

TOLERANCE ON LOFTED DELINEATIONS IS

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE D	CODE IDENT NO. 26512	LDW280-28583	B
MODEL OR END ITEM	SCALE 1/4			SHEET 3.00

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28583
EO NO. B1
CONTROL INFO NO. LDW280 B0614

IN F/D & L/M

CREATE -9 INSTL IDENTICAL TO -5 EXCEPT LDW280P18220-13 BLANKET REPLACES LDW280P18220-7, LDW280P18220-15 BLANKET REPLACES LDW280P18220-9 & LDW280P18220-17 BLANKET REPLACES LDW280P18220-11.

CREATE -10 INSTL IDENTICAL TO -6 EXCEPT LDW280P18220-13 BLANKET REPLACES LDW280P18220-7, LDW280P18220-16 BLANKET REPLACES LDW280P18220-10 & LDW280P18220-18 BLANKET REPLACES LDW280P18220-12.

CREATE -11 INSTL IDENTICAL TO -7 EXCEPT LDW280P18220-13 BLANKET REPLACES LDW280P18220-7, LDW280P18220-15 BLANKET REPLACES LDW280P18220-9 & LDW280P18220-17 BLANKET REPLACES LDW280P18220-11.

IN MOD/BLK

ADD -9 & -11 EFF LM-3(33) N/A LDW280-53553 (2) REQ'D EA, & LM-4(34) THRU LM-15 (45) N/A LDW280-54553 (2) REQ'D EA/MOD.
ADD -10 EFF LM-3(33) N/A LDW280-53553 (4) REQ'D, & LM-4(34) THRU LM-15(45) N/A LDW280-54553 (4) REQ'D/MOD.

RESTRICT -5, -6 & -7 EFF TO LM-1 & LM-2.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2360 (5)

REASON FOR EO: PLUME HEATING PROTECTION

DESCRIPTION OF EO: IN F/D & L/M ADDED -9, -10 & -11 WAS -5 -6 & -7 RESPECTIVELY. ADDED LDW280P18220-13, -15, -16, -17 & -18 WAS LDW280P18220-7, -9, -10, -11 & -12 RESPECTIVELY. IN MOD/BLK ADDED EFF LM-3 THRU LM-15 FOR -9, -10 & -11. RESTRICTED -5 -6 & -7.

Ⓡ GAEC EO RELEASE: K 12/11/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33)	
		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY								
DATE	12/8/67			12-8-67	12/8/67		12/8/67	12-13-67
P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: BLANKET INSTL D/S LANDING GEAR PENETRATION-LOWER
DRAWING NO.: LDW280-28583
EO NO.: B1

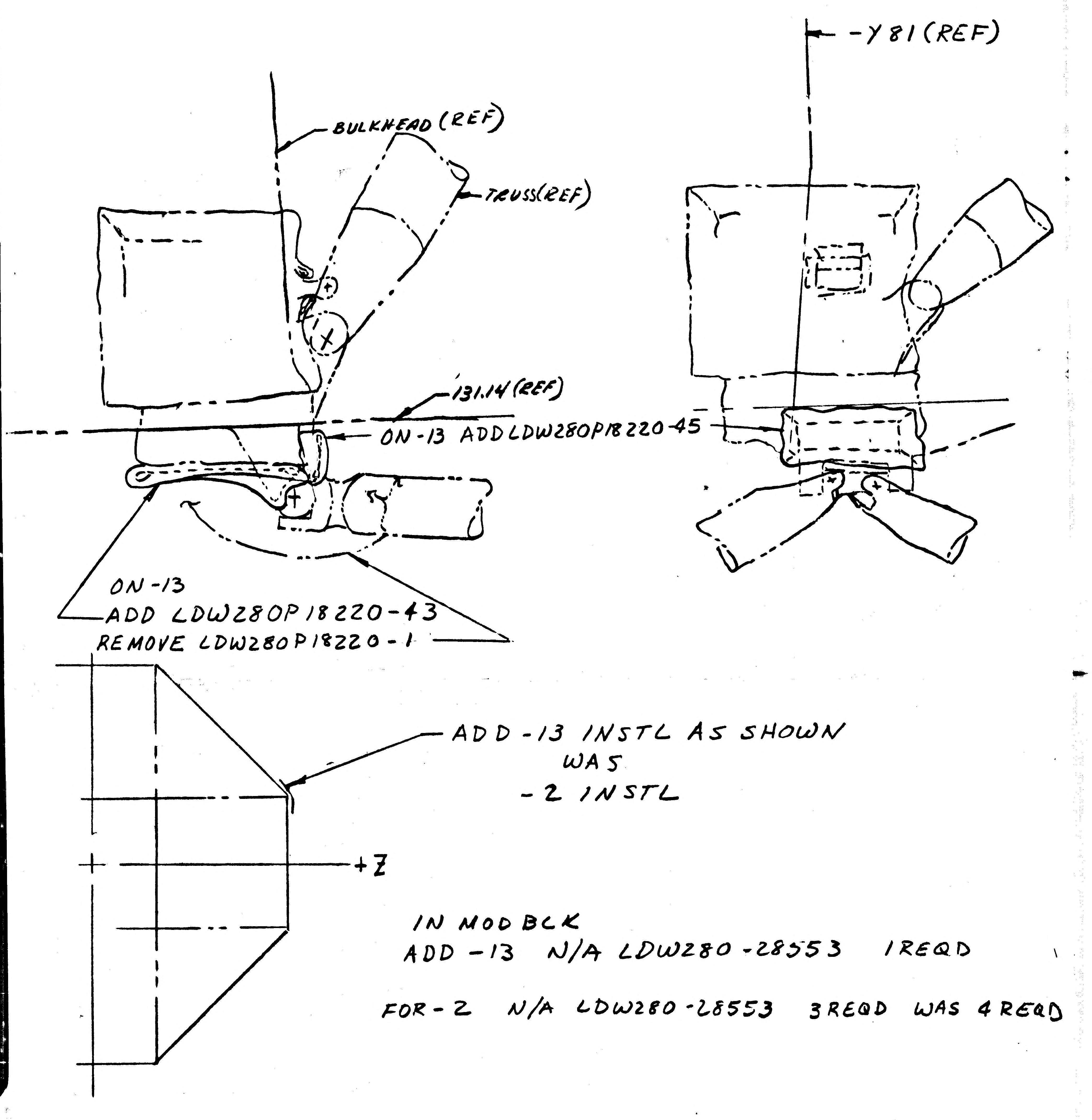
21 DEC 67
ISSUED BY DON THOMAS / P. THORJUSEN SECTION V.D.I. x 1153 GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28583	EO NO. B2
CONTROL INFO NO. LDW 280B 3454	



ON-13 ADD LDW280P18220-45

ON-13
ADD LDW280P18220-43
REMOVE LDW280P18220-1

ADD -13 INSTL AS SHOWN
WAS
-2 INSTL

IN MOD BLK
ADD -13 N/A LDW280-28553 1 REQD

FOR -2 N/A LDW280-28553 3 REQD WAS 4 REQD

01 NAS 9-1100

-13 MAY BE MADE BY REWORKING -2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3133									GAEC EO RELEASE (5)
REASON FOR EO TO PROVIDE NEW PATCH FOR LANDING GEAR					DESCRIPTION OF EO ADDED -13 INSTL. ON -2 INSTL FOR N/A LDW280-28553 (3) REQD WAS 4 (REQD)									JK 5/15/68
MODEL	EFFECTIVITY				DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY		NT			
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.						DATE		5 H		5-14-68	5-14-68
LM		LTA8 (18)			✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP		VPI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
					PRIORITY C	DRAWING TITLE BLKT INSTL D/S LANDING GEAR PENT. - LOWER						DRAWING NO. LDW280-28583		EO NO. B2

CDR 51468
ISSUED BY DON RAGAS X1153 SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28583
EO NO. B3
CONTROL INFO NO. LDW280B3349

IN B/M & F/D
ON -9 ADD LDW280P18220-33(1), -35(1), -37(1) & -47(1)
ON -10 ADD LDW280P18220-33(1), -36(1), -38(1) & -47(1)
ON -11 ADD LDW280P18220-33(1), -35(1), -37(1) & -47(1)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 2360 PKG 31 (5)

REASON FOR EO: PLUME HEATING PROTECTION

DESCRIPTION OF EO: FOR -9 & -11 ADDED LDW280P18220-33, -35, -37 & -47. FOR -10 ADDED LDW280P18220-33, -36, -38 & -47

GAEC EO RELEASE: C JK 5/23/68

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	5/23/68	5/23/68		5-23-68	5/23/68		5/23/68	5-23-68
P	VDI		RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: BLANKET INSTL D/S ~ LANDING GEAR PENETRATION ~ LOWER
DRAWING NO. LDW280-28583
EO NO. B3

CDR052368
ISSUED BY D. SHAPIRO / P. THORTUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28583
EO NO. B4
CONTROL INFO NO. LDW280B3698

REF E.O. B3

IN B/M & F/D

ON-9 REMOVE LDW280P18220-33(1),-35(1),-37(1); AND -47(2) (WAS)-47(1)
ON-10 REMOVE LDW280P18220-33(1),-36(1),-38(1); AND -47(4) (WAS) - 47(1)
ON-11 REMOVE LDW280P18220-33(1),-35(1),-37(1); AND -47(2) (WAS)- 47(1)

(5)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2360 PKG 31

REASON FOR EO: PLUME HEATING PROTECTION

DESCRIPTION OF EO: IN B/M & F/D ON-9 & -11 REMOVED LDW280P18220-33(1),-35(1),-37(1) AND -47(2) (WAS)-47(1). ON-10 REMOVED LDW280P18220-33(1),-36(1),-38(1) AND -47(4) WAS -47(1)

GAEC EO RELEASE: SK 5/28/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ✓ SCRAP ☐

APPROVED BY		Mu			NM			
DATE	5/28/68	5/28/68		5-28-68	5-28-68		5/28/68	5-28-68
P	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLANKET INSTL D/S-LANDING GEAR PENETRATION ~ LOWER	LDW280-28583	B4

COR 052868
ISSUED BY D. SHAPIRO / P. THORJUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-28583		EO NO. B5
CONTROL INFO NO. LDW280B4053		

IN F/D & B/M ON -9, -10 & -11 INSTL'S

REMOVE LDW280P18220 -13, & -47

IN MOD BLK FOR -13

ADD: LFM 192 - LDW280 -53553 - LM3(33) -8 REQD/MOD.

- LDW280-54553 - LM4(34) THRU 15(45) 8 REQD/MOD.

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD323B PK. #1

REASON FOR EO
ELIMINATION OF LANDING GEAR PENETRATION BLANKET.

DESCRIPTION OF EO
ON -9, -10 & -11 REMOVED [LDW280P18220-13, & -47], IN MOD BLK FOR -13 ADD EFF:
LFM 192 - LDW280-53553 - LM3: 8 REQD/MOD.
LM - LDW280-54553 - LM4 THRU 15 8 REQD/MOD.

(5)
GAEC EO RELEASE C
VK 7/17/68

MODEL	EFFECTIVITY ~~PROCURING ACTIVITY NO.~~ E.I.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 192	LM3 (33)	
LM		LM4 (34) THRU	
LM		15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	Jap				RJX	WH	RLI		Bowman
DATE	7/9/68	7/11/68			7/9/68	7/11/68	KSC	7/10/68	7/16/68
	P	VDI	THERMO ~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	~~LOADS~~ ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLANKET INSTL D/S - LANDING GEAR PENT - LOWER	LDW280-28583	B5

07-12-68
ISSUED BY DON RAGAS X1153 SECTION UDI GROUP NO. 280 PL 25

01

NAS 9-1100

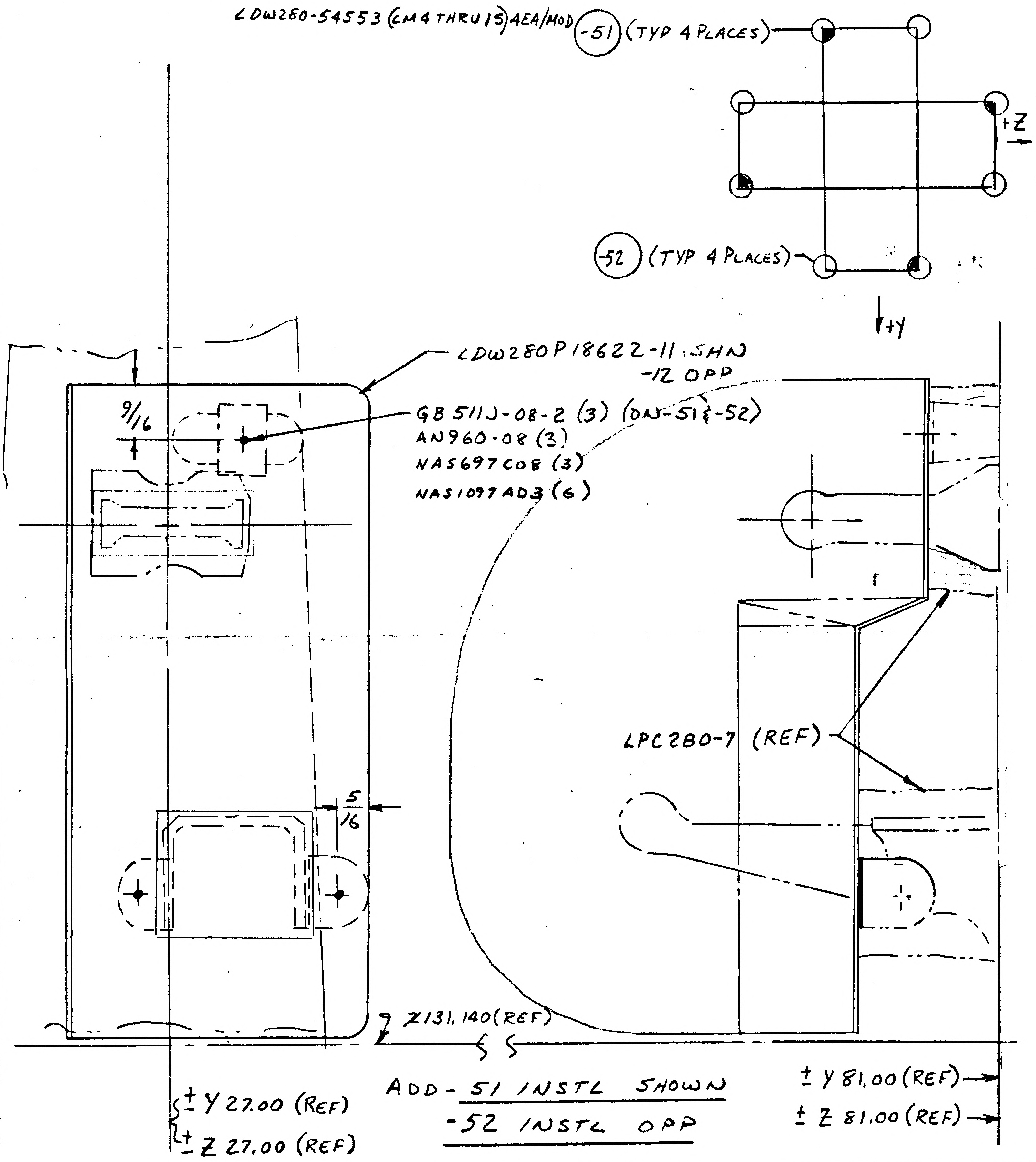
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LDW280-28583		EO NO. B6
CONTROL INFO NO. LDW280B4152		

IN F/D, B/M, & MOD BLK ADD -51 INSTL & -52 INSTL

N/A



LDW280-54553 (LM4 THRU 15) 4EA/MOD
-51 (TYP 4 PLACES)
+Z
-52 (TYP 4 PLACES)
+Y
LDW280P18622-11 SHN
-12 OPP
9/16
GB511J-08-2 (3) (ON -51 & -52)
AN960-08 (3)
NAS697C08 (3)
NAS1097AD3 (6)
LPC280-7 (REF)
5/16
Z131.140 (REF)
±Y 27.00 (REF)
±Z 27.00 (REF)
±Y 81.00 (REF)
±Z 81.00 (REF)

ADD -51 INSTL SHOWN
-52 INSTL OPP

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3248 PK#1 ⑤
REASON FOR EO: TO PROVIDE COVER FOR LANDING GEAR MECH.				DESCRIPTION OF EO: IN F/D, B/M & MOD BLK ADDED -51 & -52		GAEC EO RELEASE: HF 7/26/8

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	L		
LM		LM4 (34) THRU	
LM		LM15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	7/10/68	7/11/68		7/9/68	9/15/68		7/15/68	Bauman 7-23-68
✓		✓		P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLKT INSTL D/S - LANDING GEAR PENT. LOWER	LDW280-28583	B6

07-12-68
ISSUED BY Don Ragas Z1153 SECTION VDI GROUP NO. 280 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28583 EO NO. B7
CONTROL INFO NO. LDW 280 - B5132

THIS IS A REVISION OF E.O. B5:

ON -9, -10 & -11 INSTL'S, REMOVE LDW280P18220-13 & -47 S/B REPLACE LDW280P18220-13 WITH LDW280P18220-43 & -45 & REMOVE LDW280P18220-47.

IN MOD BLK FOR -13:

REMOVE LFM 192 - LDW280-53553 - LM-3(33) - 8 REQD/MOD
- LDW 280 -54553 - LM-4(34) THRU LM-15(45) - 8 REQD/MOD
(WAS)
ADD LFM 192 - LDW280-53553 -----------
- LDW 280-54553 -----------

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 3238 PKG 1	(5)

REASON FOR EO
ELIMINATION OF LANDING GEAR PENETRATION BLANKET

DESCRIPTION OF EO
REF E.O. B5:
REPLACED LDW280P18220-13 WITH LDW280P18220-43 & -45 & REMOVED LDW280P18220-47 (WAS) REMOVED LDW280P18220-13 & -47. FOR -13, REMOVED LM-3 (LFM192) THRU LM-15 REQMTS (WAS) ADDED LM-3 (LFM 192) THRU LM-15 REQMTS.

GAEC EO RELEASE: K 8/23/68

MODEL	E.I. PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 192	LM-3(33)	
LM		LM-4(34) THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY								
DATE	8/13/68	8/13/68		8-13-68	8/13/68	KSC	8/13/68	8-23-68
P	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	ELT PROJ ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: BLANKET INSTL ~ D/S ~ LANDING GEAR PENTETRATION - LOWER
DRAWING NO.: LDW280-28583
EO NO.: B7

ISSUED BY R. MARONE / H. PALLMEYER / P. THORJUSEN SECTION V.D.I. GROUP NO. 335 PL 25
CDR 08-14-68

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28583
EO NO. 88
CONTROL INFO NO. LDW 280 B5004

LFM

IN MOD/BLK:
ON -9, -10 & -11, ADD LFM 192-LTA-8(18) EFF N/A LDW 280-66553, QTY TO REMAIN THE SAME AS LM-5.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3238 PKG 1

REASON FOR EO: ELIMINATION OF LANDING GEAR PENETRATION BLANKET

DESCRIPTION OF EO: IN MOD BLK FOR -9, -10 & -11, ADDED LFM 192-LTA-8 REQMTS.

GAEC EO RELEASE: C 5 JK 8/24/68

MODEL	~~PROCURING~~ E.I. ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 192	LTA-8(18)	
LM			
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D
APPROVED BY: V.D.I. — DATE 8/13/68 8/13/68 — ~~SUPPORT~~ — RELIAB. GROUP
GROUP LEADER: PSF 8-13-68
STRESS GROUP: WJH 8/13/68
LIAISON ENGRG: BLT PROJ KSC
PROJ ENGRG: 8/14/68 8-23-68

PRIORITY: C
DRAWING TITLE: BLANKET INSTL ~ D/S ~ LANDING GEAR PENT. - LOWER
DRAWING NO. LDW280-28583
EO NO. 88

CDR 8-19-68
ISSUED BY R. MARONE / H. PALLMEYER / P. THORJUSEN SECTION V.D.I. GROUP NO. 335 PL 25

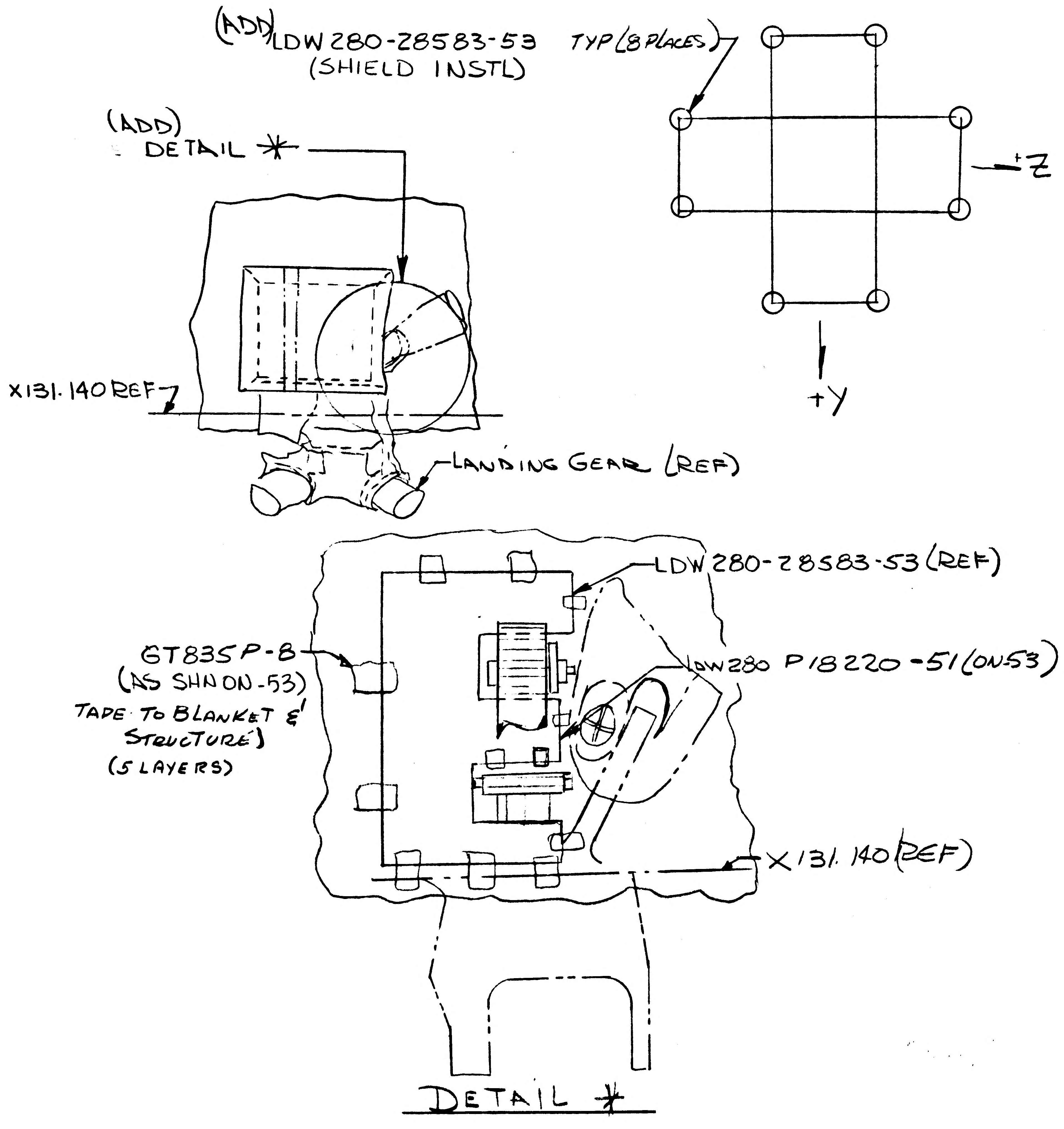
01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28583		EO NO. B9
CONTROL INFO NO. LDW 280 B5238		

IN F/D, B/M & MOD BLK ADD -53 INSTL EFF LM-4 (34) N/A LDW280-54553
ON -51 & -52 REMOVE LM-4 (34) REQUIREMENT
(-53 CONTAINS LDW280 P18220-51 AND GT835P-8 A/R)


(ADD) LDW 280-28583-53
(SHIELD INSTL)
TYP (8 PLACES)
(ADD) DETAIL *
+Z
+Y
X131.140 REF
LANDING GEAR (REF)
LDW 280-28583-53 (REF)
GT835P-8
(AS SHN ON -53)
TAPE TO BLANKET & STRUCTURE)
(5 LAYERS)
LDW280 P18220-51 (ON 53)
X131.140 (REF)
DETAIL *

* USE NEXT AVAILABLE LETTER

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3243		PKG 2			(5)
REASON FOR EO TO ELIMINATE INTERFERENCE WITH LANDING GEAR DEPLOY. MECH.					DESCRIPTION OF EO IN F/D, B/M & M/D ON -51 & -52 REMOVED LM 4 (34) REQUIREMENT ADDED -53 & DETAIL *						GAEC EO RELEASE ① C JK 8/27
MODEL	EFFECTIVITY				DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.		✓		✓		DATE	8/27/68 8/27/68	8-27-68 8/27/68 8-27-68
LM		LM-4 (34)			REVISE DWG	RECORD EO	REWORK	SCRAP	Q	VDI ~~SUPPORT~~	RELIAB. GROUP · GROUP LEADER · STRESS GROUP · LIAISON ENGRG · PROJ ENGRG · GOVT
					PRIORITY C	DRAWING TITLE BLKT INSTL ~ D/S LANDING GEAR PENT. LOWER			DRAWING NO. LDW280-28583		EO NO. B9

CDR 08274-3
ISSUED BY F. LANZARO / S. TAMRES >1724 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-28583		EO NO. B10	
CONTROL INFO NO. LDW280B5804			

IN F/D, B/M, & M/B, REMOVE -51 INSTL. & -52 INSTL.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓

LCD 3248 PKG. #1 ECP EO 27CC ⑤

REASON FOR EO: INSTL NO LONGER REQ'D

DESCRIPTION OF EO: IN F/D, B/M, & M/B, REMOVED -51 INSTL. & -52 INSTL.

GAEC EO RELEASE: HF 10/10/6

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	10/10/68	10/10/68		10-9-68	10/10/68		10/10/68	10-11-68

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35)	
		THRU	
		LM-15(45)	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLKT INSTL. ~ D/S LANDING GEAR FENT. LOWER	LDW280-28583	B10

CDR 10/12/68

ISSUED BY Joe Lucchesi / H. Pallmeyer x86046 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 22.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1157
CONTROL INFO NO. LDW280B5585

REVISE N/A AS SHOWN

DWG No *	N/A **	WAS ***	EFF	CHANGE LTR
LDW280-28583-9-104-11	LDW280-56553	LDW280-54553	LM-6(36) THRU LM-15(45)	C1
LDW280-54600-1-1	LDW280-56553	LDW280-54553	LM-6(36) THRU LM-15(45)	A3
LDW280-53584-51 THRU-54	LDW280-56672	LDW280-53672	LM-6(36) THRU LM-15(45)	B8
LDW280-18607-118-13	LDW280-56672	LDW280-53672	LM-6(36) THRU LM-15(45)	A7

FOR TITLE SEE DWG

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3179 PRG 9

REASON FOR EO: REDUCTION OF THERMAL SHIELDING DUE TO REVISION OF PLUME HEATING RATES

DESCRIPTION OF EO: FOR * N/A ** WAS ***

GAEC EO RELEASE: C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK NOT | SCRAP REQD

APPROVED BY	YDI	THERMAL SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	10/14/68	[illegible]		10/14/68	10/14/68		10/15/68	10-16-68

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280-
EO NO. 1157

CDR110168
ISSUED BY G. ZEMAN/P. THORJUSEN
SECTION VDI
GROUP NO. 335
PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28583
EO NO. C2
CONTROL INFO NO. LDW280B5953

For -53 INSTL,

Add LM-5(35) EFF.; N/A LDW280-54553

Also,

Add LM-6(36) THRU LM-15(45) EFF.; N/A LDW280-56553

QTY/MOD TO REMAIN THE SAME

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3248 PKG #1

(5)

REASON FOR EO: PROTECTIVE SHIELD FOR LANDING GEAR REQ'D.

DESCRIPTION OF EO: FOR -53 ADDED LM-5(35) EFF. N/A LDW280-54553 AND ALSO ADDED LM-6(36) THRU LM-15(45) EFF., N/A LDW280-56553

GAEC EO RELEASE: JK 11/4/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD	

	VDI	~~THERMO~~ SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	[illegible]	MMR		[illegible]	[illegible]		[illegible]	[illegible]
DATE	10/23/68	10/25/68		10/23/68	[illegible]		10/28/68	11-5-68

PRIORITY: C

DRAWING TITLE: BLKT. INSTL ~ D/S LANDING GEAR PENT. (LOWER)

DRAWING NO.: LDW280-28583

EO NO.: C2

CDR 10/29/68

ISSUED BY: JOE LUCCHESI / H. PALLMEYER x86046 SECTION: V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 1292	
CONTROL INFO NO. LDW280B7082			

IN M/B FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME
EFF LM-8(38) THRU LM-15(45).

DRAWING NO.	DASH NO.	N/A WAS	N/A IS	CHG LETTER
LDW280-28583	-53	LDW280-56553	LDW280-58553	C3
-28816	-17			B1
-28835	-9			C3
-51560	-7-1			C7
-51642	-5-1			B3
-51818	-1			A7
-52635	-5			C6
-52822	-13			A9
-53501	-21			G4
-53504	-3			B6
-53505	-1			A3
-53512	-1			B1
-53513	-5			B1
-53514	-410-65			D1
-53644	-23			A6
-53646	-31			B2
-53649	-21			A7
-54506	-1			A2
-54568	-5			A3
-54600	-1-1			A4
-56671	-1			A1
-56731	-10-3			A3
-66510	-3			B4
LDW280-66661	-3	LDW280 56553	LDW280-58553	A5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3179 CCA1278 PKG 50 ECP A062 (5)						
REASON FOR EO: CHANGE 1/2 MIL H FILM TO 1/4 MIL H FILM						DESCRIPTION OF EO: SEE ABOVE						GAEC EO RELEASE 2/27/69
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	VDI	THERM. SUPPORT	RELIAB. GROUP	GROUP LEADER
LM		LM-8(38)		✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP	DATE	2/13/69	2/17/69		2/12/69
		THRU		PRIORITY C		DRAWING TITLE: SEE DWG.						
		LM-15(45)										

STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
2/18/69		2/17/69	2-27-69
DRAWING NO. LEO 280			EO NO. 1292

GDR022469
ISSUED BY W. KAY x87222/D. SHAPIRO x87222 SECTION V.D.I. GROUP NO. 335 PL 25

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
ENG 32.1 REV 3-68

DWG. NO. LEO 280
EO NO. 1397
CONTROL INFO NO. LDW280B 7451

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
✓ LDW280 -25704	B5	SEE DWG
✓ -25705	D7	
✓ -25706	B6	
✓ -25707	C1	
✓ -25708	C2	
✓ -25709	B3	
✓ -25710	B7	
✓ -28583	C4	
-28687	C3	
LDW280 -28688	B3	SEE DWG

* APPLICABLE DASH NOS

(5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3587 PKG 55 PG 11-12 CCA 1821

REASON FOR EO: LM-15 (45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15 (45) EFF FROM -*

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY							
DATE	4/8/69			4-2-69	4/7/69		4/9/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO. 1397

ISSUED BY #52869 MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 2

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 1735
CONTROL INFO NO. LDW280B8724

IN MB FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME.

EFF: LM-10(40) THRU LM-14(44)

DRAWING NO. *	N/A WAS ***	N/A IS **	DWG TITLE	CHG LTR
LDW280-58647-1	LDW280-58553	LDW280-60553	SEE DWG	A3
-28583-53	-58553	-60553		C5
-66661-3-1	-58553	-60553		B2
-18662-17,-19,-21	-66510	-60511		A3
-18676-19	-66510	-60511		B3
-18677-11,-13,-15,-17,-19	-	-		B3
-18678-11,-13,15,-17,-19	-	-		B3
-18679-11,-13,-15,-17,-19	-	-		B3
-18680-11,-13,-15,-17,-19	-	-		B5
LDW280-18681-11,-13,15,-17,-19	LDW280-66510	LDW280-60511	SEE DWG	B4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3994 PK692	(5)

REASON FOR EO: LMMP REDESIGN

DESCRIPTION OF EO: IN MB, FOR * , N/A ** (WAS) ***
EFF: LM-10(40) THRU LM-14(44)

GAEC EO RELEASE: JK 10/31/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

APPROVED BY								
DATE	–	10/21/69		10-20-69	10/21/69		10/20/69	10/23/69
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO280
EO NO.: 1735

CDR110369

ISSUED BY D.SHAPIRO/P.THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1852
CONTROL INFO NO. LDW280B9840

REVISE THE N/A FOR THE FOLLOWING DWGS.
EFF: LM-10(40) THRU LM-14(44)

DRAWING NO. *	N/A IS **	N/A WAS ***	DWG. TITLE	CHG. LTR
✓ LDW280-28816-17	LDW280-60553	LDW280-58553	SEE DWG.	B3
✓ LDW280-51560-7-1	↑	↑	↑	D2
x				
✓ LDW280-52635-5				C8
✓ LDW280-52822-13				B2
x		↓		
		LDW280-58553		
✓ LDW280-28583-9,-10,-11	↓	LDW280-56553	↓	C6
LDW280-66522-1-1	LDW280-60553	LDW280-58553	SEE DWG.	A8

8,9

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD3994 PKG92 (5)

REASON FOR EO: REDESIGN OF DIS THERMAL SHIELD FOR LMMP

DESCRIPTION OF EO: IN MOD. BLK. FOR *, N/A ** (WAS) ***

GAEC EO RELEASE: JK 2/27/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D REWORK / SCRAP

	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~COST~~
APPROVED BY	BST				NM		BST	Bott
DATE	2-26-70	2/26/70		2-26-70	2/26/70		2-26-70	2-26-70

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO 280
EO NO.: 1852

DR022670
ISSUED BY D. SHAPIRO/G. HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-28586 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28569	LTA-8(18)	1
PART NO. LDW280-28586-3		GAEC SCH NO. 51-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28569	LM-1(31)	1
PART NO. LDW280-28586-1		GAEC SCH NO. 51-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	2.01	3.00				
REV	A	A	A	A	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED C
LAST DASH NO. USED -3

GRUMMAN REL INFO A
PRIM NO. 207 JK(001) MP-14A 6/26/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II
DRAWN BY HERB. SCHWETER 5/1/67
LAYOUT BY C.DE ANGELIS
CHECKED BY J. Bell 5/8/67
GR LEADER 6/19/67
VEH DES INT
STRUCTURES
STRUCTURES EP 6/20
WEIGHTS
RELIABILITY
PROJ ENGR 6/22
REL GROUP Botti 6-26-67

© GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PANEL INSTALLATION
DESCENT STAGE~SCIENTIFIC EQUIP
BAY SUPPORT-R H END CLOSURE

SIZE B
CODE IDENT NO. 26512
LDW280-28586 A
SCALE NONE
SHEET 1.00 OF 5

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
A	1	1.00,1.10,2.00 2.01 & 3.00	4A					EO A1	EO A1, INITIAL DWG RELEASE PARTS MADE PER EO	LM-1, LTA-8	NOT	REQD	HERB. SCHWETER 5-1-67		6-26-67
	2	1.10 2.01 3.00	4B					EO A2	IN FIELD & B/M (ON-1) G120-063-5-10A WAS G120-110-5-14A G120-190-5-14 WAS G120-063-5-14A; NAS1097AD4 WAS MS20426AD 4 (5) PLACES ADDED SHIM AS REQ'D .062 MAX QQ-A-250/4 FIN 76, MS20470AD4 (2) & ADDED NOTE 2	LM-1 LTA-8	✓				6/22
	3	1.10, 2.00 3.00	4A				✓	EO A3	ADDED -3 INSTL REMOVE FROM -1; LTA-8(18) EFF	LTA-8	✓				
	4	3.00	4B						REF EO A2 12 9/16 (REF) DIM WAS 9 (REF)						

FOR CONTINUATION OF REVISIONS SEE SHEET ________

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-28586	A
SCALE NONE		SHEET 1.10	

ENG 77.3 5-66

01

NAS 9-1100

QTY PER ASSEMBLY -3	QTY PER ASSEMBLY -1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1	1	LDW280-17299-21	E		PLATE	SEE DWG						4A
1	1	-19			GUSSET							5A
1	1	-17			PLATE							6B
4	4	-15			PLATE							6A
2	2	LDW280-17299-13			PLATE							6A
1	1	LDW280-17298-20			TEE							5B
1	1	-18			ANGLE							5B
1	1	-16										4B
1	1	-14										3B
1	1	LDW280-17298-12			ANGLE							4C
1	1	LDW280-17293-11			WEB							4A
1	1	LDW280-17215-21			ANGLE							3B
1	1	-20			PLATE							6B
2	2	-17			PLATE							6A
	1	-16			CLIP							4C
	1	LDW280-17215-15			CLIP							3C
1		LDW280-17214-12-1			CHANNEL							4B
	1	-12										4B
1		-11-1										3B
	1	LDW280-17214-11			CHANNEL	SEE DWG						3B
		LDW280-28586-3			PANEL INSTL					NONE	NONE	4A
		LDW280-28586-1	E		PANEL INSTL					NONE	NONE	4A

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						76	ALODINE	LSP14-9010
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28586	A

SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

QTY PER ASSEMBLY -3	QTY PER ASSEMBLY -1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AS REQD	AS REQD	SEE NOTE 2	E		SHIM							4B
AS REQD	AS REQD	SEE NOTE 1			SHIM							7C
		NAS1097AD4			RIVET	STD PART						
		MS20470DD5										
		MS20470DD4										
		MS20470AD4										
		MS20426AD4			RIVET	STD PART						
2	2	G120-190-5-14			SHIM	GRUMMAN STD						3A
2	2	G120-063-5-10A			SHIM	GRUMMAN STD						4B
1	1	LDW280M17548-2			FITTING	SEE DWG						4A
3	3	LDW280-17714-23			PLATE							5C
3	3	-21										5C
1	1	LDW280-17714-19	E		PLATE	SEE DWG						5C

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28586	A

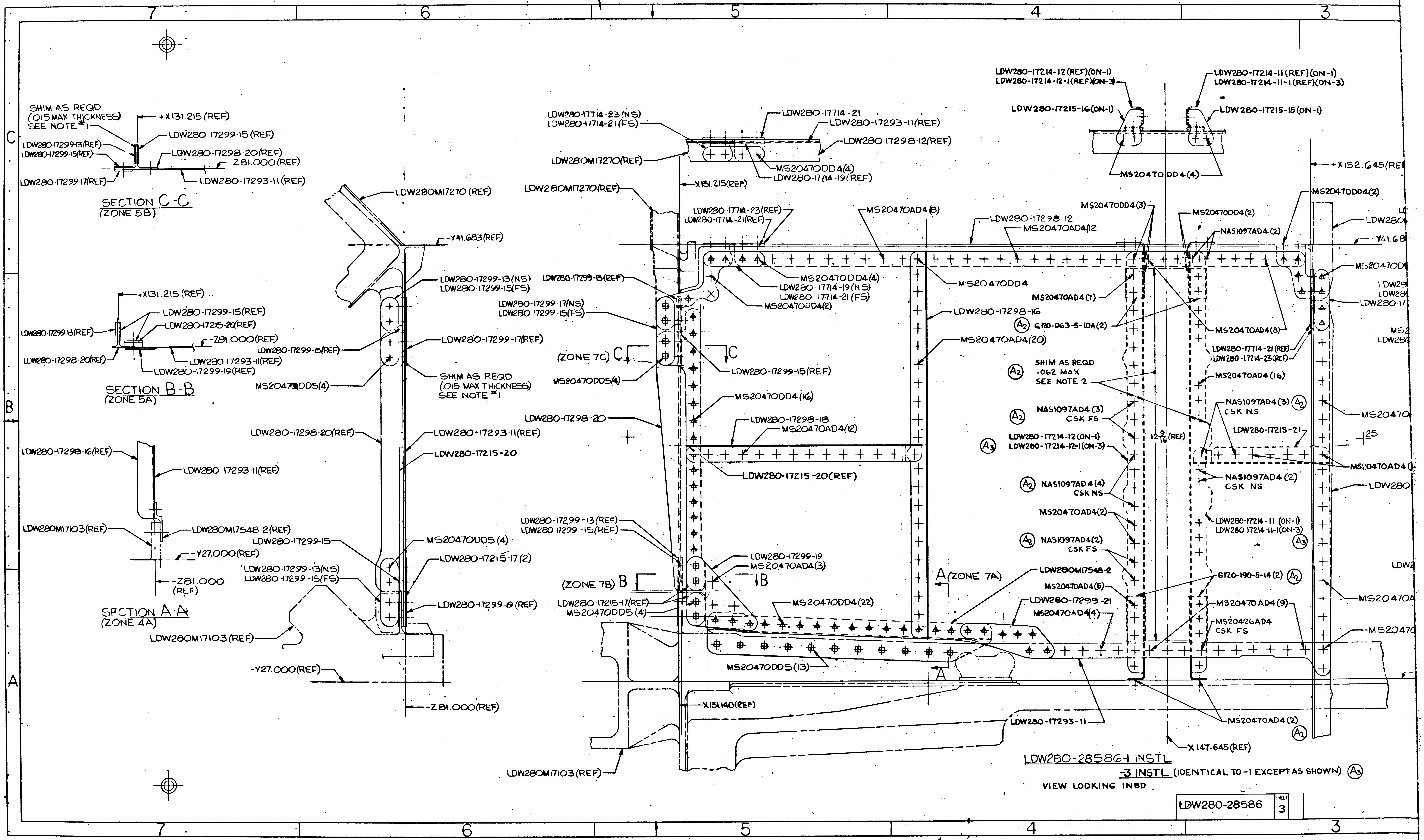
SCALE NONE

SHEET 2.01

ENG 77.2 5-64

01

NAS 9-1100


SHIM AS REQD (.015 MAX THICKNESS) SEE NOTE #1
+X131.215 (REF)
LDW280-17299-13(REF)
LDW280-17299-15(REF)
LDW280-17299-15 (REF)
LDW280-17298-20 (REF)
-Z81.000(REF)
LDW280-17299-17(REF)
LDW280-17293-11 (REF)
SECTION C-C
(ZONE 5B)
+X131.215 (REF)
LDW280-17299-15(REF)
LDW280-17215-20(REF)
LDW280-17299-13(REF)
-Z81.000(REF)
LDW280-17293-11(REF)
LDW280-17298-20(REF)
LDW280-17299-19(REF)
SECTION B-B
(ZONE 5A)
LDW280-17298-16(REF)
LDW280-17293-11(REF)
LDW280M17103(REF)
LDW280M17548-2 (REF)
-Y27.000(REF)
-Z81.000 (REF)
SECTION A-A
(ZONE 4A)
LDW280M17270 (REF)
-Y41.683(REF)
LDW280-17299-13 (NS)
LDW280-17299-15(FS)
LDW280-17299-15(REF)
LDW280-17299-17(REF)
SHIM AS REQD (.015 MAX THICKNESS) SEE NOTE #1
MS20470DD5(4)
LDW280-17298-20(REF)
LDW280-17293-11(REF)
LDW280-17215-20
LDW280-17299-15
MS20470DD5 (4)
LDW280-17299-13(NS)
LDW280-17299-15(FS)
LDW280-17215-17 (2)
LDW280-17299-19 (REF)
LDW280M17103 (REF)
-Y27.000(REF)
-Z81.000(REF)
LDW280-17714-23 (NS)
LDW280-17714-21(FS)
LDW280M17270(REF)
LDW280-17714-21
LDW280-17293-11(REF)
LDW280-17298-12(REF)
MS20470DD4(4)
LDW280-17714-19 (REF)
+X131.215(REF)
LDW280M17270(REF)
LDW280-17714-23(REF)
LDW280-17714-21(REF)
MS20470AD4(8)
LDW280-17298-12
MS20470AD4(12
LDW280-17299-13(REF)
MS20470DD4(4)
LDW280-17714-19 (NS)
LDW280-17714-21 (FS)
MS20470DD4(2)
MS20470DD4
LDW280-17299-17(NS)
LDW280-17299-15(FS)
(ZONE 7C) C
C
MS20470DD5(4)
LDW280-17299-15(REF)
LDW280-17298-16
MS20470AD4(20)
MS20470DD4 (16)
LDW280-17298-20
LDW280-17298-18
MS20470AD4(12)
LDW280-17215-20(REF)
LDW280-17299-13 (REF)
LDW280-17299-15 (REF)
LDW280-17299-19
MS20470AD4(3)
(ZONE 7B) B
B
A (ZONE 7A)
LDW280-17215-17(REF)
MS20470DD5 (4)
MS20470DD4 (22)
LDW280M17548-2
MS20470DD5 (13)
A
X131.140(REF)
LDW280-17293-11
LDW280M17103 (REF)
LDW280-17214-12 (REF)(ON-1)
LDW280-17214-12-1(REF)(ON-3)
LDW280-17215-16(ON-1)
LDW280-17214-11 (REF)(ON-1)
LDW280-17214-11-1 (REF)(ON-3)
LDW280-17215-15 (ON-1)
MS20470 DD4(4)
+X152.645(REF)
MS20470DD4(3)
MS20470DD4(2)
NAS1097AD4 (2)
MS20470DD4(2)
-Y41.68
MS20470AD4(7)
Ⓐ2 G120-063-5-10A(2)
MS20470AD4(8)
LDW280-17714-21 (REF)
LDW280-17714-23(REF)
MS20470AD4 (16)
Ⓐ2 SHIM AS REQD .062 MAX SEE NOTE 2
Ⓐ2 NAS1097AD4 (3) CSK FS
NAS1097AD4(3) Ⓐ2 CSK NS
12 9/16 (REF)
LDW280-17215-21
Ⓐ3 LDW280-17214-12 (ON-1)
LDW280-17214-12-1(ON-3)
MS20470AD4
Ⓐ2 NAS1097AD4 (4) CSK NS
NAS1097AD4 (2) CSK NS
MS20470AD4(2)
LDW280-17214-11 (ON-1)
LDW280-17214-11-1(ON-3) Ⓐ3
Ⓐ2 NAS1097AD4(2) CSK FS
G120-190-5-14 (2) Ⓐ2
MS20470AD4(5)
LDW280-17299-21
MS20470AD4(4)
MS20470 AD4(9)
MS20426AD4 CSK FS
MS20470AD4 (2)
Ⓐ2
X147.645(REF)
LDW280-28586-1 INSTL
-3 INSTL (IDENTICAL TO -1 EXCEPT AS SHOWN) Ⓐ3
VIEW LOOKING INBD
LDW280-28586
SHEET 3
7
6
5
4
3
C
B
A

01/02 NAS 9-1100

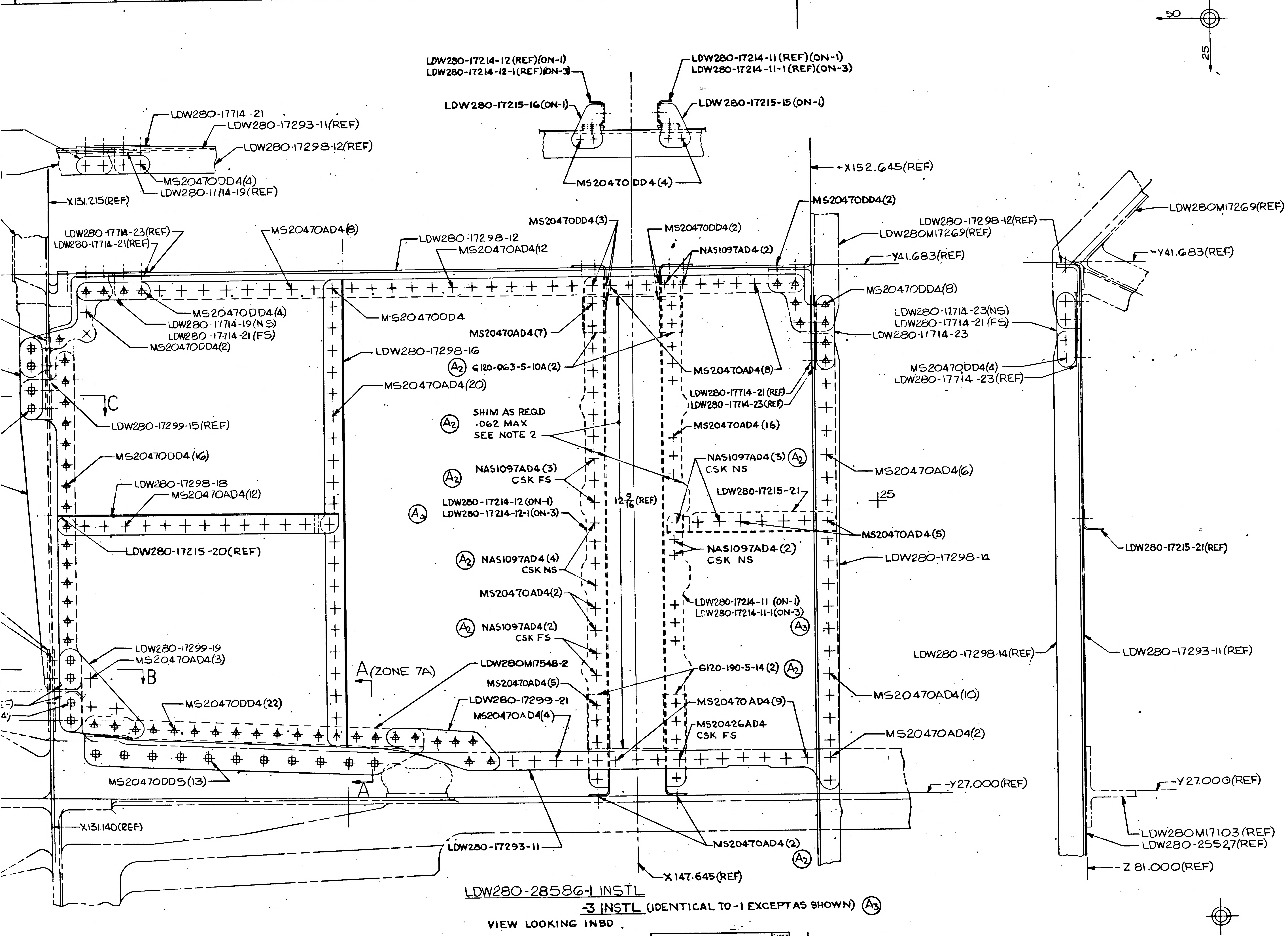
NOTES.
1. SHIM AS REQUIRED USING AL ALLOY QQ-A-250/4, 2024-T3, FINISH 88

2. SHIM AS REQUIRED USING AL ALLOY SH QQ-A-250/4, 2024-T3 FINISH 76

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE EDGE DISTANCE IS 1.5 FASTENER DIA FROM FASTENER ℄	✓
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 28 X 70

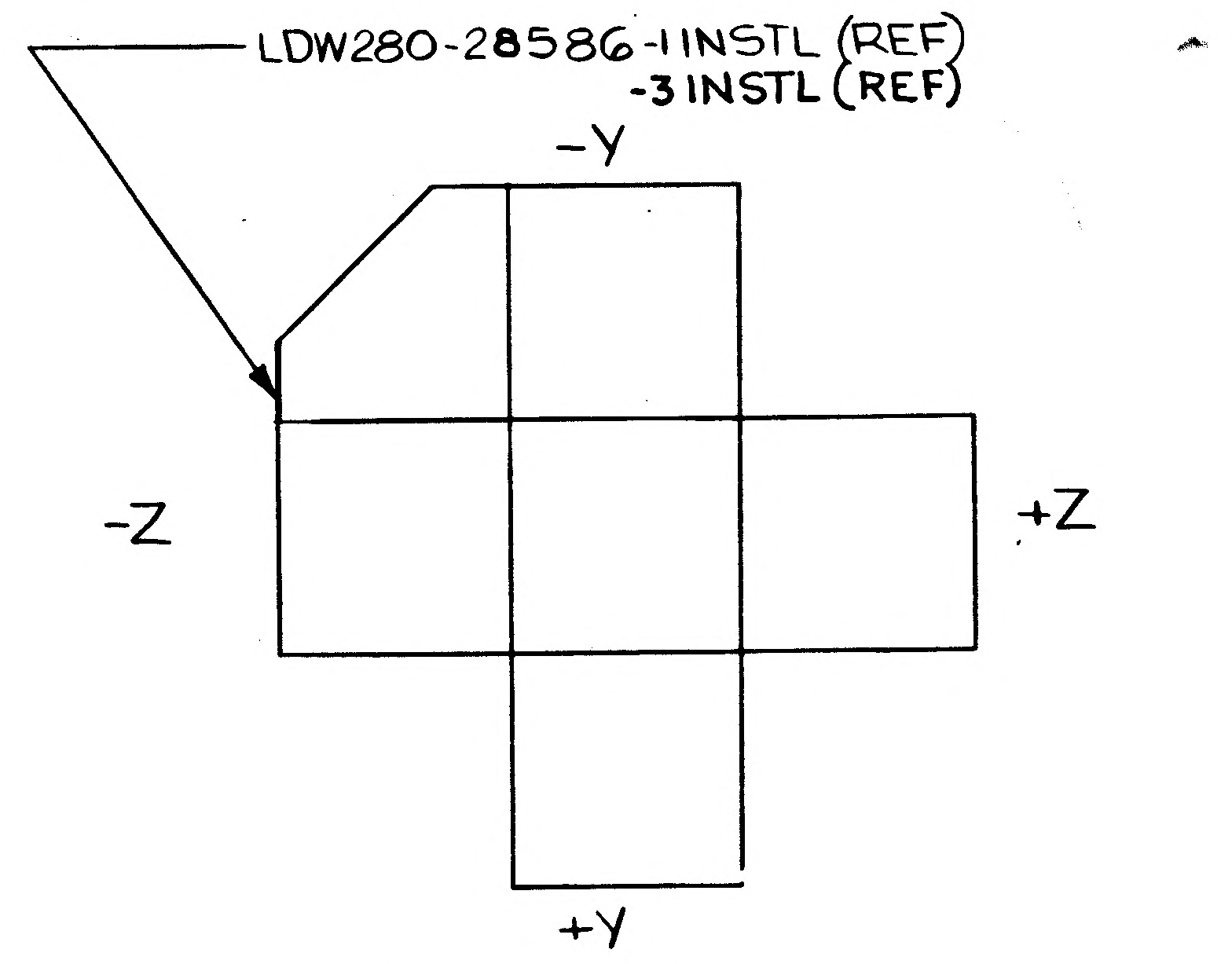
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 75 3/4) 18.93 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) 16.73 SQ. FT.
PRINT TRIM LINE



5
4
3
2
1
50
25
LDW280-17214-12 (REF)(ON-1)
LDW280-17214-12-1(REF)(ON-3)
LDW280-17214-11 (REF)(ON-1)
LDW280-17214-11-1 (REF)(ON-3)
LDW280-17215-16(ON-1)
LDW280-17215-15 (ON-1)
LDW280-17714-21
LDW280-17293-11(REF)
LDW280-17298-12(REF)
MS20470DD4(4)
LDW280-17714-19(REF)
MS20470 DD4(4)
X131.215(REF)
X152.645(REF)
MS20470DD4(2)
LDW280-17714-23(REF)
LDW280-17714-21(REF)
MS20470AD4(8)
LDW280-17298-12
MS20470AD4(12
MS20470DD4(3)
MS20470DD4(2)
NAS1097AD4(2)
LDW280-17298-12(REF)
LDW280M17269(REF)
Y41.683(REF)
LDW280M17269(REF)
Y41.683(REF)
MS20470DD4(4)
LDW280-17714-19(NS)
LDW280-17714-21 (FS)
MS20470DD4(2)
MS20470DD4
MS20470AD4(7)
MS20470DD4(8)
LDW280-17714-23(NS)
LDW280-17714-21 (FS)
LDW280-17714-23
LDW280-17298-16
A2 6120-063-5-10A(2)
MS20470AD4(8)
MS20470DD4(4)
LDW280-17714-23(REF)
MS20470AD4(20)
LDW280-17714-21 (REF)
LDW280-17714-23(REF)
C
LDW280-17299-15(REF)
A2 SHIM AS REQD .062 MAX SEE NOTE 2
MS20470AD4 (16)
MS20470DD4(16)
A2 NAS1097AD4(3) CSK FS
NAS1097AD4(3) A2 CSK NS
MS20470AD4(6)
LDW280-17298-18
MS20470AD4(12)
LDW280-17215-21
25
A3 LDW280-17214-12 (ON-1)
LDW280-17214-12-1(ON-3)
12 9/16 (REF)
MS20470AD4(5)
LDW280-17215-20(REF)
NAS1097AD4 (2) CSK NS
LDW280-17298-14
LDW280-17215-21(REF)
A2 NAS1097AD4(4) CSK NS
MS20470AD4(2)
LDW280-17214-11 (ON-1)
LDW280-17214-11-1(ON-3) A3
A2 NAS1097AD4(2) CSK FS
LDW280-17299-19
MS20470AD4(3)
B
A (ZONE 7A)
LDW280M17548-2
6120-190-5-14 (2) A2
LDW280-17298-14(REF)
LDW280-17293-11(REF)
MS20470AD4(5)
MS20470 AD4(9)
MS20470AD4(10)
MS20470DD4(22)
LDW280-17299-21
MS20470AD4(4)
MS20426AD4 CSK FS
MS20470AD4(2)
MS20470DD5(13)
A
Y27.000(REF)
Y27.000(REF)
X131.140(REF)
LDW280M17103(REF)
LDW280-25527(REF)
LDW280-17293-11
MS20470AD4(2) A2
Z 81.000(REF)
X147.645(REF)

LDW280-28586-1 INSTL
-3 INSTL (IDENTICAL TO -1 EXCEPT AS SHOWN) A3
VIEW LOOKING INBD

SYMBOL LEGEND
SYMBOLS ARE FOR QUANTITY AND LOCATION ONLY.



LDW280-28586-1 INSTL (REF)
-3 INSTL (REF)
-Y
-Z
+Z
+Y

FOR ENGINEERING REF ONLY
NO SCALE

LDW280-28586	SHEET 3

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
SIZE H	CODE IDENT NO. 26512	LDW280-28586	A
MODEL OR END ITEM LM	SCALE FULL	SHEET 3.00	

LDW280-28586 A
LDW280-28586 A

1 FR
FOR PHOTO REPRODUCTION
K2

THIS IS AN ORIGINAL DRAWING

02/02 NAS 9-1100

01

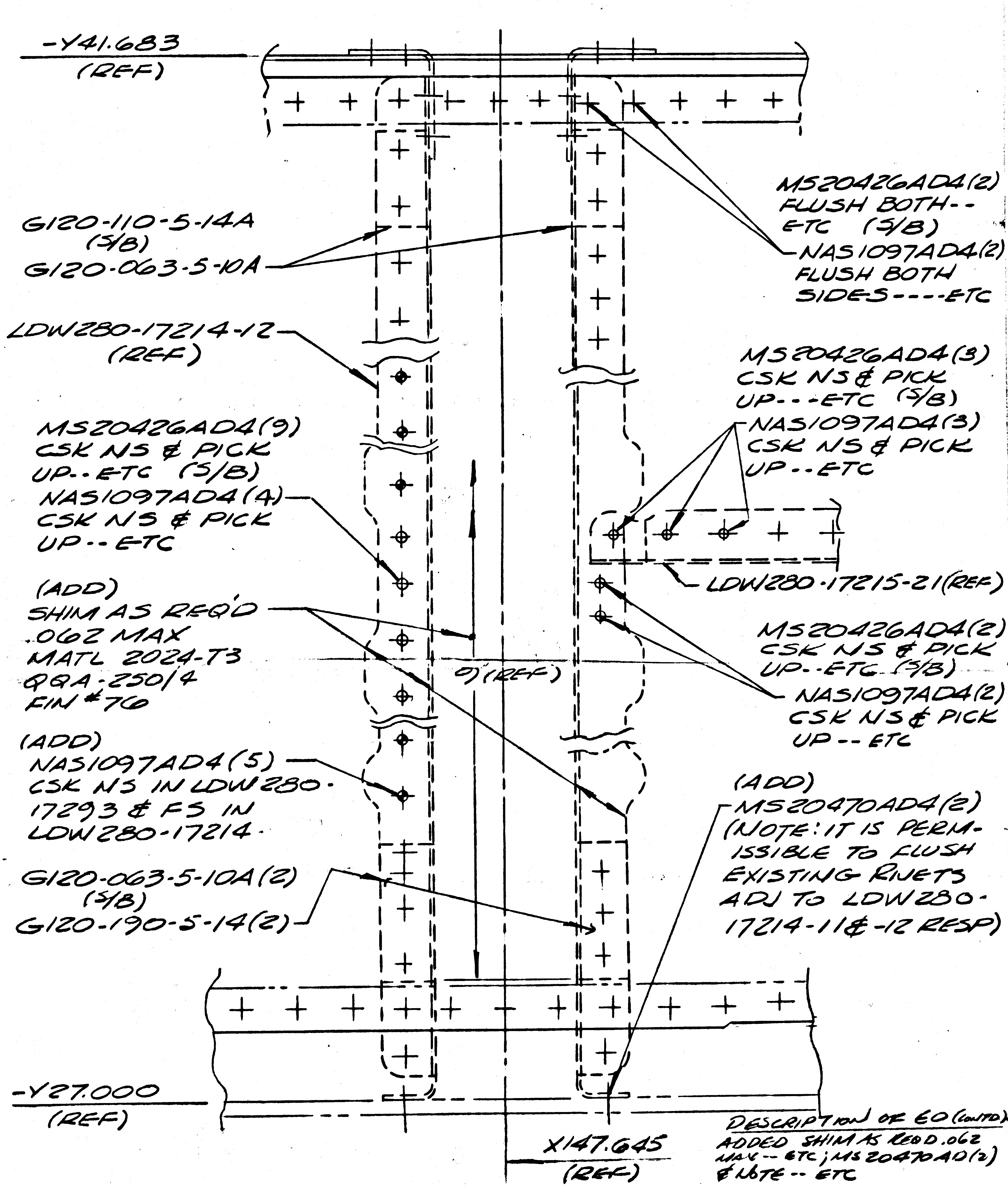
NAS 9-1100

ENG 32.2 REV 3-65 * LIAISON ENGINEERING #5

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28586 | EO NO. A2
CONTROL INFO NO. LEM-5-7889

IN FLD & B/M (ON-1)


-Y41.683
(REF)
MS20426AD4(2)
FLUSH BOTH--
ETC (5/B)
NAS1097AD4(2)
FLUSH BOTH
SIDES----ETC
G120-110-5-14A
(5/B)
G120-063-5-10A
LDW280-17214-12
(REF)
MS20426AD4(3)
CSK NS & PICK
UP---ETC (5/B)
NAS1097AD4(3)
CSK NS & PICK
UP--ETC
MS20426AD4(9)
CSK NS & PICK
UP--ETC (5/B)
NAS1097AD4(4)
CSK NS & PICK
UP--ETC
LDW280-17215-21(REF)
(ADD)
SHIM AS REQ'D
.062 MAX
MATL 2024-T3
QQA-250/4
FIN #76
9 (REF)
MS20426AD4(2)
CSK NS & PICK
UP--ETC (5/B)
NAS1097AD4(2)
CSK NS & PICK
UP--ETC
(ADD)
NAS1097AD4(5)
CSK NS IN LDW280-
17293 & FS IN
LDW280-17214
(ADD)
MS20470AD4(2)
(NOTE: IT IS PERM-
ISSIBLE TO FLUSH
EXISTING RIVETS
ADJ TO LDW280-
17214-11 & -12 RESP)
G120-063-5-10A(2)
(5/B)
G120-190-5-14(2)
-Y27.000
(REF)
X147.645
(REF)

DESCRIPTION OF EO (CONT'D)
ADDED SHIM AS REQ'D .062
MAX -- ETC; MS20470AD(2)
& NOTE -- ETC

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: TO FACILITATE INSTL OF PARTS

DESCRIPTION OF EO: IN FLD & B/M (ON-1) G120-063-5-10A (WAS) G120-110-5-14A; G120-190-5-14 (WAS) G120-063-5-14A; NAS1097AD4 (WAS) MS20426AD4 (5 PLCS) CONT'D ABOVE

Ⓡ GAEC C EO RELEASE: FR

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA8(18)	
		LEM1(31)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY					DV	DV	RMC		
DATE	9/1	9/16/66			8/4	8/4	8-13	8-4-66	
8/2/66	VDI	~~SUPPORT~~ WTS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY: C
DRAWING TITLE: PANEL INSTL DES. STG SCIENTIFIC EQUIP BAY SUPP. RH END CLOSURE
DRAWING NO.: LDW280-28586
EO NO.: A2

ISSUED BY LIAISON-MDREYES X6452 SECTION VDI/J.STRAKOSCH GROUP NO. 335 PL 35

A
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28586
EO NO. A3
CONTROL INFO NO. LM5-13095

ADD -3 INSTL.(IDENT TO -1 EXCEPT AS SHN).
IN F/D & B/M: REMOVE LDW280-17215-15 & -16
ADDED LDW280-17214-11-1 WAS -11
-12-1 WAS -12

IN MOD BLK (FOR-1)
REMOVE LTA8(18) EFF.

FOR -3, NEXT ASSY. LDW280-28569, 1 REQD/MOD., I&T=E

RELEASED BY LIAISON

* EXTRANEOUS HOLES IN AFFECTED PARTS MAY BE LEFT OPEN

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	5

REASON FOR EO: TO PROVIDE CLEARANCE FOR SEQ BOX.

DESCRIPTION OF EO: ADDED -3 INSTL REMOVED FROM -1; LTA8(18) EFF)

GAEC EO RELEASE: JK 18 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	WT					CH	RMC(E)	
DATE	4/3/67				4/4/67	4-4-67	4-6-67	4-4-67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PANEL INSTL R.H D/S - SEQ B - SUPT-END CLOUSE	LDW280-28586	A3

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
								LEM	LDW280-28509	LTA-8(18)	1
PART NO.		GAEC SCH NO.		PART NO.		GAEC SCH NO.		PART NO. LDW280-28587-1		GAEC SCH NO. 50-2	

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	2.01	3.00	4.00	5.00	6.00	
REV	C	C	C	C	C	C	C	C	
SHEET		1.11							
REV		C							
SHEET									
REV									

LAST SECT LTR USED	BE	GRUMMAN REF INFO	
LAST DASH NO. USED	-1	PRIM NO. 207	K/001

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	A. SCHMADTKE 3-66	RELIABILITY	
LAYOUT BY	R. FLANDERS 4-11-66		
CHECKED BY	4-8-66		
GR LEADER	4/12/66		
VEH DES INT	4/13		
STRUCTURES	FB 4/13	PROJ ENGR	4-18-66
STRUCTURES	4/13	REL GROUP	4-21
WEIGHTS	4/15		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SUPPORT INSTL
DESCENT STAGE-UPPER DECK-HE DISTR-FUEL-OXY-H2O & GLYCOL LINES

SIZE B
CODE IDENT NO. 26512
LDW280-28587 C
SCALE NONE
SHEET 1.00 OF 9

ENG 22.1 9-64

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
A	1	1,1.10,2,5					✓	EO A1	ADDED NOTE 5, MS20470AD4(8) LDW280-17178-11, & LDW 280-17190-11. SH 1 OF 8 WAS SH 1 OF 7.	LTA-8	✓		P. CARTSELOS 7-22-66		
	2	1.10,2,4	19B 19C					EO A2	IN FLD FOR-1 ADDED .040 MAX. SHIM 2 PLACES, MS20470AD4(1) WAS(2); ADDED NAS1097AD3(2) CSK BOTH SIDES IN LDW280-17396-11 ONLY. IN FLD & B/M DELETED LDW280-17423-13(1) & REPLACED WITH LDW280-17423-14(1). ADDED NOTE 6.						
	3	1.10,4,5,6	23A 44D 19A 10A					EO A3	IN SECT Y-Y, 13(WAS 12 13/32 - 2 PLACES), 13 3/16 (WAS 13 7/32); IN DETAIL AK, REVISED PICTURE OF LDW 280-17423-14; IN DETAIL A, REMOVED MS20470AD4(17); IN DETAIL J ROTATED LDW 280M17290-1						
	4	1.10,4,6					✓	EO A4	RELOCATED CLAMPS FOR DETAILS AN, AP, AR, & AS; NAS1097AD3(16) WAS MS20470AD3(16), FOR DETAILS AK, AL, AV, & G; 3.030 ±.005 WAS 3.03 FOR DETAIL J.						
	5	1.10, 6	35C					EO A5	ADDED LDW280-17959-11,-13,&-15, GR500A-4E(3), & MS20470AD4(11)						
	6	1.10,2.01,5	31C						REF EO A1, ADDED NAS697 A3(3) & NAS1097AD3(6)						
	7	1.10,2,6	44C						REF EO A3, ADDED LDW280-17423-14, REMOVED LDW280-17423-13						
B	1	5.00	26C 28C					EO B1	IN FLD, FOR-1 ADDED 1 9/64, 2 51/64 (5EQ SPCS), 5 3/32 (9EQ SPCS) REF; MS20426DD4(6) CSK 100° X .191 DIA; MS20470DD4 REF. EXISTING.	LTA-8	✓		R. COPPOLA 5/11/67		
		2.00					✓	EO B2	IN B/M ONLY, LDW280-17425-17 WAS LDW280-17425-13		NOT	REQ'D			
	3	4.00,2.01	12B,10A					EO B3	ON-1 NAS698C3(7) WAS NAS697C3(7)		✓				
	4	3.00	6C					EO B4	ON-1 49 3/4 WAS 50 3/8		✓				
	5	2.00,2.01 3.00,5.00	3C 22A					EO B5	ADDED VIEW BC-BC, LDW280-18058-1 & ATTACHING HDW		✓				
C	1	2.01,6.00	35C					EO C1	IN F/D & B/M GF510C-5-2(2) WAS GR500A-4E(2)	LTA-8	✓		E8		
		3.00 5.00	30A 4B,5B					EO C2	IN F/D & B/M ADDED TO-1 LDW280-17998-23(4) NAS697C08(4), NAS1097AD3(8) & MS20470AD3(8) ADDED VIEWS BD-BD & BE-BE		✓				

CHG APPROVED

LTR	GROUP LDR	VEH. DES. INT.	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
A						
C						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28587	C
SCALE NONE			SHEET 1.10

G 77.16 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
C	3	3.00 5.00	30A 4B5B					EO C3	REF EO C2 -1 INSTL, RELOCATED(1) LDW280-17998-23 WHICH WAS LOCATED INCORRECTLY. ADDED SH. 1.11 SH 1 OF 9 WAS SH 1 OF 10	LTA-8	✓		R. COPPOLA 5/11/67		
	4	2.00 4.00	19A 20A				✓	EO C4	ON-1 INSTL ADDED LDW280-17396-15 CHANNEL RELOCATE NAS697A3(6) NUT PLATES. CHANGE PICTURE TO AGREE WITH DETAIL PARTS. (LDW280-17396-11, -13 & -14).		✓				
	5	2.00 5.00	29C 32B				✓	EO C5	ON-1 TO DET. N.P.R.S ADDED LDW280P17960-15(16), GB511J-08-4(16) AN960D8L(16)		✓				
	6	4.00	10A						REF. EO B3: ADDED NOTE #7 & SHIM AS REQD. (SEE SECT. "J-J")		✓				
	7	4.00 2.00	19A 20A						REF. EO C4: REMOVED MS20470AD4(2) & NAS1097AD3(2) ADDED MS20470DD4(4). (SEE DETAIL "A")		✓				
	8	5.00	29C, 32B						REMOVED CALLOUT LDW280-28608 (REF)		NOT REQD				

CHG APPROVED

LTR	~~GROUP LDR~~	VEH. DES. INT	STRUCTURE	STRUCTURE	WEIGHTS	RELIABILITY
C						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28587	C

SCALE NONE SHEET 1.11

7.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY						-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						2		LDW280-17428-11	E	DOUBLER	SEE DWG						27C
						16		LDW280P17960-15		PLATE							
						1		LDW280-17476-11		CLIP							36B
						1		LDW280-18058-1		BRACKET							
						1		LDW280-17425-16		ANGLE							46B
						1		-15		ANGLE							46A
						1		-17		BRACKET							46A
						1		LDW280-17425-11		SUPPORT							29A
						1		LDW280-17396-15		CHANNEL							
						1		LDW280-17424-13		BRACKET							40C
						1		LDW280-17424-11		BRACKET							40C
						1		LDW280-17190-11		ANGLE							28A
						1		LDW280-17423-17		BRACKET							38B
						1		-15									41B
						1		-14									44C
						1		LDW280-17423-11									13C
						1		LDW280-17422-15									36A
						1		LDW280-17422-13									33A
						1		LDW280-17422-11									40A
						1		LDW280-17421-17									44A
						1		-15									44A
						2		-13									7C ~~44A~~
						2		LDW280-17421-11		BRACKET							7C ~~44A~~
						2		LDW280-17178-11		CLIP							
						3		LDW280-17177-15		ANGLE							24B
						1		LDW280-17177-13		CHANNEL							24B
						1		LDW280-17177-11		BRACKET	SEE DWG						26A
						4		LDW280-17998-23		CLIP	SEE DWG						
								LDW280-28587-1	E	SUPPORT INSTL					NONE	NONE	5A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28587	C

SCALE NONE SHEET 2.00

ENG 77.2 7-65

QTY PER ASSEMBLY					-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					2		GF510C-5-2		FASTENER	GRUMMAN STD						
					1		GR500A-4E		RIVET, BLIND	GRUMMAN STD						
					4		NAS697C08		PLATE NUT	STD PART						
							NAS1097AD3	E	RIVET	STD PART						
					3		NAS697C3		PLATE NUT							
					72		NAS697A3		PLATE NUT							
					42		NAS697A08		PLATE NUT							
					16		NAS697A06L		PLATE NUT							
					7		NAS698C3		PLATE NUT							
							MS20470DD4		RIVET							
							MS20470AD4									
							MS20470AD3									
							MS20426AD3		RIVET	STD PART						
							MS20426DD4		R'VET	STD PART						
					1		LDW280M17295-1		FITTING	SEE DWG						12B
					1		LDW280M17294-1									11B
					1		LDW280M17293-1									11A
					1		LDW280M17292-1									13B
					1		LDW280M17291-1									9A
					1		LDW280M17290-1		FITTING							10A
					1		LDW280-17959-13		CLIP							35B
					1		LDW280-17396-14		ANGLE							19A
					1		LDW280-17396-13		ANGLE							20B
					1		LDW280-17396-11		BRACKET							19A
					1		LDW280-17959-11		BRACKET							35C
					4		LDW280-17339-19		CLIP							27B
					1		-17		CHANNEL							29B
					1		-15									29B
					1		-13									32B
					1		LDW280-17339-11	E	CHANNEL	SEE DWG						32B
					1		LDW280-17959-15		CLIP	SEE DWG						35C

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28587	C

Ⓒ

SCALE NONE

SHEET 2.01

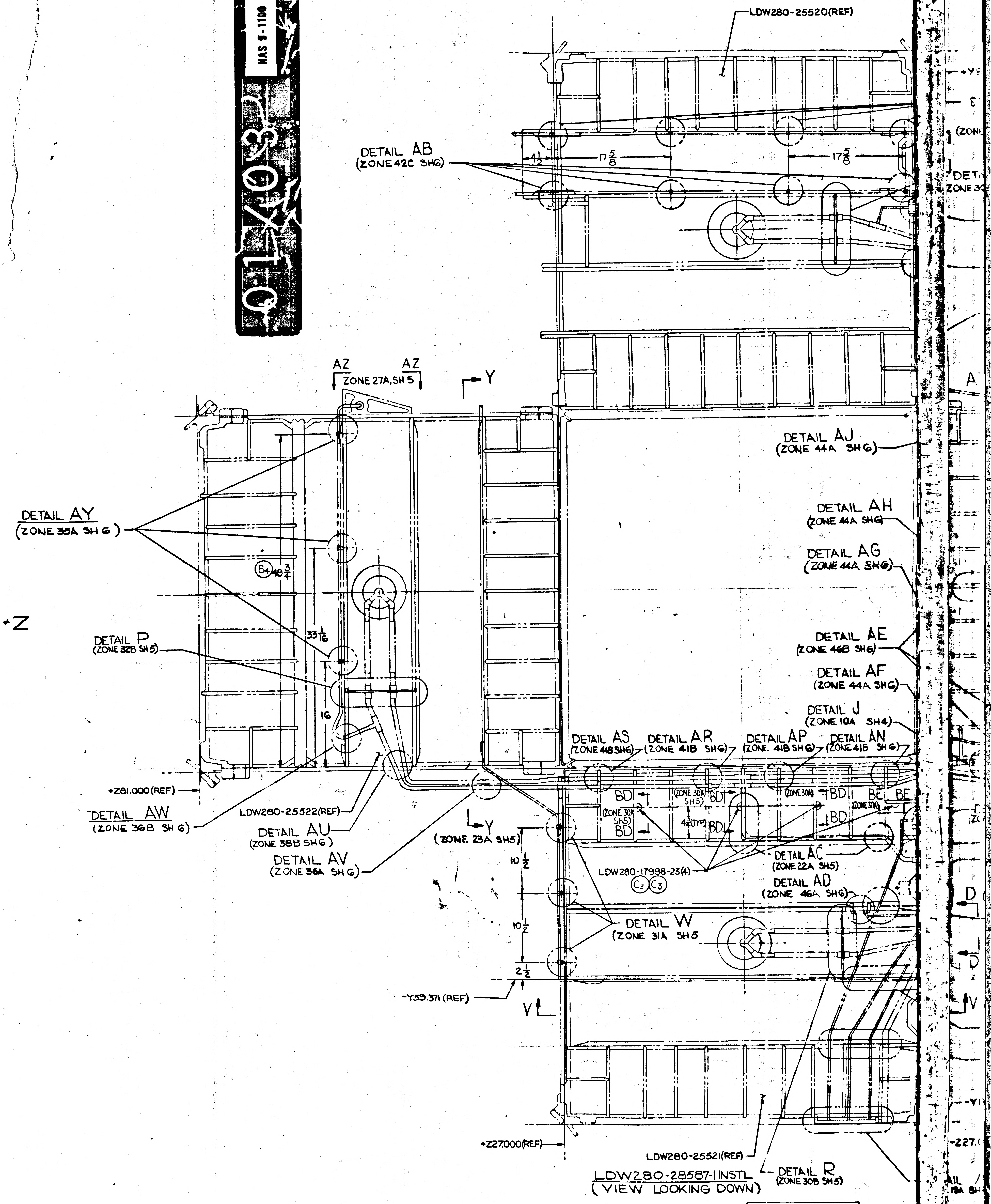
ENG 77.2 7-66

01

NAS 9-1100

01X03

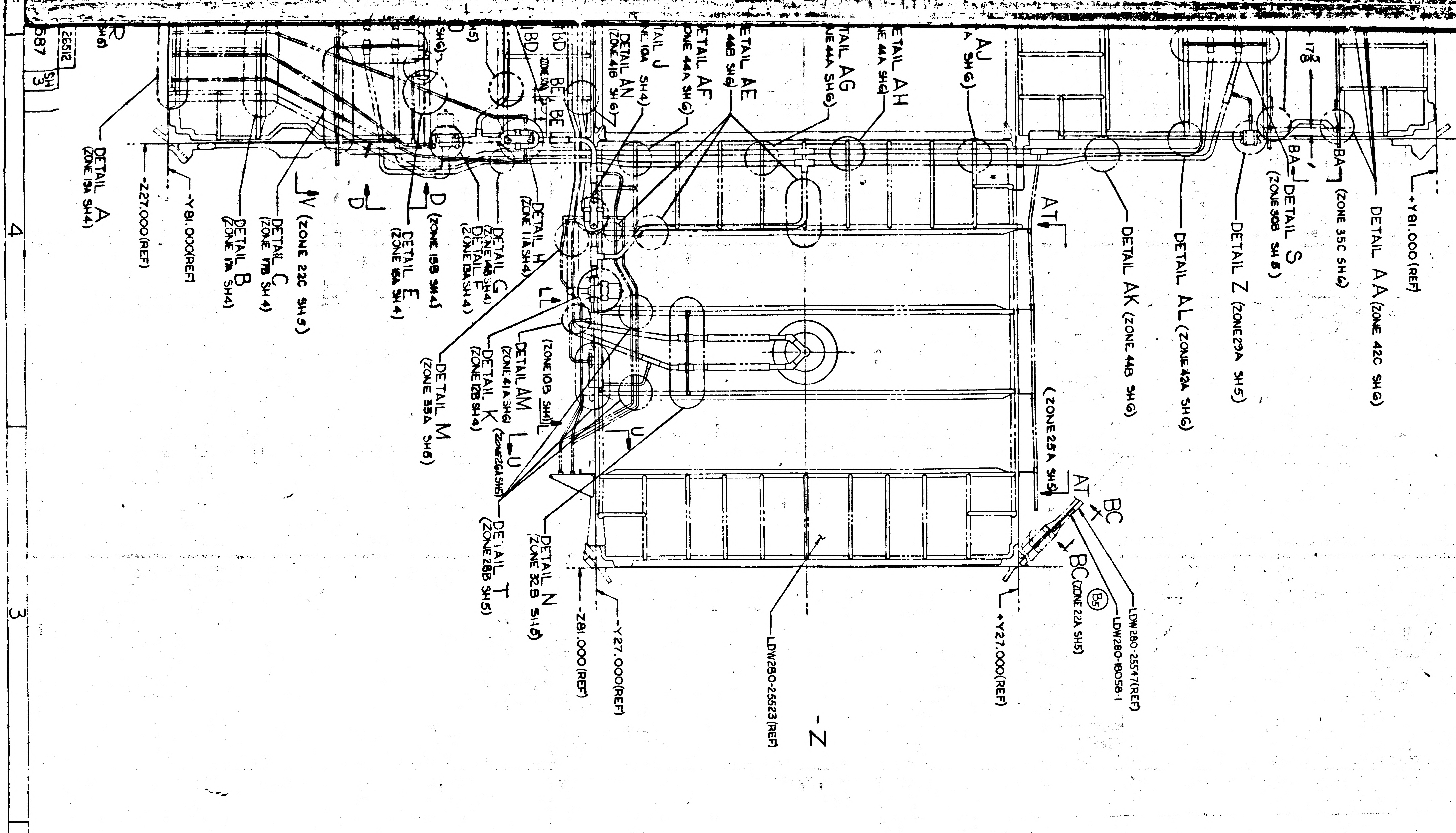
NAS 9-1100


+Y
LDW280-25520(REF)
DETAIL AB (ZONE 42C SH6)
4½
17⅝
17⅝
AZ AZ
ZONE 27A, SH 5
Y
DETAIL AY (ZONE 35A SH 6)
B4 49¾
+Z
33 1/16
DETAIL P (ZONE 32B SH 5)
16
+Z81.000 (REF)
DETAIL AW (ZONE 36B SH 6)
LDW280-25522(REF)
DETAIL AU (ZONE 38B SH 6)
DETAIL AV (ZONE 36A SH 6)
Y (ZONE 23A SH5)
DETAIL AJ (ZONE 44A SH 6)
DETAIL AH (ZONE 44A SH6)
DETAIL AG (ZONE 44A SH6)
DETAIL AE (ZONE 46B SH 6)
DETAIL AF (ZONE 44A SH 6)
DETAIL J (ZONE 10A SH4)
DETAIL AS (ZONE 41B SH6)
DETAIL AR (ZONE 41B SH6)
DETAIL AP (ZONE 41B SH 6)
DETAIL AN (ZONE 41B SH 6)
BD
(ZONE 30A SH5)
BD
4½ (TYP)
BE
BE
LDW280-17998-23(4)
C2 C3
DETAIL AC (ZONE 22A SH5)
DETAIL AD (ZONE 46A SH6)
10½
10½
DETAIL W (ZONE 31A SH 5)
2½
-Y59.371 (REF)
V
+Z27.000(REF)
LDW280-25521(REF)
DETAIL R (ZONE 30B SH 5)
-Y

LDW280-28587-1 INSTL
(VIEW LOOKING DOWN)

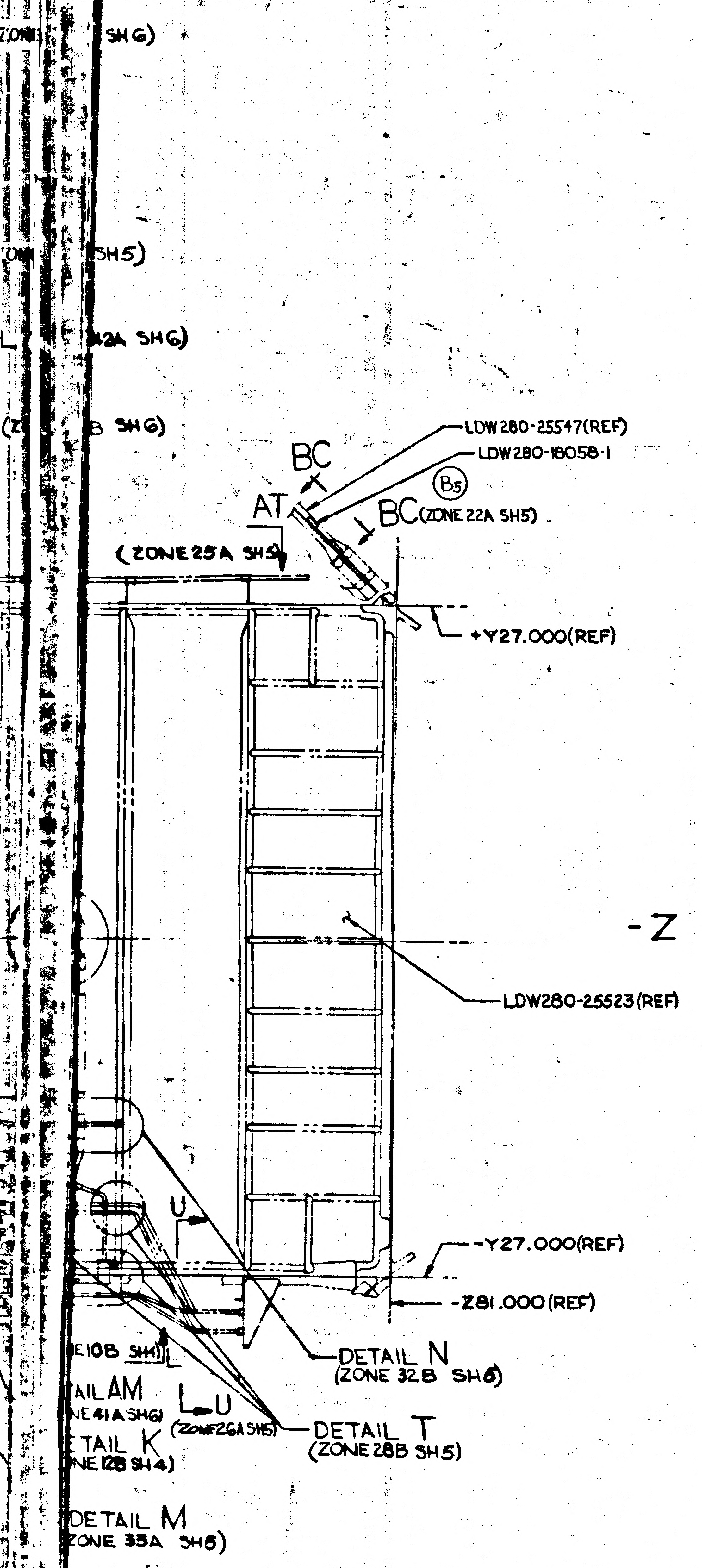
CODE IDENT NO. 26512	
LDW280-28587	SH 3

2/2


DETAIL A (ZONE 19A SH4)
-Z27.000(REF)
-Y81.000(REF)
DETAIL B (ZONE 17A SH4)
DETAIL C (ZONE 17B SH4)
V (ZONE 22C SH5)
D
D (ZONE 15B SH4)
DETAIL E (ZONE 16A SH4)
DETAIL F (ZONE 13A SH4)
DETAIL G (ZONE 14B SH4)
DETAIL H (ZONE 11A SH4)
L
DETAIL M (ZONE 35A SH6)
DETAIL K (ZONE 12B SH4)
DETAIL AM (ZONE 41A SH6)
(ZONE 10B SH4)
L
U (ZONE 22A SH5)
U
DETAIL T (ZONE 28B SH5)
DETAIL N (ZONE 32B SH6)
-Z81.000(REF)
-Y27.000(REF)
LDW280-25523(REF)
-Z
+Y27.000(REF)
AT
BC
BC (ZONE 22A SH5)
B5
LDW280-18058-1
LDW280-25547(REF)
(ZONE 25A SH5)
AT
DETAIL AK (ZONE 44B SH6)
DETAIL AL (ZONE 42A SH6)
DETAIL Z (ZONE 29A SH5)
DETAIL S (ZONE 30B SH5)
BA
BA
(ZONE 35C SH6)
DETAIL AA (ZONE 42C SH6)
+Y81.000(REF)
17 5/8
(REF)
AJ
A SH6)
DETAIL AH
E 44A SH6)
DETAIL AG
NE 44A SH6)
DETAIL AE
44B SH6)
DETAIL AF
ONE 44A SH6)
DETAIL J
NE 10A SH4)
DETAIL AN
(ZONE 41B SH6)
BE
BE
BD
BD
SH6)
R
SH6)
25512
587
SH 3
4
3
2
1
4
3
2
LEM
512
LD

NOTES:
1. FOR HOLES MAR
SEE DWG LSC27
FOR CORRESPON
PATTERN.
2. FOR HOLES M
SEE LSC270-
CORRESPOND
PATTERN.
3. FOR HOLES MAR
SEE LSC 270-8
CORRESPONDING
PATTERN.
4. FOR HOLES MAR
SEE
FOR CORRESPO
HOLE PATTERN
5. FOR HOLES MAR
SEE LSC270-80
CORRESPONDING HO
6. SHIM MAT'L AL A
QQ-A-250/4, 202
7. SHIM MAT'L AL A
QQ-A-250/12, 707

02/03 NAS 9-1100



(ZONE SH6)
SH5)
2A SH6)
B SH6)
BC
AT
LDW280-25547(REF)
LDW280-18058-1
B5
BC(ZONE 22A SH5)
(ZONE 25A SH5)
+Y27.000(REF)
-Z
LDW280-25523(REF)
U
-Y27.000(REF)
-Z81.000(REF)
E10B SH1)
AIL AM
NE 41A SH6)
L U
(ZONE 26A SH5)
DETAIL K
NE 12B SH4)
DETAIL N
(ZONE 32B SH6)
DETAIL T
(ZONE 28B SH5)
DETAIL M
ZONE 35A SH6)

NOTES
1. FOR HOLES MARKED ▲ SEE DWG LSC270-818 FOR CORRESPONDING HOLE PATTERN.
2. FOR HOLES MARKED ▲ SEE LSC270-813 FOR CORRESPONDING HOLE PATTERN.
3. FOR HOLES MARKED ▲ SEE LSC 270-817 FOR CORRESPONING HOLE PATTERN.
4. FOR HOLES MARKED ▲ SEE 510790-201 (GFE) FOR CORRESPONDING HOLE PATTERN.
5. FOR HOLES MARKED ▲ SEE LSC270-805-1 FOR CORRESPONDING HOLE PATTERN.
6. SHIM MAT'L- AL ALLOY, QQ-A-250/4, 2024-T3, FIN.88
7. SHIM MAT'L -AL ALLOY QQ-A-250/12, 7075-T6 FIN.88

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊏☰⊐ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .010R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ∫ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 40 X 58

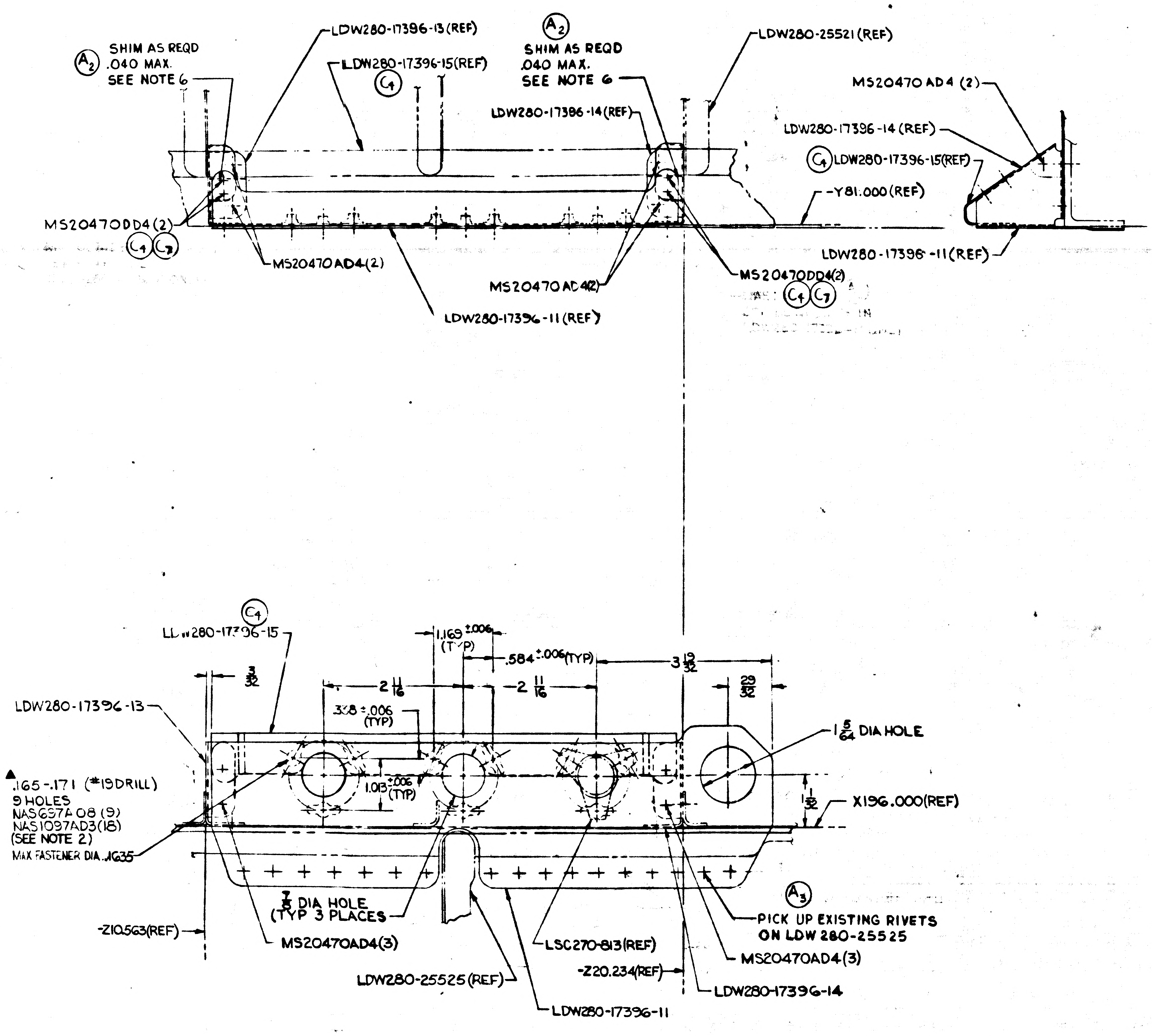
PRINTING INFO ONLY
FULL SIZE SHEET AREA 42 X 60 17.5 SQ. FT.
1/2 SIZE SHEET AREA 1/4 OF FULL 4.4 SQ. FT.
PRINT THIS LINE

03/03 NAS 9-1100

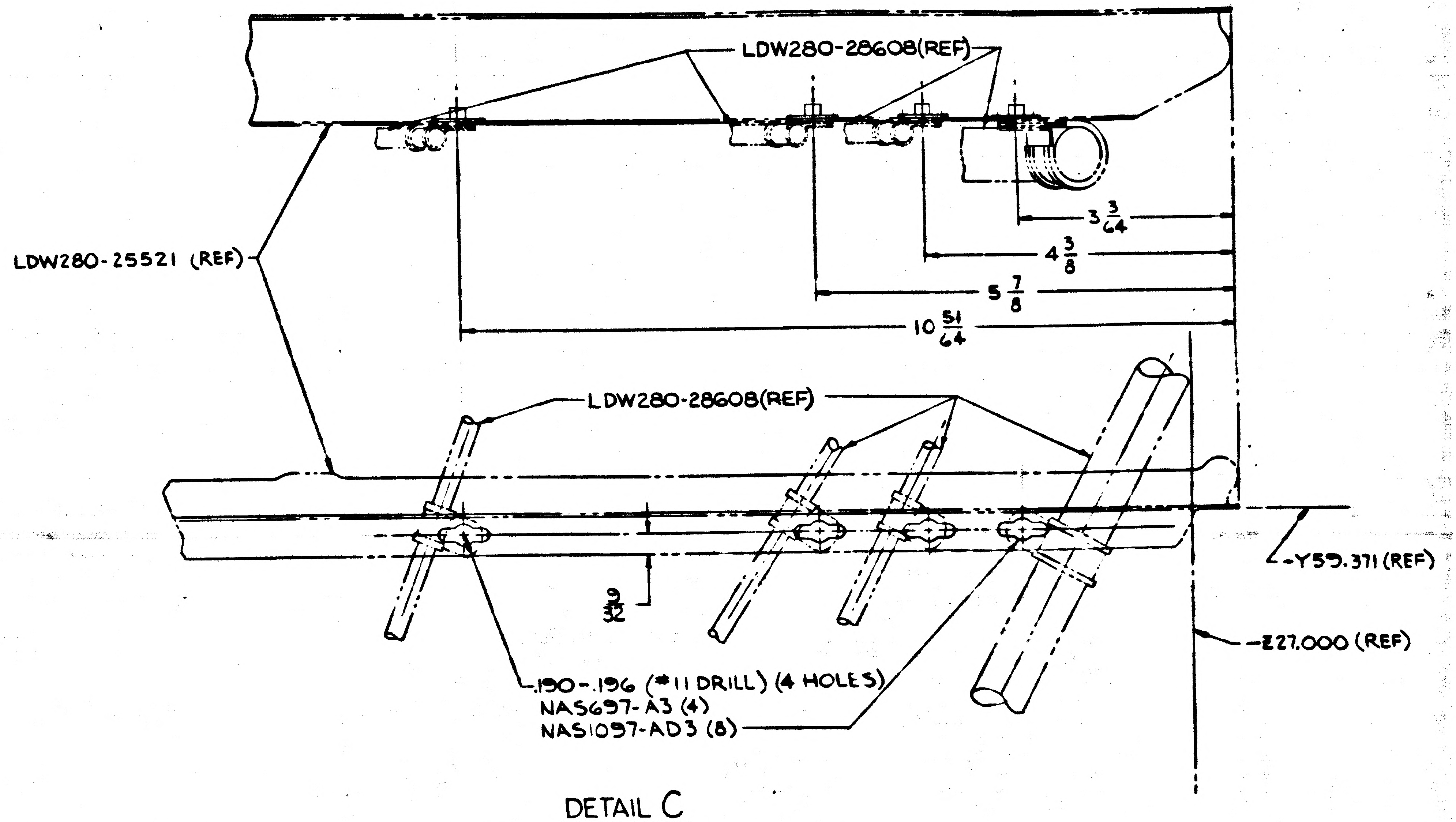
LDW280-28537C B

LDW280-28587C A

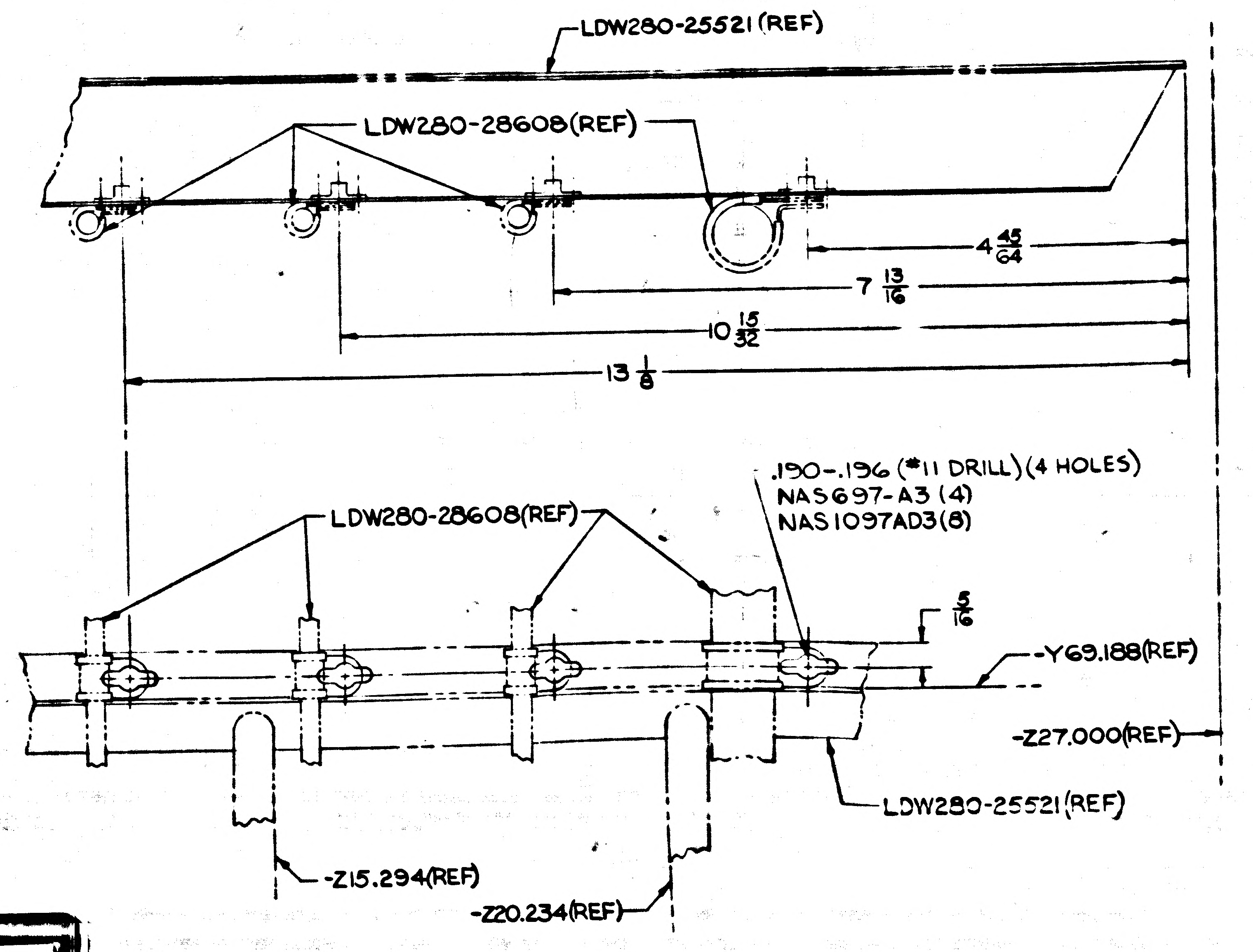
	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE K	CODE IDENT NO. 26512	LDW280-28587	C
MODEL OR END ITEM	SCALE 1/5		SHEET 3	


SHIM AS REQD .040 MAX. SEE NOTE 6
LDW280-17396-13 (REF)
LDW280-17396-15 (REF)
LDW280-17396-14 (REF)
LDW280-25521 (REF)
MS20470 AD4 (2)
LDW280-17396-15 (REF)
-Y81.000 (REF)
LDW280-17396-11 (REF)
MS20470DD4 (2)
MS20470AD4 (2)
MS20470 AD4(2)
MS20470DD4(2)
LDW280-17396-11 (REF)
LDW280-17396-15
LDW280-17396-13
1.169 ±.006 (TYP)
.584 ±.006 (TYP)
3 19/32
29/32
3/32
2 11/16
2 11/16
.308 ±.006 (TYP)
1.013 ±.006 (TYP)
1 5/64 DIA HOLE
X196.000 (REF)
3/32
.165-.171 (#19 DRILL) 9 HOLES NAS697A08 (9) NAS1097AD3 (18) (SEE NOTE 2)
MAX FASTENER DIA .1635
7/8 DIA HOLE (TYP 3 PLACES)
-Z10.563 (REF)
MS20470AD4(3)
LDW280-25525 (REF)
LSC270-813 (REF)
-Z20.234 (REF)
LDW280-17396-11
LDW280-17396-14
MS20470AD4(3)
PICK UP EXISTING RIVETS ON LDW 280-25525

DETAIL A Ⓒ
(ZONE 4A SH 3)


LDW280-28608 (REF)
LDW280-25521 (REF)
3 3/64
4 3/8
5 7/8
10 51/64
LDW280-28608 (REF)
-Y59.371 (REF)
9/32
-Z27.000 (REF)
.190-.196 (#11 DRILL) (4 HOLES) NAS697-A3 (4) NAS1097-AD3 (8)

DETAIL C
(ZONE 4A SH 3)

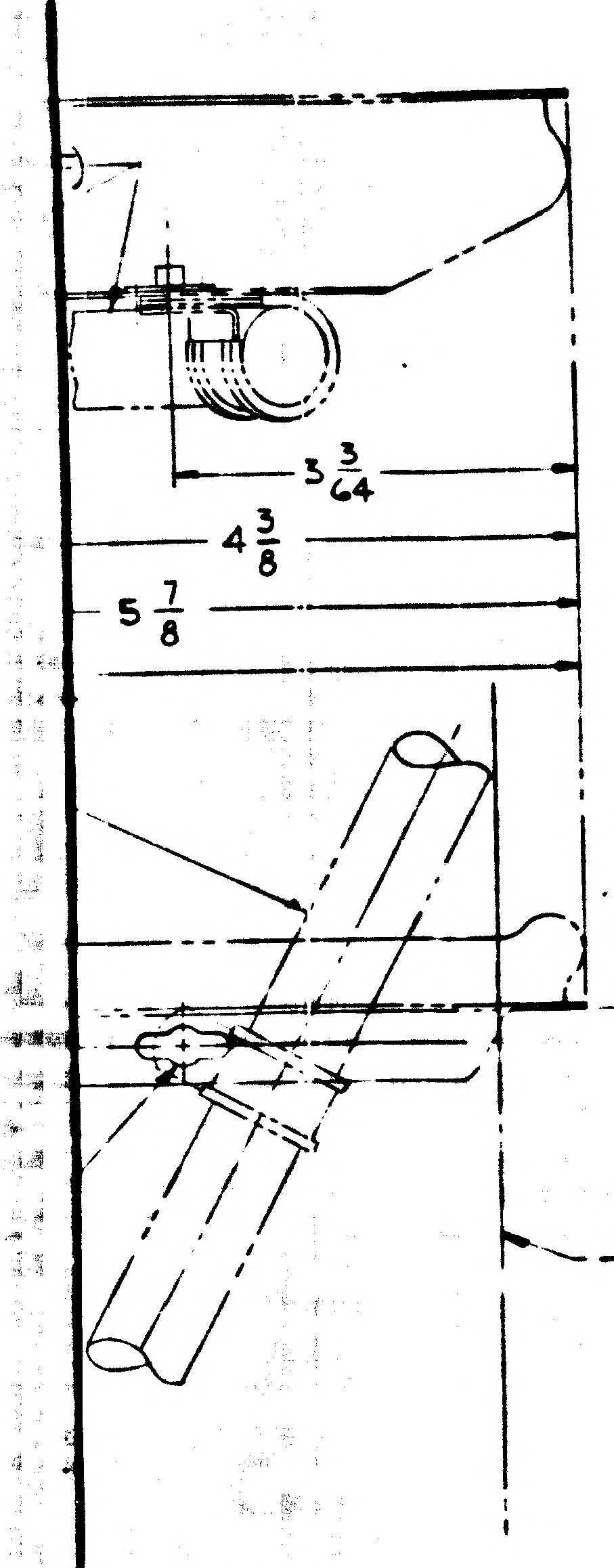

LDW280-25521 (REF)
LDW280-28608 (REF)
4 45/64
7 13/16
10 15/32
13 1/8
LDW280-28608 (REF)
.190-.196 (#11 DRILL) (4 HOLES) NAS697-A3 (4) NAS1097AD3 (8)
5/16
-Y69.188 (REF)
-Z27.000 (REF)
LDW280-25521 (REF)
-Z15.294 (REF)
-Z20.234 (REF)

DETAIL B
(ZONE 4A SH3)

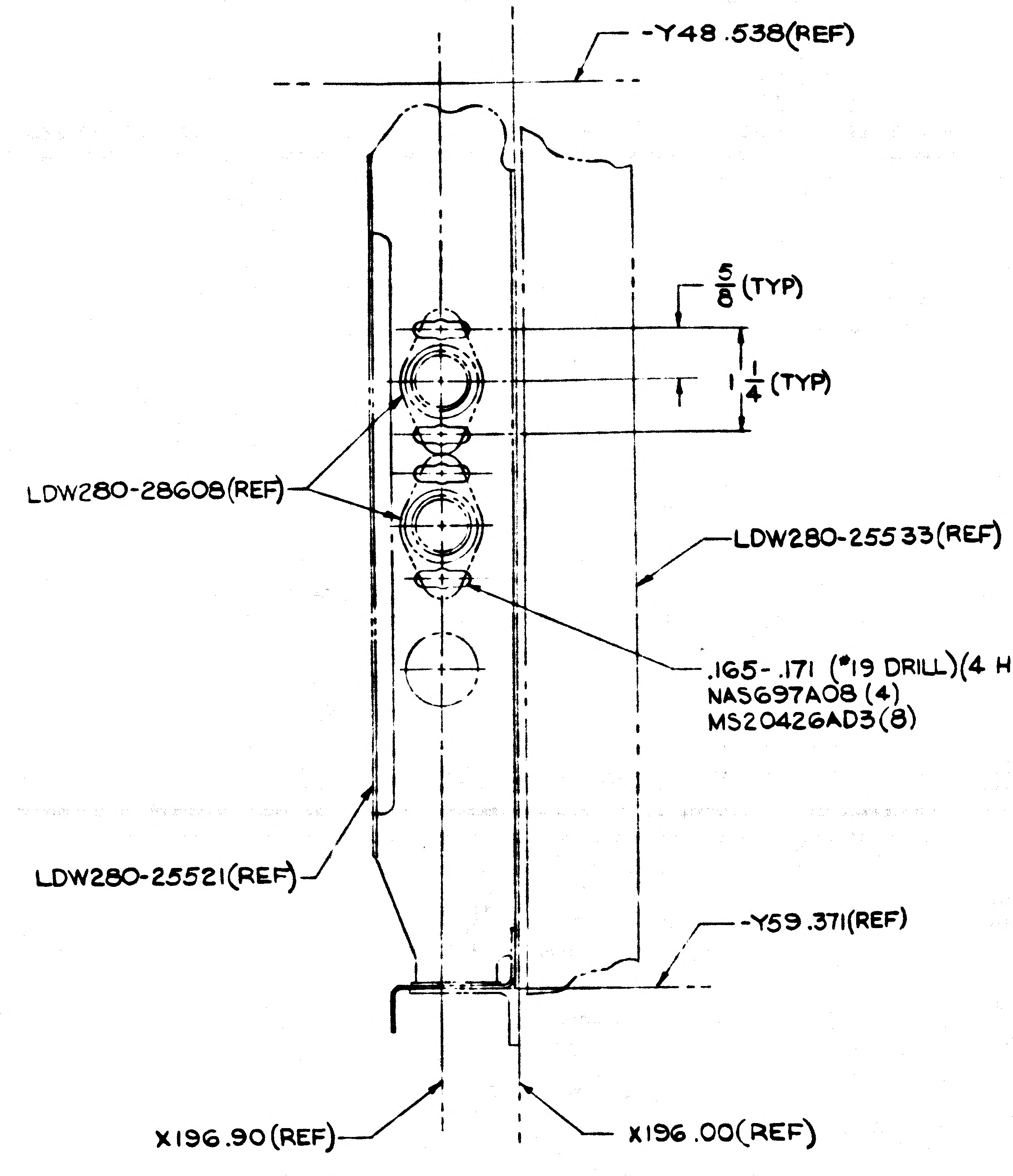
01/03 NAS 9-1100

CODE IDENT NO 26512	
LDW280-28587	SH 4

3/3

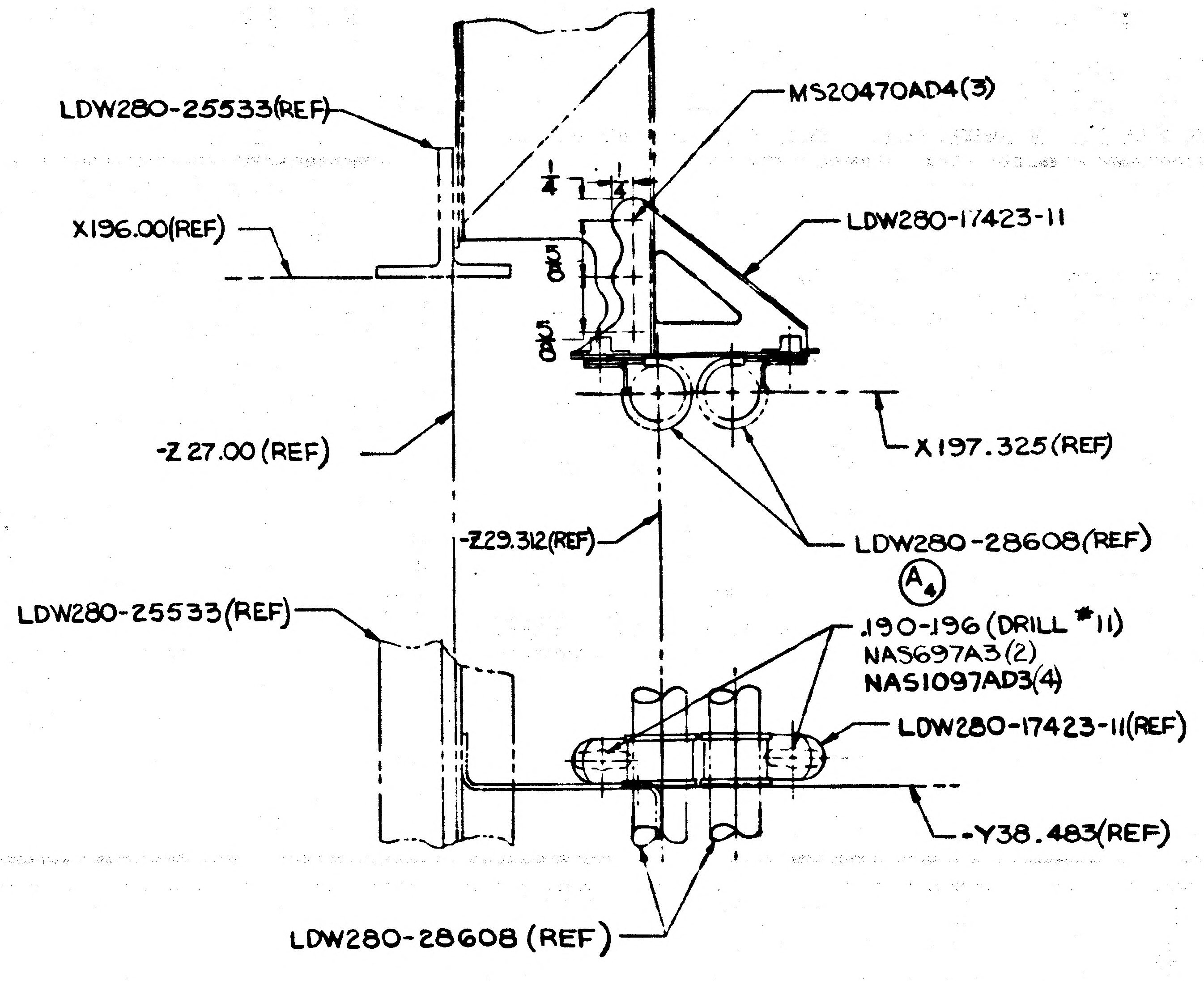


3 3/64
4 3/8
5 7/8
-Y55.371 (REF)
-Z27.000 (REF)



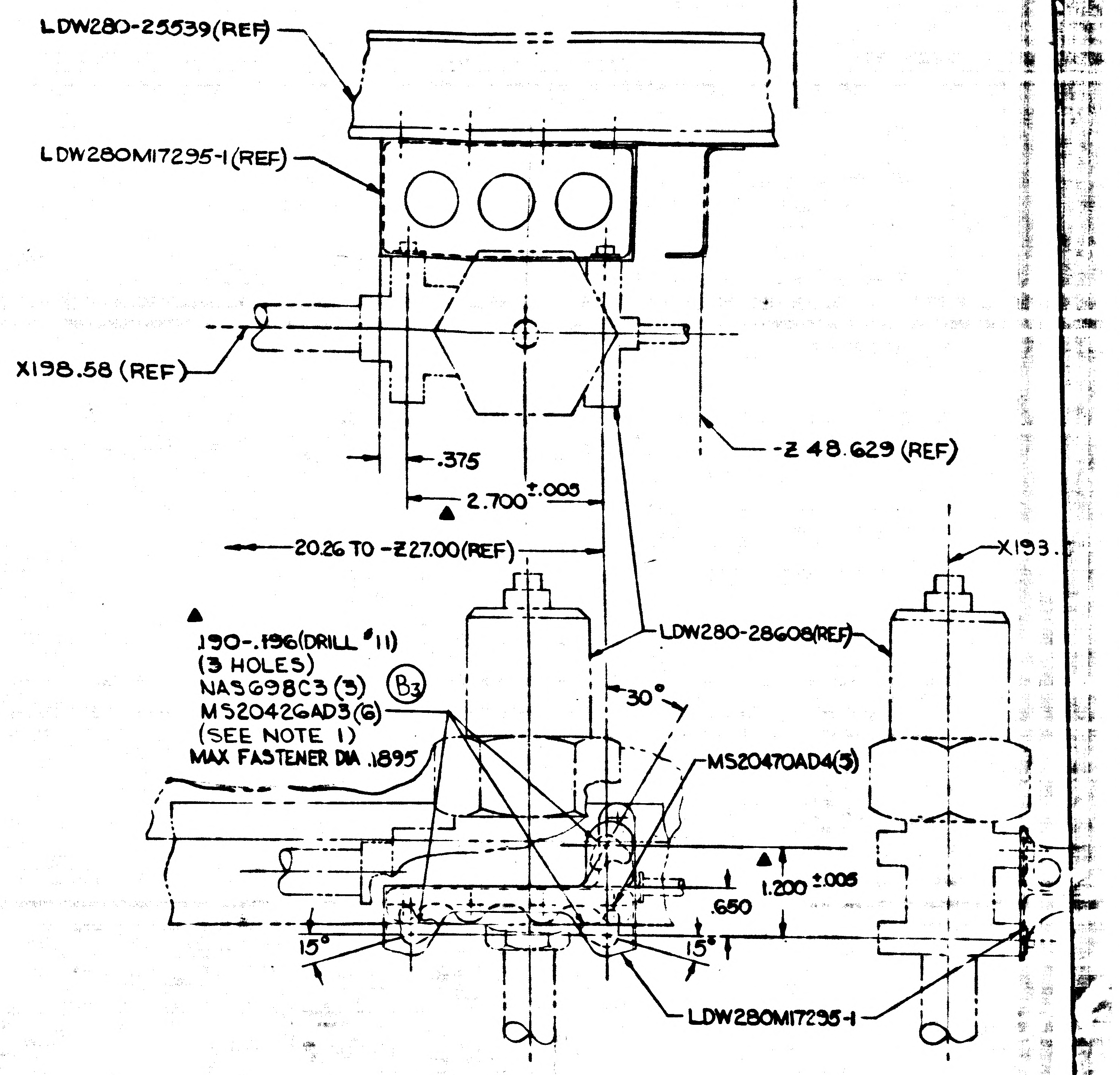
-Y48.538(REF)
5/8 (TYP)
1 1/4 (TYP)
LDW280-28608(REF)
LDW280-25533(REF)
.165-.171 (#19 DRILL)(4 HOLES)
NAS697A08 (4)
MS20426AD3(8)
LDW280-25521(REF)
-Y59.371(REF)
X196.90(REF)
X196.00(REF)

VIEW D-D
(ZONE 4A SH. 3)



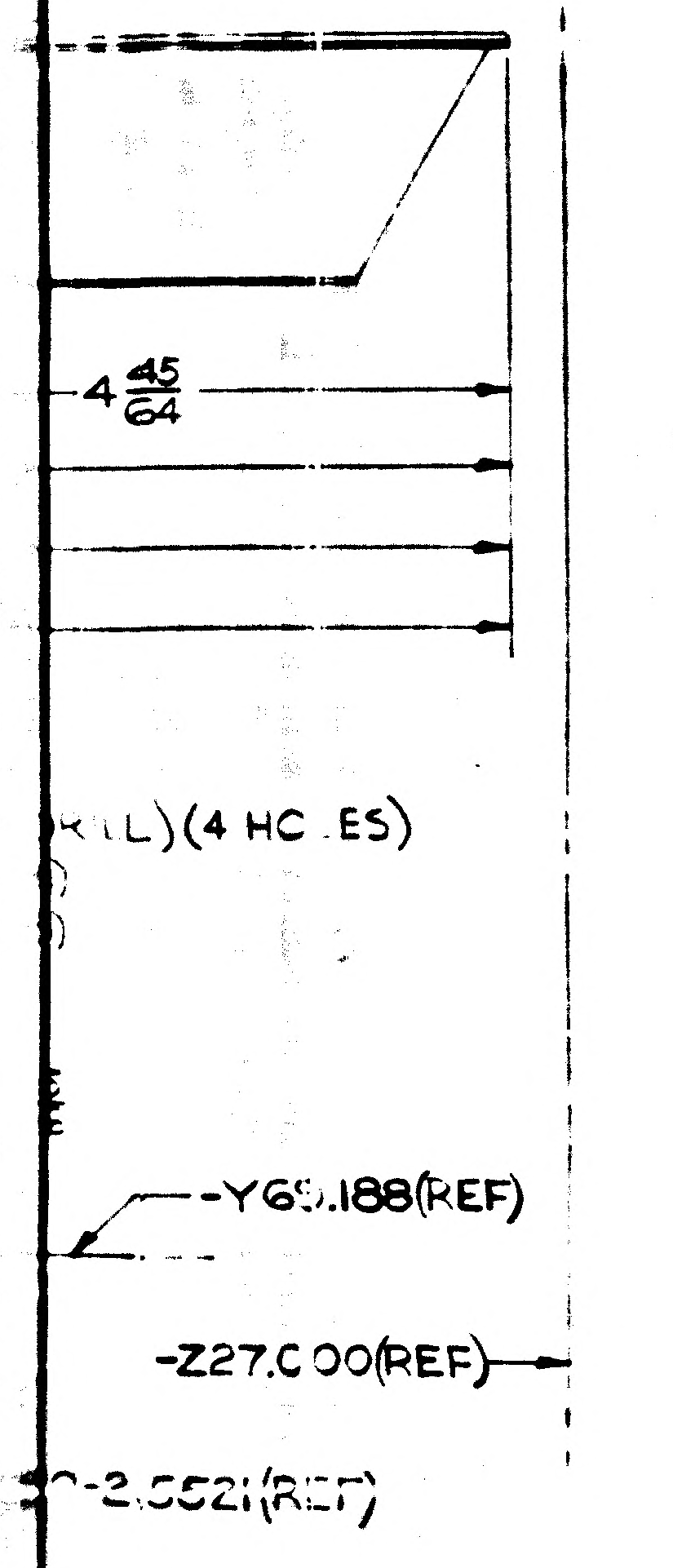
LDW280-25533(REF)
MS20470AD4(3)
X196.00(REF)
LDW280-17423-11
1/4
5/8
.5/8
-Z 27.00 (REF)
X197.325(REF)
-Z29.312(REF)
LDW280-28608(REF)
A4
LDW280-25533(REF)
.190-.196 (DRILL #11)
NAS697A3(2)
NAS1097AD3(4)
LDW280-17423-11(REF)
-Y38.483(REF)
LDW280-28608 (REF)

DETAIL G
(ZONE 4B SH. 3)

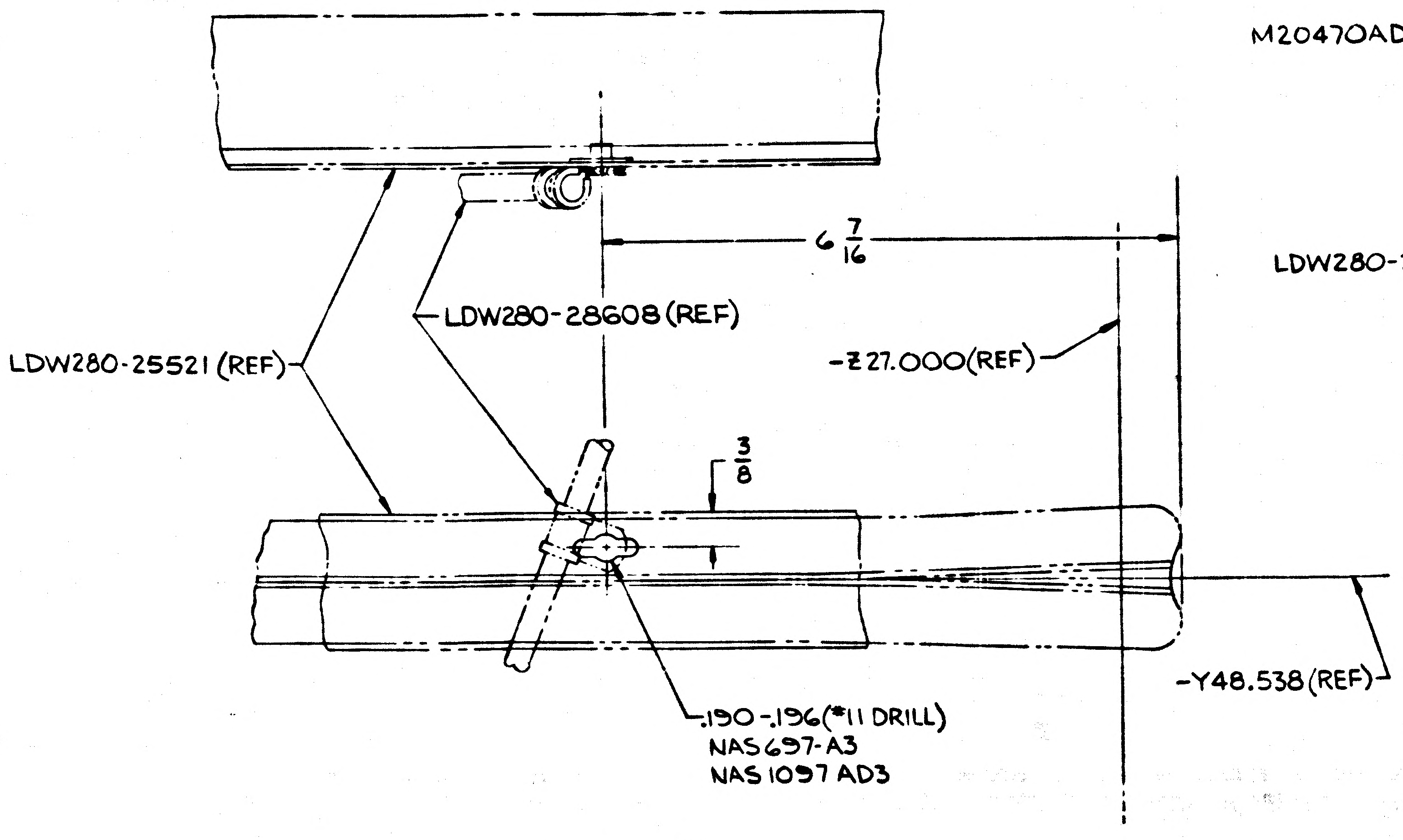


LDW280-25539(REF)
LDW280M17295-1(REF)
X198.58 (REF)
.375
2.700 ±.005
-Z 48.629 (REF)
20.26 TO -Z27.00(REF)
X193.
.190-.196(DRILL #11)
(3 HOLES)
NAS698C3 (3)
B3
MS20426AD3(6)
(SEE NOTE 1)
MAX FASTENER DIA .1895
LDW280-28608(REF)
30°
MS20470AD4(3)
1.200 ±.005
.650
15°
15°
LDW280M17295-1

DETAIL K
(ZONE 4B SH. 3)

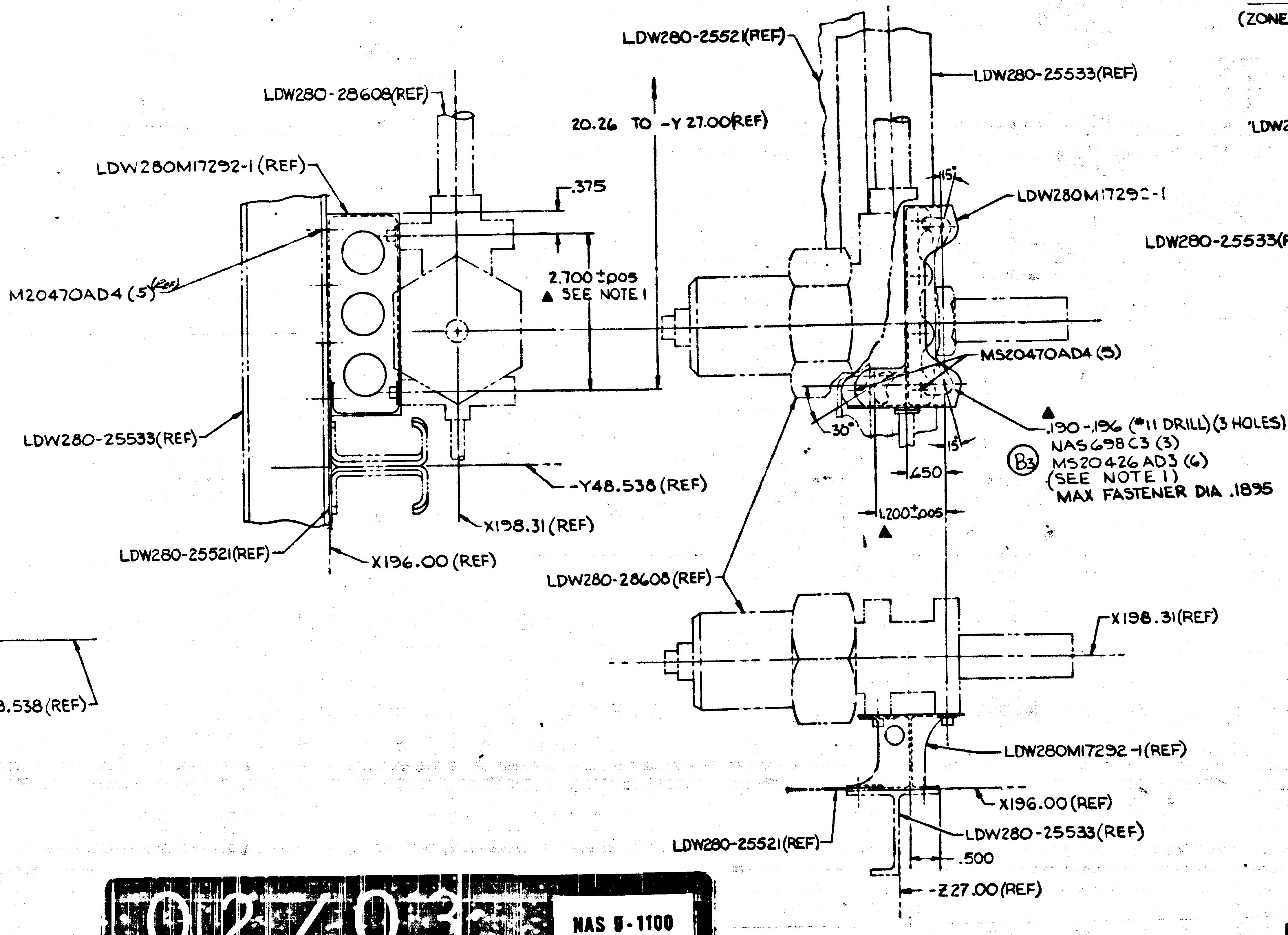


4 45/64
(4 HOLES)
-Y65.188(REF)
-Z27.000(REF)
-25521(REF)



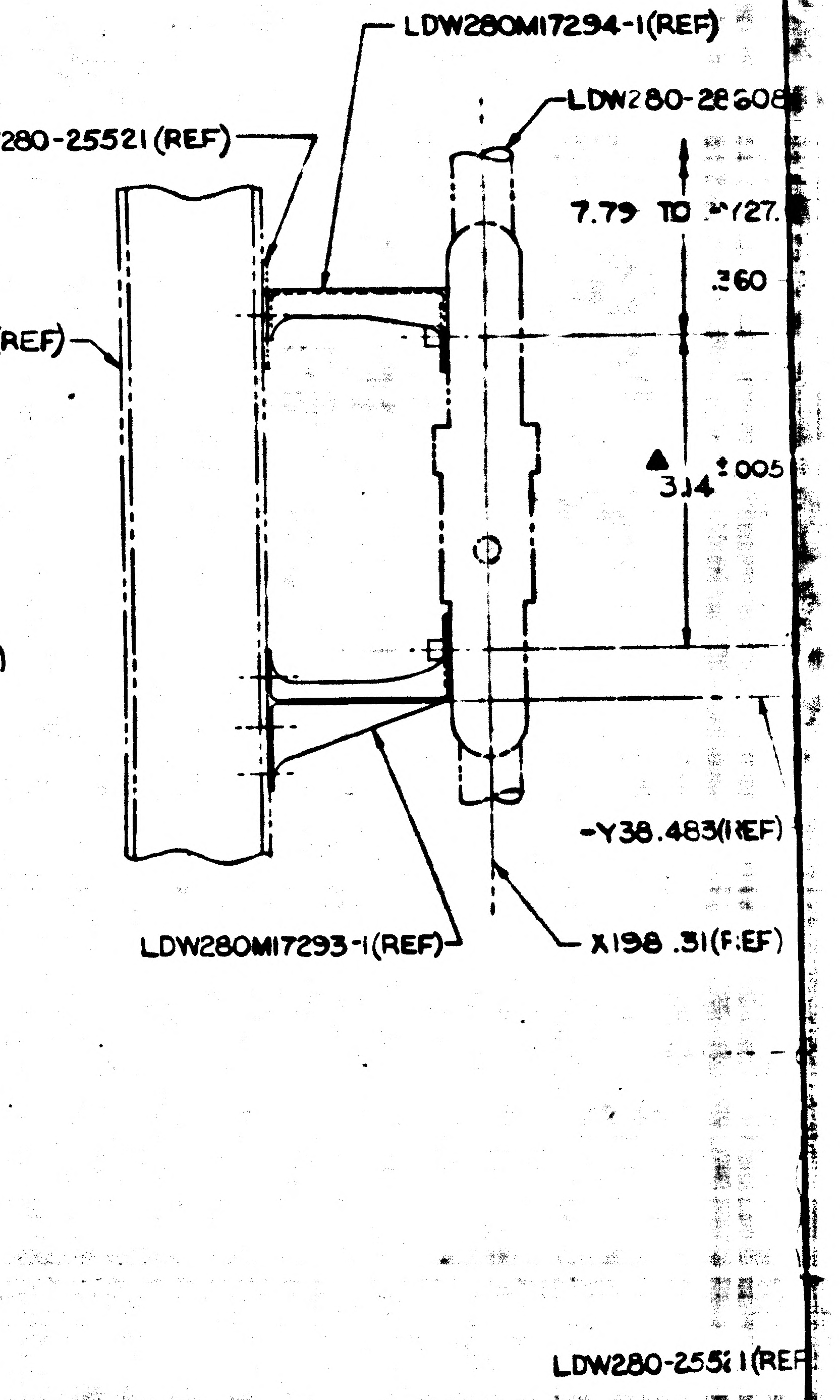
LDW280-28608 (REF)
6 7/16
-Z27.000(REF)
LDW280-25521 (REF)
3/8
-Y48.538(REF)
.190-.196(#11 DRILL)
NAS697-A3
NAS1097 AD3

DETAIL E
(ZONE 4A SH. 3)



LDW280-25521(REF)
LDW280-25533(REF)
LDW280-28608(REF)
20.26 TO -Y 27.00(REF)
LDW280M17292-1 (REF)
.375
LDW280M17292-1
2.700±.005
SEE NOTE 1
M20470AD4 (5)
LDW280-25533(REF)
MS20470AD4 (5)
-Y48.538 (REF)
X198.31 (REF)
LDW280-25521(REF)
X196.00 (REF)
15°
30°
.450
1.200±.005
.190-.196 (#11 DRILL) (3 HOLES)
NAS698C3 (3)
B3
MS20426 AD3 (6)
(SEE NOTE 1)
MAX FASTENER DIA .1895
LDW280-28608(REF)
X198.31(REF)
LDW280M17292-1(REF)
X196.00 (REF)
LDW280-25521(REF)
LDW280-25533(REF)
.500
-Z27.00(REF)

DETAIL F
(ZONE 4B SH. 3)

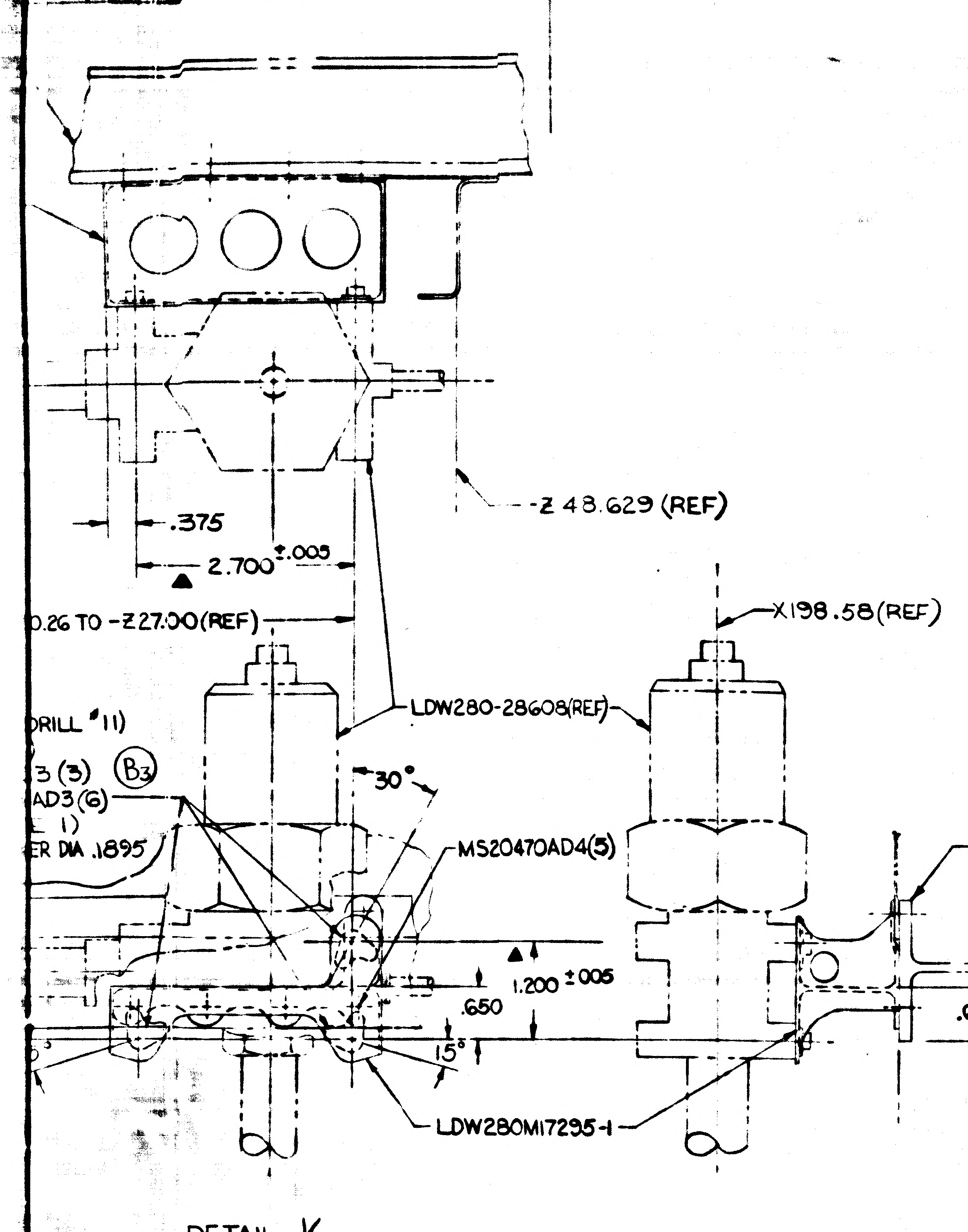


LDW280M17294-1(REF)
LDW280-28608
LDW280-25521 (REF)
7.79 TO -Y27.
.360
LDW280-25533(REF)
3.14 ±.005
-Y38.483(REF)
LDW280M17293-1(REF)
X198.31(REF)
LDW280-25521(REF)

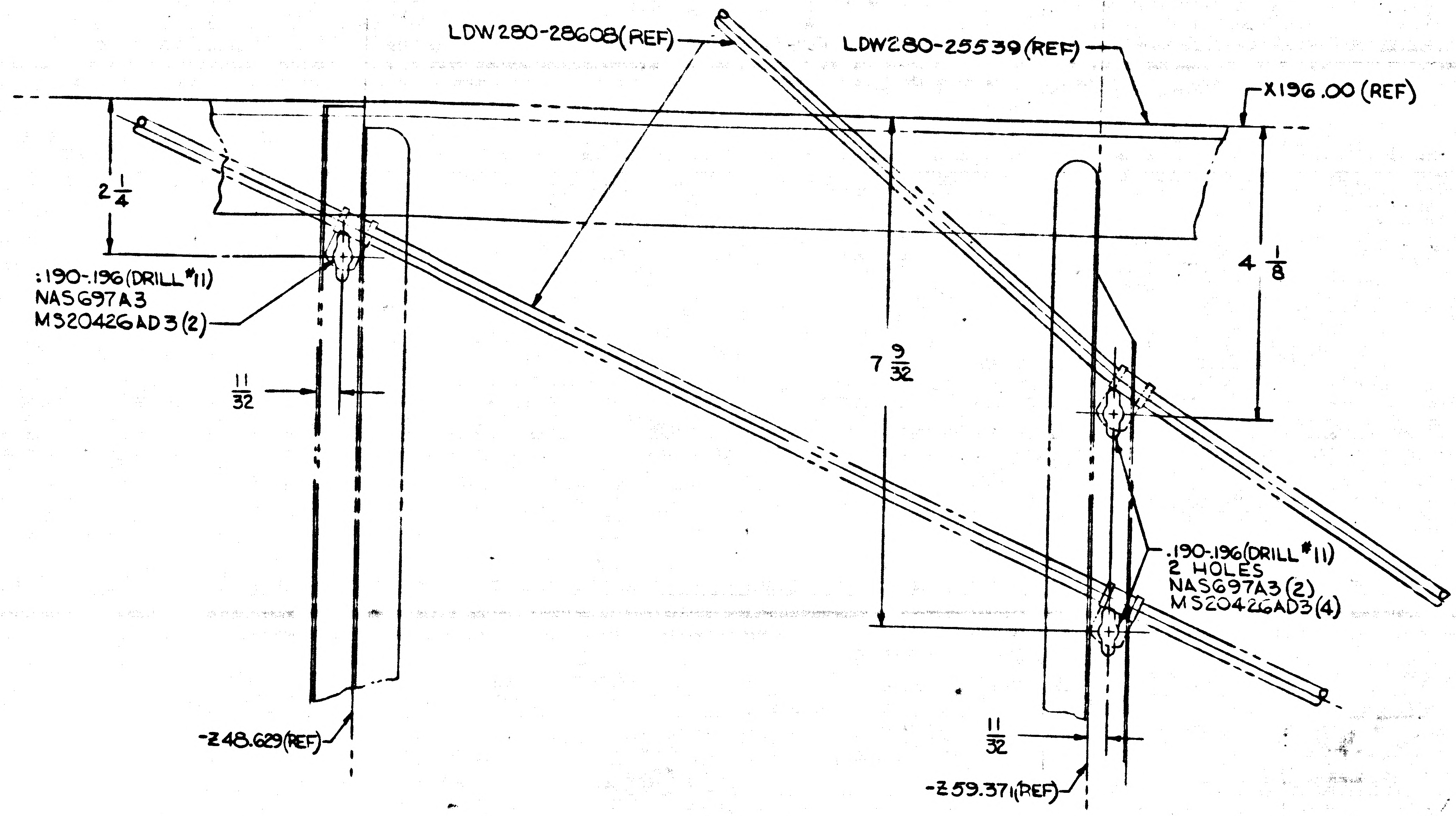
IDENT NO 26512
W280-28587
SH 4

02/03 NAS 5-1100

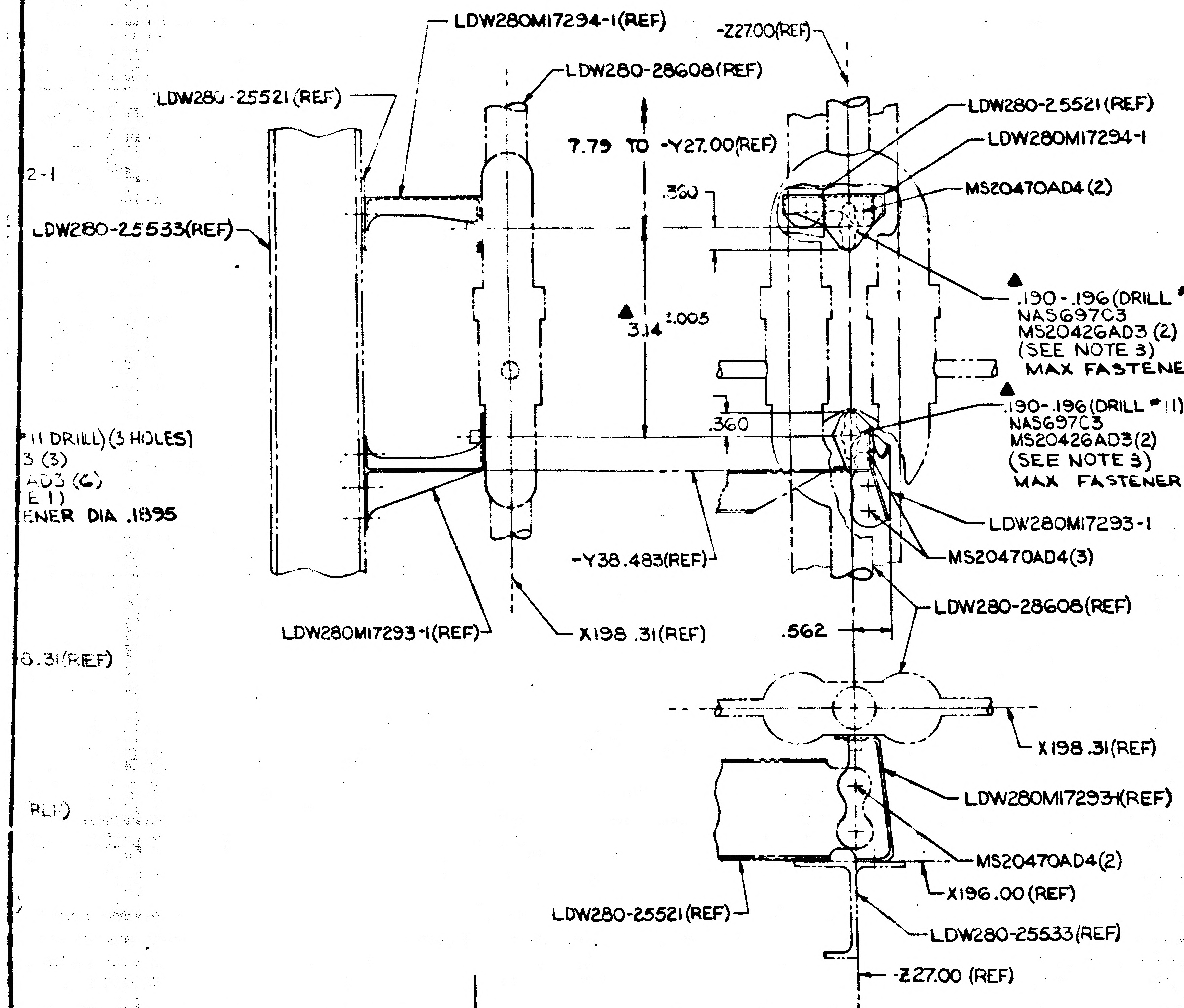
CODE IDENT NO 26512
LDW280-28587
SH 4


-Z 48.629 (REF)
.375
2.700 ±.005
0.26 TO -Z27.00(REF)
X198.58(REF)
LDW280-28608(REF)
DRILL #11)
3 (3)
B3
AD3 (6)
E 1)
ER DIA .1895
30°
MS20470AD4(5)
LDW280-25539(REF)
-Y27.00(REF)
1.200 ±.005
.650
.680
15°
LDW280M17295-1

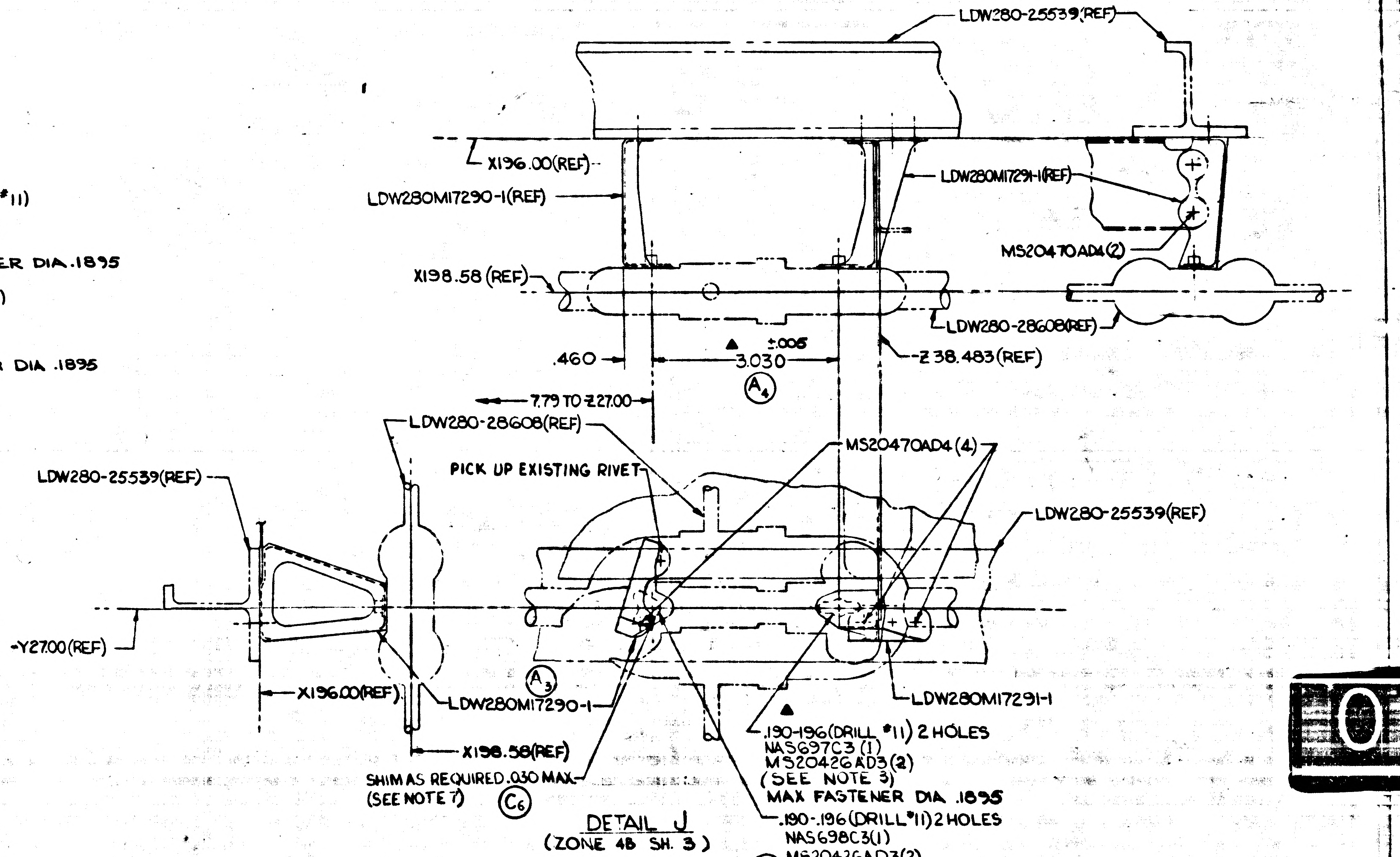
DETAIL K
(ZONE 4B SH. 3)


LDW280-28608(REF)
LDW280-25539(REF)
X196.00 (REF)
2 1/4
4 1/8
7 9/32
.190-.196 (DRILL #11)
NAS697A3
MS20426AD3 (2)
11/32
.190-.196 (DRILL #11)
2 HOLES
NAS697A3 (2)
MS20426AD3 (4)
-Z48.629(REF)
11/32
-Z59.371(REF)

SECT. L-L
(ZONE 4B SH. 3)


LDW280M17294-1(REF)
-Z27.00(REF)
LDW280-28608(REF)
LDW280-25521 (REF)
7.79 TO -Y27.00(REF)
LDW280-25521(REF)
LDW280M17294-1
MS20470AD4(2)
2-1
LDW280-25533(REF)
.360
3.14 ±.005
.190-.196 (DRILL #11)
NAS697C3
MS20426AD3 (2)
(SEE NOTE 3)
MAX FASTENER DIA .1895
.360
.190-.196 (DRILL #11)
NAS697C3
MS20426AD3(2)
(SEE NOTE 3)
MAX FASTENER DIA .1895
#11 DRILL) (3 HOLES)
3 (3)
AD3 (6)
E 1)
ENER DIA .1895
LDW280M17293-1
MS20470AD4(3)
-Y38.483(REF)
LDW280M17293-1(REF)
X198.31(REF)
.562
LDW280-28608(REF)
6.31(REF)
X198.31(REF)
LDW280M17293-1(REF)
MS20470AD4(2)
X196.00(REF)
LDW280-25521(REF)
LDW280-25533(REF)
-Z27.00 (REF)
REF)

DETAIL H
(ZONE 4B SH. 3)


LDW280-25539(REF)
X196.00(REF)
LDW280M17290-1(REF)
LDW280M17291-1(REF)
MS20470AD4(2)
X198.58(REF)
LDW280-28608(REF)
.460
3.030 ±.005
A4
-Z38.483(REF)
7.79 TO Z27.00
LDW280-28608(REF)
PICK UP EXISTING RIVET
MS20470AD4 (4)
LDW280-25539(REF)
LDW280-25539(REF)
-Y27.00(REF)
A3
-X196.00(REF)
LDW280M17290-1
LDW280M17291-1
X198.58(REF)
SHIM AS REQUIRED .030 MAX.
(SEE NOTE 7)
C6
.190-.196(DRILL #11) 2 HOLES
NAS697C3 (1)
MS20426AD3(2)
(SEE NOTE 3)
MAX FASTENER DIA .1895
.190-.196(DRILL #11) 2 HOLES
NAS698C3(1)
B3
MS20426AD3(2)
(SEE NOTE 3)
MAX FASTENER DIA. 1895

DETAIL J
(ZONE 4B SH. 3)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
[illegible]R TO .062R ± [illegible]
[illegible]R TO .250R ± [illegible]
OVER .250R ± [illegible]

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

250 FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .005-.020

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL ƒ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 142
PRINTING INFO ONLY
PRINT THIS LINE

C
B
A

LDW280-28587C

LDW280-28587C

03/03

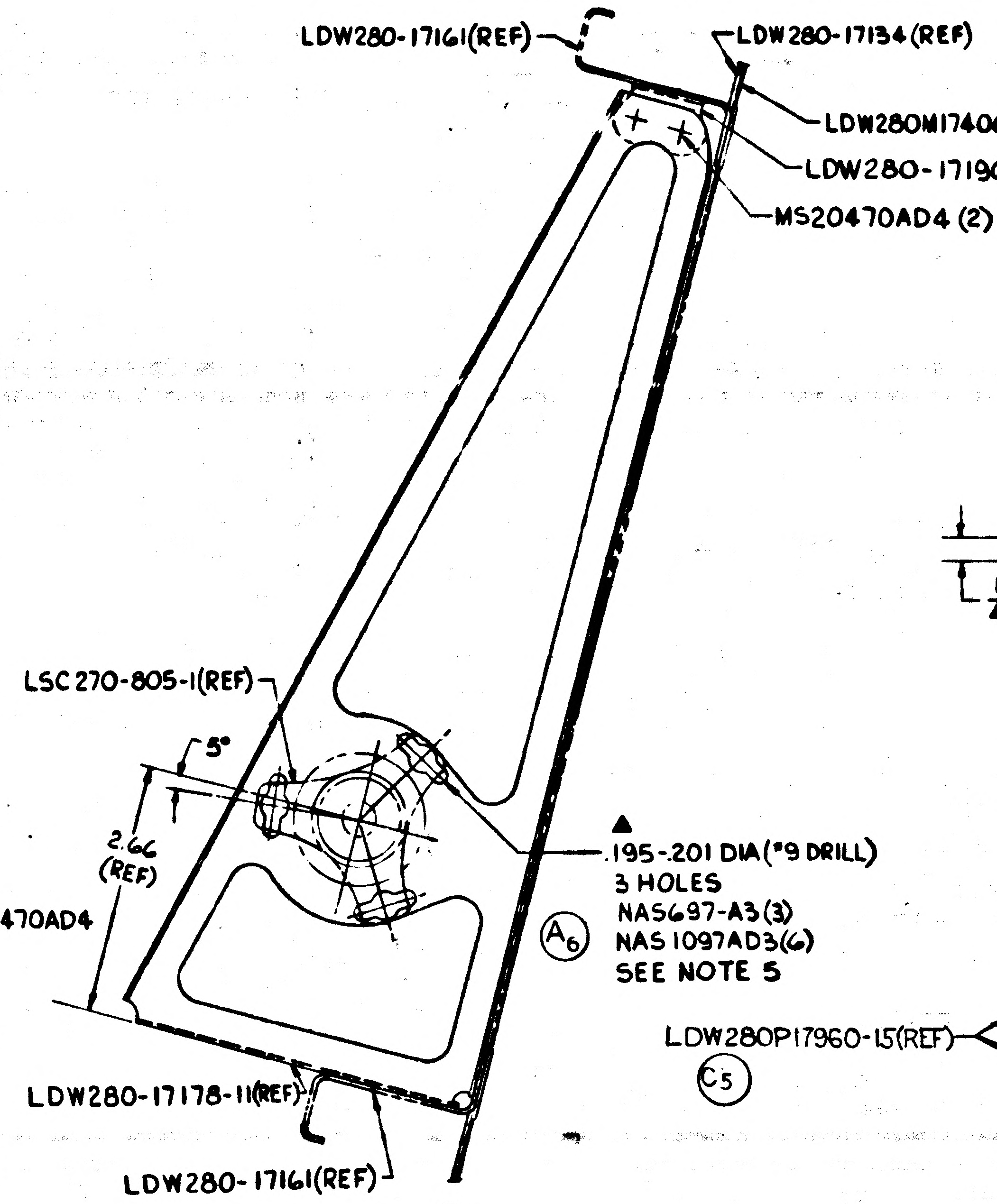
NAS 9-1100

CODE IDENT NO 26512	SH.
LDW280-28587	4

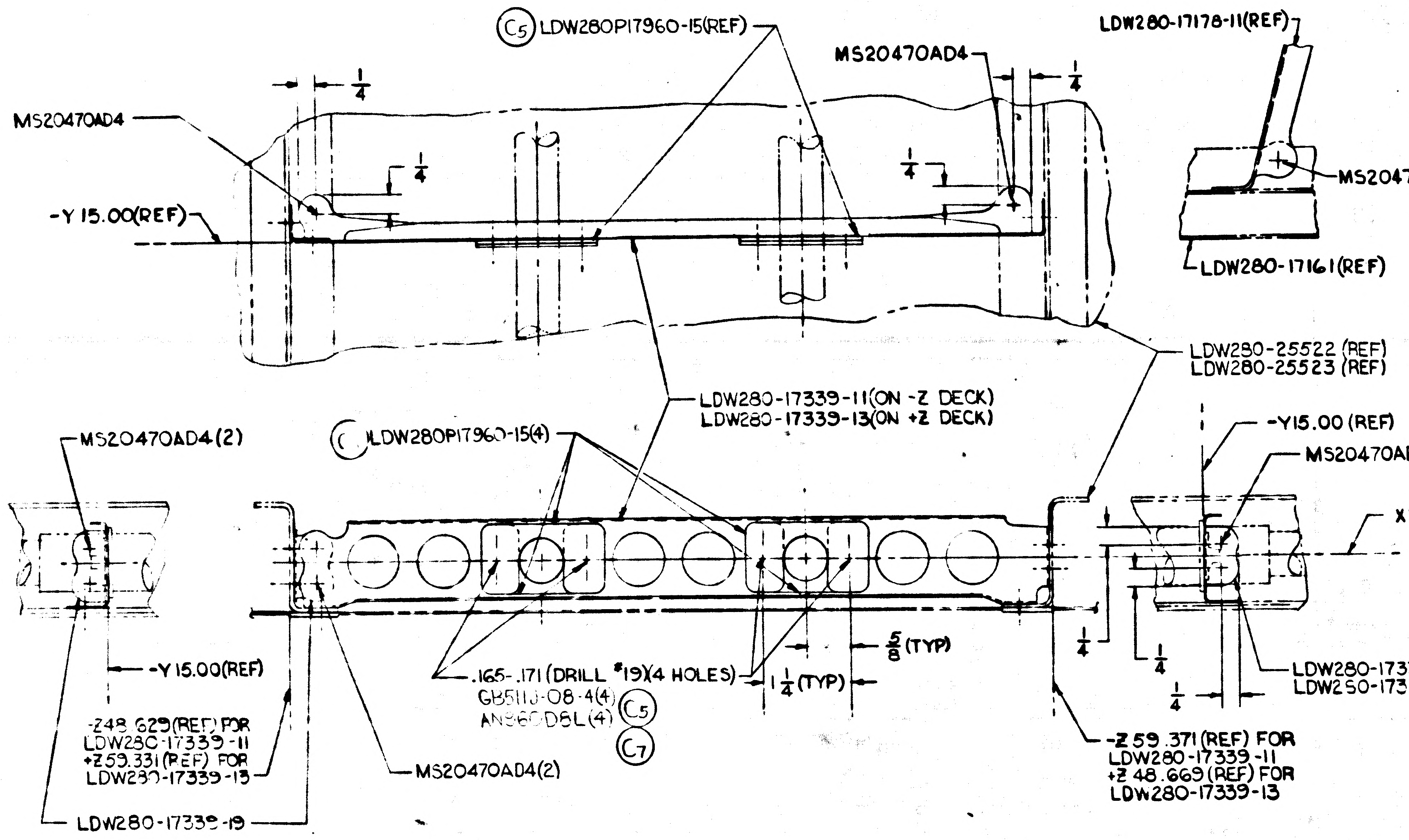
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	J	26512	LDW280-28587	C
	SCALE FULL		SHEET 4 OO	

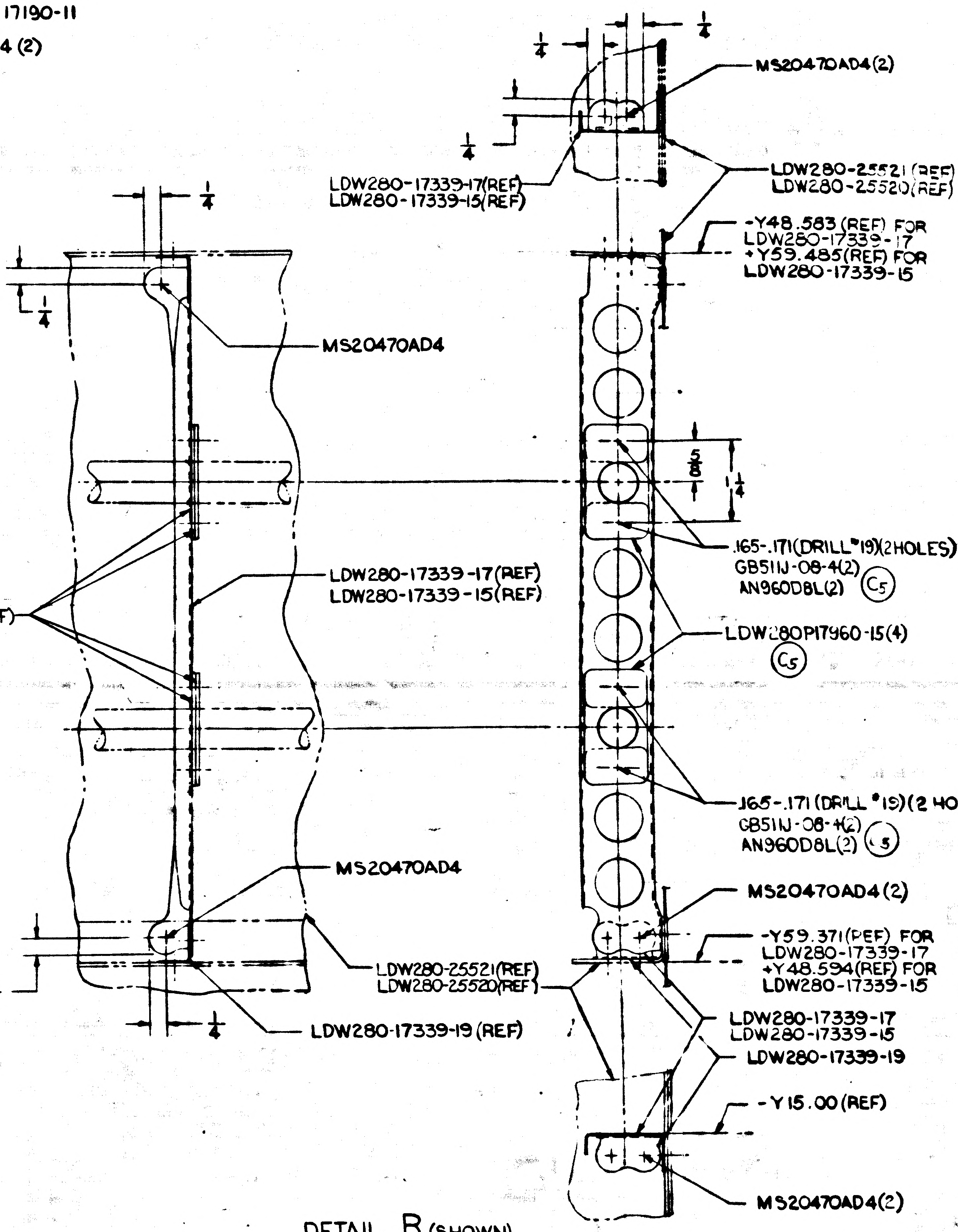
ⓒ


LDW280-17161(REF)
LDW280-17134(REF)
LDW280M17406(REF)
LDW280-17190-11
MS20470AD4(2)
LSC270-805-1(REF)
5°
2.66 (REF)
▲ .195-.201 DIA (#9 DRILL)
3 HOLES
NAS697-A3(3)
NAS1097AD3(6)
SEE NOTE 5
A6
LDW280-17178-11(REF)
LDW280-17161(REF)
A1

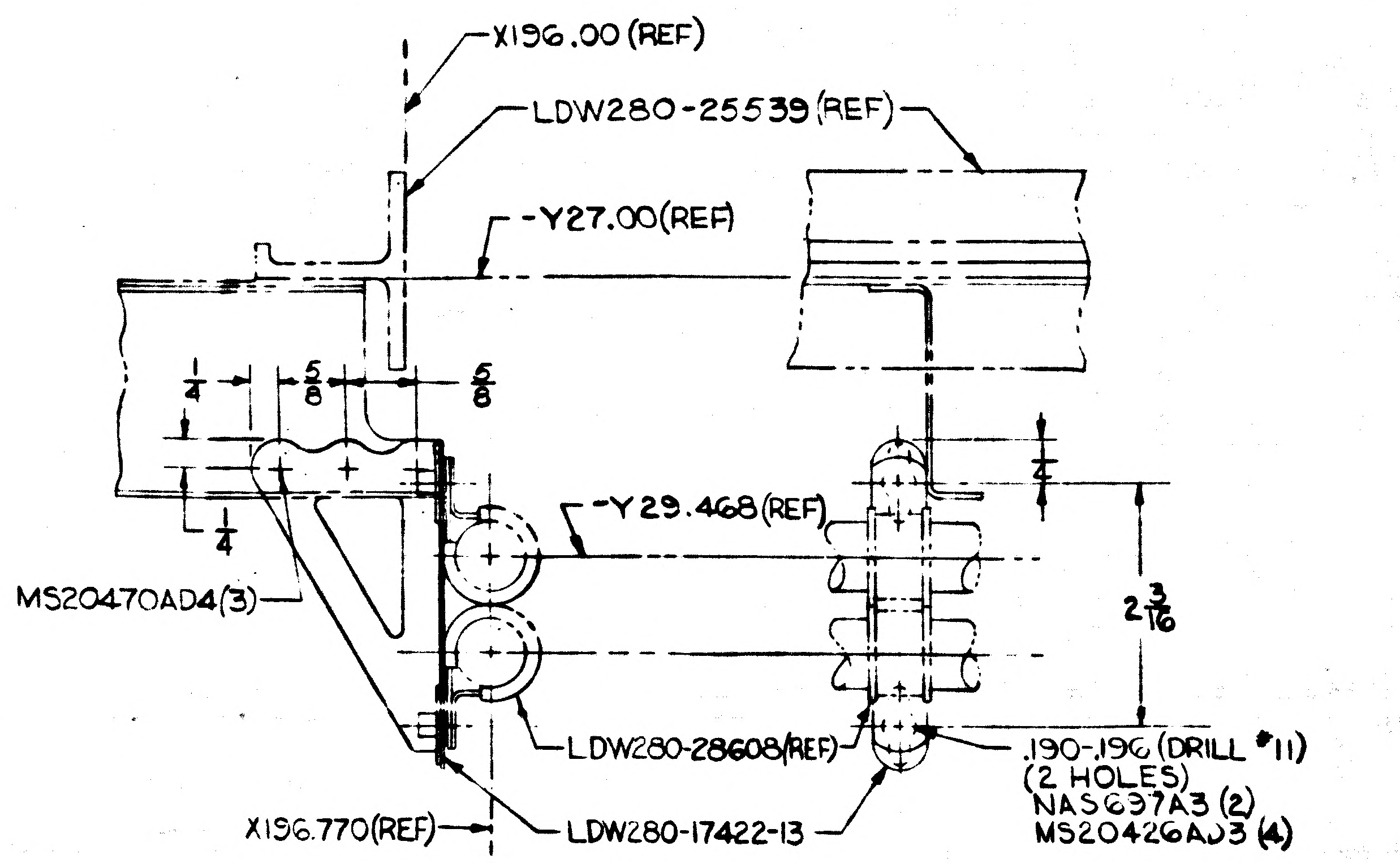
VIEW BA-BA
(ZONE 26A, SH 5)


C5 LDW280P17960-15(REF)
MS20470AD4
LDW280-17178-11(REF)
MS20470AD4
1/4
1/4
1/4
1/4
-Y15.00(REF)
MS20470AD4
LDW280-17161(REF)
LDW280-25522 (REF)
LDW280-25523 (REF)
LDW280-17339-11(ON -Z DECK)
LDW280-17339-13(ON +Z DECK)
MS20470AD4(2)
C LDW280P17960-15(4)
-Y15.00 (REF)
MS20470AD4
X198.62 (REF)
-Y15.00(REF)
.165-.171 (DRILL #19)(4 HOLES)
GB51IJ-08-4(4)
AN960D8L(4) C5
C7
1 1/4 (TYP)
5/8 (TYP)
1/4
1/4
1/4
LDW280-17339-11(REF)
LDW280-17339-13(REF)
-Z48.629(REF) FOR
LDW280-17339-11
+Z59.331(REF) FOR
LDW280-17339-13
MS20470AD4(2)
LDW280-17339-19
-Z59.371(REF) FOR
LDW280-17339-11
+Z48.669(REF) FOR
LDW280-17339-13

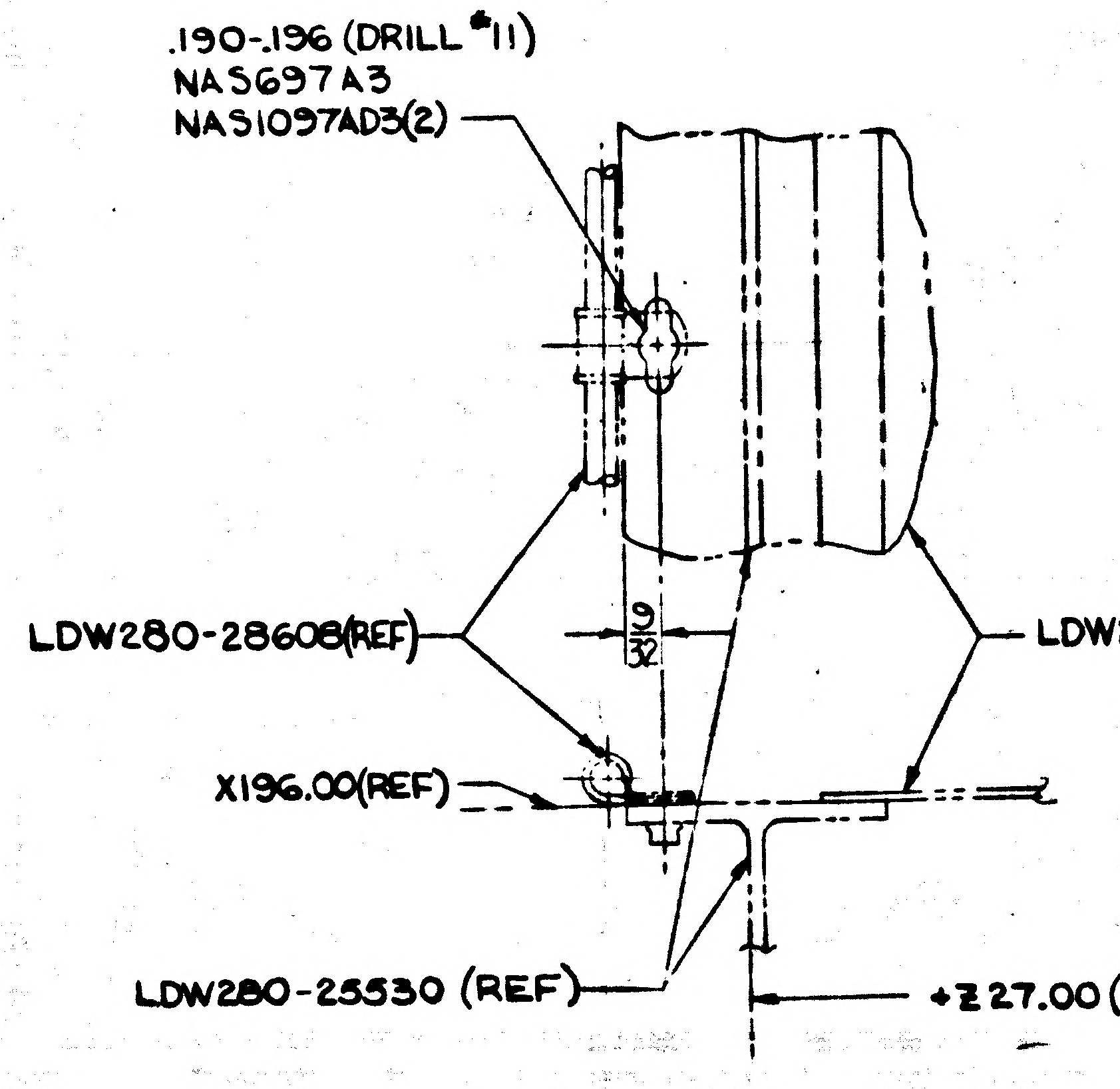
DETAIL N (SHOWN)
(ZONE 3B SH3)
DETAIL P (IDENT TO DETAIL N EXCEPT AS NOTED
(ZONE 6B SH3)


1/4
1/4
MS20470AD4(2)
1/4
LDW280-25521 (REF)
LDW280-25520 (REF)
LDW280-17339-17(REF)
LDW280-17339-15(REF)
-Y48.583 (REF) FOR
LDW280-17339-17
+Y59.485(REF) FOR
LDW280-17339-15
1/4
1/4
MS20470AD4
5/8
1/4
.165-.171(DRILL #19)(2HOLES)
GB51IJ-08-4(2)
AN960D8L(2) C5
LDW280-17339-17(REF)
LDW280-17339-15(REF)
LDW280P17960-15(REF)
C5
LDW280P17960-15(4)
C5
.165-.171 (DRILL #19)(2 HOLES)
GB51IJ-08-4(2)
AN960D8L(2) C5
MS20470AD4
MS20470AD4(2)
-Y59.371(REF) FOR
LDW280-17339-17
+Y48.594(REF) FOR
LDW280-17339-15
LDW280-25521(REF)
LDW280-25520(REF)
1/4
1/4
LDW280-17339-19 (REF)
LDW280-17339-17
LDW280-17339-15
LDW280-17339-19
-Y15.00 (REF)
MS20470AD4(2)

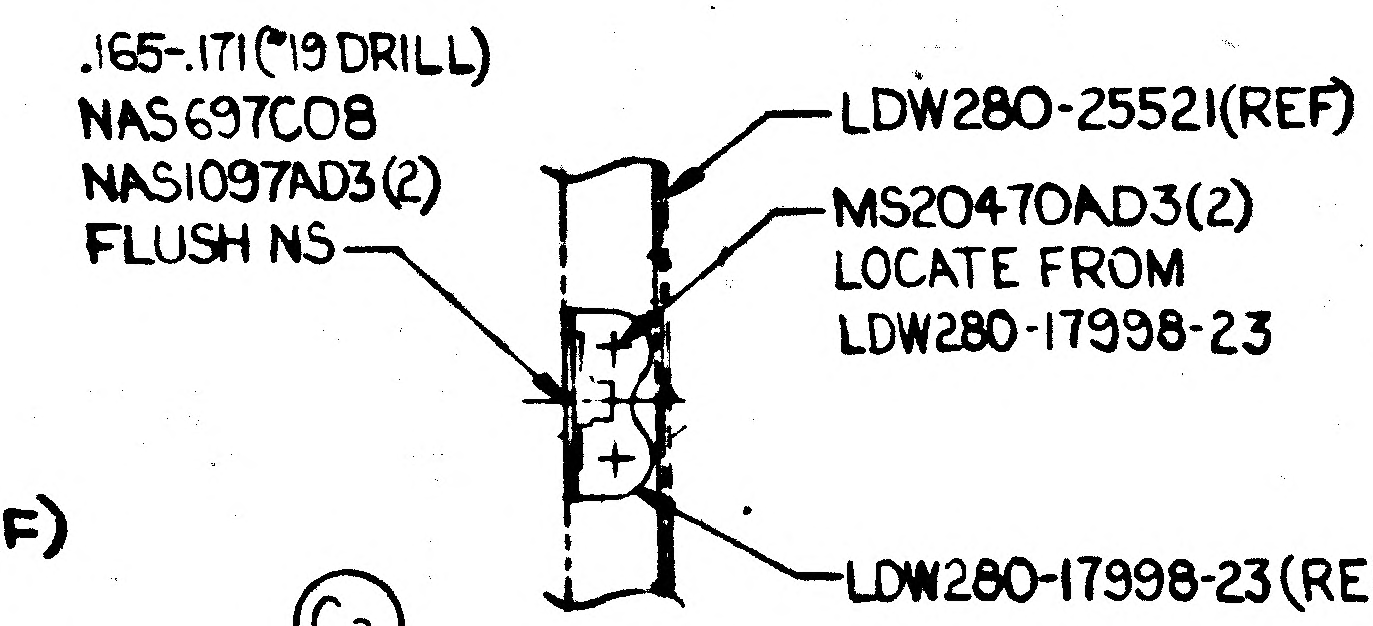
DETAIL R (SHOWN)
(ZONE 5A SH3)
DETAIL S (IDENT TO DETAIL P EXCEPT AS NOTED
(ZONE 4D SH3)


X196.00 (REF)
LDW280-25539 (REF)
-Y27.00(REF)
1/4
5/8
5/8
1/4
-Y29.468(REF)
2 3/16
MS20470AD4(3)
LDW280-28608(REF)
.190-.196 (DRILL #11)
(2 HOLES)
NAS697A3 (2)
MS20426AD3 (4)
X196.770(REF)
LDW280-17422-13

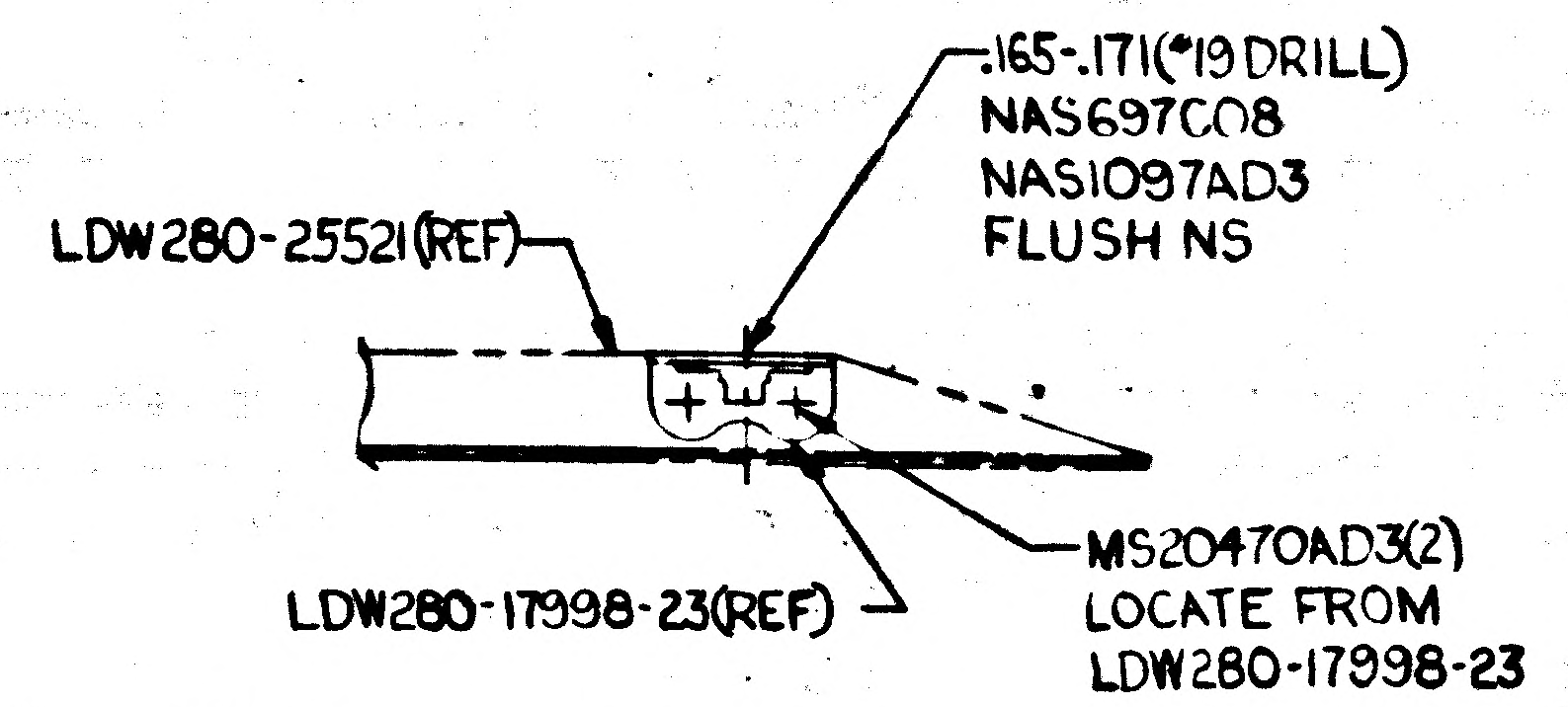
DETAIL M
(ZONE 4B SH 5)


.190-.196 (DRILL #11)
NAS697A3
NAS1097AD3(2)
LDW280-28608(REF)
9/32
LDW280-25521 (REF)
X196.00(REF)
LDW280-25530 (REF)
+Z27.00 (REF)

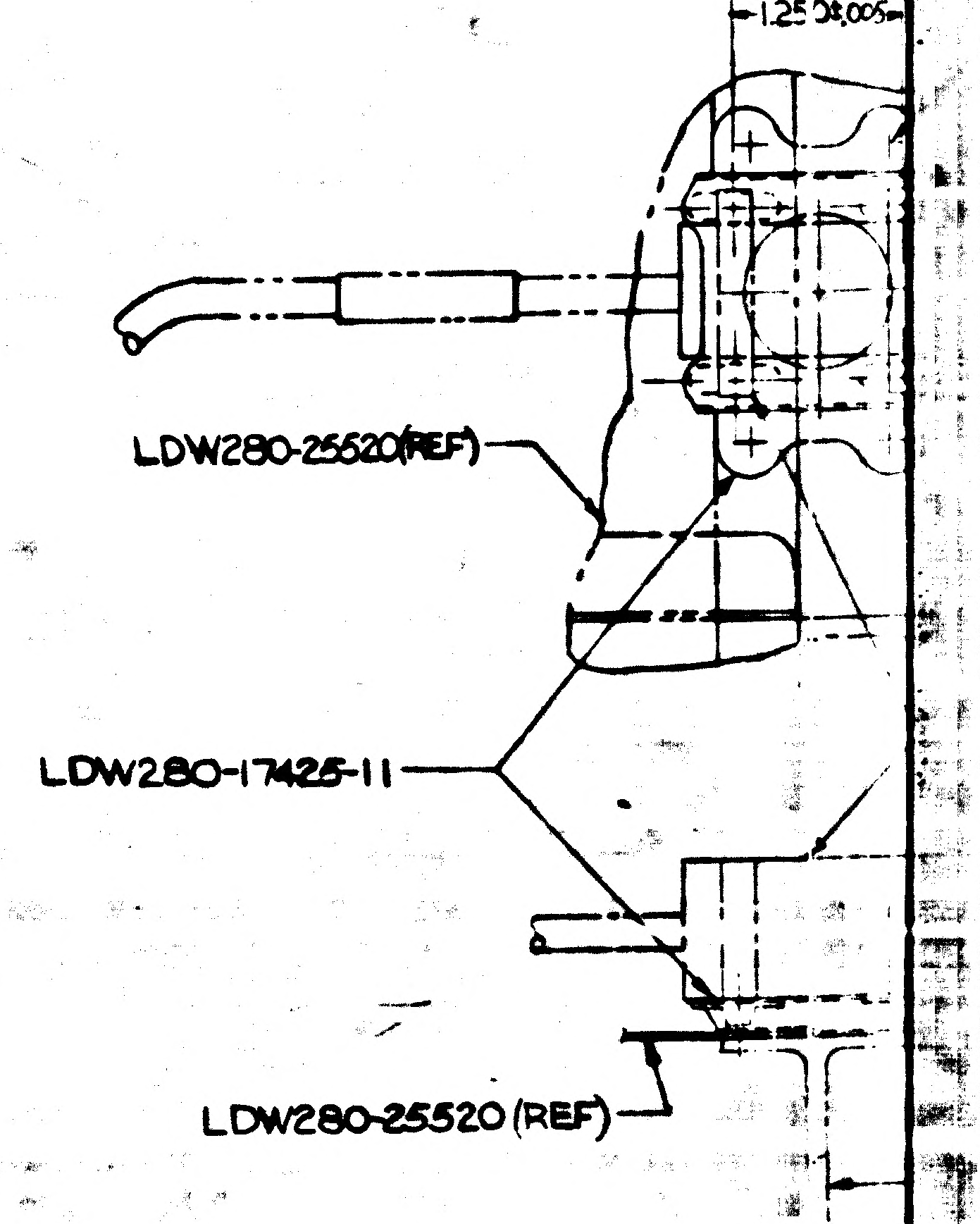
DETAIL W
(ZONE 5B SH3)
(TYP 3 PLACES)


.165-.171(#19 DRILL)
NAS697C08
NAS1097AD3(2)
FLUSH NS
LDW280-25521(REF)
MS20470AD3(2)
LOCATE FROM
LDW280-17998-23
LDW280-17998-23 (REF)

C2 C3 VIEW BD-BD (ZONE 5B)


.165-.171(#19 DRILL)
NAS697C08
NAS1097AD3
FLUSH NS
LDW280-25521(REF)
MS20470AD3(2)
LOCATE FROM
LDW280-17998-23
LDW280-17998-23(REF)

C2 C3 VIEW BE-BE (ZONE 4B)

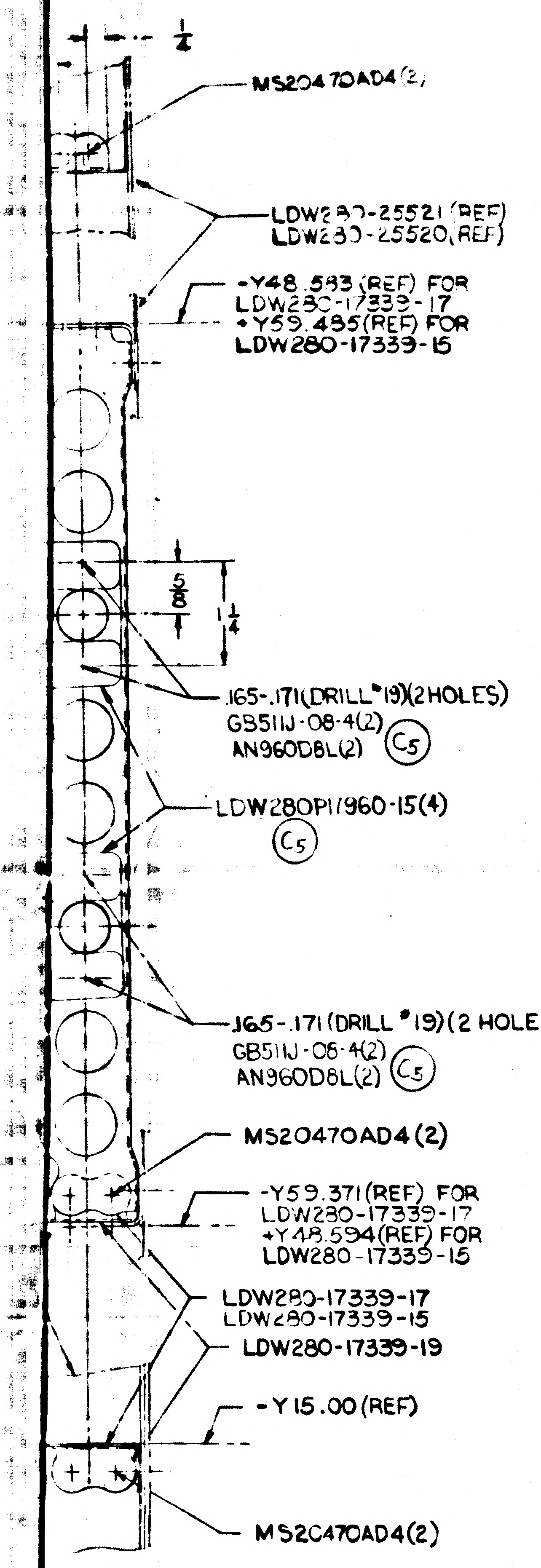

1.250±.005
LDW280-25520(REF)
LDW280-17425-11
LDW280-25520 (REF)

DETAIL
(ZONE 4

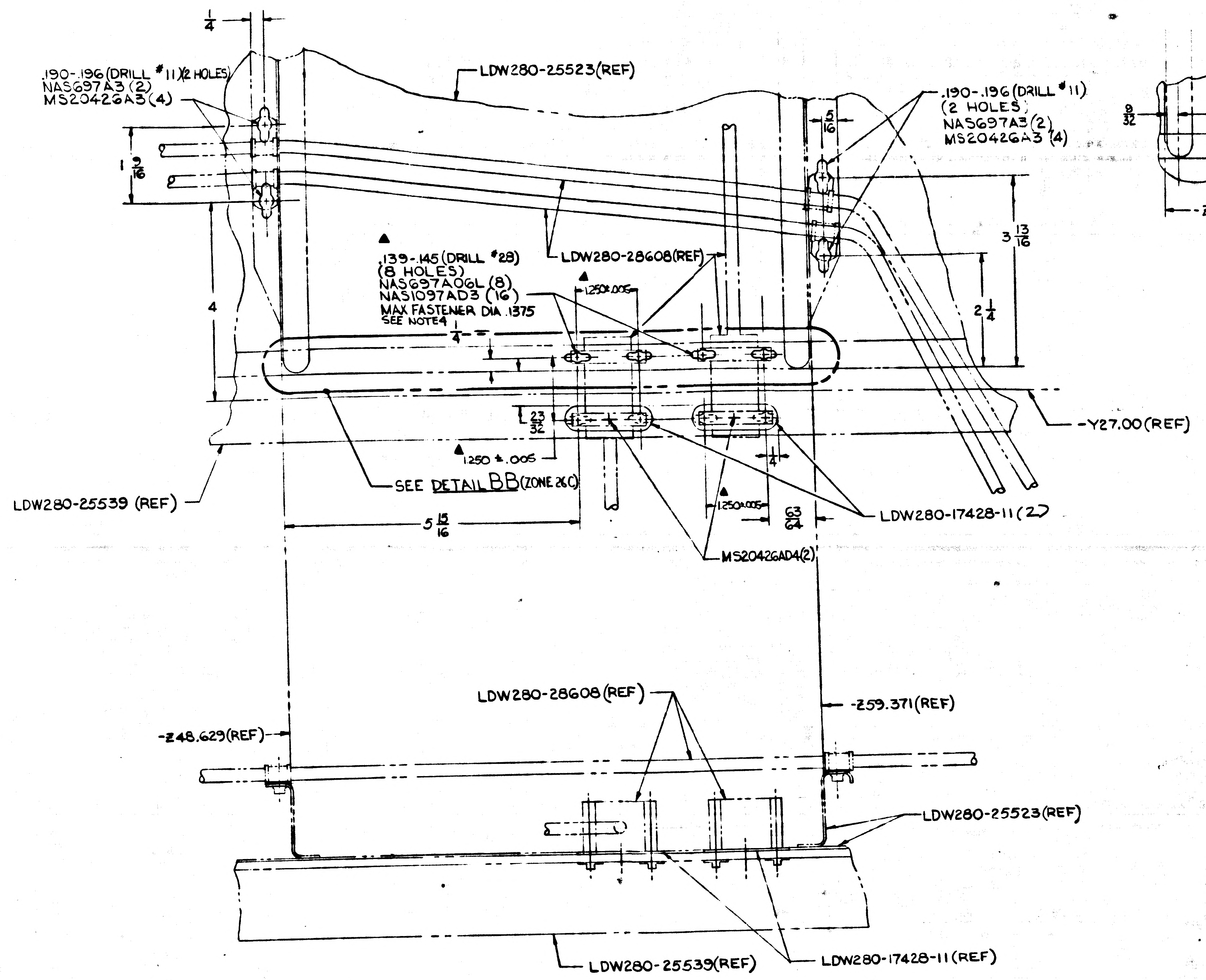
01/03 NAS 9-1100

CODE IDENT NO 26512
LDW280-28587
SH 5

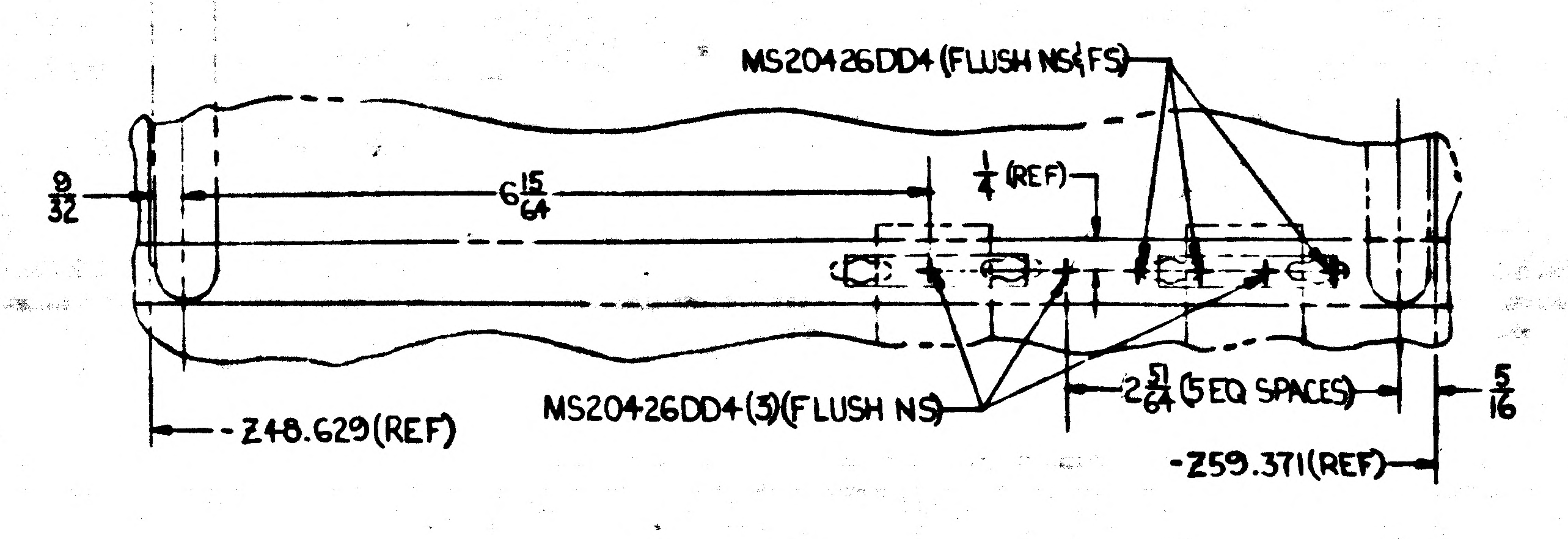
3/3



1/4
MS20470AD4(2)
LDW280-25521(REF)
LDW280-25520(REF)
-Y48.583(REF) FOR LDW280-17339-17
+Y59.485(REF) FOR LDW280-17339-15
5/8
1/4
.165-.171(DRILL #19)(2 HOLES)
GB511J-08-4(2)
AN960D8L(2)
C5
LDW280P17960-15(4)
C5
.165-.171(DRILL #19)(2 HOLES)
GB511J-08-4(2)
AN960D8L(2)
C5
MS20470AD4(2)
-Y59.371(REF) FOR LDW280-17339-17
+Y48.594(REF) FOR LDW280-17339-15
LDW280-17339-17
LDW280-17339-15
LDW280-17339-19
-Y15.00(REF)
MS20470AD4(2)



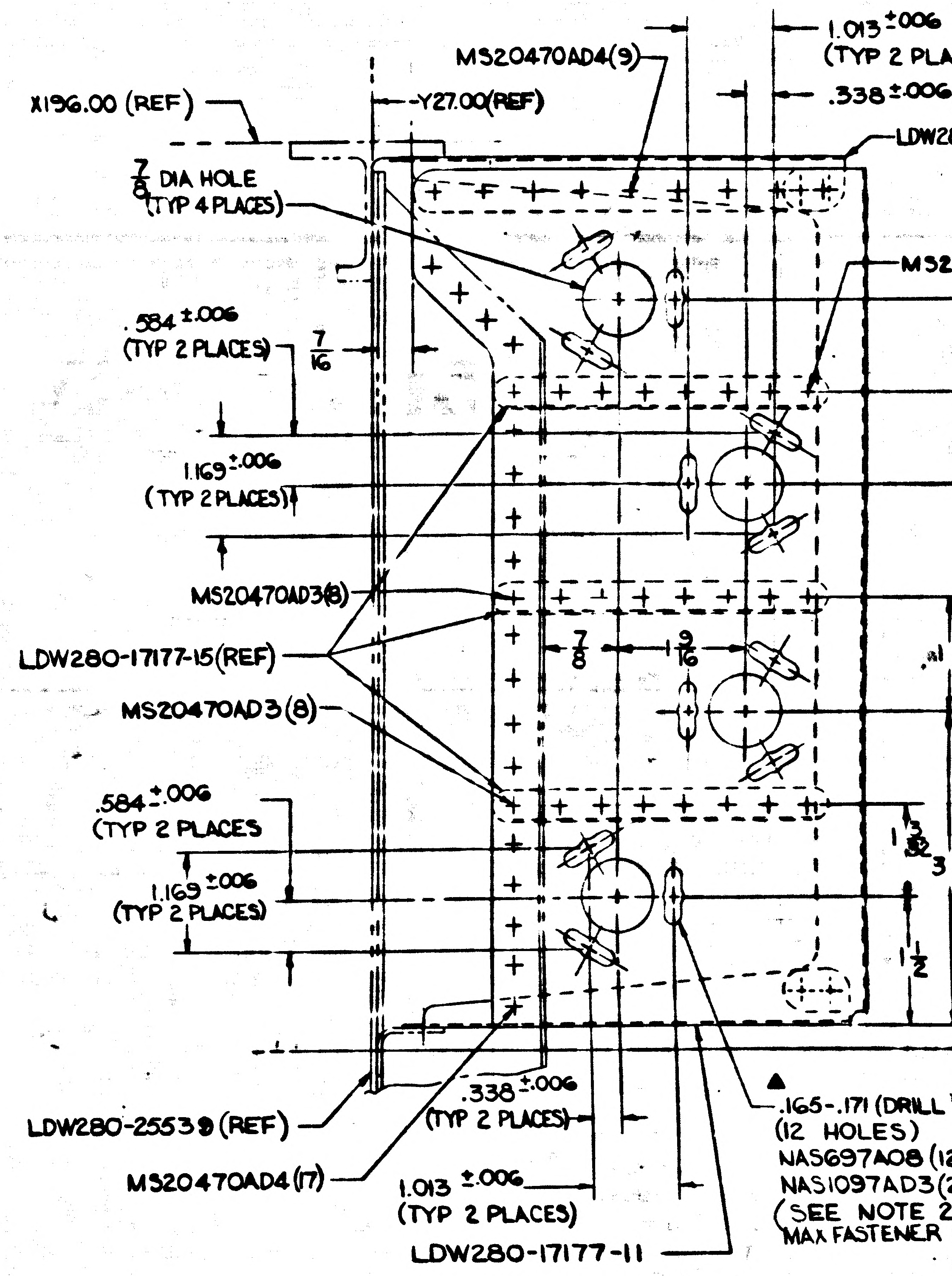
1/4
.190-.196 (DRILL #11)(2 HOLES)
NAS697A3 (2)
MS20426A3 (4)
LDW280-25523(REF)
.190-.196 (DRILL #11)
(2 HOLES)
NAS697A3 (2)
MS20426A3 (4)
5/16
1 9/16
3 13/16
4
2 1/4
LDW280-28608(REF)
.139-.145 (DRILL #28)
(8 HOLES)
NAS697A06L (8)
NAS1097AD3 (16)
MAX FASTENER DIA .1375
SEE NOTE 4
1.250±.005
1/4
23/32
1.250±.005
-Y27.00(REF)
LDW280-25539 (REF)
SEE DETAIL BB (ZONE 28C)
5 15/16
1.250±.005
63/64
1/4
MS20426AD4(2)
LDW280-17428-11(2)
LDW280-28608(REF)
-Z48.629(REF)
-Z59.371(REF)
LDW280-25523(REF)
LDW280-25539(REF)
LDW280-17428-11(REF)



MS20426DD4(FLUSH NS)(FS)
9/32
6 15/64
1/4 (REF)
-Z48.629(REF)
MS20426DD4(5)(FLUSH NS)
2 31/64 (5 EQ SPACES)
5/16
-Z59.371(REF)

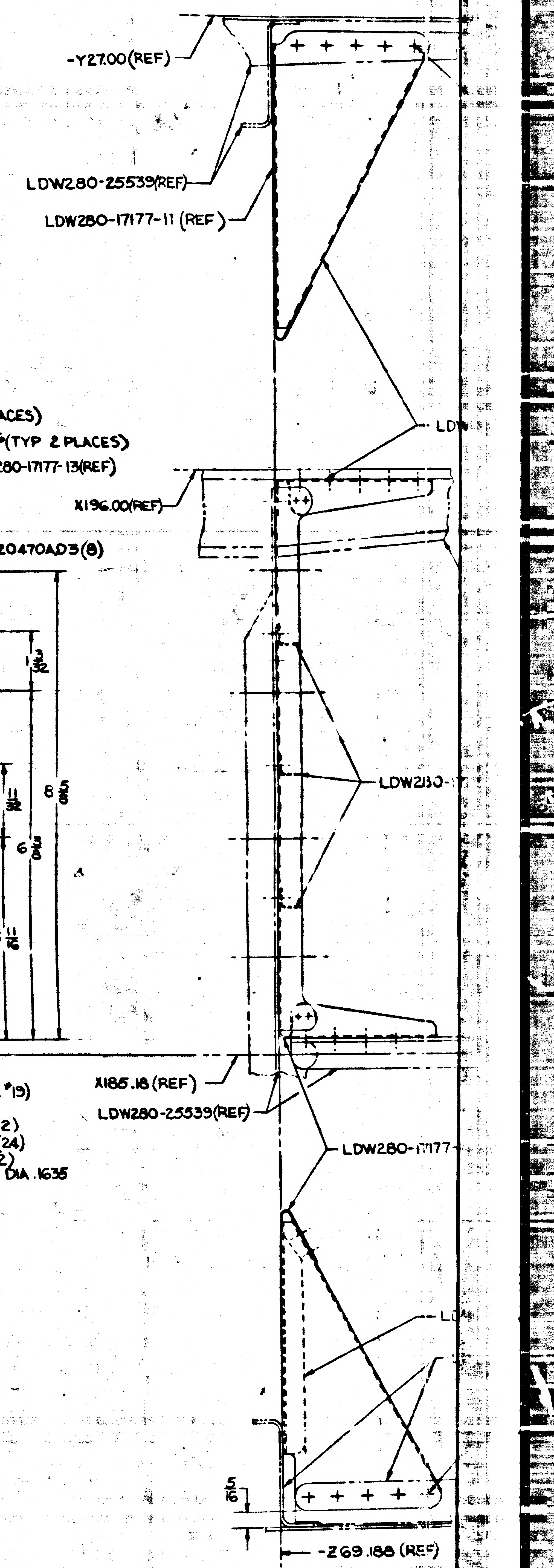
DETAIL BB (ZONE 28C)

B1



MS20470AD4(9)
1.013±.006 (TYP 2 PLACES)
.338±.006 (TYP 2 PLACES)
LDW280-17177-13(REF)
X196.00 (REF)
-Y27.00(REF)
7/8 DIA HOLE (TYP 4 PLACES)
MS20470AD3(8)
.584±.006 (TYP 2 PLACES)
7/16
1.169±.006 (TYP 2 PLACES)
1 3/32
MS20470AD3(8)
LDW280-17177-15(REF)
7/8
9/16
11/32
8 5/8
6 3/8
MS20470AD3(8)
.584±.006 (TYP 2 PLACES)
1.169±.006 (TYP 2 PLACES)
1 3/32
3 11/16
1 1/2
LDW280-25539 (REF)
.338±.006 (TYP 2 PLACES)
MS20470AD4(17)
1.013±.006 (TYP 2 PLACES)
LDW280-17177-11
.165-.171 (DRILL #19)
(12 HOLES)
NAS697A08 (12)
NAS1097AD3(24)
(SEE NOTE 2)
MAX FASTENER DIA .1635

SECT U-U
(ZONE 3B SH3)



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LDW
X196.00(REF)
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X185.18 (REF)
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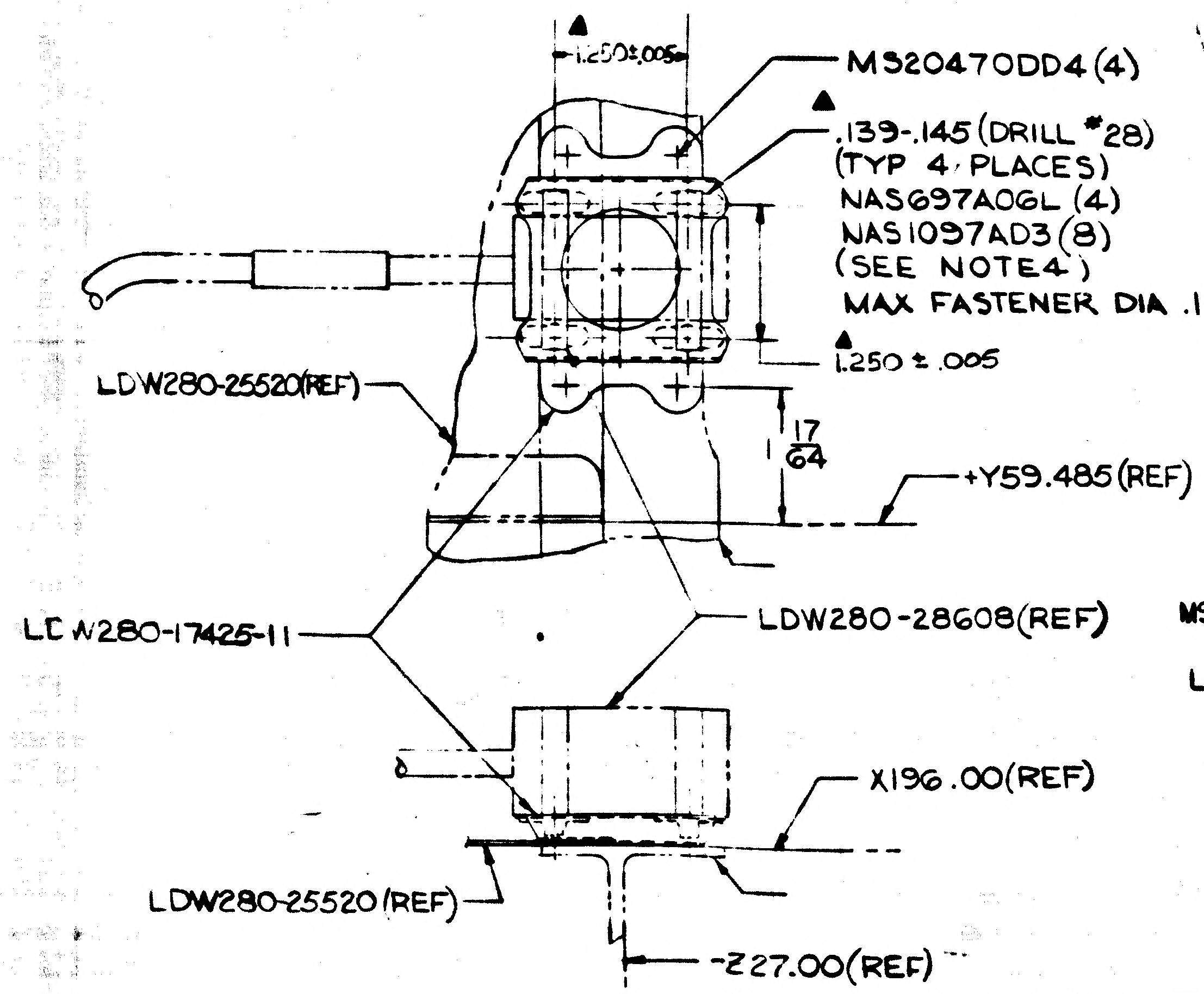
5/16
-Z69.188 (REF)

P EXCEPT AS NOTED



1.250±.005
MS20470DD4 (4)
.139-.145 (DRILL #28)
(TYP 4 PLACES)
NAS697A06L (4)
NAS1097AD3 (8)
(SEE NOTE 4)
MAX FASTENER DIA .1375
1.250±.005
LDW280-25520(REF)
1 17/64
+Y59.485(REF)
LDW280-17425-11
LDW280-28608(REF)
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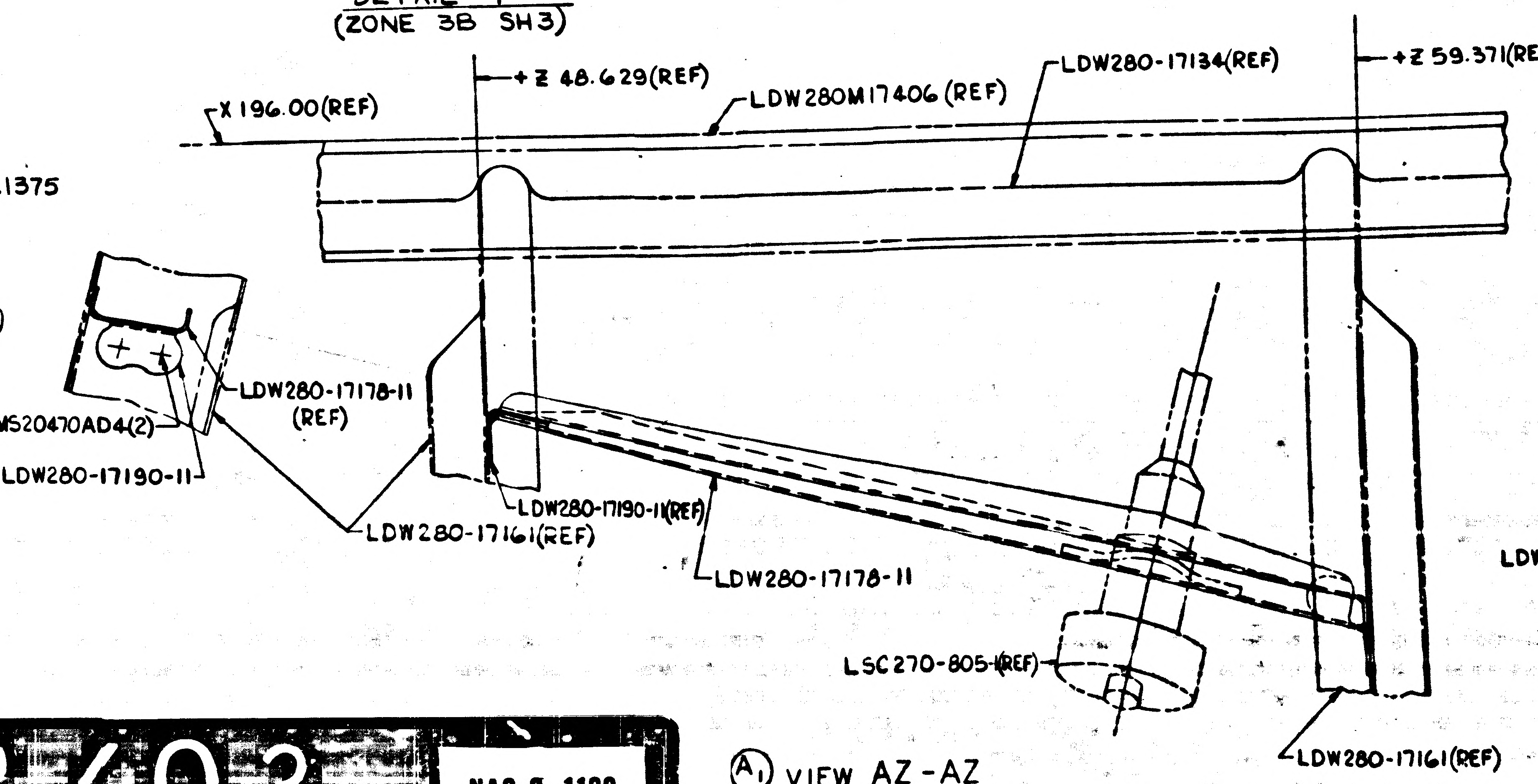
DETAIL Z
(ZONE 4D SH3)

DETAIL T
(ZONE 3B SH3)



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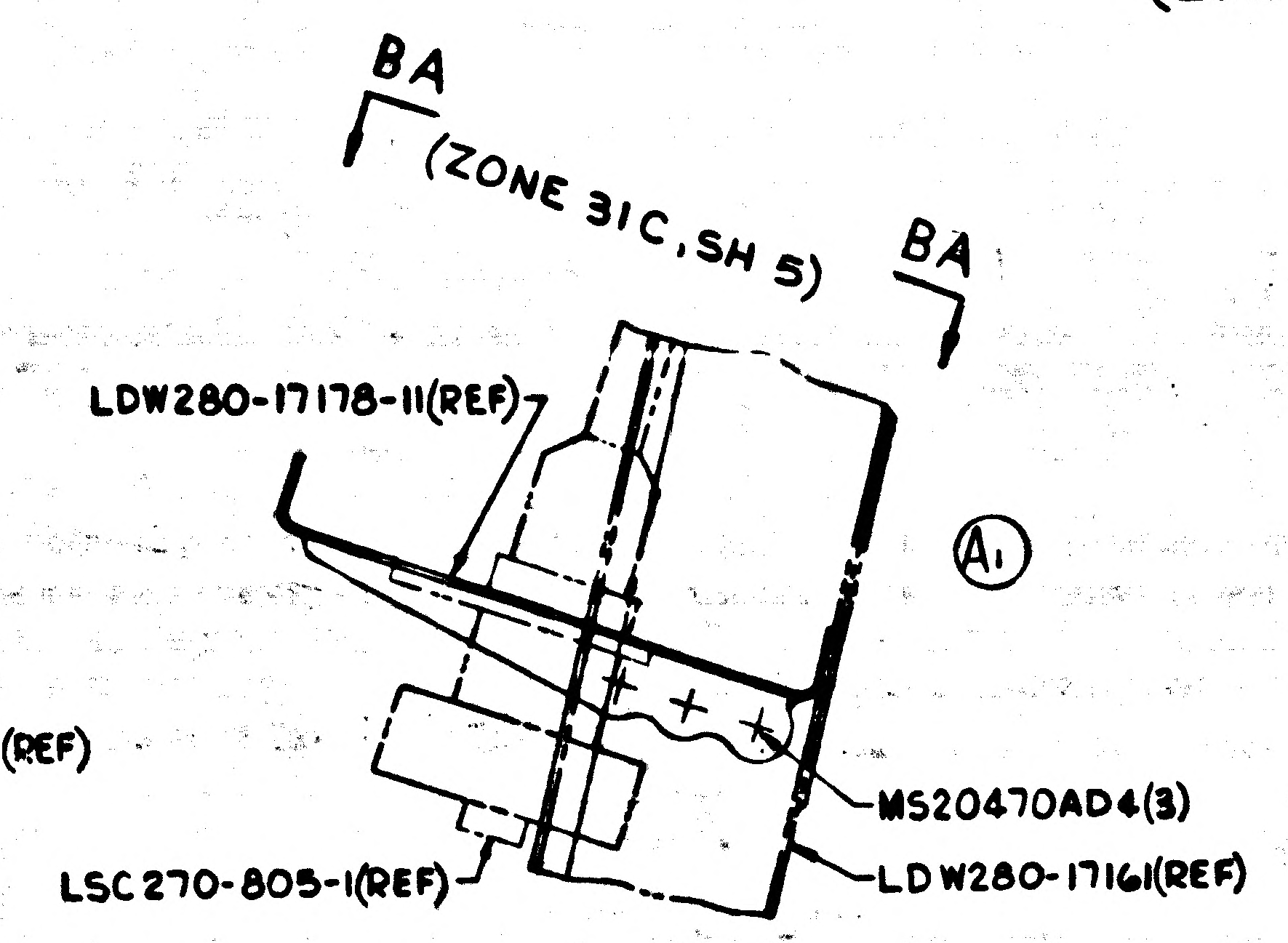
MS20470AD4(2)
LDW280-17190-11
LDW280-17161(REF)
LDW280-17190-11(REF)
LDW280-17178-11
LSC270-805-(REF)
LDW280-17161(REF)

A1 VIEW AZ-AZ
(ZONE 6C, SH 3)



BA
(ZONE 31C, SH 5)
BA
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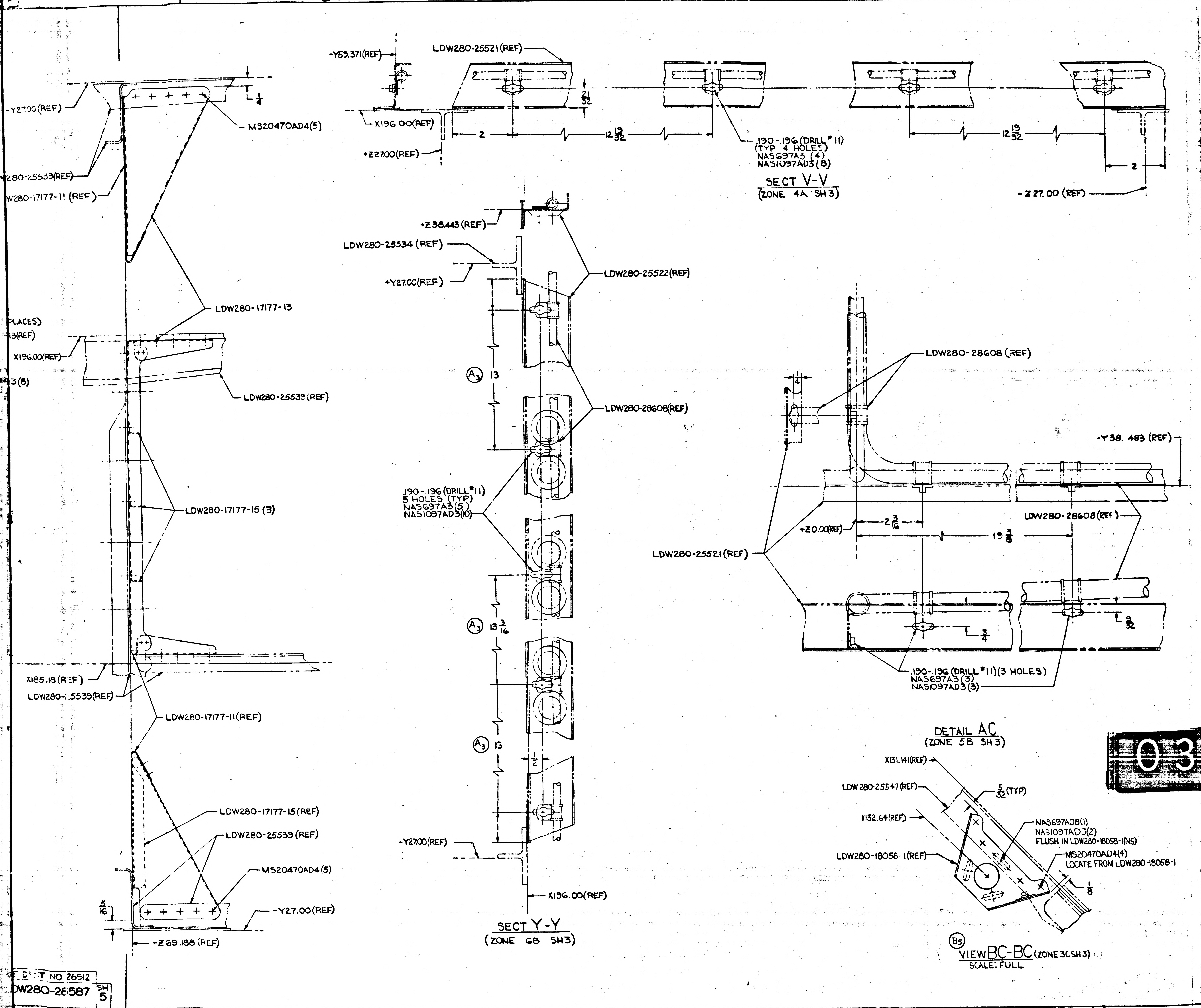
MS20470AD4(3)
LSC270-805-1(REF)
LDW280-17161(REF)

02/03

NAS 9-1100

CODE IDENT NO 26512
LDW280-28587
SH 5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PLACES)
13(REF)
X196.00(REF)
3(8)
LDW280-25539(REF)
LDW280-17177-15 (3)
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LDW280-25539(REF)
LDW280-17177-11(REF)
LDW280-17177-15(REF)
LDW280-25539(REF)
MS20470AD4(5)
5/16
-Y27.00(REF)
-Z69.188 (REF)
-Y53.371(REF)
LDW280-25521(REF)
X196.00(REF)
+Z27.00(REF)
2
12 19/32
21/32
1/4
.190-.196 (DRILL #11)
(TYP 4 HOLES)
NAS697A3 (4)
NAS1097AD3 (8)
SECT V-V
(ZONE 4A SH3)
12 19/32
2
-Z27.00 (REF)
+Z38.443 (REF)
LDW280-25534 (REF)
+Y27.00(REF)
LDW280-25522(REF)
LDW280-28608(REF)
A3
13
.190-.196 (DRILL #11)
5 HOLES (TYP)
NAS697A3(5)
NAS1097AD3(10)
A3
13 3/16
A3
13
1/2
-Y27.00(REF)
X196.00(REF)
SECT Y-Y
(ZONE 6B SH3)
LDW280-28608 (REF)
4
-Y38. 483 (REF)
+Z0.00(REF)
2 3/16
19 3/8
LDW280-28608 (REF)
LDW280-25521 (REF)
3/4
9/32
.190-.196 (DRILL #11)(3 HOLES)
NAS697A3 (3)
NAS1097AD3 (3)
DETAIL AC
(ZONE 5B SH3)
X131.141(REF)
LDW280-25547(REF)
5/32 (TYP)
X132.64(REF)
LDW280-18058-1(REF)
NAS697A08(1)
NAS1097AD3(2)
FLUSH IN LDW280-18058-1(NS)
MS20470AD4(4)
LOCATE FROM LDW280-18058-1
1/8
B5
VIEW BC-BC (ZONE 3C SH3)
SCALE: FULL
C
B
A

03/03

NAS 9-1100

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.015R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

250 FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .005-.010

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 14 1/8

PRINTING INFO ONLY

FULL SIZE SHEET AREA (34 X 144)
1/2 SIZE SHEET AREA (1/4 OF FULL)

36 SQ FT.
9 SQ FT.

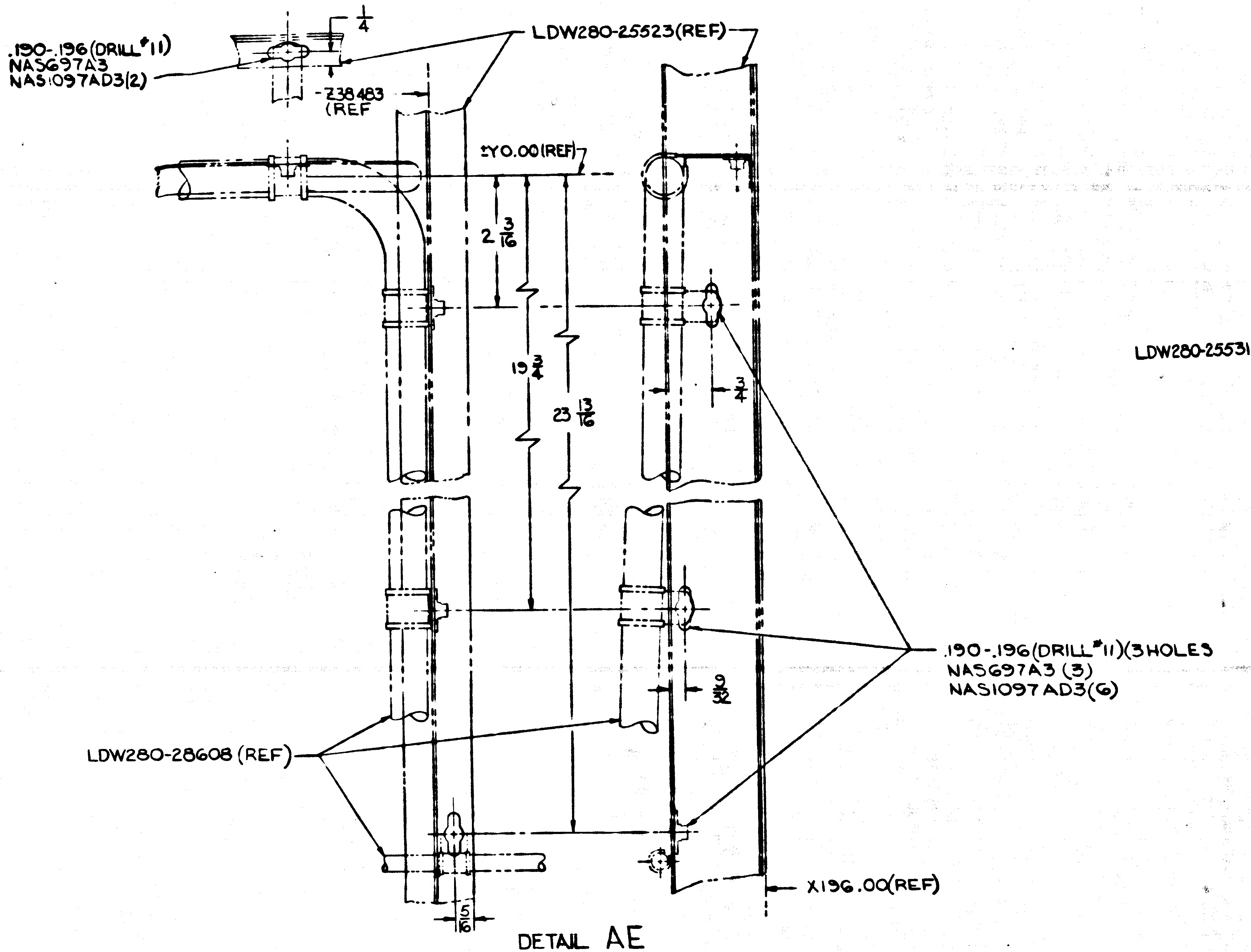
PRINT TRIM LINE

LDW280-28587C

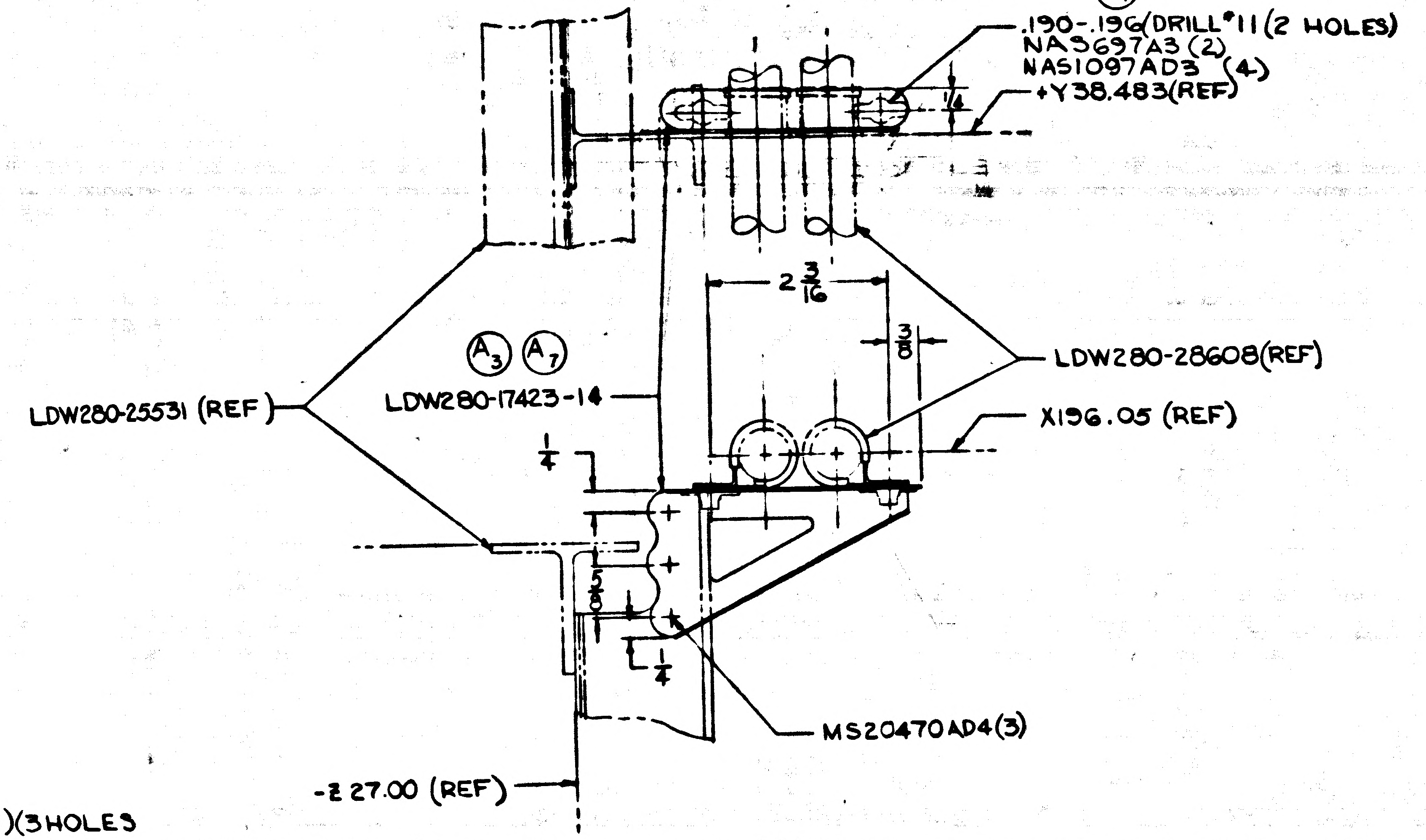
LDW280-28587C

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-28587	C
LEM MODEL OR END ITEM	SCALE FULL		SHEET 5 OO	

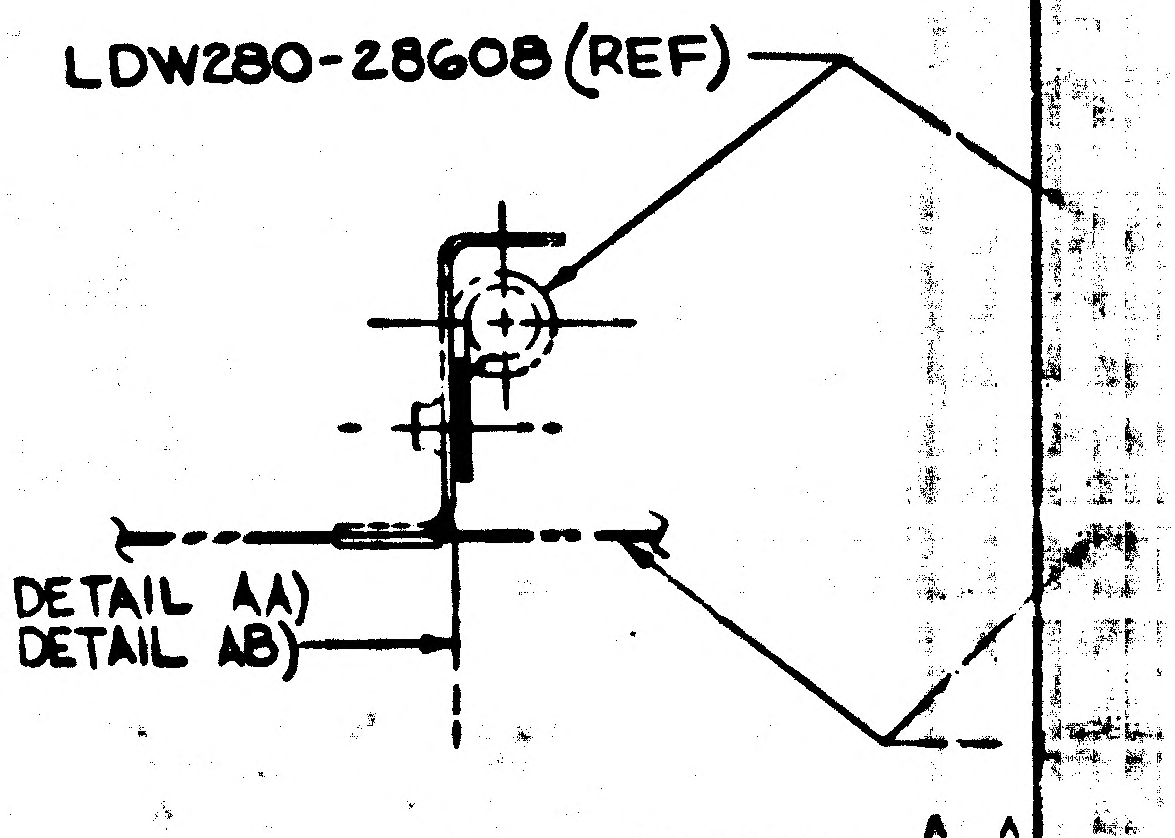
DE PT NO 26512
DW280-28587 SH 5


.190-.196 (DRILL #11)
NAS697A3
NAS1097AD3(2)
1/4
.38483 (REF
LDW280-25523(REF)
±Y0.00(REF)
2 3/16
19 3/4
23 13/16
3/4
.190-.196(DRILL #11)(3 HOLES)
NAS697A3 (3)
NAS1097AD3(6)
LDW280-28608 (REF)
X196.00(REF)

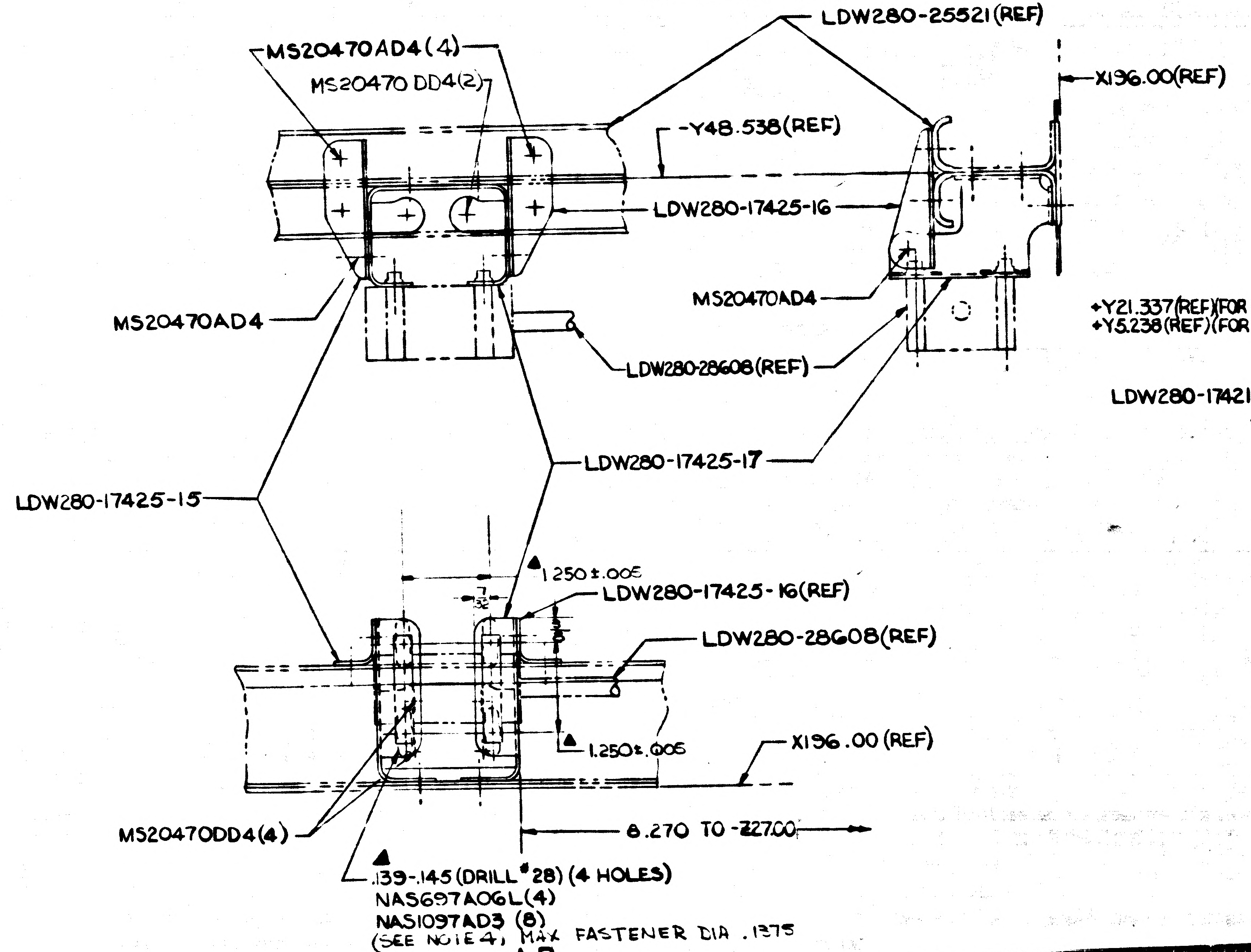
DETAIL AE
(ZONE 4B SH3)


A4
.190-.196(DRILL #11 (2 HOLES)
NAS697A3 (2)
NAS1097AD3 (4)
+Y38.483(REF)
1/4
A3 A7
LDW280-17423-14
2 3/16
3/8
LDW280-28608(REF)
LDW280-25531 (REF)
X196.05 (REF)
1/4
5/8
1/4
MS20470AD4(3)
-Z 27.00 (REF)

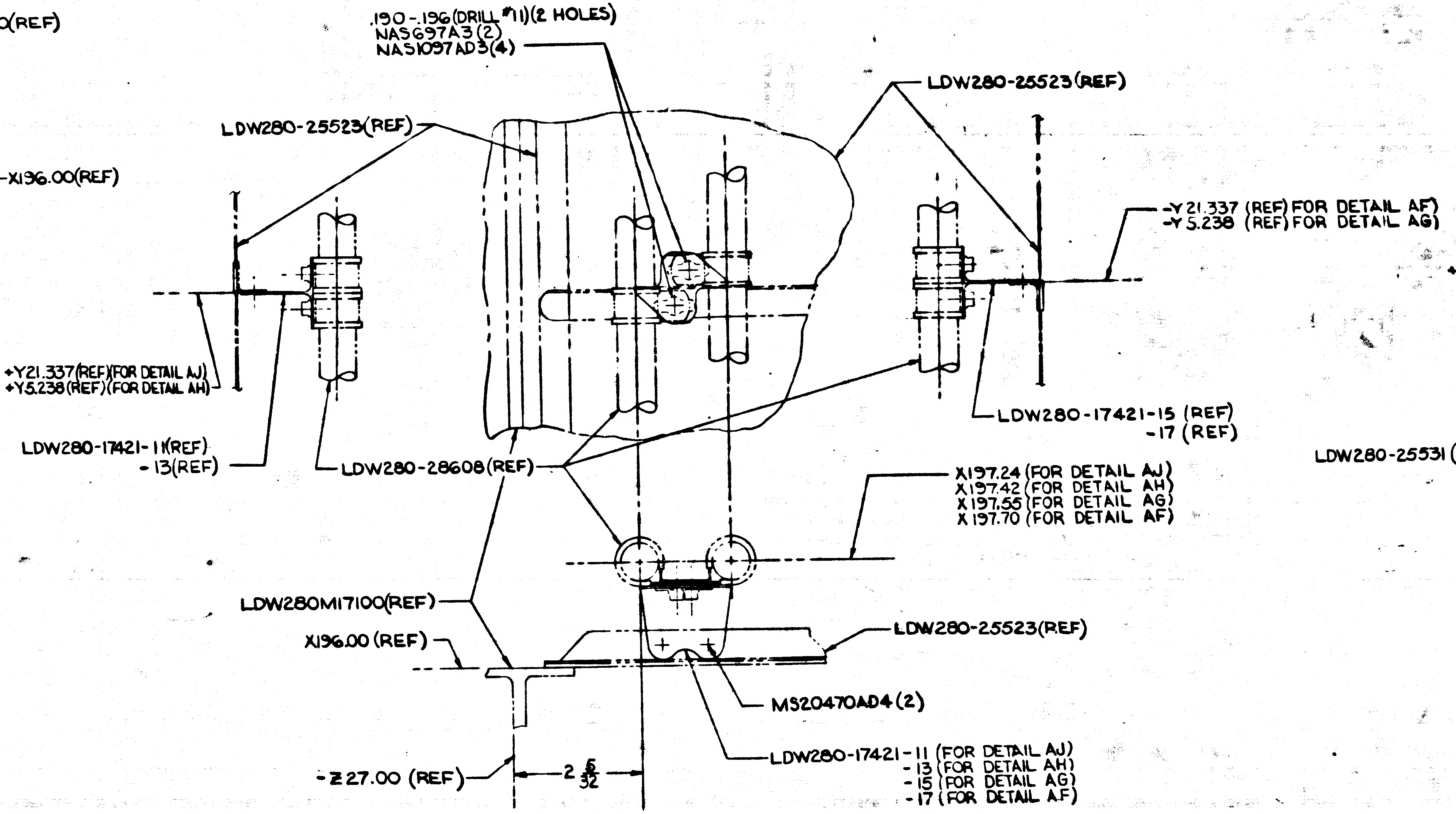
DETAIL AK
(ZONE 4C SH3)


LDW280-28608 (REF)
+Y68.745(REF)(FOR DETAIL AA)
+Y59.485(REF)(FOR DETAIL AB)

DETAIL AA
(ZONE 4D SH
DETAIL AB
(ZONE 5D S
(TYP 4 P


MS20470AD4(4)
MS20470 DD4(2)
LDW280-25521(REF)
X196.00(REF)
Y48.538(REF)
LDW280-17425-16
MS20470AD4
MS20470AD4
LDW280-28608(REF)
LDW280-17425-17
LDW280-17425-15
1.250±.005
LDW280-17425-16(REF)
LDW280-28608(REF)
1.250±.005
X196.00 (REF)
MS20470DD4(4)
8.270 TO -Z27.00
.139-.145 (DRILL #28) (4 HOLES)
NAS697A06L(4)
NAS1097AD3 (8)
(SEE NOTE 4, MAX FASTENER DIA .1375

DETAIL AD
(ZONE 4B SH3)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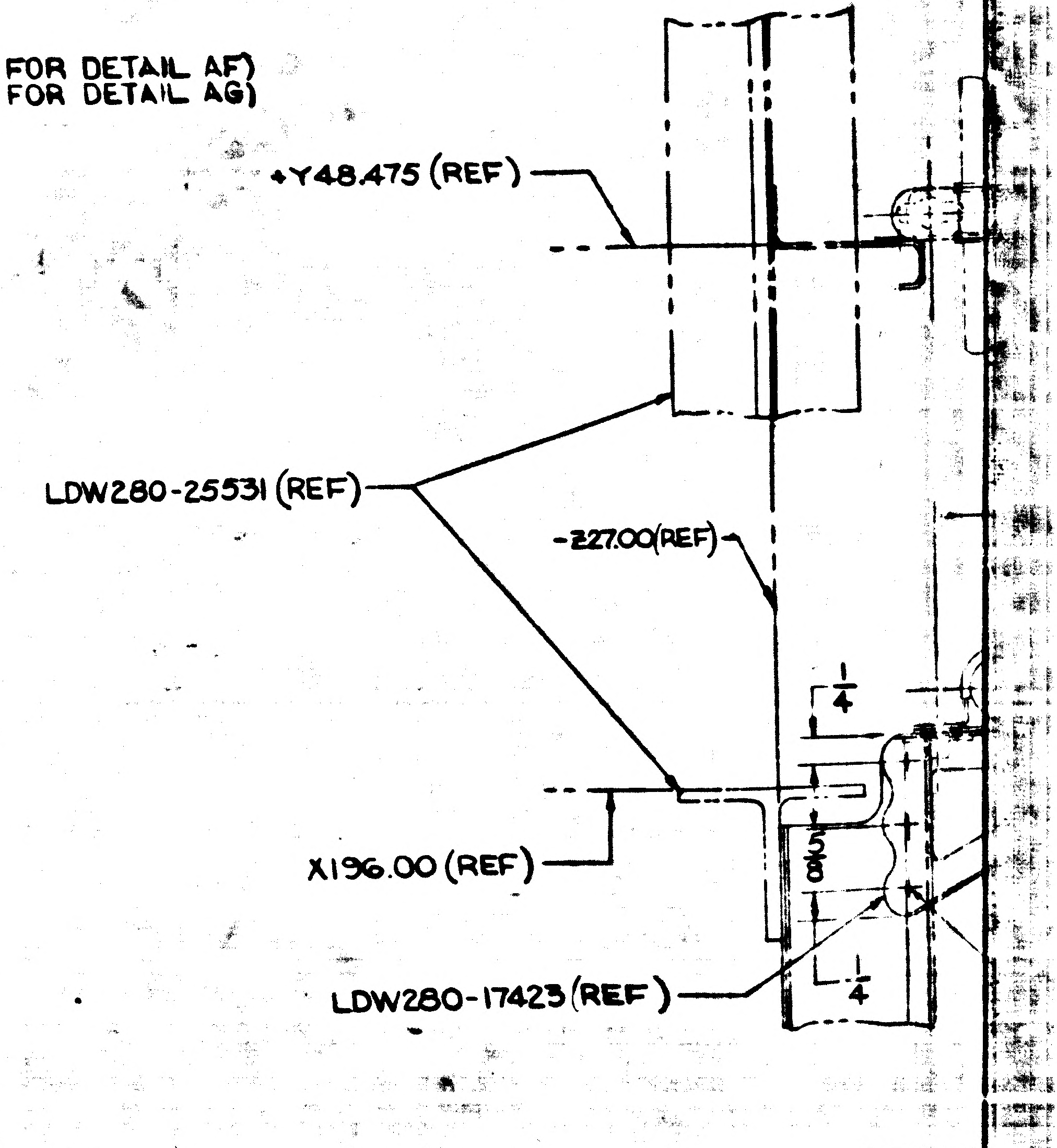
NAS697A3(2)
NAS1097AD3(4)
LDW280-25523(REF)
LDW280-25523(REF)
-Y21.337 (REF) FOR DETAIL AF)
-Y5.238 (REF) FOR DETAIL AG)
+Y21.337(REF)(FOR DETAIL AJ)
+Y5.238(REF)(FOR DETAIL AH)
LDW280-17421-15 (REF)
-17 (REF)
LDW280-17421-11(REF)
-13(REF)
LDW280-28608(REF)
X197.24 (FOR DETAIL AJ)
X197.42 (FOR DETAIL AH)
X197.56 (FOR DETAIL AG)
X197.70 (FOR DETAIL AF)
LDW280M17100(REF)
X196.00 (REF)
LDW280-25523(REF)
MS20470AD4(2)
-Z27.00 (REF)
2 5/32
LDW280-17421-11 (FOR DETAIL AJ)
-13 (FOR DETAIL AH)
-15 (FOR DETAIL AG)
-17 (FOR DETAIL AF)

DETAIL AF (SHOWN)
(ZONE 4B SH3)
DETAIL AG (IDENT TO DETAIL AF EXCEPT AS NOTED)
(ZONE 4B SH3)
DETAIL AH (IDENT TO DETAIL AF EXCEPT AS NOTED)
(ZONE 4C SH3)
DETAIL AJ (IDENT TO DETAIL AF EXCEPT AS NOTED)
(ZONE 4C SH3)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1/4
X196.00 (REF)
LDW280-17423 (REF)
1/4

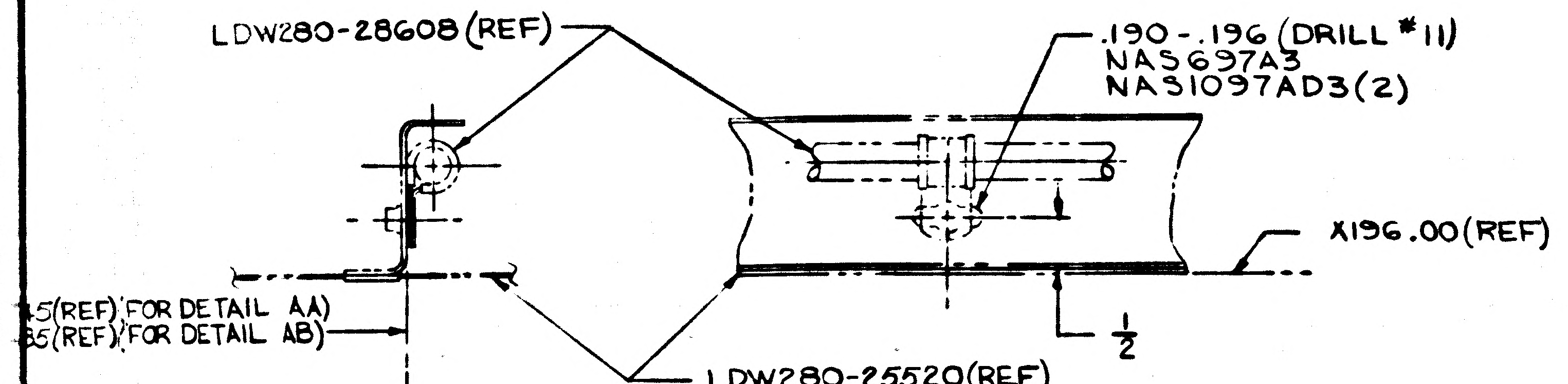
DETAIL
(ZONE

01/03

NAS 9-1100

CODE IDENT NO 26512
LDW280-28587
SH 6

5/3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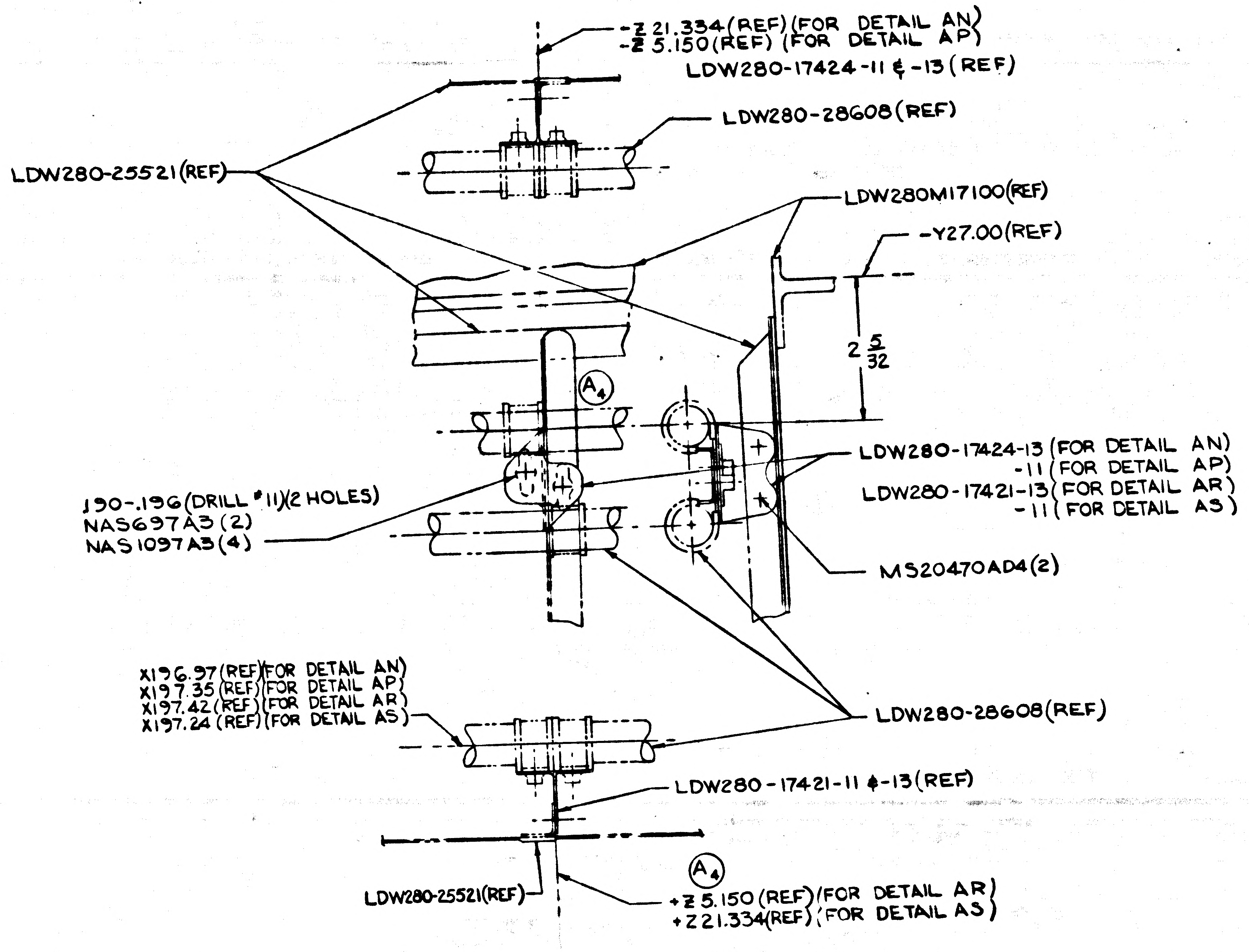
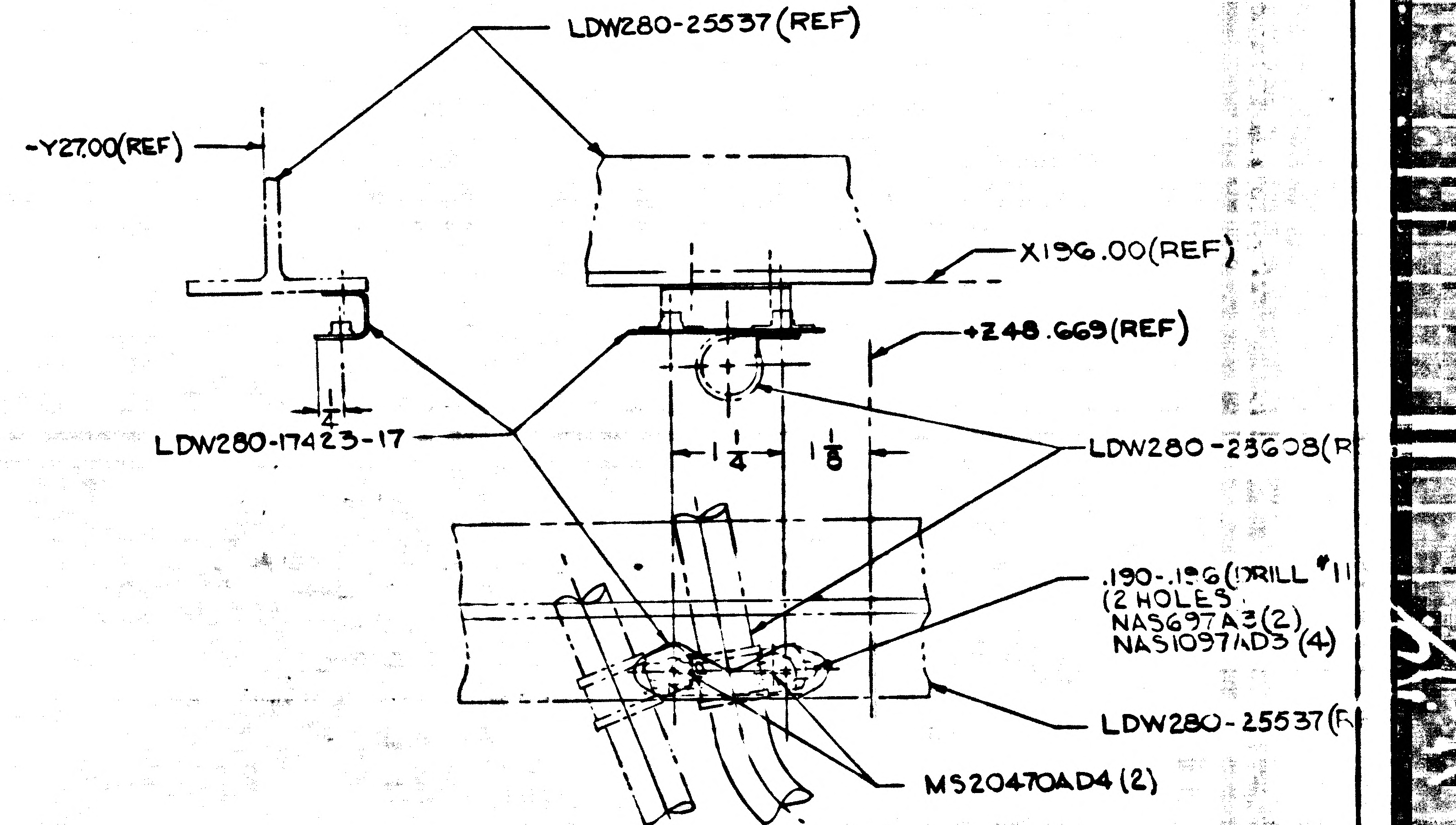
.190-.196 (DRILL #11)
NAS697A3
NAS1097AD3(2)
X196.00(REF)
5(REF) FOR DETAIL AA
35(REF) FOR DETAIL AB
1/2
LDW280-25520(REF)

DETAIL AA (SHOWN)
(ZONE 4D SH3)
DETAIL AB (CPP)
(ZONE 5D SH3)
(TYP 4 PLACES)


-Z 21.334(REF)(FOR DETAIL AN)
-Z 5.150(REF)(FOR DETAIL AP)
LDW280-17424-11 & -13 (REF)
LDW280-28608(REF)
LDW280-25521(REF)
LDW280M17100(REF)
-Y27.00(REF)
2 5/32
A4
LDW280-17424-13 (FOR DETAIL AN)
-11 (FOR DETAIL AP)
LDW280-17421-13 (FOR DETAIL AR)
-11 (FOR DETAIL AS)
.190-.196(DRILL #11)(2 HOLES)
NAS697A3 (2)
NAS1097A3 (4)
MS20470AD4(2)
X196.97(REF)(FOR DETAIL AN)
X197.35(REF)(FOR DETAIL AP)
X197.42(REF)(FOR DETAIL AR)
X197.24(REF)(FOR DETAIL AS)
LDW280-28608(REF)
LDW280-17421-11 & -13(REF)
A4
LDW280-25521(REF)
+Z 5.150 (REF)(FOR DETAIL AR)
+Z21.334(REF)(FOR DETAIL AS)

DETAIL AN (SHOWN)
(ZONE 4B SH3)
DETAIL AP (IDENT TO DETAIL AN EXCEPT AS NOTED)
(ZONE 5B SH3)
DETAIL AR (IDENT TO DETAIL AN EXCEPT AS NOTED)
(ZONE 5B SH3)
DETAIL AS (IDENT TO DETAIL AN EXCEPT AS NOTED)
(ZONE 5B SH3)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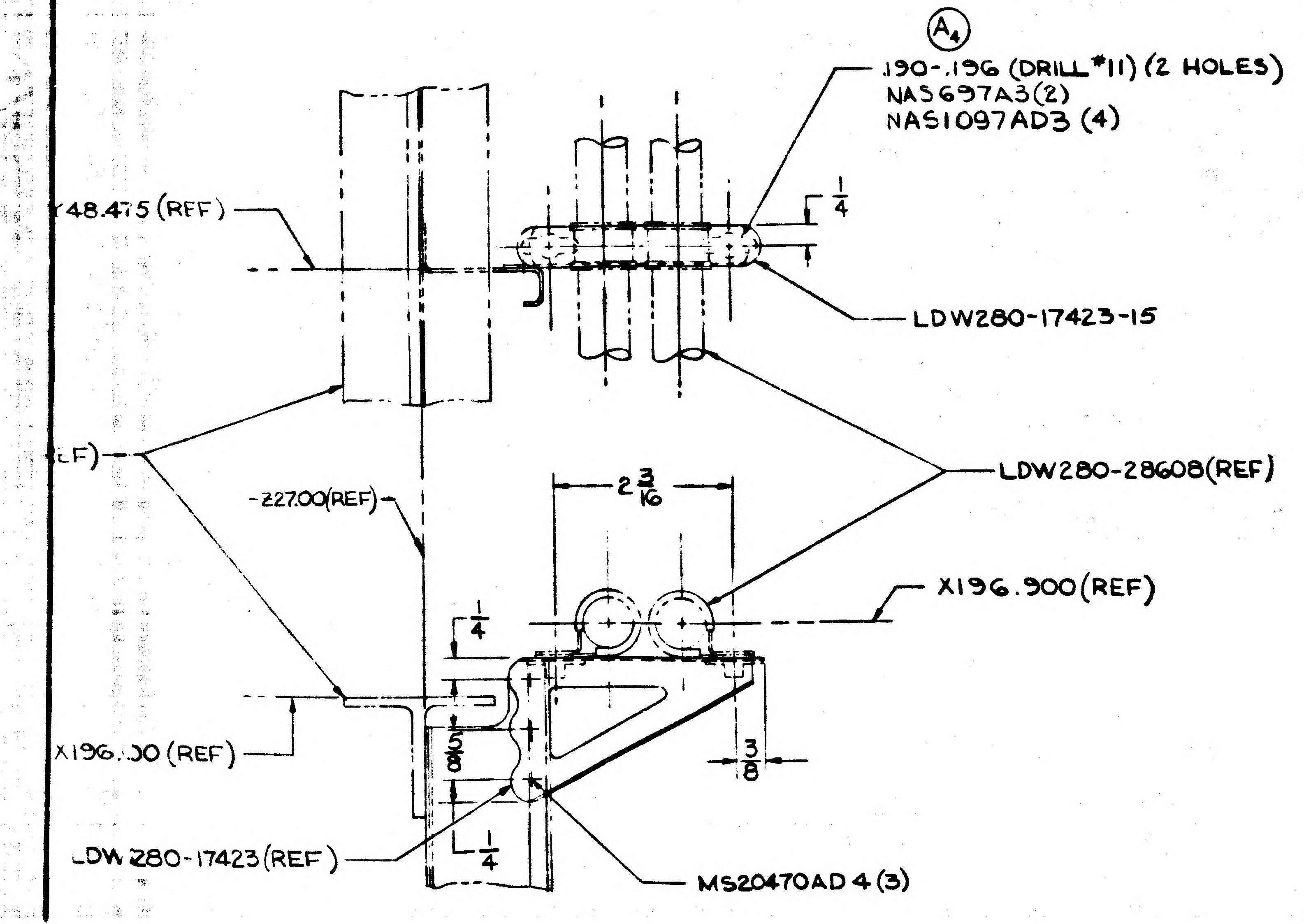
1 1/4
1 1/8
LDW280-28608(R
.190-.196(DRILL #11
(2 HOLES)
NAS697A3(2)
NAS1097AD3 (4)
LDW280-25537(R
MS20470AD4(2)

DETAIL AU
(ZONE 6B SH3)


A4
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NAS1097AD3 (4)
Y48.475 (REF)
1/4
LDW280-17423-15
EF)
LDW280-28608(REF)
-Z27.00(REF)
2 3/16
X196.900(REF)
1/4
5/8
3/8
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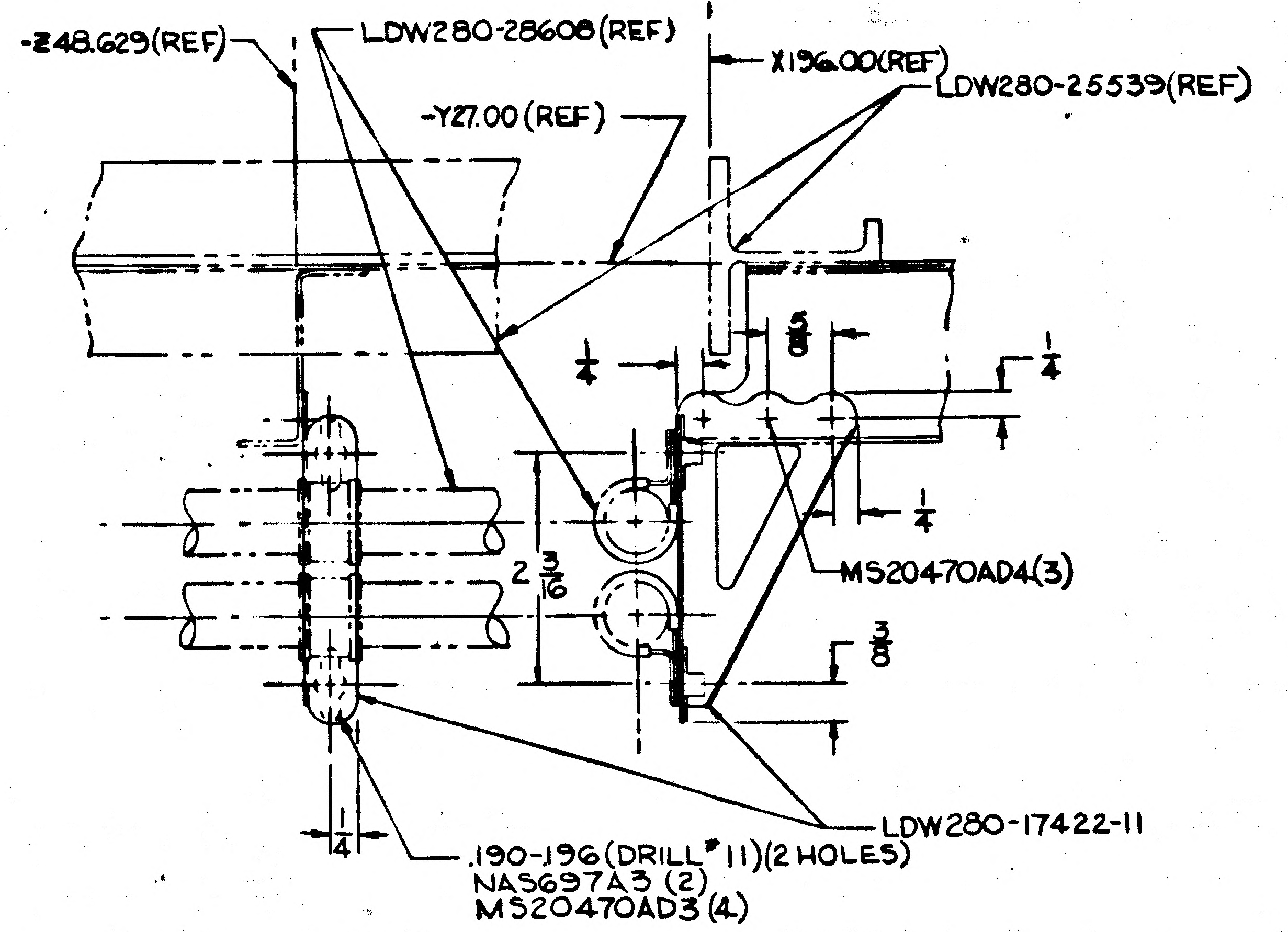
1/4
MS20470AD4(3)

DETAIL AL
(ZONE 4D SH3)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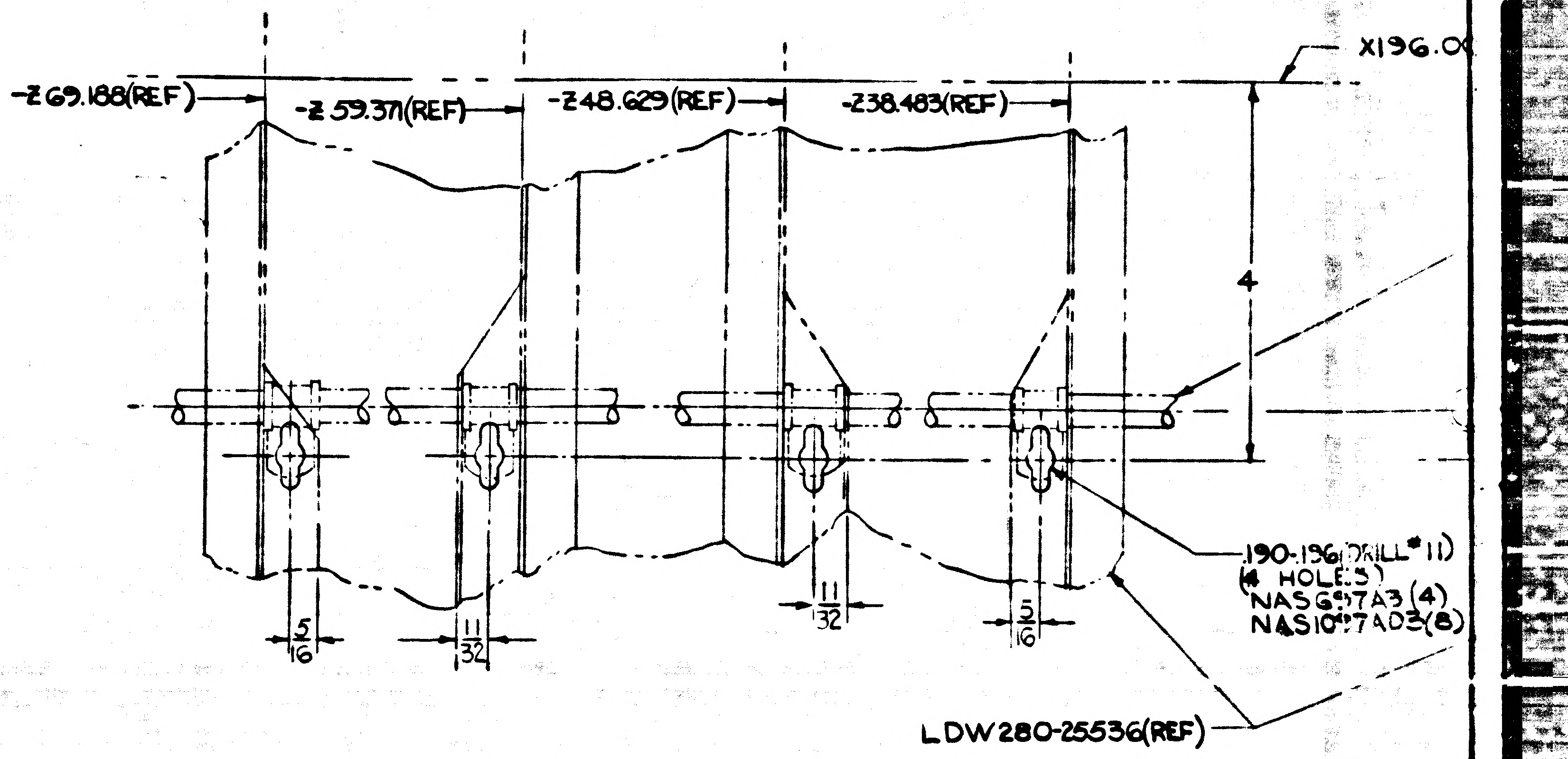
1/4
5/8
1/4
2 3/16
1/4
MS20470AD4(3)
3/8
1/4
LDW280-17422-11
.190-.196(DRILL #11)(2 HOLES)
NAS697A3 (2)
MS20470AD3 (4)

DETAIL AM
(ZONE 4B SH3)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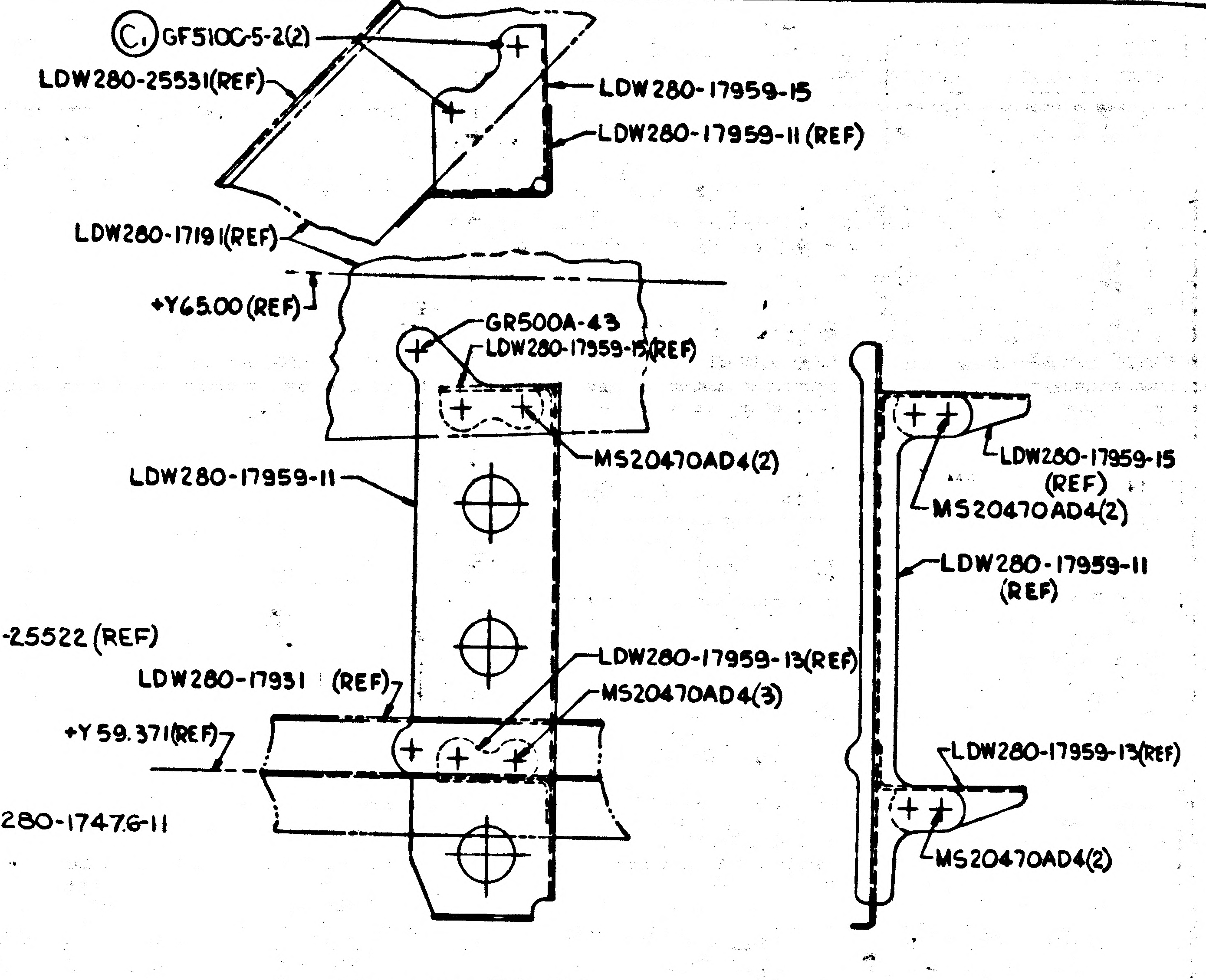
-Z59.371(REF)
-Z48.629(REF)
-Z38.483(REF)
4
5/16
11/32
11/32
5/16
.190-.196(DRILL #11)
(4 HOLES)
NAS697A3 (4)
NAS1097AD3(8)
LDW280-25536(REF)

SECT AT
(ZONE 4C SH3)

02/03 NAS 9-1100

ENT NO 26512
280-28587 SH 6

CODE IDENT NO. 26512
LDW280-28587 SH 6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LDW280-17959-15 (REF)
MS20470AD4(2)
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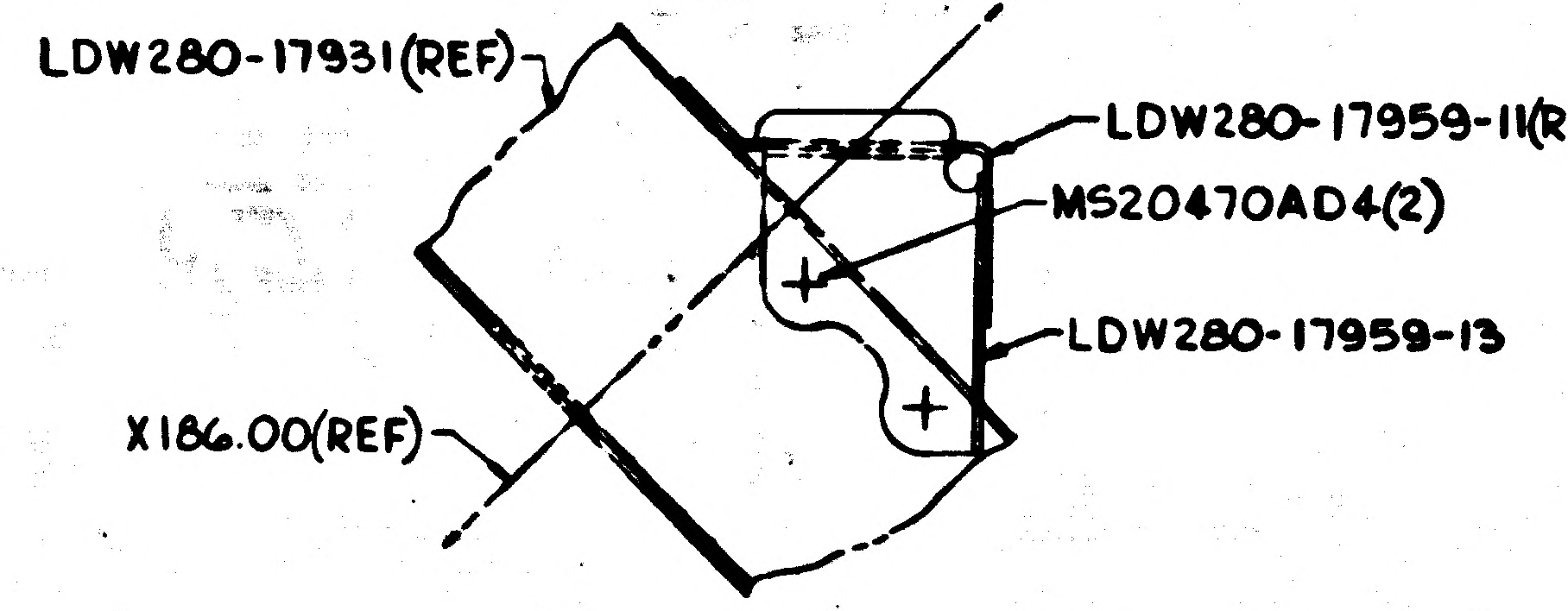
LDW280-17959-13(REF)
MS20470AD4(2)

A5 VIEW BA-BA
(ZONE 4D SH 3)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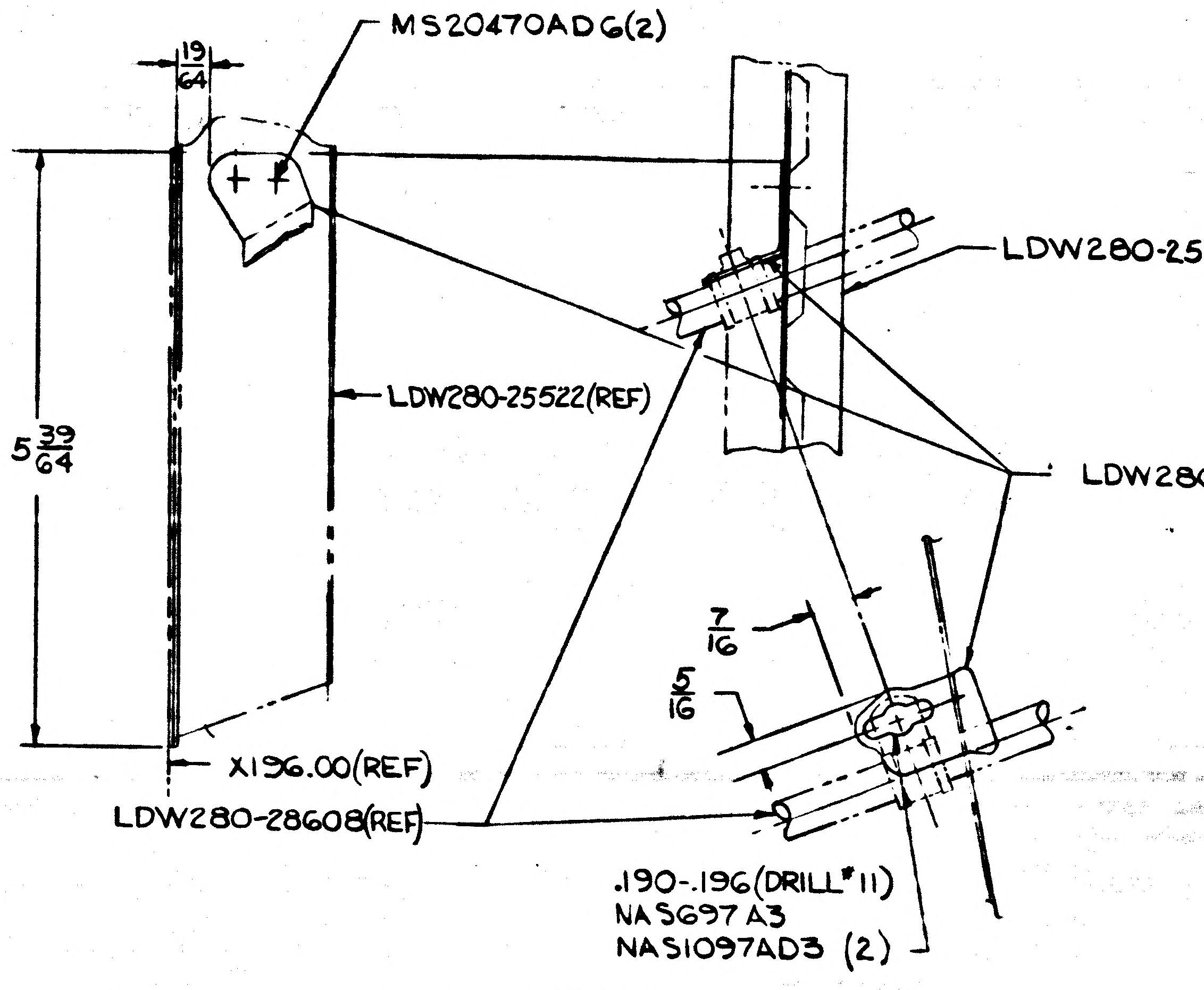
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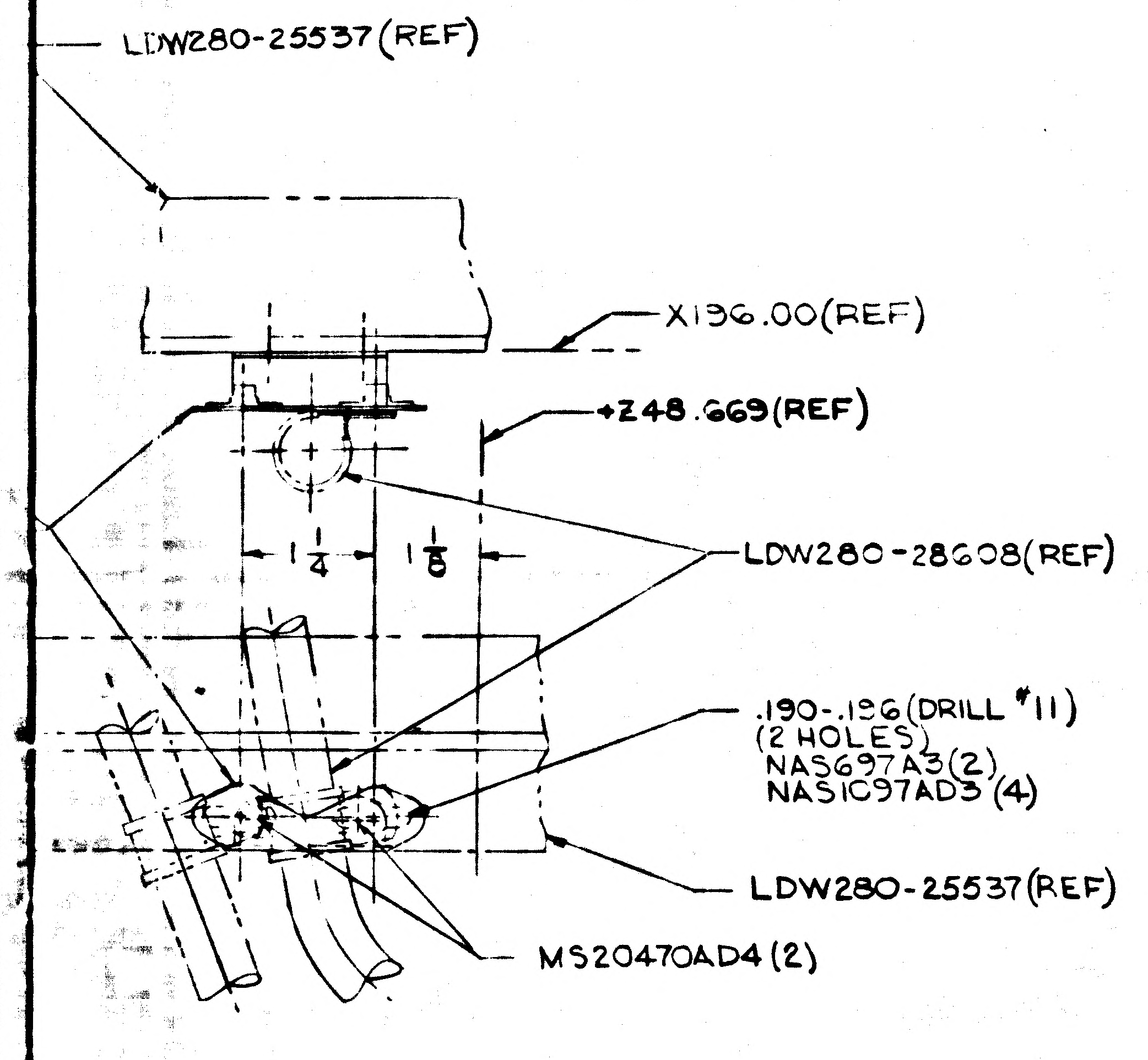
19/64
LDW280-25522 (REF)
LDW280-25522(REF)
5 39/64
LDW280-17476-11
7/16
5/16
X196.00(REF)
LDW280-28608(REF)
.190-.196(DRILL #11)
NAS697A3
NAS1097AD3 (2)

DETAIL AW
(ZONE 6B SH3)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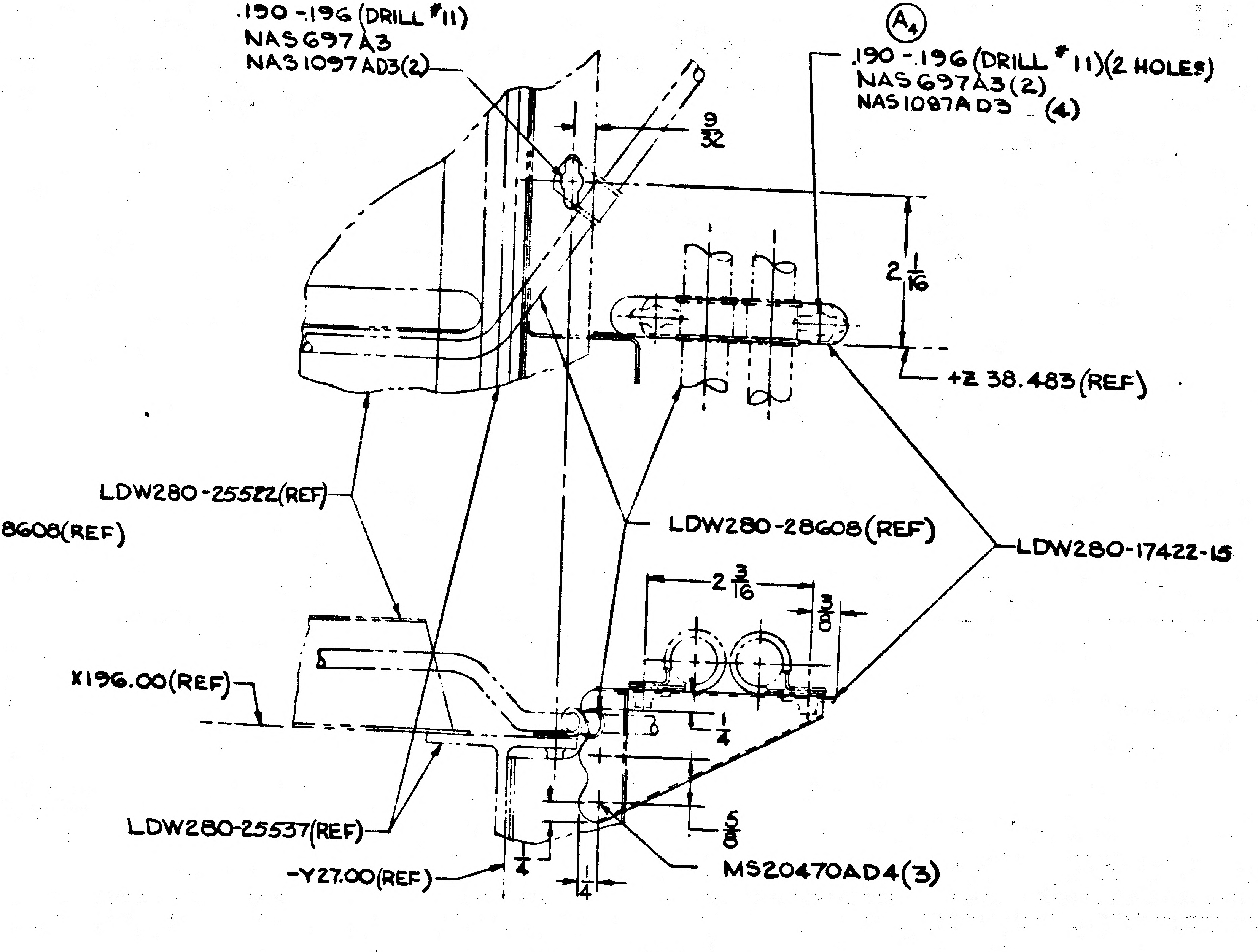
1 1/4
1 1/8
LDW280-28608(REF)
.190-.196(DRILL #11)
(2 HOLES)
NAS697A3(2)
NAS1097AD3 (4)
LDW280-25537(REF)
MS20470AD4 (2)

DETAIL AU
(ZONE 6B SH3)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NAS697A3
NAS1097AD3(2)
A4
.190-.196 (DRILL #11)(2 HOLES)
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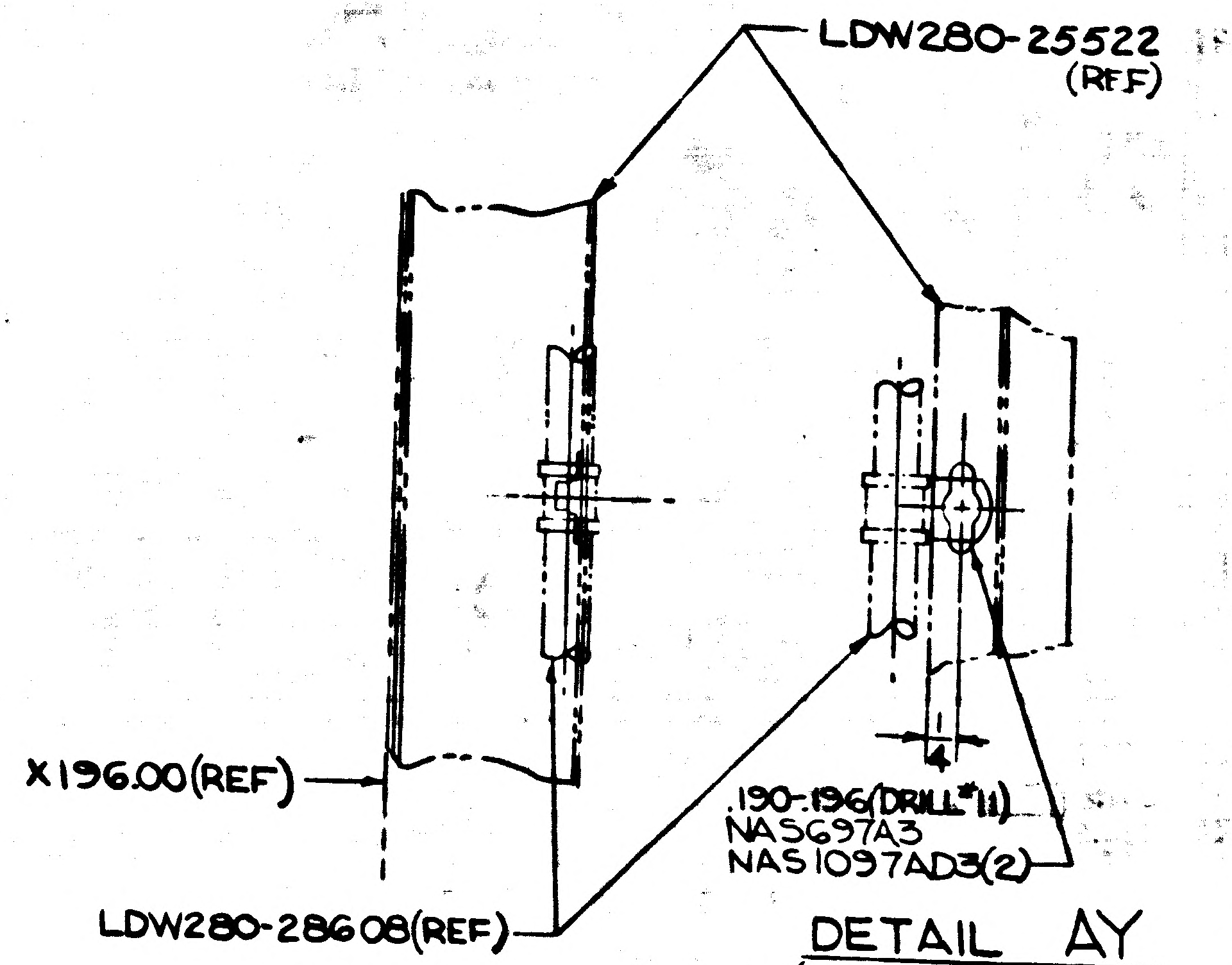
NAS1097AD3 (4)
9/32
2 1/16
+Z 38.483(REF)
LDW280-25522(REF)
LDW280-28608 (REF)
LDW280-17422-15
2 3/16
3/4
X196.00(REF)
1/4
5/8
LDW280-25537(REF)
-Y27.00(REF)
1/4
1/4
MS20470AD4(3)

DETAIL AV
(ZONE 6B SH3)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1/4
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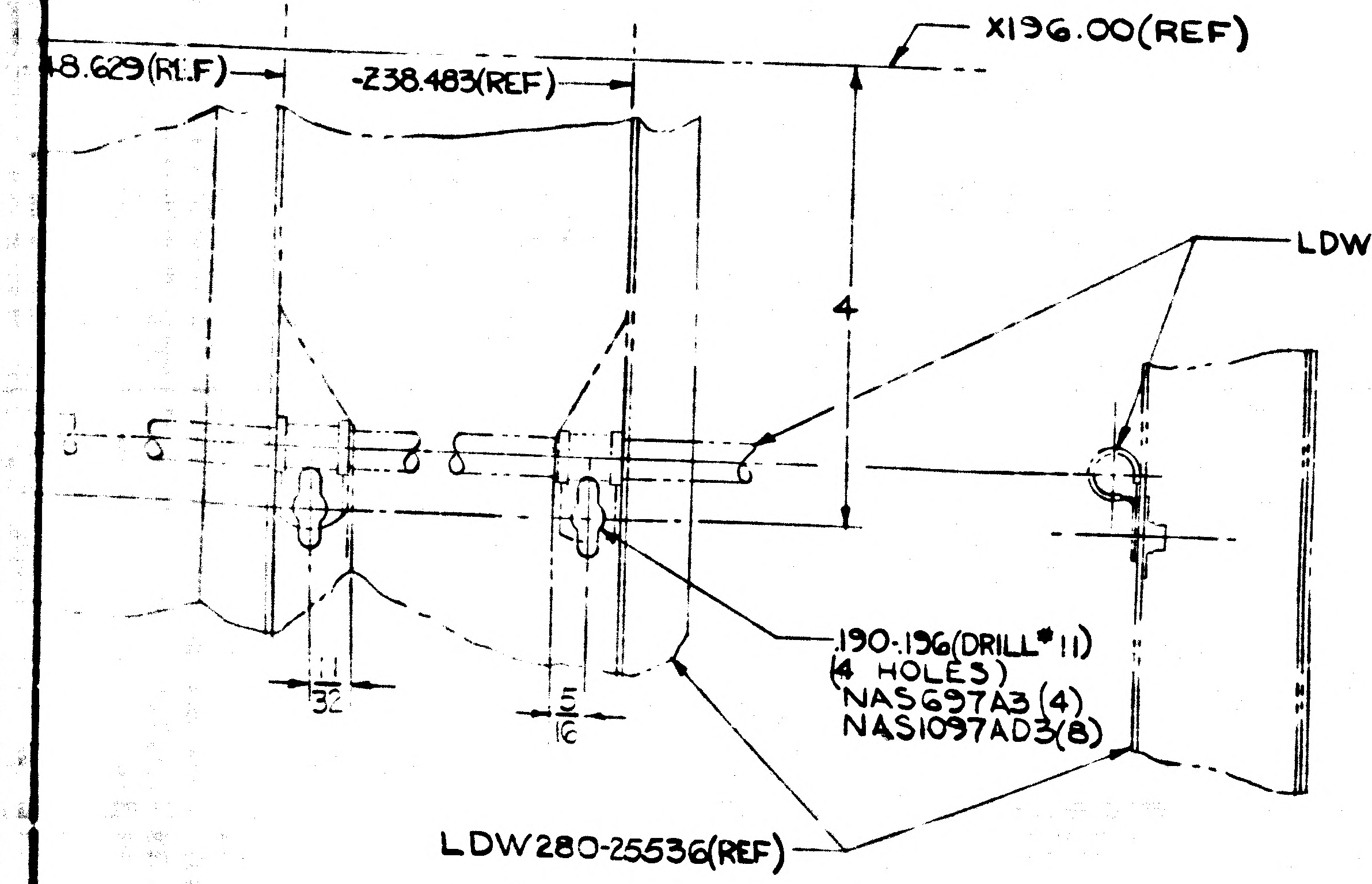
NAS697A3
NAS1097AD3(2)
LDW280-28608(REF)

DETAIL AY
(ZONE 7C SH3)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X196.00(REF)
4
LDW280-28608(REF)
3/32
1/16
.190-.196(DRILL #11)
(4 HOLES)
NAS697A3 (4)
NAS1097AD3(8)
LDW280-25536(REF)

SECT AT
(ZONE 4C SH3)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ▭
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.010R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP THDS.
BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003 MIN.
TO .0005 MAX. MIN. THICKNESS TO
BE .0002 ON THREADED AREAS.
NO ALLOWANCE FOR PLATING IN
HOLES

125 SURFACE ROUGHNESS
INCLUDING REAMED HOLES
PER MIL-STD-10

250 FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL ƒ DENOTES SURFACE
TO BE MACHINED

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY
RIVETS SHORTER THAN 1 INCH ARE
NOT SPECIFIED.

TOLERANCE ON LOFTED
DELINEATIONS IS

DWG SIZE 34 X

LDW280-28587C

03/03

NAS 9-1100

LDW280-28587C

CODE IDENT NO 26512
LDW280-28587
SH 6

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L.I., NEW YORK
SIZE J
CODE IDENT NO. 26512
LDW280-28587 C
LEM
MODEL OR END ITEM
SCALE FULL
SHEET 6.00

H.G.

ENG 32.2 10-63

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-28587	EO NO.	B3
CONTROL INFO NO.	LEM-2-2328		

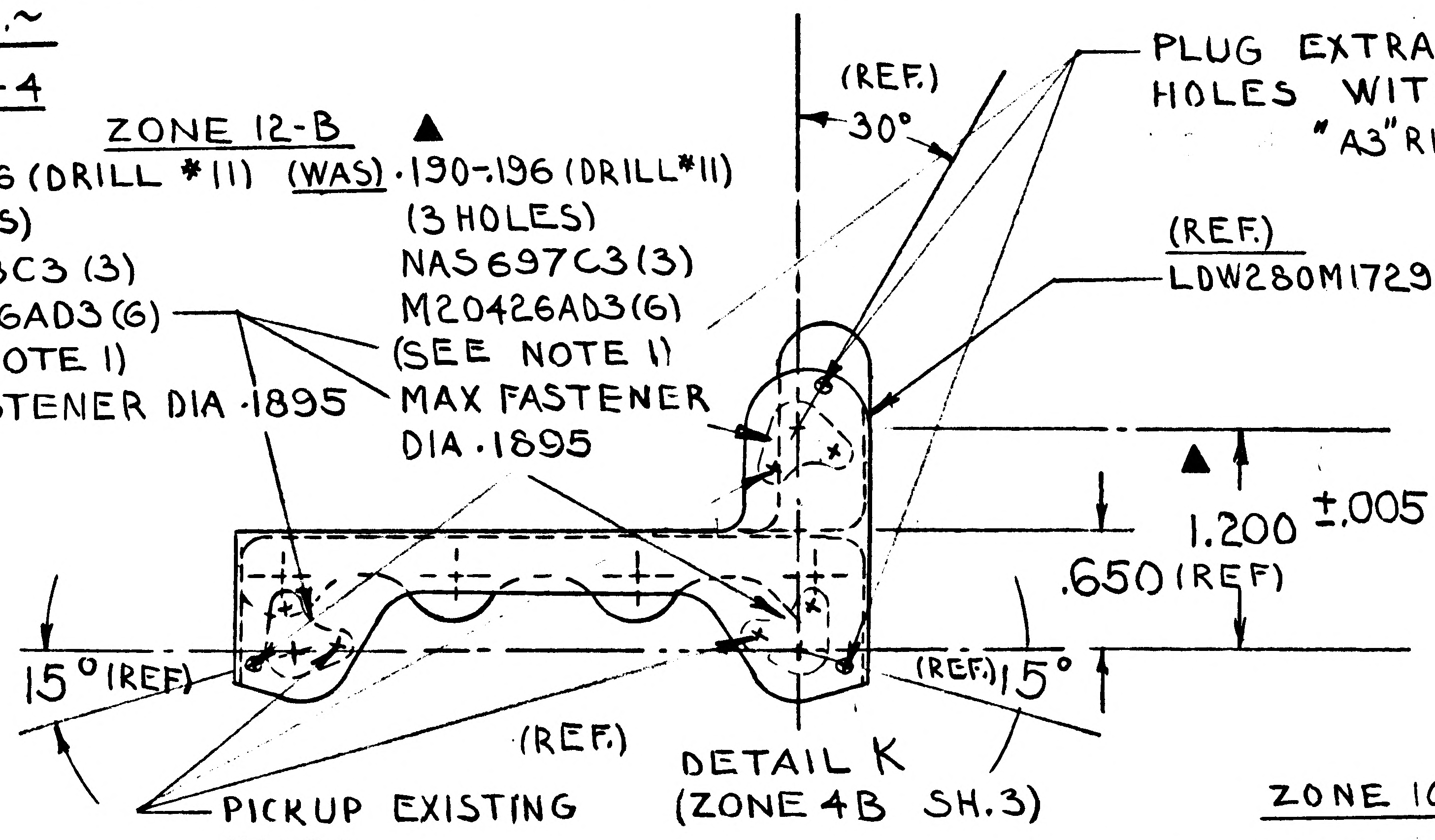
ON-1 IN F/D. & B/M. REPLACE NAS697C3 (7) WITH NAS698C3 (7) TO AGREE WITH EO.~

SHEET-4

ZONE 12-B

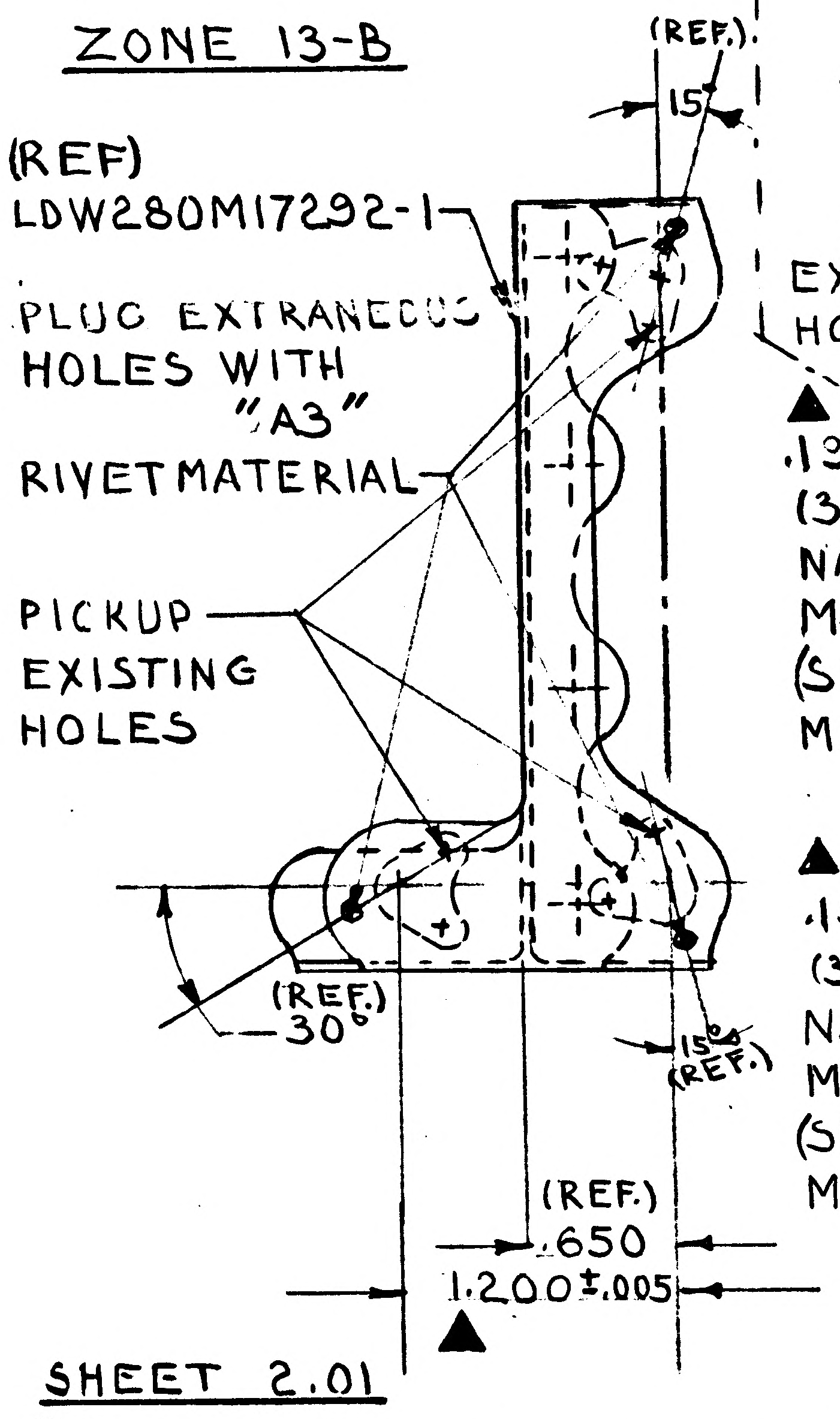
▲ .190-.196 (DRILL #11) (3 HOLES)
NAS698C3 (3)
MS20426AD3 (6)
(SEE NOTE 1)
MAX FASTENER DIA .1895

(WAS) ▲ .190-.196 (DRILL #11) (3 HOLES)
NAS697C3 (3)
M20426AD3 (6)
(SEE NOTE 1)
MAX FASTENER DIA .1895


PLUG EXTRANEOUS HOLES WITH "A3" RIVET MATERIAL
(REF.) 30°
(REF.) LDW280M17295-1
▲ 1.200 ±.005 (REF.)
.650 (REF)
15° (REF.)
(REF.) 15°
(REF.)
PICKUP EXISTING HOLES

DETAIL K
(ZONE 4B SH.3)

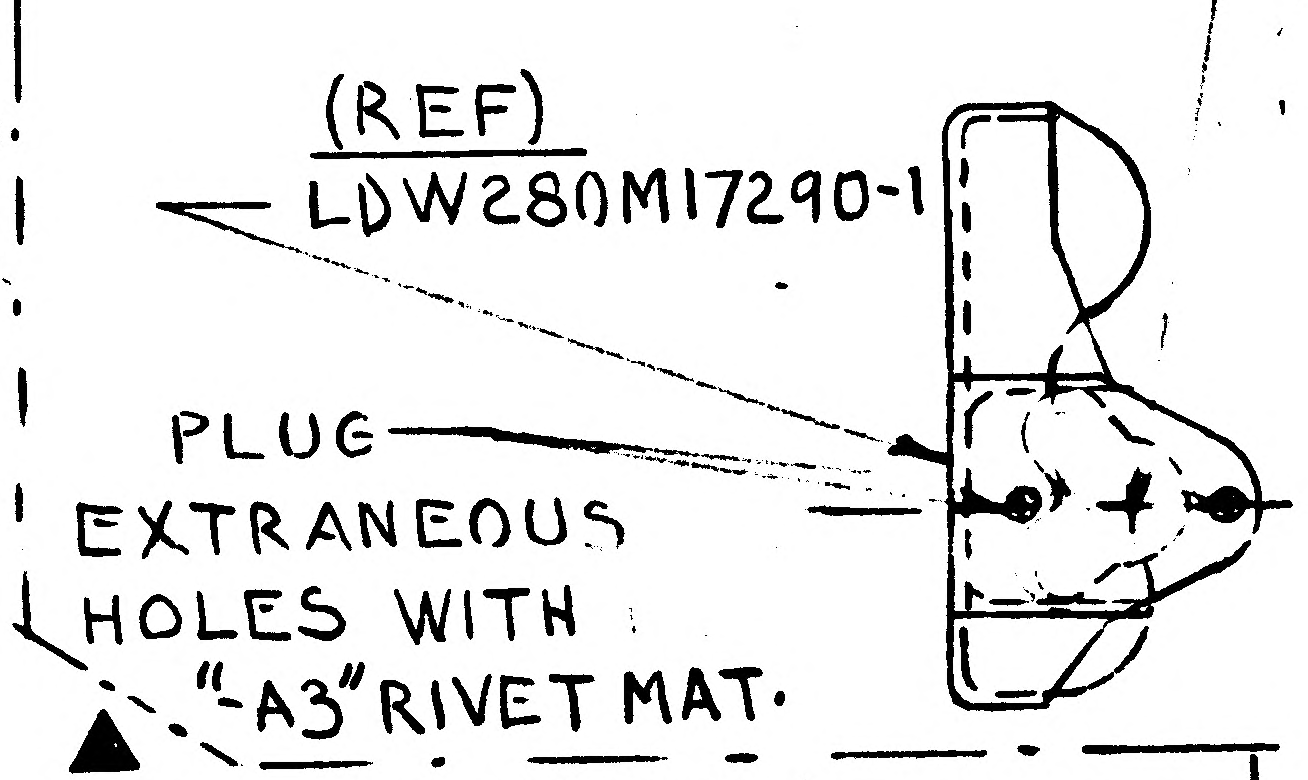
ZONE 13-B


(REF) LDW280M17292-1
PLUG EXTRANEOUS HOLES WITH "A3" RIVET MATERIAL
PICKUP EXISTING HOLES
(REF.) 15°
(REF.) 30°
15° (REF.)
(REF.) .650
1.200 ±.005
▲

▲ .190-.196 (#11 DRILL) (3 HOLES)
NAS698C3 (3)
MS20426AD3 (6)
(SEE NOTE 1)
MAX FASTENER DIA .1895

▲ (WAS)
.190-.196 (#11 DRILL) (3 HOLES)
NAS697C3 (3)
MS20426AD3 (6)
(SEE NOTE 1)
MAX FASTENER DIA .1895

ZONE 10-A


PICKUP EXISTING #11 HOLE
(REF) LDW280M17290-1
PLUG EXTRANEOUS HOLES WITH "A3" RIVET MAT.

▲ .190-.196 (DRILL #11) 2 HOLES
NAS697C3 (1)
NAS698C3 (1)
MS20426AD3 (4)
(SEE NOTE 3)
MAX FASTENER DIA. 1895

(WAS)
.190-.196 (DRILL #11) 2 HOLES
NAS697C3 (2)
MS20426AD3 (4)
(SEE NOTE 3)
MAX FASTENER DIA .1895

ADD SHIM UNDER PLATENUT AS REQUIRED MAX. .030
MATERIAL: 7075-T6
FINISH "88"

SHEET 2.01

B/M. NAS697C3 (3) (WAS) NAS697C3 (10)
(ADD) NAS698C3 (7) "E" PLATE NUT STD PART

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	2

REASON FOR EO	DESCRIPTION OF EO	GAECC EO RELEASE
NAS697C3 PLATENUTS INTERFERE WITH FITTINGS (7) PLACES	ON-1 NAS698C3 (7) WAS NAS697C3 (7)	Ⓡ FR

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LEM		LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		✓		APPROVED BY	LBY				caw	caw	RMC (EU)	Bailey
				DATE	8/9/66	7/28			6/29/66	6/29/66	8-7	7-26
REVISE DWG	RECORD EO	REWORK	SCRAP	6-28-66	WTS.	VDI	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C2	SUPPORT INSTL. DESCENT STAGE -UPPER DECK~LINES	LDW280-28587	B3

ISSUED BY LIAISON T.J. MARTIN -X3604   GROUP V.D.I. GROUP NO: 335 PL. 35

01

NAS 9-1100

ENG 32.1 REV 3-65 **LIAISON ENGINEERING #5**

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28587		EO NO. B4	
CONTROL INFO NO. LEM5- 7711			

ON-1 SHEET 3 VIEW LOOKING DOWN
ZONE C-6

$50\frac{3}{8}$ DIMENSION SHOULD BE $49\frac{3}{4}$

REWORK FLUSH PLUG EXISTING HOLES (3) WITH NAS1097AD RIVETS

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		✓

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
NUT PLATE INTERFERES WITH SPACER INSTL. FOR BLANKETS	ON-1 $49\frac{3}{4}$ WAS $50\frac{3}{8}$	FR 9/B

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS	
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		SEE ABOVE ✓	
LEM		LTA-8		REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY					NM	CH	RMC (EU)	
DATE	7/28/66	8-70			8-12-66	7-15-66	8-7	7-15-66
7-15-66	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SUPPORT INSTL DESCENT STAGE- UPPER DECK HE DISTR FUEL O_2-H_2O + GLYCOL LINES	LDW280-28587	B4

ISSUED BY LIAISON J. GRASSIANO X-6452 SECTION VDI STRAKOSCH GROUP NO. 280 PL 35

01

NAS 9-1100

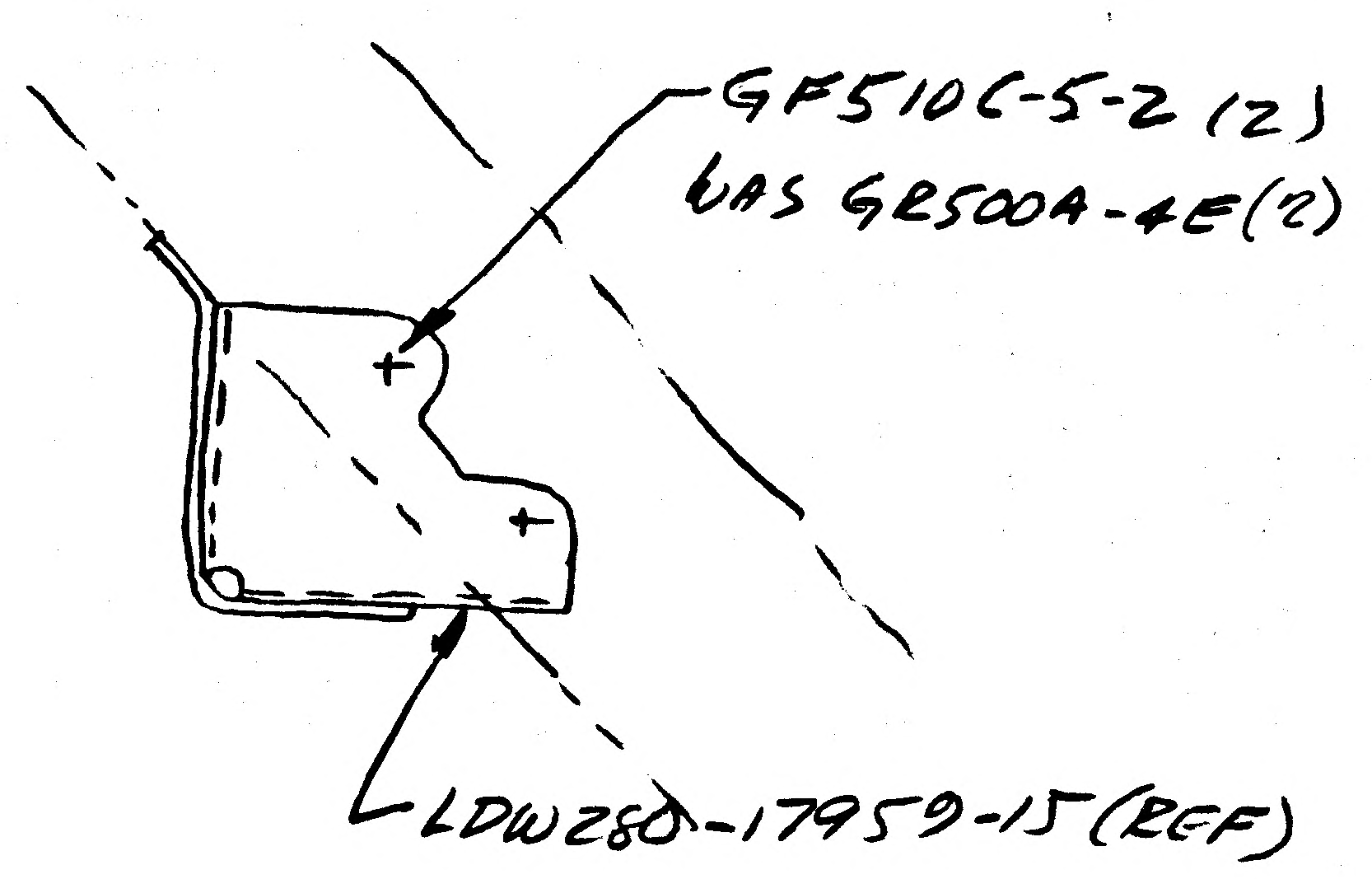
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

*

DWG. NO. LDW280-28587
EO NO. C1
CONTROL INFO NO. LDW280-9973

IN F/D & B/M REPLACE HUCK RIVETS(2) WITH JO-BOLT(2) AS SHOWN:-



LDW280-9973

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

2

REASON FOR EO: INSUFFICIENT CLEARANCE FOR HUCK RIVET GUN

DESCRIPTION OF EO: IN F/D & B/M GF510C-5-2(2) WAS GR500A-4E(2)

GAEC EO RELEASE: FR

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	WT	LBY	—	~	WJH		RMC	Bolt
DATE	8/30/66	9/9/66	—	~	8/31/66		9-7-66	9-6-66
	VD1	~~SUPPORT~~ WTS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: SUPPORT INSTL - D.S. UPPER DECK He DISTR, FUEL-OX, H2O & GLYCOL LINES

DRAWING NO.: LDW280-28587

EO NO.: C1

ISSUED BY TDALY/W TRAUT SECTION VD1 GROUP NO. 335 PL 5 WT

01

NAS 9-1100

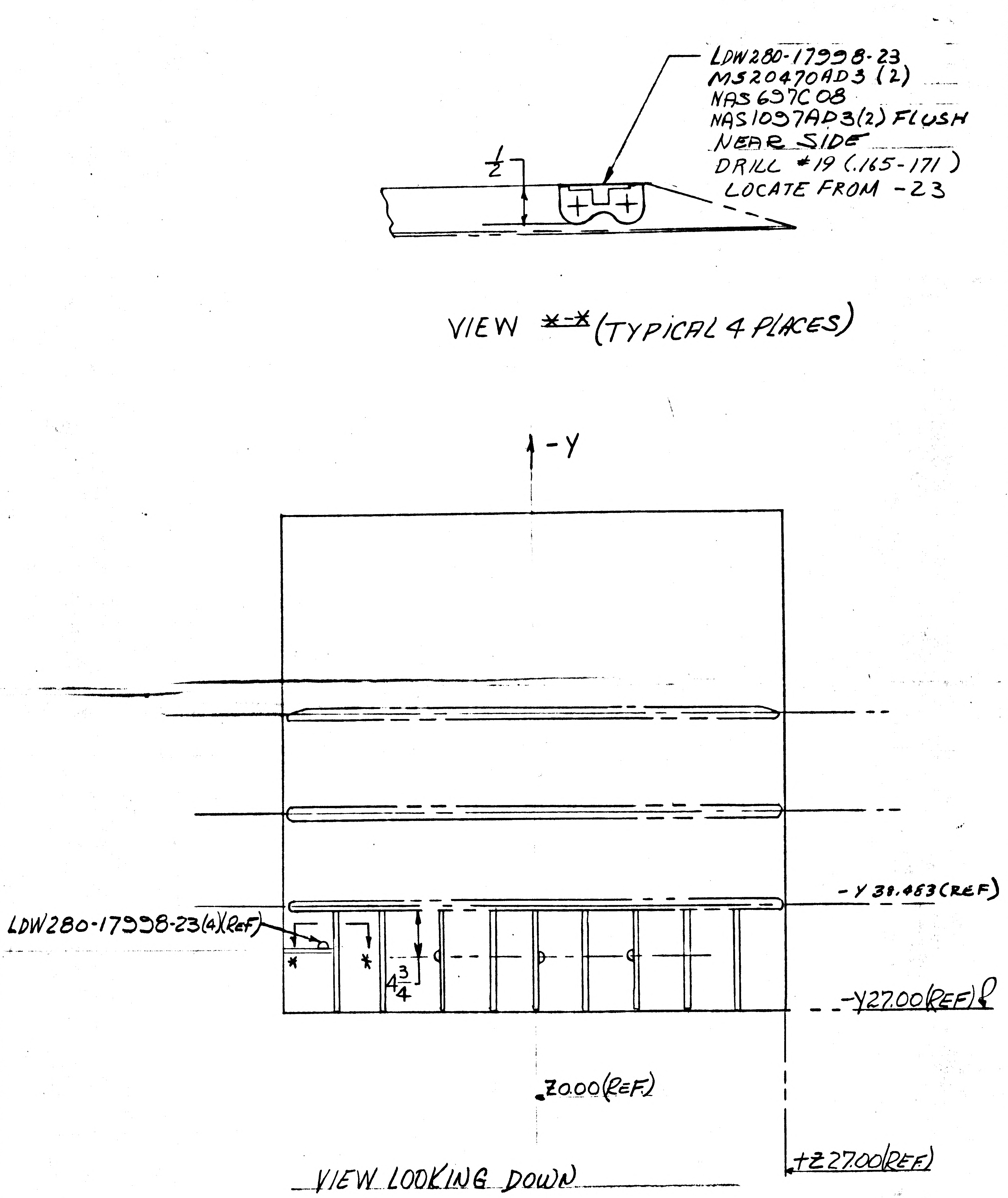
01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 28587		EO NO. C2
CONTROL INFO NO. LDW280-A-0013		



LDW280-17998-23
MS20470AD3 (2)
NAS697C08
NAS1097AD3(2) FLUSH
NEAR SIDE
DRILL #19 (.165-.171)
LOCATE FROM -23
1/2
VIEW *-* (TYPICAL 4 PLACES)
-Y
-Y 39.463 (REF)
LDW280-17998-23(4)(REF)
*
*
4 3/4
-Y27.00(REF) ℄
Z0.00(REF)
+Z27.00(REF)
VIEW LOOKING DOWN

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
RELOCATION OF H₂O LINE	IN F/D & B/M ADDED TO -1 LDW280-17998-23(4) NAS697C08(4), NAS1097AD3(8) & MS20470AD3(8)	C4 (B) 16 9-12

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LEM		LTA8 (18)		✓		✓	

APPROVED BY	WT	LBY	—		I.K.		RMC	
DATE	9/1/66	9/14/66	—		9/1/66		9.20.66	9/ /66
	VDI	~~SUPPORT~~ WTS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SUPT INSTL D/S - UPPER DECK - HE DISTR FUEL-OX-H₂O & GLYCOL LINES	LDW280-28587	C2

ISSUED BY F LANZARO D RAGAS SECTION VDI GROUP NO. 335 PL 5 WT

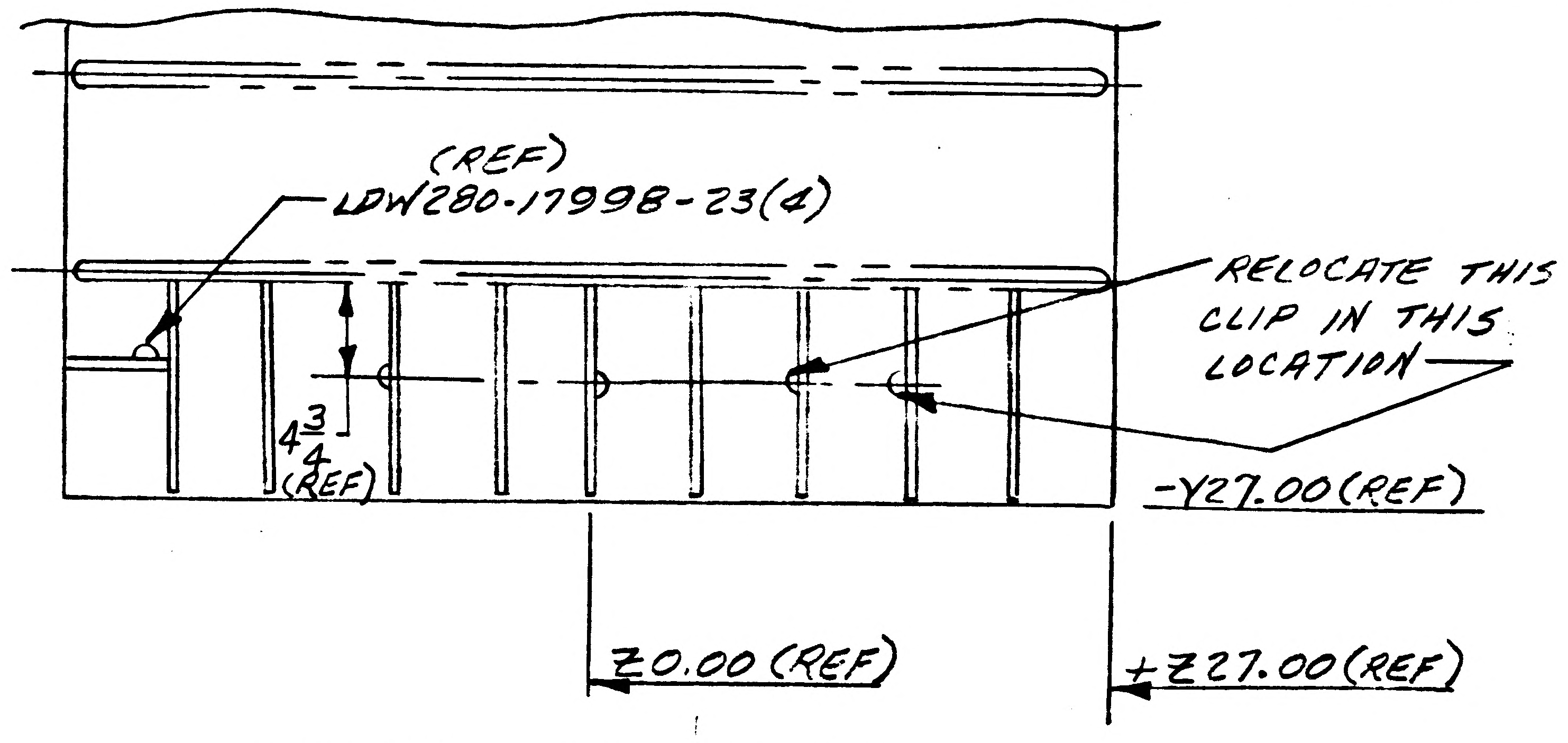
* \

ENG 32.1 REV 3-65 LIAISON ENGINEERING #5

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28587		EO NO. C3
CONTROL INFO NO. LM-5-9324		

THIS IS A
REVISION OF
EO C2



VIEW LKG DOWN

*-CLIP WAS NOT MOUNTED IN PRIOR LOCATION.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	5 GAEC C EO RELEASE
CLIP WAS SHOWN IN WRONG LOCATION ON EO C2	REF EO C2 -1 INSTL, RELOCATED (1) LDW280-17998-23 WHICH WAS LOCATED INCORRECTLY.	E

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		*	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JAS					CH	Dmc	
DATE	10/19					10-4-66	10-5-66	10-4-66
10-4-66	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SUPT. INSTL - D/S - UPPER DECK - He DISTR FUEL - OX - H2O & GLYCOL LINES	LDW280-28587	C3

ISSUED BY LIAISON - J. McGILL X-6452 SECTION VDI-STRAKOSCH GROUP NO._____ PL 35

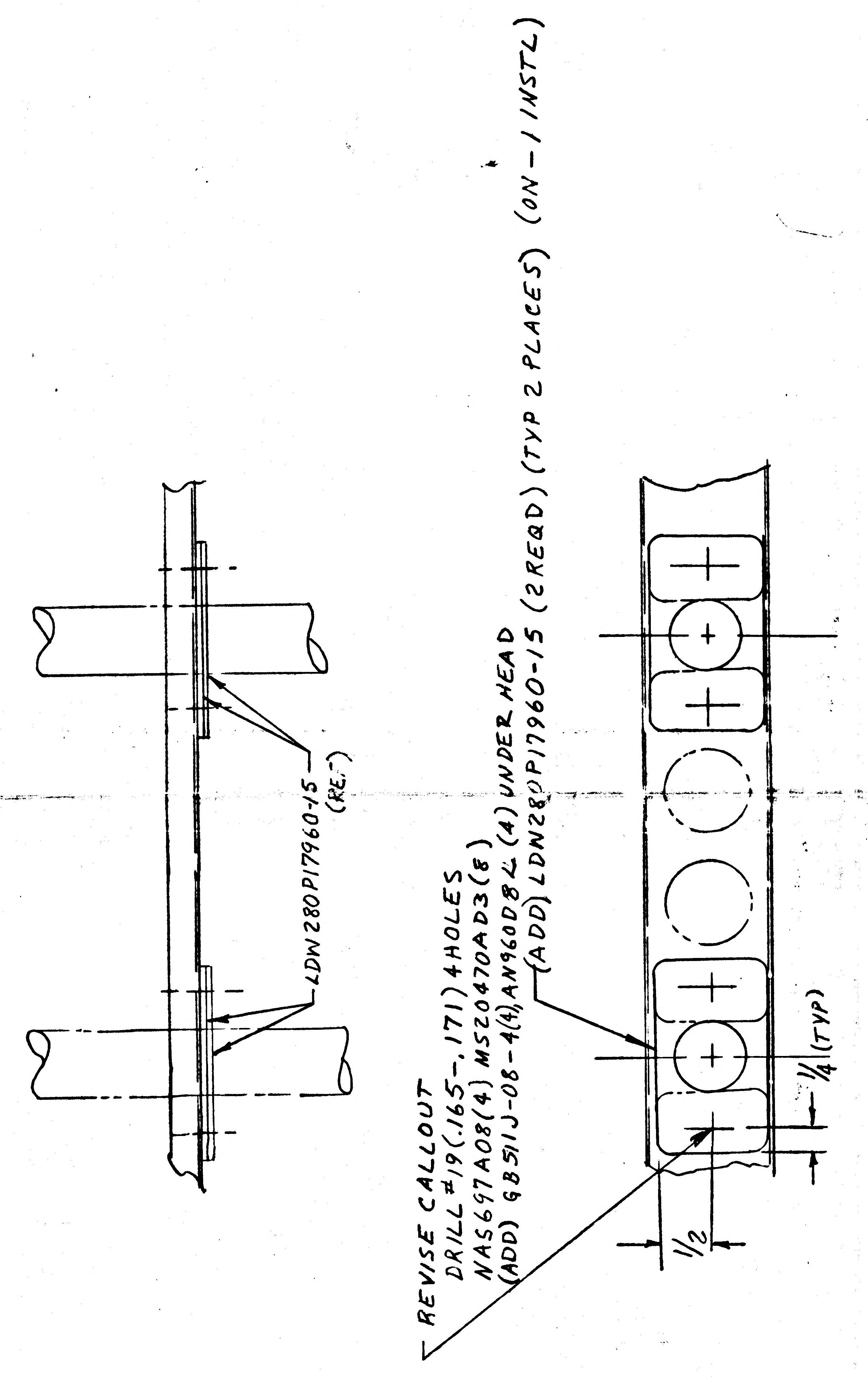
01 NAS 9-1100

0 1 NAS 9-1100

ENG 32.2 REV 3-65 B *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-28587
EO NO. C5
CONTROL INFO NO. LM5-13101



REVISE CALLOUT
DRILL #19(.165-.171) 4 HOLES
NAS697A08(4) MS20470AD3(8)
(ADD) GB511J-08-4(4) AN960D8L (4) UNDER HEAD
(ADD) LDW280P17960-15 (2REQD) (TYP 2 PLACES) (ON-1 INSTL)

REVISE THE FOLLOWING:
DETAIL N (LDW280-25523 (REF)(-Z)
P (LDW280-28524(REF)(+Z)
R (LDW280-25521 (REF)(-Y)
S (LDW280-28520(REF)(+Y)

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: TO PREVENT CHAFFING ON FUEL & OX LINES

DESCRIPTION OF EO: ON-1 TO DET. N,P,R,S ADDED LDW280P17960-15(16), GB511J-08-4(16) AN960D8L (16).

GAEC EO RELEASE: C 3 JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	WT			~	JFG	CH	RMC	JFP	
DATE	4/5/67			~	4-7-67	4-7-67	4-11-67	4/7/67	
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY: C
DRAWING TITLE: SUPT INSTL D/S-UP. DECK-HE, FUEL, OX & GLYCOL LINES
DRAWING NO.: LDW280-28587
EO NO.: C5

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

LDW280-28593

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51509	LEM-1 (31)	1 EA
LEM	LDW280-28509	LTA-8(18)	1 EA
PART NO. LDW280-28593-1		GAEC SCH NO. 50-1	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00			2.00			3.00		
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	A-A	GRUMMAN REL INFO		
		PRIM NO.	45/00L	6-20-6X
LAST DASH NO. USED	-1	207	MP	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 .020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM # 1

DOCUMENTATION TYPE II

DRAWN BY	LOEW 6/14-66	RELIABILITY	
LAYOUT BY	C. DE ANGELIS 6-15-66		
CHECKED BY	ARATOLI 6-15-66		
GP LEADER	6/15/66		
VEH. DES. INT	6/18		
STRUCTURES	6/20	PROJ ENGR	22 June
STRUCTURES	6/20	REL GROUP	Botti 6-27-66
WEIGHTS	W. G. 6/22		

® GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SUPPORT INSTL —
DESCENT STAGE, WATER FILL & DRAIN,
N FILL-DRAIN & H_2O MEASURING DEVICE

SIZE	CODE IDENT NO.	
B	26512	LDW28028593

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								MS20426AD3	E	RIVET	STD PART						
						4		NAS697C08K	E	PLATE NUT	STD PART						
						4		NAS697C4K	E	PLATE NUT	STD PART						
								LDW280-28593-1	E	SUPPORT INSTL					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280 - 28593

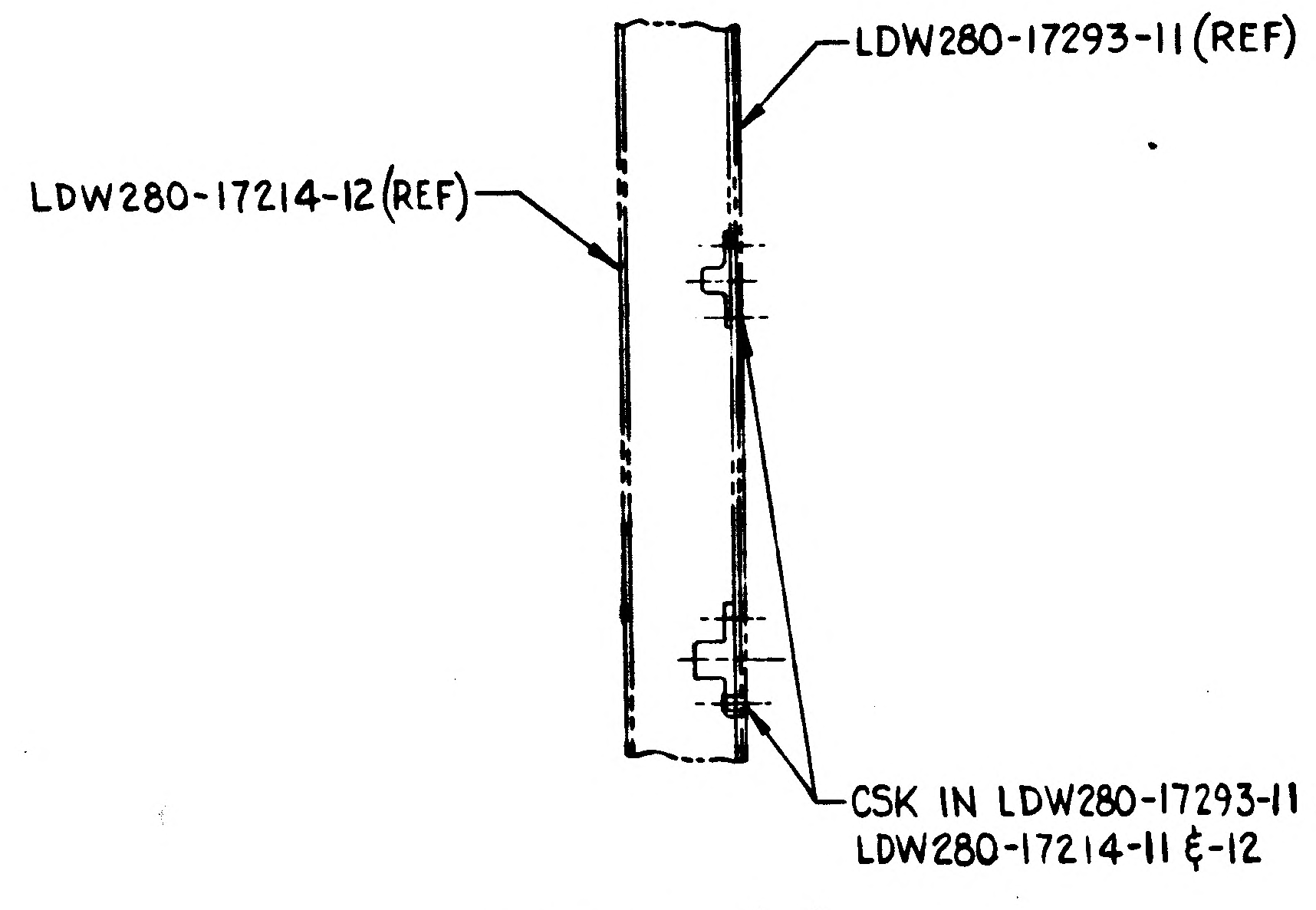
SCALE NONE SHEET 2.00

ENG 77.2 7-65

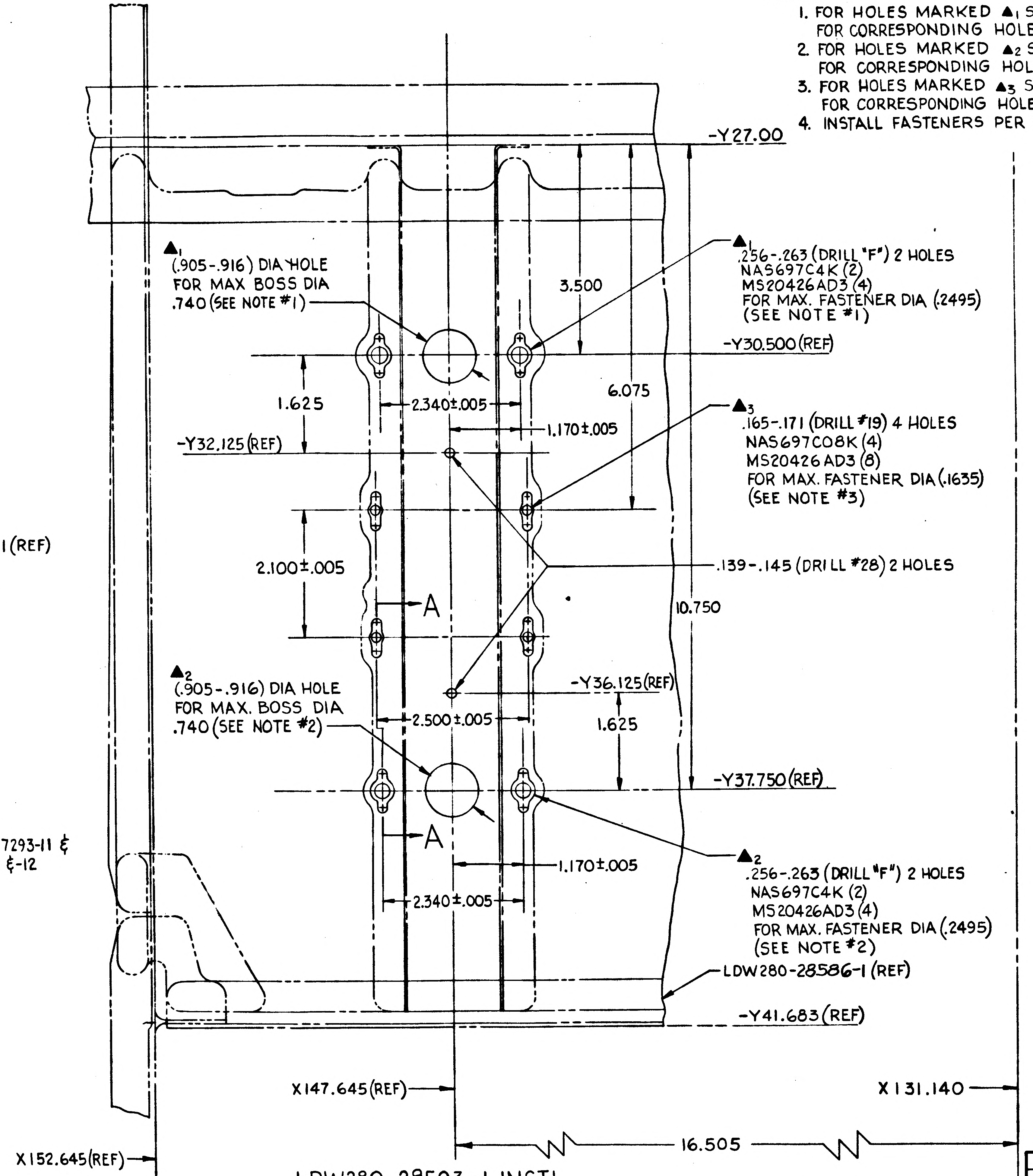
01

NAS 9-1100

NOTES:
1. FOR HOLES MARKED ▲₁ SEE LSC330-419-1 FOR CORRESPONDING HOLE PATTERN.
2. FOR HOLES MARKED ▲₂ SEE LSC330-418-1 FOR CORRESPONDING HOLE PATTERN.
3. FOR HOLES MARKED ▲₃ SEE LSC360-00009-01 FOR CORRESPONDING HOLE PATTERN.
4. INSTALL FASTENERS PER LSP-14-15302.


LDW280-17293-11 (REF)
LDW280-17214-12 (REF)
CSK IN LDW280-17293-11 & LDW280-17214-11 & -12

SECTION A-A


-Y27.00
▲₁ (.905-.916) DIA HOLE FOR MAX BOSS DIA .740 (SEE NOTE #1)
▲₁ .256-.263 (DRILL "F") 2 HOLES NAS697C4K (2) MS20426AD3 (4) FOR MAX. FASTENER DIA (.2495) (SEE NOTE #1)
3.500
-Y30.500 (REF)
1.625
2.340±.005
6.075
1.170±.005
-Y32.125 (REF)
▲₃ .165-.171 (DRILL #19) 4 HOLES NAS697C08K (4) MS20426AD3 (8) FOR MAX. FASTENER DIA (.1635) (SEE NOTE #3)
2.100±.005
.139-.145 (DRILL #28) 2 HOLES
A
10.750
-Y36.125 (REF)
▲₂ (.905-.916) DIA HOLE FOR MAX. BOSS DIA .740 (SEE NOTE #2)
2.500±.005
1.625
-Y37.750 (REF)
A
1.170±.005
2.340±.005
▲₂ .256-.263 (DRILL "F") 2 HOLES NAS697C4K (2) MS20426AD3 (4) FOR MAX. FASTENER DIA (.2495) (SEE NOTE #2)
LDW280-28586-1 (REF)
-Y41.683 (REF)
X147.645 (REF)
X131.140
16.505
X152.645 (REF)

LDW280-28593-1 INSTL
VIEW LOOKING INBOARD

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LEM	D	26512	LDW280-28593

SCALE FULL
SHEET 3.00

NAS 9-1100

LDW280-28595 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51509	LM-1(31)	1
LM	LDW280-28509	LTA-8(18)	1
PART NO. LDW280-28595-1		GAEC SCH NO. 50-3	

WORK PKG FUNCTION NO. 110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00	3.00				
REV	A	A		A	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED A

LAST DASH NO. USED -1

GRUMMAN REL INFO A

PRIM NO. JK(001)

207 mP-14 A-3/10/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS – DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	J. BACKOFEN 6/18/66	RELIABILITY	
LAYOUT BY			
CHECKED BY			
GR LEADER	J. STRAKOSCH 6/18/66		
V.D.I.	W. BISCHOFF 6/20/66		
STRUCTURES	W. HAUCK, A.I. 6/22/66	PROJ ENGR	PLUNKETTE 6/27/66
STRUCTURES	J.V FOR HILDERMAN 6/22/66	REL GROUP	C. BOTTI 6-30-66
WEIGHTS	W.G. MANDRAS 6/24/66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SUPPORT INSTALLATION
DESCENT STAGE O_2 GLYCOL
INTERSTAGE UMBILICAL

SIZE B | CODE IDENT NO. 26512 | LDW280-28595 A

SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDES LDW280-28595 NO CHG 6-30-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~[illegible]~~ APPD.
A									RETRACED NO CHANGE LAST REVISION NO CHANGE ADDED SH 1.10 CALDARELLA 2·15·67	LM-1 LTA-8	NOT	REQD	CALDARELLA 2-15-67 EG		3/6/67
	1	2.00 3.00						EO A1	REMOVED LDW280-17749-15, ADDED LDW280-17749-21 & NOTE 2						
	2	2.00 3.00							REF EO A1: LDW280-17749-15 SHOULD BE -11		✓				
	3	2.00 3.00					②		CHANGED COML CALLOUTS TO GAEC VENDOR APPROVED EQUIV. ADDED LSP14-15302 TO NOTE 1		NOT	REQD			

CHG APPROVED

LTR	~~GROUP LDR~~	VDI	STRUCTURES	STRUCTURES	WEIGHTS	REL GP					
A		3/4/67	3/6/67	3/6							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28595	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY -1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	MS20470DD5	E		RIVET	STD PART						
	MS20470AD4	E		RIVET	STD PART						
4	GN512H-08	E		NUT-COLLAR	GRUMMAN STD						
4	GB511K-08-4	E		BOLT	GRUMMAN STD						
1	LDW280M17361-1	E		PLATE	SEE DWG						
1	LDW280-17749-21	E		CHANNEL	SEE DWG						
	LDW280-28595-1	E		SUPPORT INSTL					NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

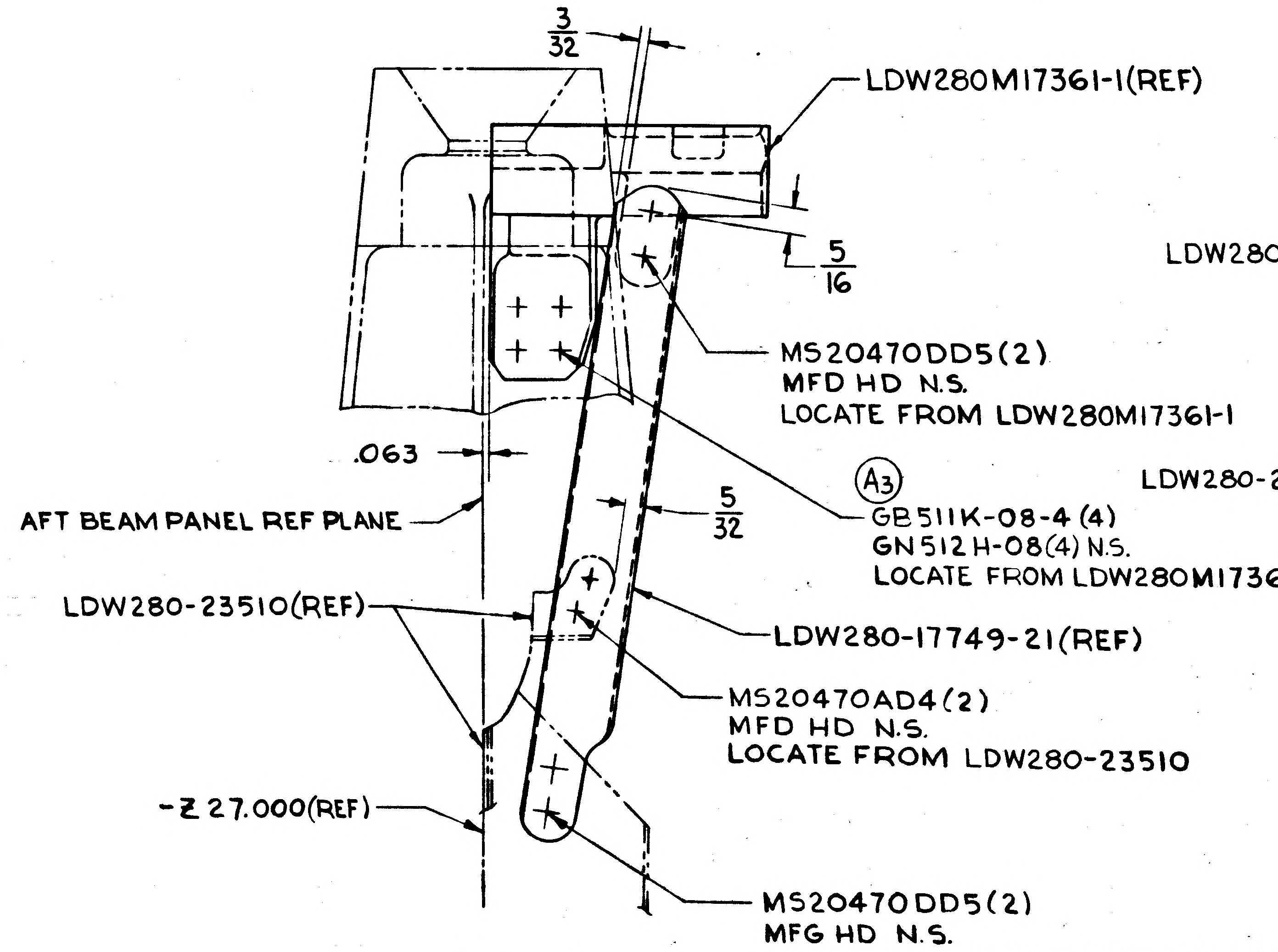
SIZE	CODE IDENT NO.		
B	26512	LDW280 28595	A

SCALE NONE

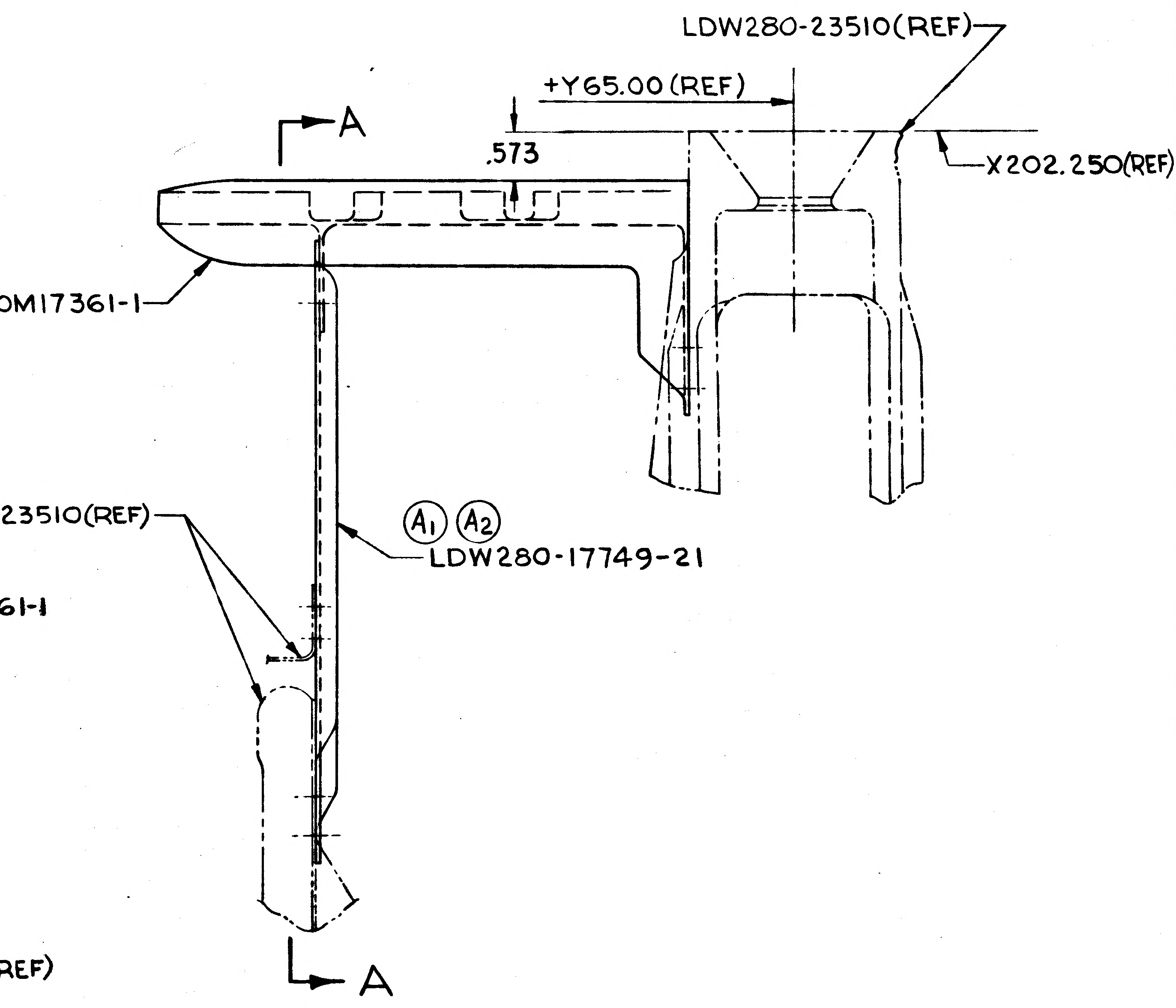
SHEET 2.00

NOTE:
1. INSTALL FASTENERS PER LSP14-15302 & LSP14-15306

2. FINAL FASTENER INSTALLATION SHALL BE DONE AFTER STAGES ARE MATED.
SEE LDW330-28013 FOR LTA-8 PROCEDURE AND LDW330-51013 FOR LM-1 PROCEDURE


3/32
LDW280M17361-1(REF)
5/16
MS20470DD5(2)
MFD HD N.S.
LOCATE FROM LDW280M17361-1
.063
(A3)
GB511K-08-4(4)
GN512H-08(4) N.S.
LOCATE FROM LDW280M17361-1
5/32
AFT BEAM PANEL REF PLANE
LDW280-23510(REF)
LDW280-17749-21(REF)
MS20470AD4(2)
MFD HD N.S.
LOCATE FROM LDW280-23510
-Z 27.000(REF)
MS20470DD5(2)
MFG HD N.S.
LOCATE FROM LDW280-17749-21(REF)

SECTION A-A


LDW280-23510(REF)
+Y65.00(REF)
A
.573
X202.250(REF)
LDW280M17361-1
LDW280-23510(REF)
(A1) (A2)
LDW280-17749-21
A

LDW280-28595-1 (INSTL)
VIEW LOOKING FWD

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE ~~AVERAGE~~ EDGE DISTANCE ~~MARKED~~ IS 1.5 FASTENER DIA FROM FASTENER ℄	✓
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE D	CODE IDENT NO. 26512	LDW280-28595	A
MODEL OR END ITEM	SCALE FULL		SHEET 3 .30	

LDW280-28595

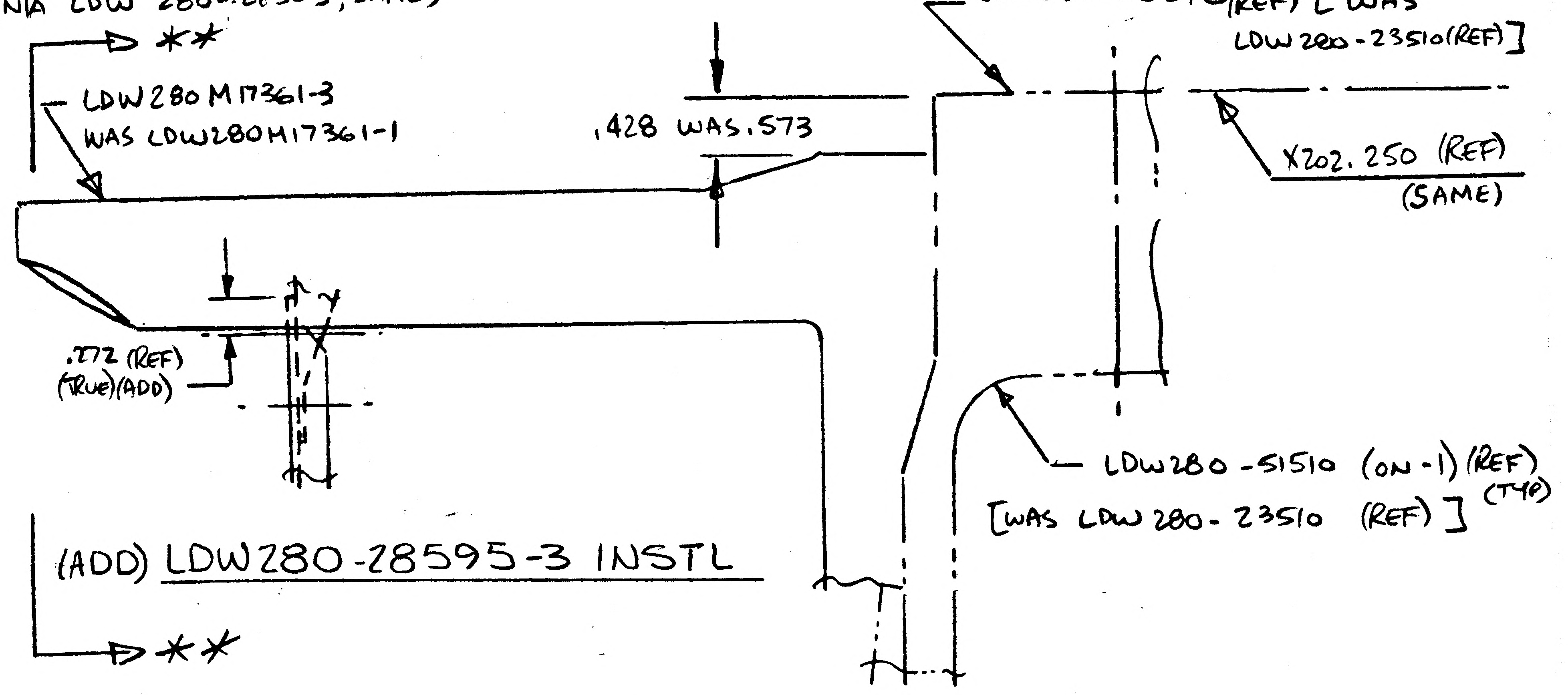
NAS 9-1100

ENG 32.2 REV 3-65 B *

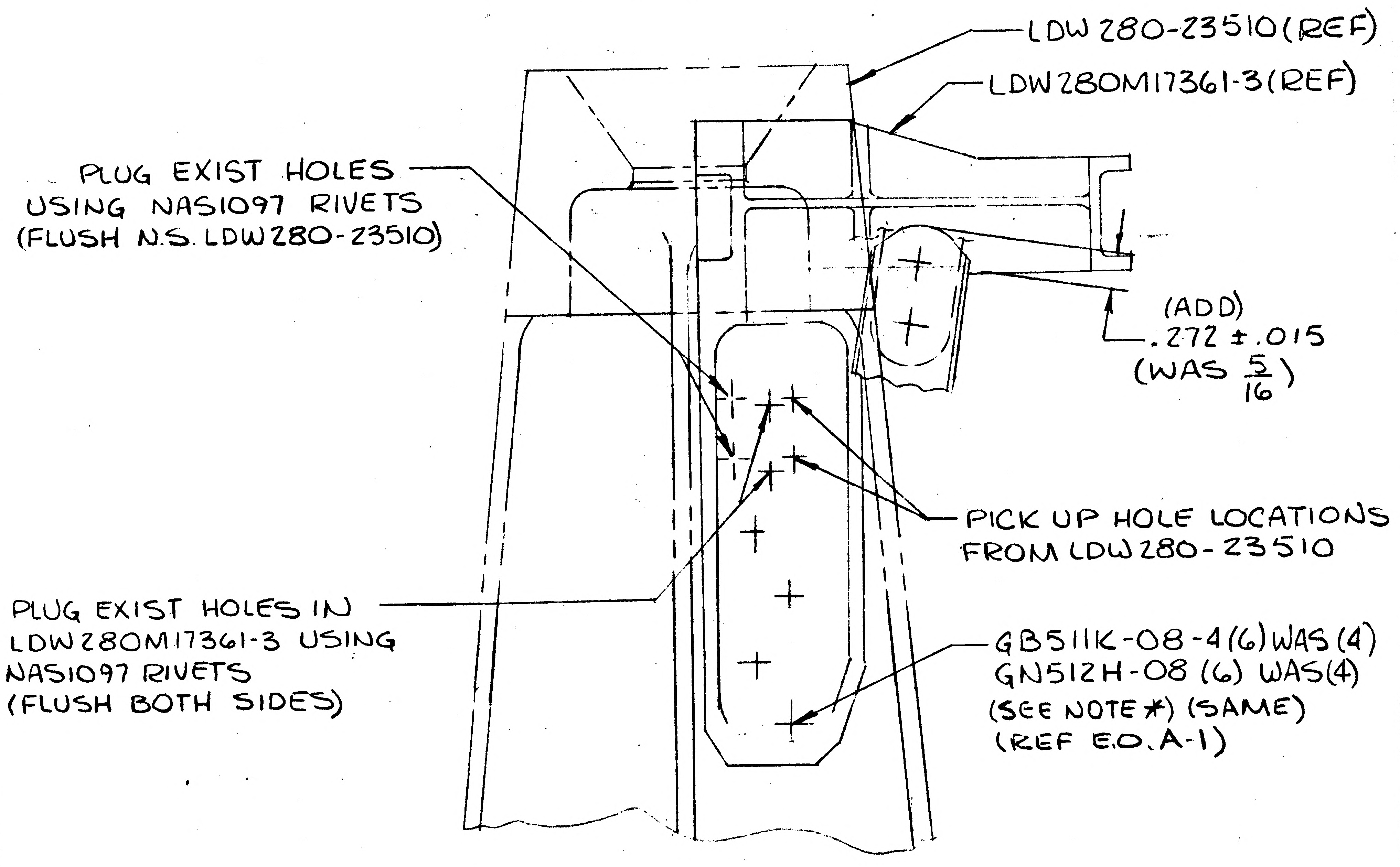
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28595
EO NO. B1
CONTROL INFO NO. LDW280A5399

FOR LTA-8, REMOVE -1 INSTL, ADD -3 INSTL, IDENTICAL TO -1 EXCEPT AS NOTED:
(N/A LDW 280-28509; SAME)



**
LDW280M17361-3
WAS LDW280M17361-1
.428 WAS .573
LDW280-28510 (REF) [WAS LDW280-23510 (REF)]
X202.250 (REF)
(SAME)
.272 (REF)
(TRUE)(ADD)
LDW280-51510 (ON-1) (REF)
[WAS LDW280-23510 (REF)] (TYP)
(ADD) LDW280-28595-3 INSTL
**



LDW280-23510 (REF)
LDW280M17361-3 (REF)
PLUG EXIST HOLES USING NAS1097 RIVETS (FLUSH N.S. LDW280-23510)
(ADD)
.272 ± .015
(WAS 5/16)
PICK UP HOLE LOCATIONS FROM LDW280-23510
PLUG EXIST HOLES IN LDW280M17361-3 USING NAS1097 RIVETS (FLUSH BOTH SIDES)
GB511K-08-4 (6) WAS (4)
GN512H-08 (6) WAS (4)
(SEE NOTE *) (SAME)
(REF E.O. A-1)

(ADD) SECT *-* (IDENT TO SECT "A-A" EXCEPT AS NOTED ABOVE)
FOR -3 ONLY

** USE NEXT AVAILABLE LETTER

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	LCR-1010	2

REASON FOR EO: TO DECREASE DEFLECTION OF SUPPORT LCR 19-1010

DESCRIPTION OF EO: ADDED -3 INSTL, EFF ON LTA-8. REMOVED EFF OF -1 ON LTA-8. ON-1, LDW280-51510 (REF) WAS LDW280-23510 (REF) FOR-3 INSTL. ADDED SECT *-*.

GAEC EO RELEASE: JK 3/3/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LH		LTA-8(8)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY		SUPPORT WEIGHTS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	2/17/67			1/16/67	3/3/67		3/2/67	3/3/67
5	VDI							

PRIORITY: C

DRAWING TITLE: SUPPORT INSTL ~ DESCENT STAGE ~ O2 & GLYCOL INTERSTAGE UMBILICAL

DRAWING NO.: LDW280-28595

EO NO.: B1

ISSUED BY A. Richer / J. Stravisch X1153 SECTION VDI GROUP NO. 280 PL 35

01 NAS 9-1100

01
NAS 9-1100

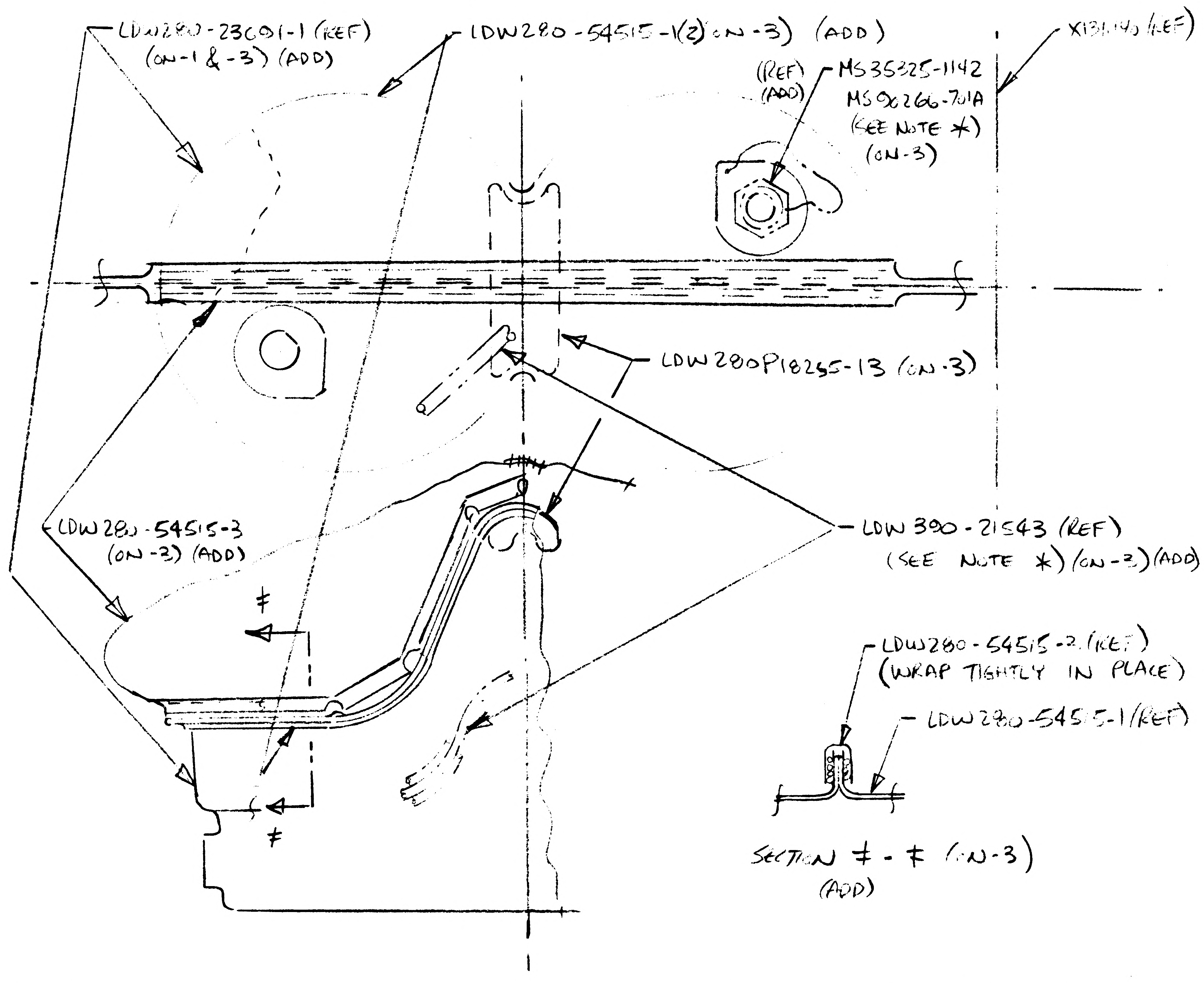
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

A

DWG. NO. LDW280-23598
EO NO. P6
CONTROL INFO NO. LDW280A5101

CREATE -3 INSTL, IDENTICAL TO -1 EXCEPT AS NOTED:
(-3 REPLACES -1 ON LM-4 THRU LM-15)


LDW280-23601-1 (REF)
(ON-1 & -3) (ADD)
LDW280-54515-1(2) ON-3) (ADD)
(REF)
(ADD)
MS35325-1142
MS90266-701A
(SEE NOTE *)
(ON-3)
X131.140 (REF)
LDW280P18255-13 (ON-3)
LDW280-54515-3
(ON-3) (ADD)
LDW390-21543 (REF)
(SEE NOTE *) (ON-3) (ADD)
≠
≠
LDW280-54515-2 (REF)
(WRAP TIGHTLY IN PLACE)
LDW280-54515-1 (REF)
SECTION ≠ - ≠ (ON-3)
(ADD)

(ADD) NOTE *: "FOR CABLE INSTALLATION INFORMATION, SEE LDW280-54607 (LM-4 THRU LM-15)."

≠, *: USE NEXT AVAILABLE LETTER

(2)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE COVER FOR S-BAND CABLE CANISTER	ADDED -3, EFF ON LM-4 THRU LM-15 REMOVED EFF OF -1 ON LM-4 THRU LM-15	C [illegible] 2/8/17

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(4)THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓		✓		APPROVED BY	[illegible]				[illegible]		[illegible]	[illegible]
				DATE	2/6/67				[illegible]		2/6/67	2/8/67
				5								

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CANISTER INSTL - DESCENT STAGE S-BAND CABLE	LDW280-23598	P6

ISSUED BY [illegible] SECTION VDI GROUP NO. 35 PL 35

LDW280-28607

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28508	LTA-8(18)	1
PART NO. LDW280-28607-1		GAEC SCH NO. 501	

MAY BE REDRAWN ON PRODUCTION FORMAT 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00	4	5	6	7		
REV	A	A	A		A	A	A		
SHEET	1.10			2.01					
REV	A			A					
SHEET									
REV									

LAST SECT LTR USED	AJ	GRUMMAN REL INFO A	
LAST DASH NO. USED	-1	PRIM NO.	JK 001
		227	MP-14A-5/5/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
- - -

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM * 1
DOCUMENTATION TYPE II

DRAWN BY	B.EBERLE/T.BIANCHI	RELIABILITY	
LAYOUT BY	B.EBERLE 11/16/66		
CHECKED BY			
GRLEADER	11/17/66		
VDI	11/21		
STRUCTURES	11/21/66	PROJ ENGR	R.M. Carbee 11-21-66
STRUCTURES	11/21	REL GROUP	11/23/66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

LINES INSTALLATION
ELECTRONIC-DESCENT STAGE

SIZE B
CODE IDENT NO. 26512
LDW280-28607 A
SCALE NONE
SHEET 1.00 OF 9

ENG 77.1 12-65

CDR 12/19/66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	6.00	32B					A1	ADDED CABLE RUN 21647-5(REF), CONNECTOR J252(REF), & GB511J-04-2(4), AN960D4L(8), MS21042L04(4).	LTA 8(18)	NOT	REQ'D	J. FARRELL 3/29/67		
	2	7.00	45A 46A 47A					A2	ADDED GN511L-0420(12) SEE NOTE 10 & MS21043-4(12) SEE NOTE 9.						
			50C						ADDED MS21043-4(8) SEE NOTE 9.						
	3							A3	CANCELLED BY EO A7.						
	4	5.00	20D 22C					A4	ADDED CLAMP.						
			22D						ADDED VIEWS AJ-AJ & AH-AH.						
	5	7.00	50A					A5	ADDED LSC390-19-211 DUST CAP						
	6	3.00						LEO 468	ADDED NOTE 13.						
	7							A7	CANCELLED EO A3						
	8	2.00							REVISED B/M IN ACCORDANCE WITH EO A1,A2,A5 ADDED GB511J-04-2(4), AN960D4L(8), MS2104Lo4(4), GN511L-0420(12), LSC390-19-211(1). DELETED MS21043-4(12) (DWG. CORRECTION).						
	9	3.00							REVISED NOTE 8.						
	10	1.00							REVISED LAST SECT. LTR USED AF WAS AG SH 1 OF 9 WAS SH 1 OF 7 ADDED SH 1.10 & 2.01.						

CHG APPROVED

LTR	GROUP LDR	VDI	STRUCTURES	STRUCTURES	WEIGHTS
A	J Wolf 4/27	J Wolf 4/27	4/28	EB 4/28	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28607	A

SCALE NONE

SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						1		LSC390-19-211	E	DUST CAP	SEE DWG						
						8		AN960D10L	E	WASHER	STD PART						
						144		AN960D4L	E	WASHER	STD PART						
						10		AN960D416L	E	WASHER	STD PART						
						4		GB511J-3-2	E	BOLT	STD PART						
						4		AN4-5A	E	BOLT	STD PART						
						1		AN4-4A	E	BOLT	STD PART						
						4		MS21042L10	E	NUT	STD PART						
						72		MS21042L04	E	NUT	STD PART						
						20		MS21043-4	E	NUT	STD PART						
						5		MS21042L4	E	NUT	STD PART						
						12		GN511L-0420	E	NUT	GRUMMAN STD						
						7		NAS43DD3-56	E	SPACER TUBE	STD PART						
						5		↕ -24	↕	↕	↕						
						13		↕ -32	↕	↕	↕						
						11		NAS43DD3-16	↕	SPACER TUBE	STD PART						
						A/R		GT535U-8	↕	TAPE	GRUMMAN STD						
						16		GT11F-BR-08-12	↕	TERMINAL INSTL	GRUMMAN STD						
						4		GT11F-BR-08-10	↕	TERMINAL INSTL	GRUMMAN STD						
						72		GB511J-04-2	↕	BOLT	GRUMMAN STD						
						2		LDW280M16125	↕	CLAMP	SEE DWG						
								LDW390-28014-1	↕	AREA INSTL	SEE DWG						
B								LDW280-28607-1	E	LINES INSTL							
CL						-1											

CL = CLEANLINESS LEVEL/LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28607	A

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
SEE NOTE 8		MS21266	E	GROMMET, PLASTIC	STD PART						
↑		MS21042L	↑	NUT, SELF LOCKING	↑						
		MS20995NC32		WIRE, LOCK	↓						
		AN960D		WASHER	STD PART						
		GT835K		TAPE, LACING	GRUMMAN STD						
		GT835L		TAPE, INSULATING	↑						
		GS830G		SLEEVE							
↓		GC500S	↓	CLAMP	↓						
SEE NOTE 8		GB511J	E	BOLT	GRUMMAN STD						

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28607
A
Ⓐ
SCALE NONE
SHEET 2.01

ENG 77.2 7-65

01

NAS 9-1100

NOTES:

1. ALL CONNECTOR NUMBERS SHALL BE PLACED ON STRUCTURE ADJACENT TO THE RESPECTIVE CONNECTOR BY RUBBER STAMP PER LSP-14-002 TYPE VII CLASS 2 3/16 HIGH LETTERS
2. PRIOR TO ASSEMBLY OF GT11F TERMINAL INSTALLATION, CLEAN STRUCTURE IN ACCORDANCE WITH LSP390-001, PAR 3.10.
3. AFTER ASSEMBLY OF GT11F TERMINAL INSTALLATION AND THE ADDITION OF ALL TERMINAL LUGS REQUIRED, BRUSH COAT THE ENTIRE ASSEMBLY WITH EPON 919. MIX EPON 919 PER LSP14-14.201
4. SUBSTITUTION OF NAS1132V, AN525-832R & AN525-832 SCREWS FOR THE GB511J-08 BOLTS IS PERMISSIBLE.
5 THIS INSTALLATION IS IN ACCORDANCE WITH LSP390-002
6 ALL CABLE CALLOUTS ARE PREFIXED BY LDW390-
7. GROUND ALL N4 GROUND WIRES TO NEAREST GROUND STUD FROM CONNECTORS AND TERMINALS (SEE SHEETS 4,5,6 & 7)
8. SELECTION AND INSTALLATION OF LINE CLAMPS, CLAMP ATTACHING HARDWARE, ANTI CHAFE SLEEVE & GROMMET, TAPE, AND LOCKWIRE SHALL BE IN ACCORDANCE WITH LPC280-23. MS21919WDH & GC500S CLAMPS ARE INTERCHANGEABLE.
9. FOR ECA NO.1 & NO.2 TORQUE MS21043-4 NUTS TO 60±5 INCH POUNDS.
10. FOR BATTERIES NO.1, 2, 3, & 4 TORQUE GN511L-0420 NUTS TO 20±5 INCH POUNDS.
11. TAPE WIRES TO OUTRIGGERS WITH GT535U-8 EVERY 6 INCHES. TAPE ACROSS BUNDLE TO EXTEND 1 1/2 INCHES ON EACH SIDE.
12. BOND WIRES TO SURFACE WITH MIL-A-5090D (TYPE I EPON 934A AND CURING AGENT 934B). AS PER LSP-14-22500
13. UPON INSTALLATION OF TERMINAL LUGS ON BATTERIES, ECA'S AND CIRCUIT BREAKERS IMMEDIATELY CONFORMAL COAT AS FOLLOWS:
    - (a) APPLY PRIMER PER LSP-14-14201. CARE MUST BE TAKEN NOT TO APPLY TOO HEAVY A COAT OF PRIMER.
    - (b) AFTER ALLOWING A MINIMUM OF 30 MINUTES DRYING TIME FOR PRIMER, MIX (EC1663A/B) SEALANT COMPOUND PER LSP-14-14201 & APPLY FIRST COATING OVER ALL EXPOSED SURFACES.
    - (C) AFTER FIRST COATING CURES, APPLY SECOND & THIRD COAT OF SAME SEALANT COMPOUND, ALLOWING 24 HOURS CURING TIME BETWEEN COATS PE LSP-14-14201. NOTE: CARE MUST BE TAKEN THAT EACH COAT COMPLETELY COVERS PRECEEDING COAT & ANY EXPOSED PRIMER

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-28607	A
SCALE NONE		SHEET 3.00	

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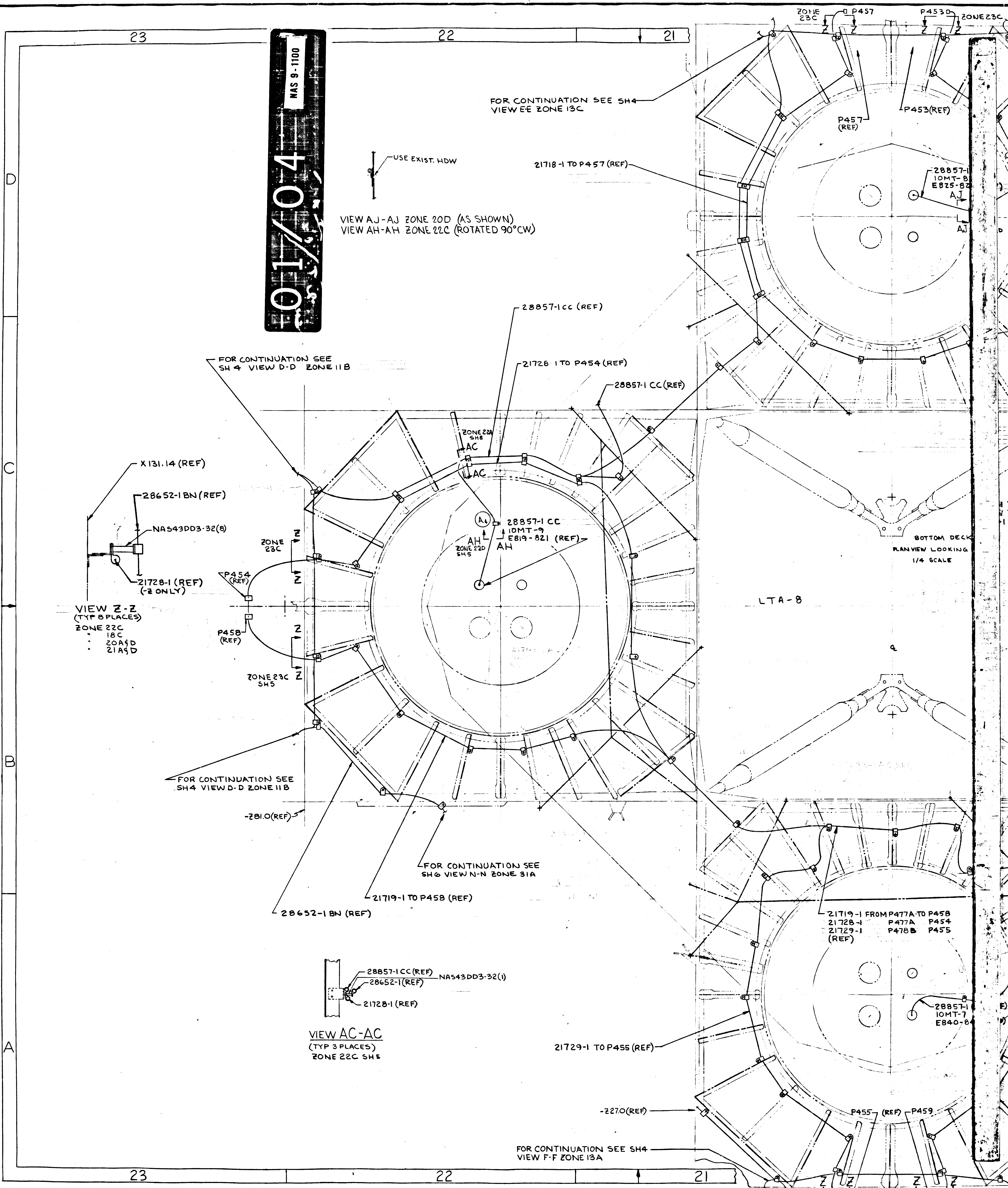
ENG 73.1 6-64

01

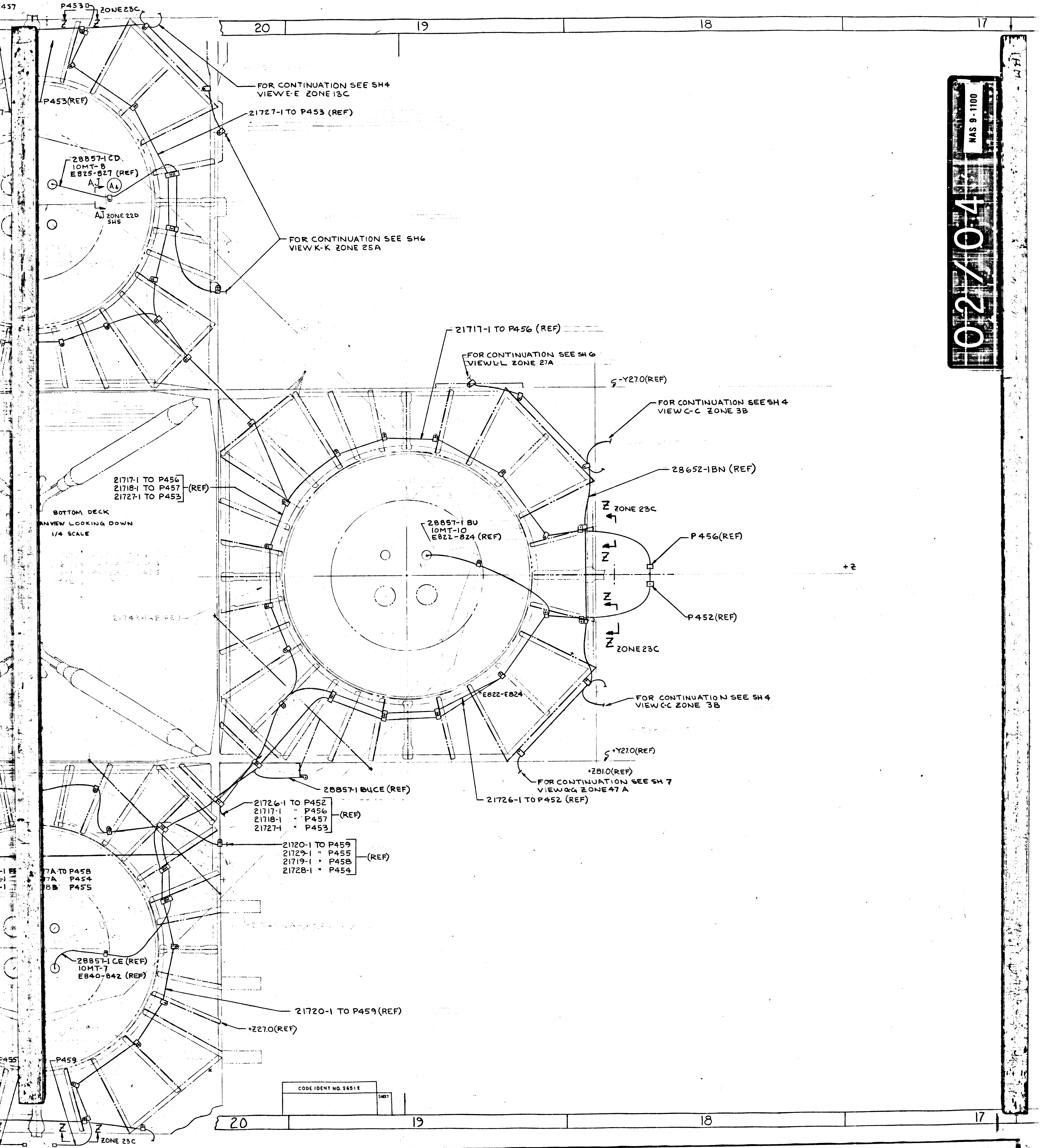
NAS 9-1100

01/04

NAS 9-1100



23
22
21
D
C
B
A
USE EXIST. HDW
VIEW AJ-AJ ZONE 20D (AS SHOWN)
VIEW AH-AH ZONE 22C (ROTATED 90°CW)
FOR CONTINUATION SEE SH4 VIEW E-E ZONE 13C
21718-1 TO P457 (REF)
ZONE 23C
P457
P453
ZONE 23C
P457 (REF)
P453(REF)
28857-1
10MT-8
E825-82
AJ
28857-1CC (REF)
21726 1 TO P454 (REF)
28857-1 CC(REF)
FOR CONTINUATION SEE SH4 VIEW D-D ZONE 11B
X131.14 (REF)
28652-1BN (REF)
NAS43DD3-32(8)
21728-1 (REF) (-Z ONLY)
VIEW Z-Z (TYP 8 PLACES)
ZONE 22C
18C
20A&D
21A&D
ZONE 22A SH8
AC
AC
A4
28857-1 CC
10MT-9
E819-821 (REF)
AH
ZONE 22D SH5
AH
ZONE 23C
Z
Z
P454 (REF)
P458 (REF)
Z
ZONE 23C SH5
Z
BOTTOM DECK
PLAN VIEW LOOKING
1/4 SCALE
LTA-8
FOR CONTINUATION SEE SH4 VIEW D-D ZONE 11B
-281.0(REF)
FOR CONTINUATION SEE SH6 VIEW N-N ZONE 31A
21719-1 TO P458 (REF)
28652-1 BN (REF)
21719-1 FROM P477A TO P458
21728-1 P477A P454
21729-1 P478B P455
(REF)
28857-1
10MT-7
E840-8
28857-1CC(REF)
28652-1(REF)
NAS43DD3-32(1)
21728-1 (REF)
VIEW AC-AC (TYP 3 PLACES) ZONE 22C SH5
21729-1 TO P455 (REF)
-227.0(REF)
P455
(REF)
P459
FOR CONTINUATION SEE SH4 VIEW F-F ZONE 13A
ZONE 23C
Z
Z
Z
Z
ZONE 23C
3/3


P453◻
ZONE 23C
FOR CONTINUATION SEE SH4 VIEW E-E ZONE 13C
P453(REF)
21727-1 TO P453 (REF)
28857-1 CD
10MT-8
E825-827 (REF)
AJ
A4
AJ ZONE 22D SH5
FOR CONTINUATION SEE SH6 VIEW K-K ZONE 25A
21717-1 TO P456 (REF)
FOR CONTINUATION SEE SH 6 VIEW L-L ZONE 27A
-Y27.0(REF)
FOR CONTINUATION SEE SH 4 VIEW C-C ZONE 3B
28652-1BN (REF)
21717-1 TO P456
21718-1 TO P457
21727-1 TO P453
(REF)
BOTTOM DECK
PLAN VIEW LOOKING DOWN
1/4 SCALE
Z ZONE 23C
28857-1 BU
10MT-10
E822-824 (REF)
P456(REF)
Z
Z
P452(REF)
Z ZONE 23C
+Z
E822-E824
FOR CONTINUATION SEE SH 4 VIEW C-C ZONE 3B
+Y27.0(REF)
+Z81.0(REF)
FOR CONTINUATION SEE SH 7 VIEW G-G ZONE 47 A
28857-1 BUCE (REF)
21726-1 TO P452 (REF)
21726-1 TO P452
21717-1 " P456
21718-1 " P457
21727-1 " P453
(REF)
21720-1 TO P459
21729-1 " P455
21719-1 " P458
21728-1 " P454
(REF)
7A TO P458
7A P454
8B P455
28857-1 CE (REF)
10MT-7
E840-842 (REF)
21720-1 TO P459(REF)
+Z27.0(REF)
P459
Z
Z ZONE 23C
CODE IDENT NO. 26512
SHEET
20
19
18
17

02/04

NAS 9-1100

17

16

15

14

MODEL OR END ITEM	LM
SIZE	K
CODE IDENT	2651
GRUMMAN AIRC	
SCALE 1/4	

03/04 NAS 9-1100

16 15 14

04/04

NAS 9-1100

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

~~PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.~~

~~FILLET AND INSIDE CORNER RADII TOLERANCES~~
~~.016R TO .062R ± .010~~
~~.063R TO .250R ± .015~~
~~OVER .250R ± .030~~

~~DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.~~

~~EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.~~

~~DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.~~

~~MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.~~

~~DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING~~

~~HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.~~

~~ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES~~

~~125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10~~

~~200 FOR ALL DRILLED HOLES~~

~~REMOVE ALL BURRS. BREAK ALL EDGES .015-.031~~

~~INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS~~

~~SYMBOL √ DENOTES SURFACE TO BE MACHINED~~

~~UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32~~

~~LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.~~

~~TOLERANCE ON LOFTED DELINEATIONS IS~~

DWG SIZE 40 X 100

PRINTING INFO ONLY
FULL SIZE SHEET AREA (42 X 113)= 33 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 8 SQ. FT.

PRINT TRIM LINE

D C B A

LDW280-28607A

LDW280-28607A

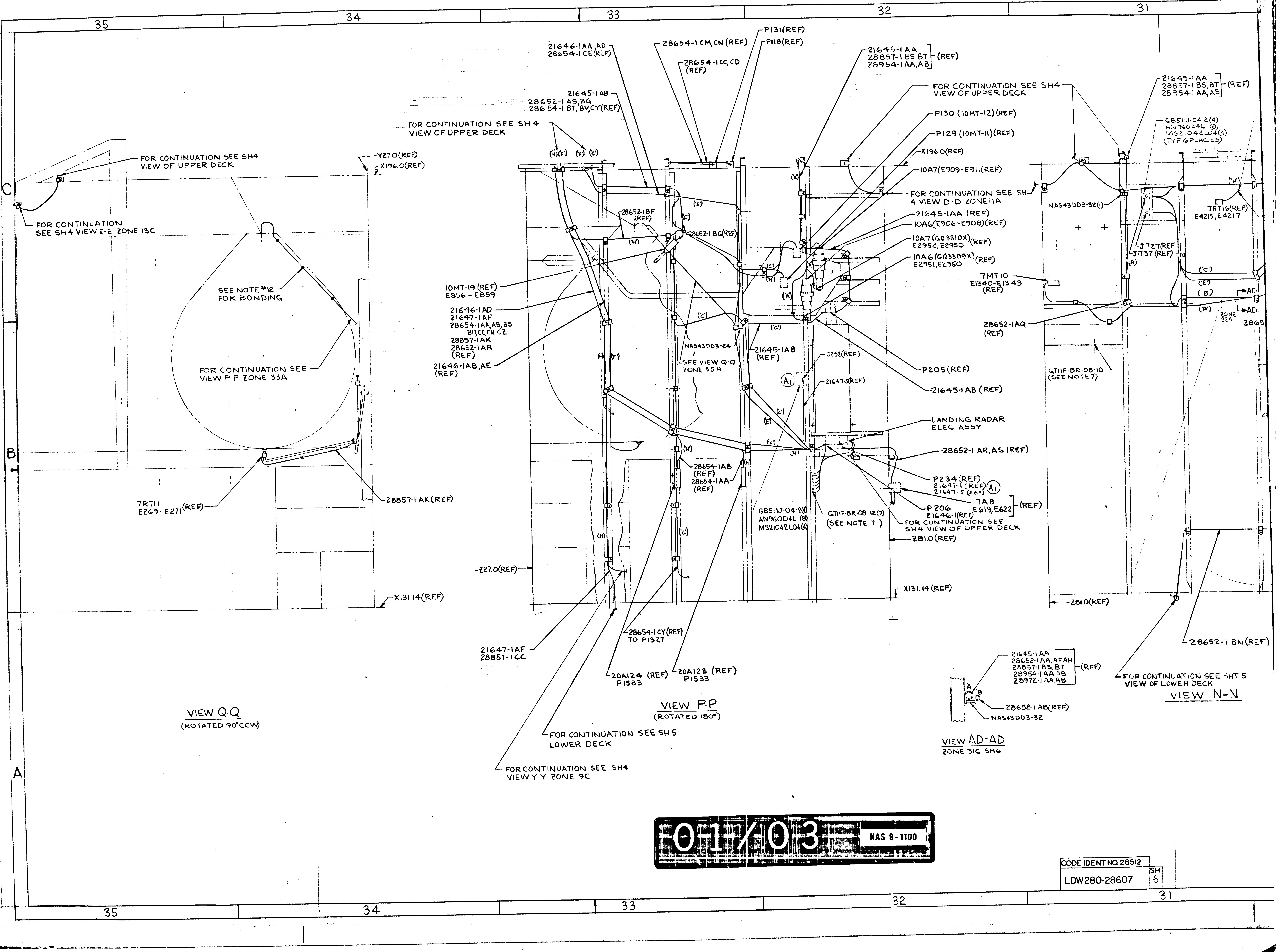
SHEET

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE K	CODE IDENT NO. 26512	LDW280-28607		A
LM MODEL OR END ITEM	SCALE 1/4		SHEET 5	

16 15 14

3FR


35
34
33
32
31
C
B
A
FOR CONTINUATION SEE SH4 VIEW OF UPPER DECK
FOR CONTINUATION SEE SH4 VIEW E-E ZONE 13C
-Y27.0(REF)
X196.0(REF)
SEE NOTE #12 FOR BONDING
FOR CONTINUATION SEE VIEW P-P ZONE 33A
7RT11 E269~E271 (REF)
28857-1 AK(REF)
X131.14(REF)
VIEW Q-Q
(ROTATED 90°CCW)
21646-1AA,AD 28654-1 CE(REF)
28654-1 CM,CN (REF)
28654-1 CC,CD (REF)
P131(REF)
P118(REF)
21645-1AB 28652-1 AS,BG 28654-1 BT,BV,CY(REF)
FOR CONTINUATION SEE SH 4 VIEW OF UPPER DECK
(H')(F') (E') (C')
28652-1BF (REF)
28652-1 BG(REF)
('E')
('C')
('H')
10MT-19 (REF) E856 - E859
21646-1AD 21647-1AF 28654-1AA,AB,BS BU,CC,CN CZ 28857-1AK 28652-1AR (REF)
21646-1AB,AE (REF)
NAS43DD3-24
SEE VIEW Q-Q ZONE 35A
21645-1AB (REF)
J252(REF)
21647-5(REF)
A1
28654-1AB (REF)
28654-1AA (REF)
GB511J-04-2(4) AN960D4L (8) MS21042L04(4)
GTIIF-BR-08-12(7) (SEE NOTE 7)
-Z27.0(REF)
21647-1AF 28857-1CC
28654-1CY(REF) TO P1327
20A124 (REF) P1583
20A123 (REF) P1533
FOR CONTINUATION SEE SH5 LOWER DECK
FOR CONTINUATION SEE SH4 VIEW Y-Y ZONE 9C
VIEW P-P
(ROTATED 180°)
21645-1AA 28857-1BS,BT 28954-1AA,AB (REF)
FOR CONTINUATION SEE SH4 VIEW OF UPPER DECK
P130 (10MT-12)(REF)
P129 (10MT-11)(REF)
X196.0(REF)
10A7(E909~E911(REF)
FOR CONTINUATION SEE SH 4 VIEW D-D ZONE11A
21645-1AA (REF)
10A6(E906~E908)(REF)
10A7(GQ3310X) E2952, E2950 (REF)
10A6(GQ3309X) E2951, E2950 (REF)
('A')
P205(REF)
-21645-1AB (REF)
LANDING RADAR ELEC ASSY
-28652-1 AR,AS (REF)
P234(REF) 21647-1 (REF) 21647-5 (REF) A1
P 206 21646-1(REF)
7A8 E619,E622 (REF)
FOR CONTINUATION SEE SH4 VIEW OF UPPER DECK
-Z81.0(REF)
X131.14(REF)
7MT10 E1340~E1343 (REF)
28652-1AQ (REF)
NAS43DD3-32(1)
21645-1AA 28857-1BS,BT 28954-1AA,AB (REF)
GB511J-04-2(4) AN960D4L (8) MS21042L04(4) (TYP 6PLACES)
J727(REF
J737 (REF)
(A)
7RT16(REF) E4215,E4217
('H')
('C')
('E')
('B')
('A')
AD
AD
ZONE 32A
2865
GTIIF-BR-08-10 (SEE NOTE 7)
-Z81.0(REF)
28652-1 BN(REF)
FOR CONTINUATION SEE SHT 5 VIEW OF LOWER DECK
VIEW N-N
21645-1AA 28652-1AA,AFAH 28857-1BS,BT 28954-1AA,AB 28972-1AA,AB (REF)
'A'
'B'
28652-1 AB(REF)
NAS43DD3-32
VIEW AD-AD
ZONE 31C SH6
3/3

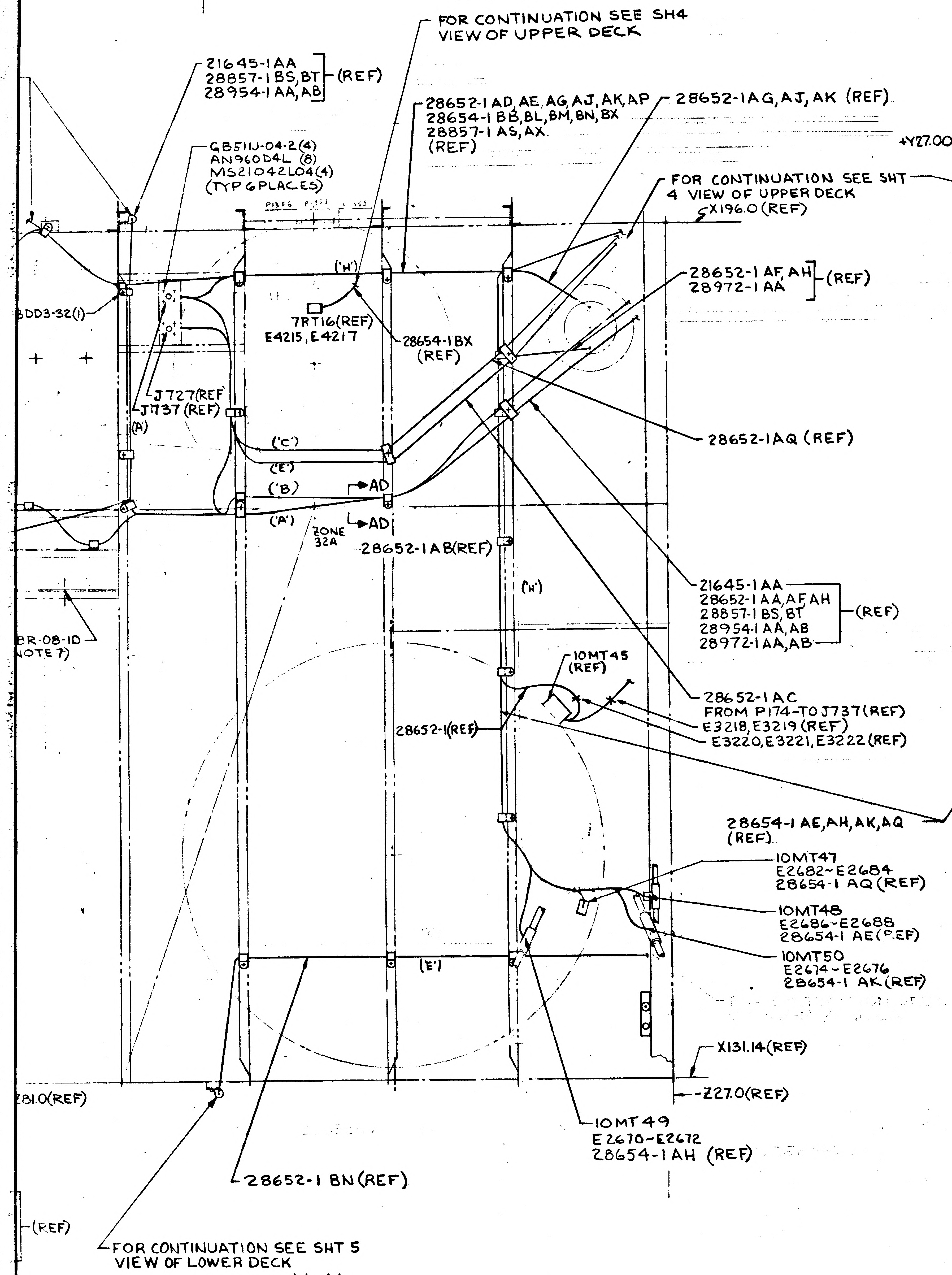
01/03 NAS 9-1100

CODE IDENT NO. 26512

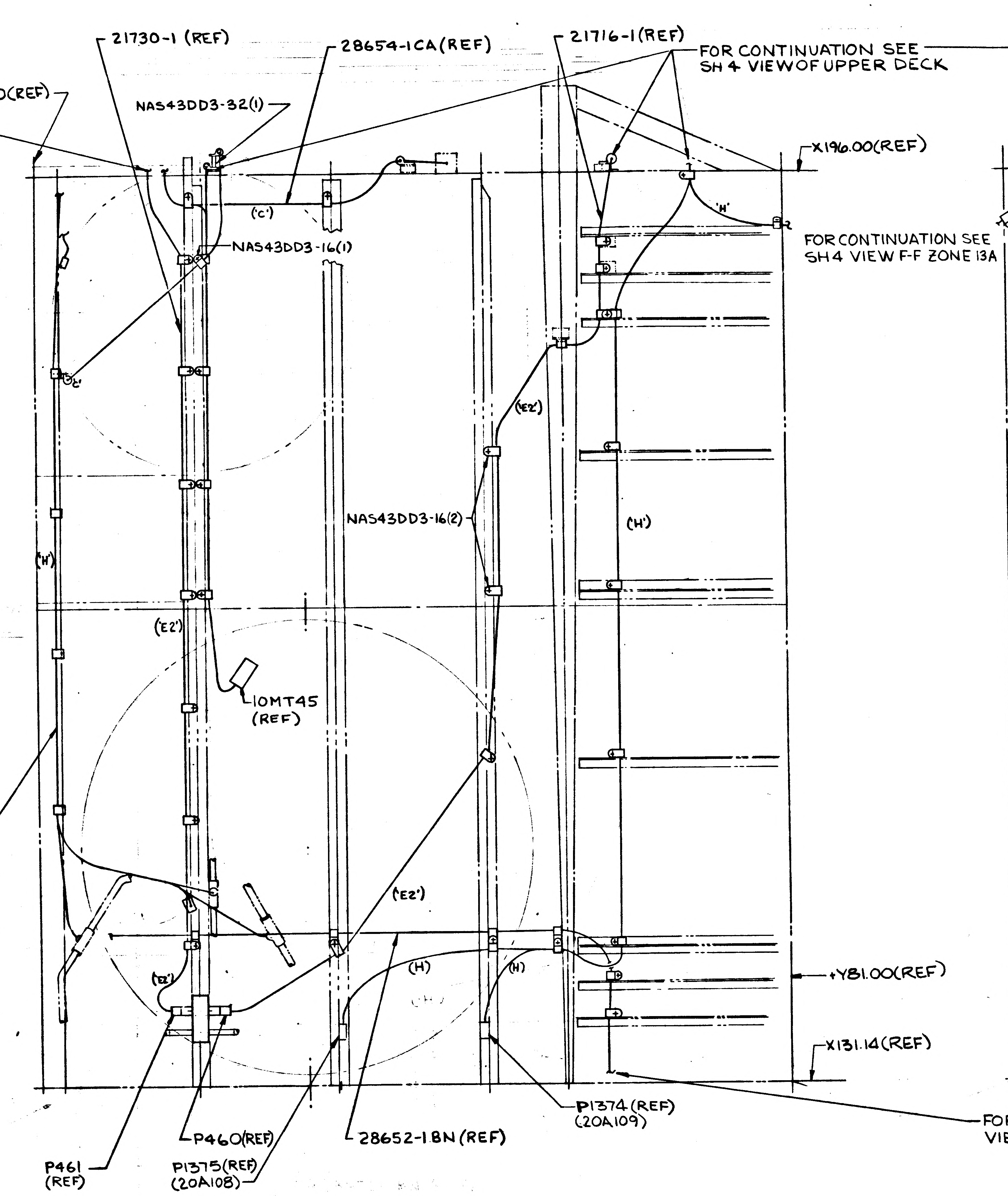
LDW280-28607

SH 6

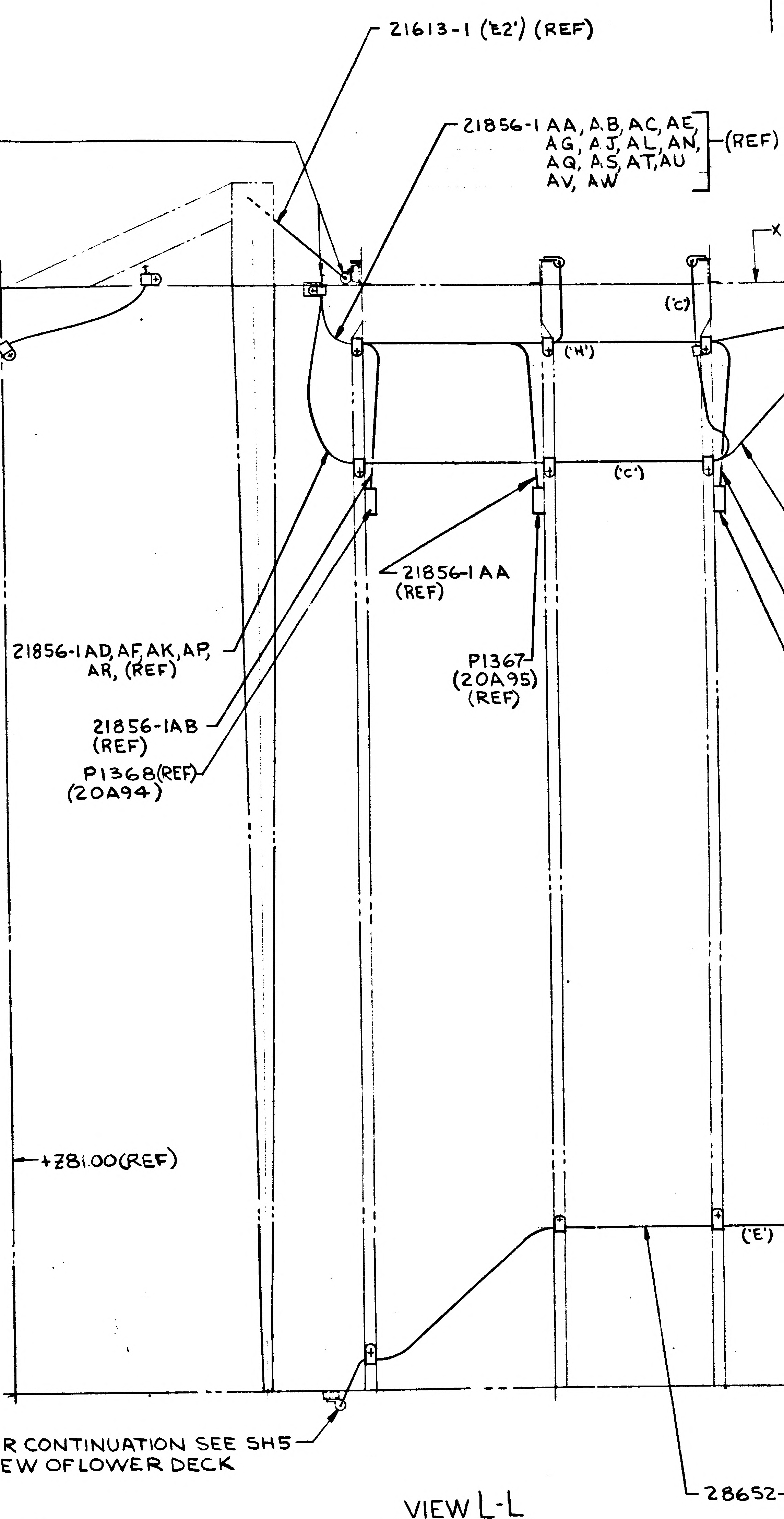
31 30 29 28 27


FOR CONTINUATION SEE SH4 VIEW OF UPPER DECK
21645-1AA
28857-1BS,BT (REF)
28954-1AA,AB
28652-1AD,AE,AG,AJ,AK,AP
28654-1BB,BL,BM,BN,BX
28857-1AS,AX
(REF)
28652-1AG,AJ,AK (REF)
GB51N-04-2(4)
AN960D4L (8)
MS21042L04(4)
(TYP 6 PLACES)
FOR CONTINUATION SEE SHT 4 VIEW OF UPPER DECK
X196.0 (REF)
+Y27.00(REF)
3DD3-32(1)
('H')
7RT16(REF)
E4215,E4217
28654-1BX (REF)
28652-1AF,AH
28972-1AA (REF)
J727(REF)
J737(REF)
(A)
28652-1AQ (REF)
('C')
('E')
('B')
('A')
AD
AD
ZONE 32A
28652-1AB(REF)
('H')
21645-1AA
28652-1AA,AF,AH
28857-1BS,BT
28954-1AA,AB
28972-1AA,AB
(REF)
BR-08-10
NOTE 7)
10MT45
(REF)
28652-1AC
FROM P174-TO J737(REF)
E3218,E3219 (REF)
E3220,E3221,E3222(REF)
28652-1(REF)
28654-1AE,AH,AK,AQ
(REF)
10MT47
E2682-E2684
28654-1AQ(REF)
10MT48
E2686-E2688
28654-1AE(REF)
10MT50
E2674-E2676
28654-1AK(REF)
('E')
X131.14(REF)
Z27.0(REF)
281.0(REF)
10MT49
E2670-E2672
28654-1AH (REF)
28652-1BN(REF)
(REF)
FOR CONTINUATION SEE SHT 5
VIEW OF LOWER DECK

VIEW N-N


21730-1 (REF)
28654-1CA(REF)
21716-1(REF)
FOR CONTINUATION SEE
SH 4 VIEW OF UPPER DECK
NAS43DD3-32(1)
X196.00(REF)
('C')
('H')
NAS43DD3-16(1)
FOR CONTINUATION SEE
SH4 VIEW F-F ZONE 13A
('E2')
NAS43DD3-16(2)
('H')
('H')
('E2')
10MT45
(REF)
('E2')
('E2')
(H)
(H)
+Y81.00(REF)
X131.14(REF)
P461
(REF)
P460(REF)
P1375(REF)
(20A108)
28652-1BN(REF)
P1374(REF)
(20A109)
FOR CONTINUATION SEE SH5
VIEW OF LOWER DECK

VIEW M-M
(ROTATED 90° CCW)


21613-1 ('E2') (REF)
21856-1AA,AB,AC,AE
AG,AJ,AL,AN,
AQ,AS,AT,AU (REF)
AV,AW
X
('C')
('H')
('C')
21856-1AA
(REF)
21856-1AD,AF,AK,AP,
AR,(REF)
P1367
(20A95)
(REF)
21856-1AB
(REF)
P1368(REF)
(20A94)
+Z81.00(REF)
('E')
28652-

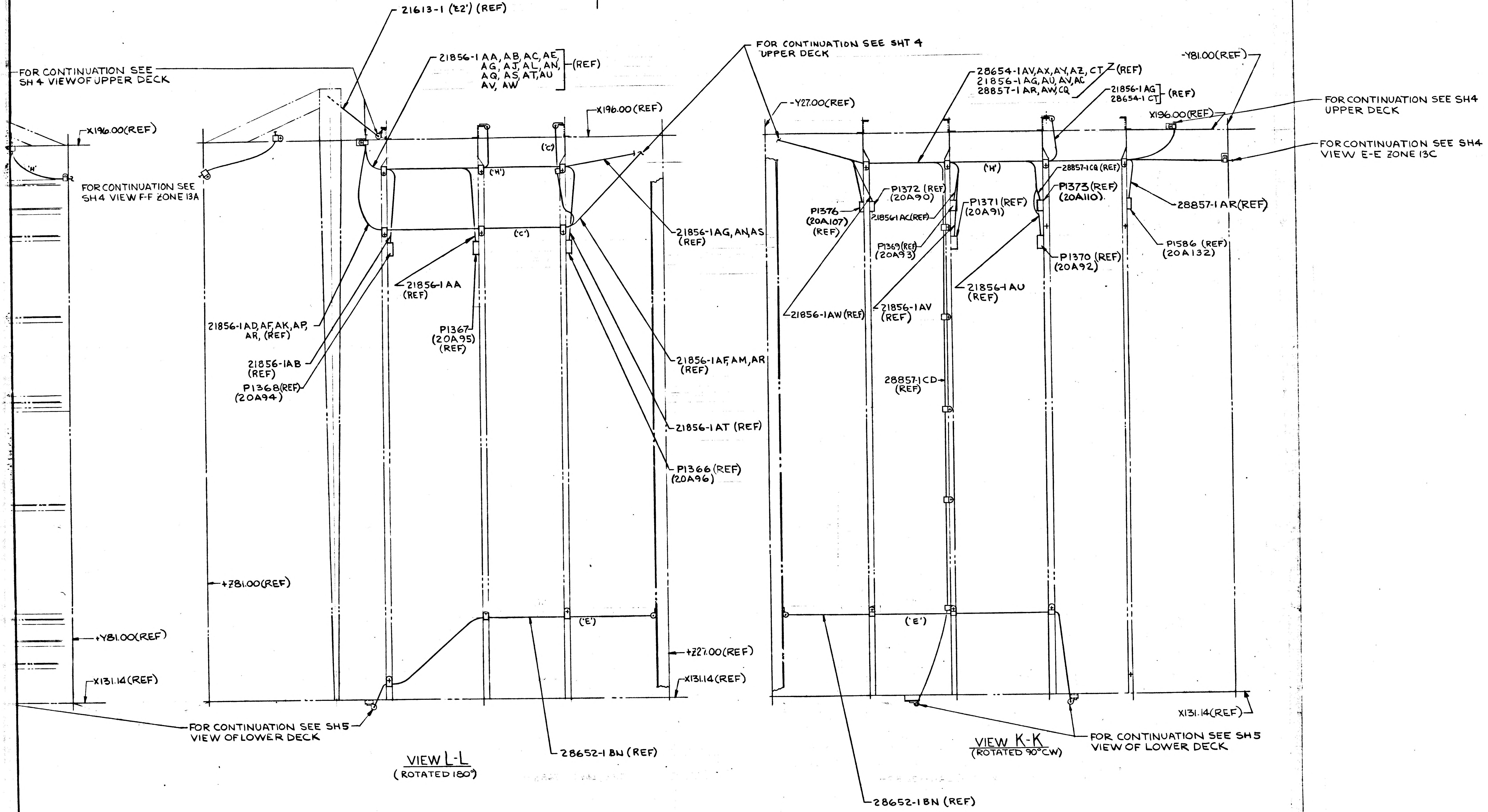
VIEW L-L
(ROTATED 180°)

02/031 NAS 9-1100

DE IDENT NO. 26512
DW280-28607
SH 6

CODE IDENT NO. 26512
LDW280-28607
SH 6

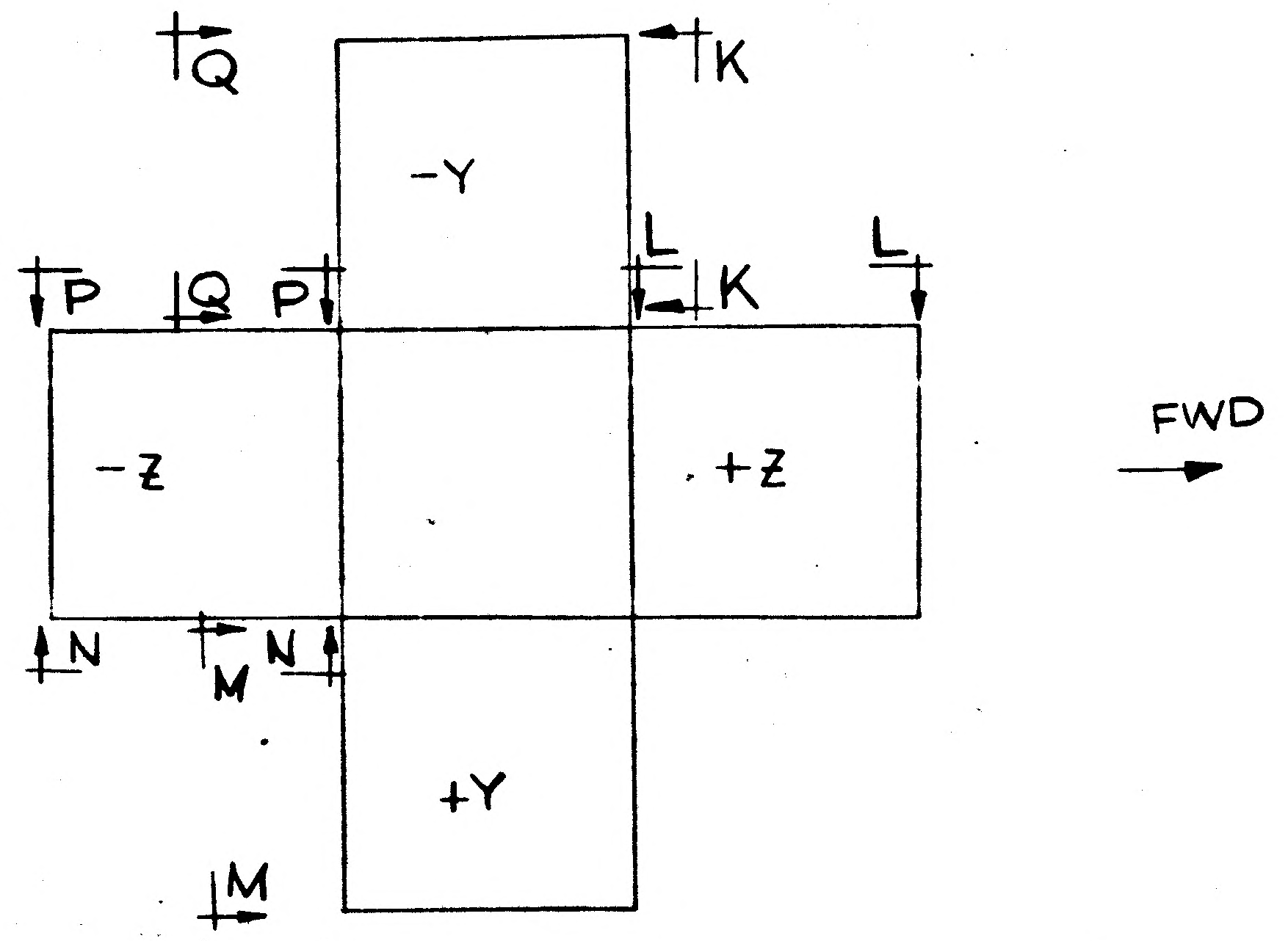
31 30 29 28 27



21613-1 ('E2') (REF)
FOR CONTINUATION SEE SH 4 VIEW OF UPPER DECK
21856-1 AA, AB, AC, AE, AG, AJ, AL, AN, AQ, AS, AT, AU AV, AW (REF)
FOR CONTINUATION SEE SHT 4 UPPER DECK
X196.00 (REF)
X196.00 (REF)
FOR CONTINUATION SEE SH4 VIEW F-F ZONE 13A
'H'
('C')
('H')
('C')
21856-1AG, AN, AS (REF)
21856-1 AA (REF)
21856-1AD, AF, AK, AP, AR, (REF)
P1367 (20A95) (REF)
21856-1AB (REF)
P1368 (REF) (20A94)
21856-1AF, AM, AR (REF)
21856-1 AT (REF)
P1366 (REF) (20A96)
+Z81.00 (REF)
+Y81.00 (REF)
('E')
+Z27.00 (REF)
X131.14 (REF)
X131.14 (REF)
FOR CONTINUATION SEE SH5 VIEW OF LOWER DECK
28652-1 BN (REF)
-Y27.00 (REF)
28654-1AV, AX, AY, AZ, CT
21856-1 AG, AU, AV, AC
28857-1 AR, AW, CQ (REF)
21856-1 AG
28654-1 CT (REF)
-Y81.00 (REF)
X196.00 (REF)
FOR CONTINUATION SEE SH4 UPPER DECK
FOR CONTINUATION SEE SH4 VIEW E-E ZONE 13C
('H')
28857-1CQ (REF)
P1372 (REF) (20A90)
P1376 (20A107) (REF)
21856-1 AC (REF)
P1371 (REF) (20A91)
P1373 (REF) (20A110)
28857-1 AR (REF)
P1369 (REF) (20A93)
P1370 (REF) (20A92)
P1586 (REF) (20A132)
21856-1 AU (REF)
21856-1AW (REF)
21856-1AV (REF)
28857-1CD (REF)
('E')
X131.14 (REF)
FOR CONTINUATION SEE SH5 VIEW OF LOWER DECK
28652-1 BN (REF)

VIEW L-L
(ROTATED 180°)

VIEW K-K
(ROTATED 90° CW)



Q
K
-Y
P
Q
P
L
K
L
-Z
+Z
N
N
M
+Y
M
FWD

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ⊠
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP THDS.
BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003 MIN.
TO .0005 MAX. MIN. THICKNESS TO
BE .0002 ON THREADED AREAS.
NO ALLOWANCE FOR PLATING IN
HOLES

125 √ SURFACE ROUGHNESS
INCLUDING REAMED HOLES
PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE
TO BE MACHINED

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY
RIVETS SHORTER THAN 1 INCH ARE
NOT SPECIFIED.

TOLERANCE ON LOFTED
DELINEATIONS IS

DWG SIZE 34 X 118

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 131) = 33 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 8 SQ. FT.

PRINT TRIM LINE

C

B

A

LDW280-28607A

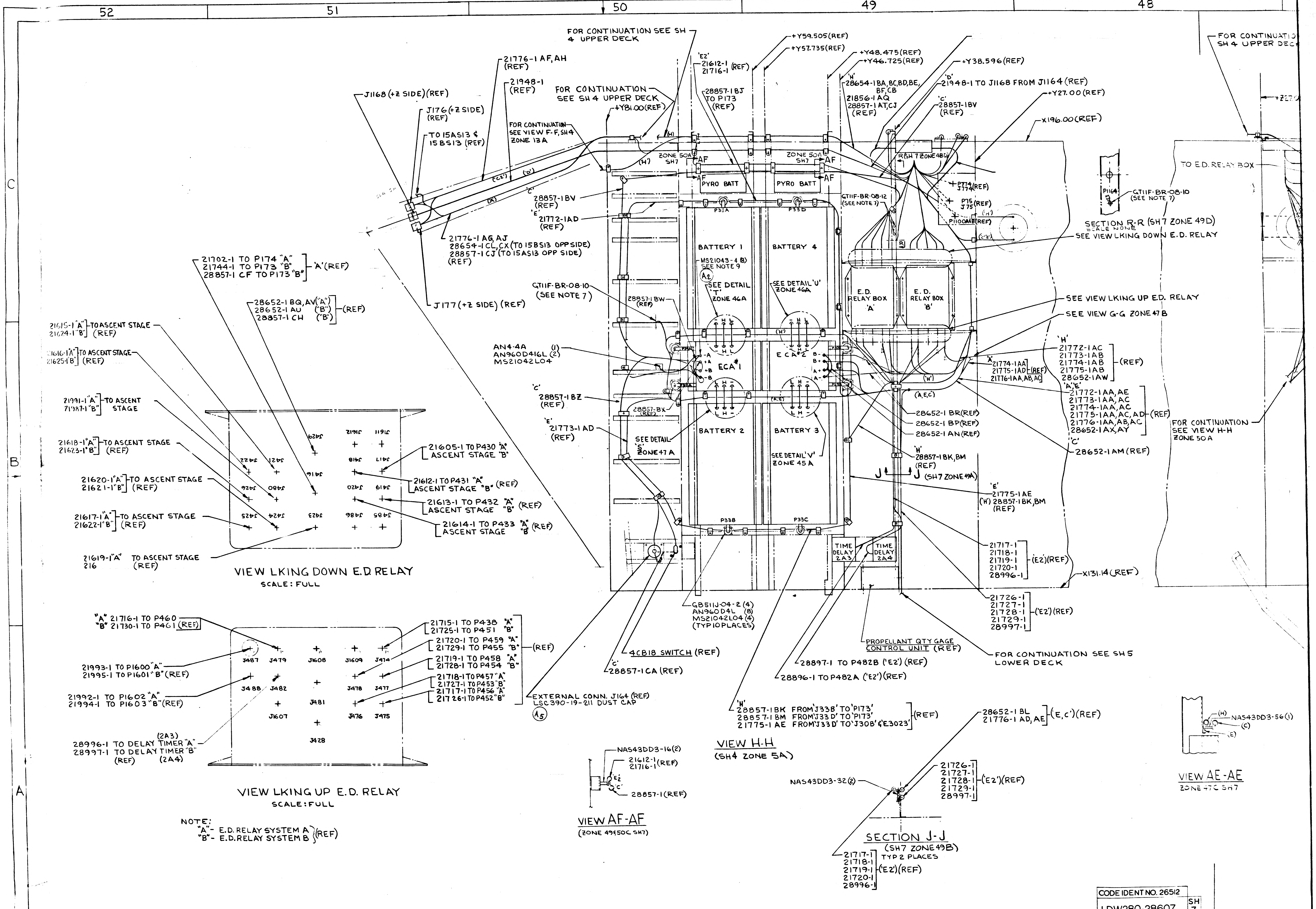
LDW280-28607A

03/03

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
	SIZE J	CODE IDENT NO. 26512	LDW280-28607 A
LM MODEL OR END ITEM	SCALE 1/4		SHEET 6

CODE IDENT NO. 26512
LDW280-28607 SH 6


52
51
50
49
48
C
B
A
FOR CONTINUATION SEE SH 4 UPPER DECK
21776-1 AF, AH (REF)
21948-1 (REF)
J1168 (+Z SIDE)(REF)
J176 (+Z SIDE) (REF)
TO 15AS13 & 15BS13 (REF)
FOR CONTINUATION SEE VIEW F-F, SH4 ZONE 13A
FOR CONTINUATION SEE SH 4 UPPER DECK
+Y81.00(REF)
'E2' 21612-1 21716-1 (REF)
28857-1BJ TO P173 (REF)
+Y59.505(REF)
+Y57.735(REF)
+Y48.475(REF)
+Y46.725(REF)
'H' 28654-1BA, BC, BD, BE, BF, CB 21856-1 AQ 28857-1 AT, CJ (REF)
+Y38.596(REF)
'D' 21948-1 TO J1168 FROM J1164 (REF)
'C' 28857-1BV (REF)
+Y27.00(REF)
X196.00(REF)
FOR CONTINUATION SEE SH 4 UPPER DECK
+Z27.0
ZONE 50A SH7
AF
PYRO BATT
PYRO BATT
('C2')
('D')
'C'
('A')
('H')
(H)
28857-1BV (REF)
'E' 21772-1AD (REF)
21776-1 AG, AJ 28654-1 CL, CX (TO 15BS13 OPP SIDE) 28857-1 CJ (TO 15AS13 OPP SIDE) (REF)
P33A
P33D
GT11F-BR-08-12 (SEE NOTE 7)
R (SH 7 ZONE 48D)
P774 J774 (REF)
P75 J75 (REF)
P1100A&B (REF)
('H')
('C' 'E')
TO E.D. RELAY BOX
P1164
GT11F-BR-08-10 (SEE NOTE 7)
SECTION R-R (SH 7 ZONE 49D)
SCALE NONE
SEE VIEW LKING DOWN E.D. RELAY
BATTERY 1
BATTERY 4
MS21043-4 (8) SEE NOTE 9
A2
SEE DETAIL 'T' ZONE 46A
SEE DETAIL 'U' ZONE 46A
E.D. RELAY BOX 'A'
E.D. RELAY BOX 'B'
21702-1 TO P174 "A" 21744-1 TO P173 "B" 28857-1 CF TO P173 "B" 'A'(REF)
28652-1 BQ, AV ("A") 28652-1 AU ("B") 28857-1 CH ("B") (REF)
J177 (+Z SIDE) (REF)
GT11F-BR-08-10 (SEE NOTE 7)
28857-1BW (REF)
AN4-4A (1) AN960D416L (2) MS21042L04
- H L
ECA #1
ECA #2
-A +A +B -B
B- B+ A+ A-
P29A
P30A
P30B
P29B
('H')
('A','E')
L H -
SEE VIEW LKING UP E.D. RELAY
SEE VIEW G-G ZONE 47 B
'H' 21772-1AC 21773-1AB 21774-1AB 21775-1AB 28652-1AW (REF)
'A' 21774-1AA 21775-1AD 21776-1AA, AB, AC (REF)
'A','E' 21772-1AA, AE 21773-1AA, AC 21774-1AA, AC 21775-1AA, AC, AD 21776-1AA, AB, AC 28652-1AX, AY (REF)
'C' 28652-1AM (REF)
FOR CONTINUATION SEE VIEW H-H ZONE 50A
('A, E, C')
28652-1 BR (REF)
28652-1 BP (REF)
28652-1 AN (REF)
'H' 28857-1BK, BM (REF)
J J (SH7 ZONE 49A)
'E' 21775-1AE ('H') 28857-1BK, BM (REF)
'C' 28857-1BZ (REF)
28857-BX (REF)
'E' 21773-1 AD (REF)
SEE DETAIL 'S' ZONE 47 A
BATTERY 2
BATTERY 3
SEE DETAIL 'V' ZONE 45 A
P33B
P33C
TIME DELAY 2A3
TIME DELAY 2A4
21717-1 21718-1 21719-1 21720-1 28996-1 ('E2')(REF)
X131.14 (REF)
21726-1 21727-1 21728-1 21729-1 28997-1 ('E2')(REF)
GB511J-04-2 (4) AN960D4L (8) MS21042L04 (4) (TYP 10 PLACES)
PROPELLANT QTY GAGE CONTROL UNIT (REF)
FOR CONTINUATION SEE SH 5 LOWER DECK
4CB18 SWITCH (REF)
'C' 28857-1CA (REF)
28897-1 TO P482B ('E2') (REF)
28896-1 TO P482A ('E2') (REF)
EXTERNAL CONN. J164 (REF) LSC390-19-211 DUST CAP
A5
'H' 28857-1BK FROM 'J33B' TO 'P173' 28857-1BM FROM 'J33D' TO 'P173' 21775-1 AE FROM 'J33D' TO 'J30B' & 'E3023' (REF)
28652-1 BL 21776-1 AD, AE ('E, C')(REF)
21615-1 "A" 21624-1 "B" TO ASCENT STAGE (REF)
21616-1 "A" 21625-1 "B" TO ASCENT STAGE (REF)
21991-1 "A" 21987-1 "B" TO ASCENT STAGE
21618-1 "A" 21623-1 "B" TO ASCENT STAGE (REF)
21620-1 "A" 21621-1 "B" TO ASCENT STAGE (REF)
21617-1 "A" 21622-1 "B" TO ASCENT STAGE (REF)
21619-1 "A" 216 TO ASCENT STAGE (REF)
J429
J1612
J1611
J422
J421
J418
J417
J416
J426
J480
J420
J419
J425
J424
J423
J486
J485
21605-1 TO P430 "A" ASCENT STAGE "B"
21612-1 TO P431 "A" ASCENT STAGE "B" (REF)
21613-1 TO P432 "A" ASCENT STAGE "B" (REF)
21614-1 TO P433 "A" ASCENT STAGE "B" (REF)
"A" 21716-1 TO P460 "B" 21730-1 TO P461 (REF)
21993-1 TO P1600 "A" 21995-1 TO P1601 "B" (REF)
21992-1 TO P1602 "A" 21994-1 TO P1603 "B" (REF)
(2A3) 28996-1 TO DELAY TIMER "A" 28997-1 TO DELAY TIMER "B" (REF) (2A4)
J487
J479
J1608
J1609
J474
J488
J482
J478
J477
J481
J1607
J476
J475
J428
21715-1 TO P438 "A" 21725-1 TO P451 "B"
21720-1 TO P459 "A" 21729-1 TO P455 "B"
21719-1 TO P458 "A" 21728-1 TO P454 "B"
21718-1 TO P457 "A" 21727-1 TO P453 "B"
21717-1 TO P456 "A" 21726-1 TO P452 "B"
(REF)
NAS43DD3-16(2)
21612-1 21716-1 (REF)
'E2'
'C'
28857-1 (REF)
NAS43DD3-32(2)
21726-1 21727-1 21728-1 21729-1 28997-1 ('E2')(REF)
21717-1 21718-1 21719-1 21720-1 28996-1 TYP 2 PLACES ('E2')(REF)
(H)
NAS43DD3-56(1)
(C)
(E)

VIEW LKING DOWN E.D RELAY
SCALE: FULL

VIEW LKING UP E.D. RELAY
SCALE: FULL

NOTE:
"A" - E.D. RELAY SYSTEM A
"B" - E.D. RELAY SYSTEM B (REF)

VIEW H-H
(SH4 ZONE 5A)

VIEW AF-AF
(ZONE 49 & 50C SH7)

SECTION J-J
(SH7 ZONE 49B)

VIEW AE-AE
ZONE 47C SH7

CODE IDENT NO. 26512
LDW280-28607
SH 7

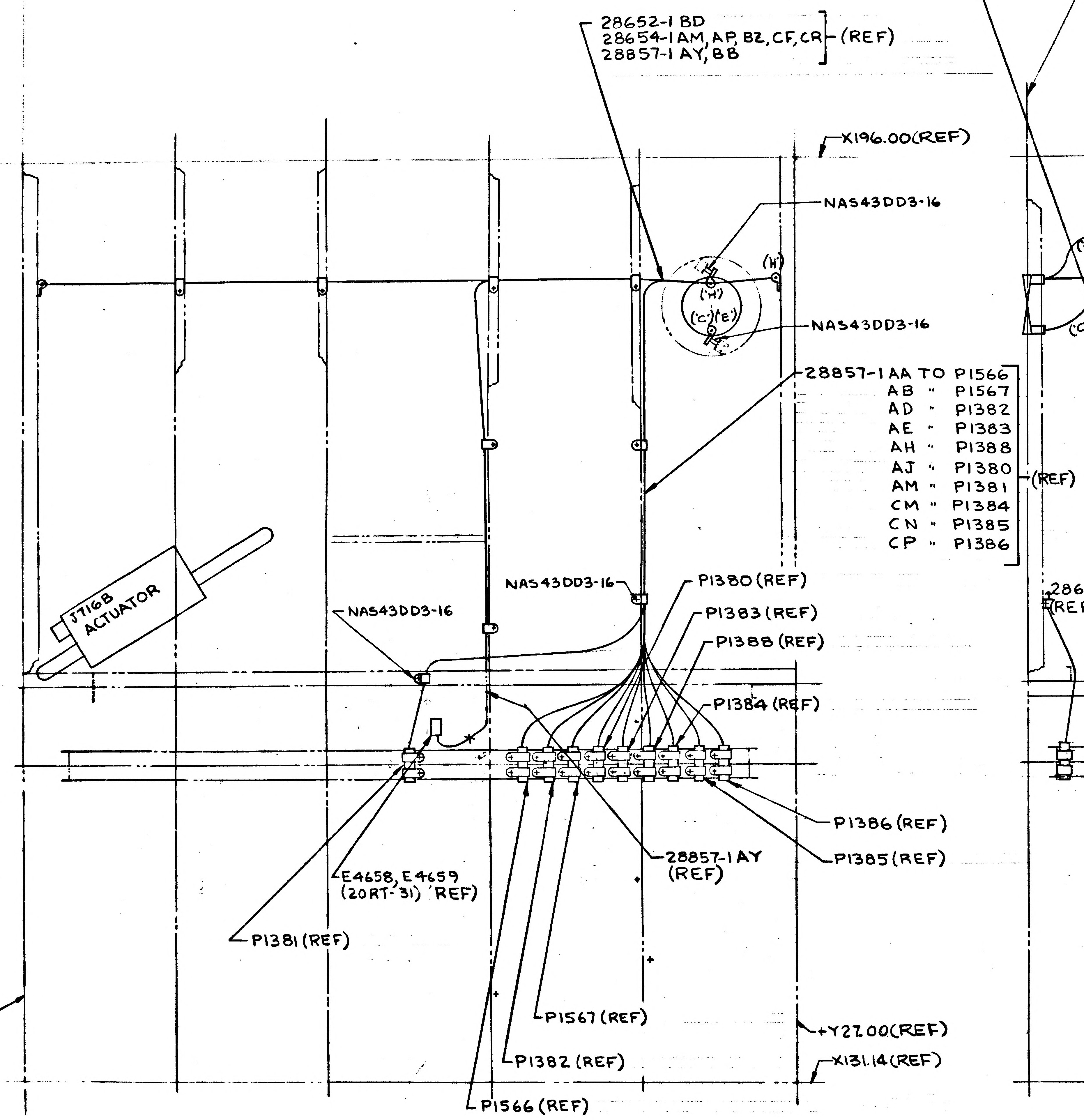
01/04

NAS 9-1100

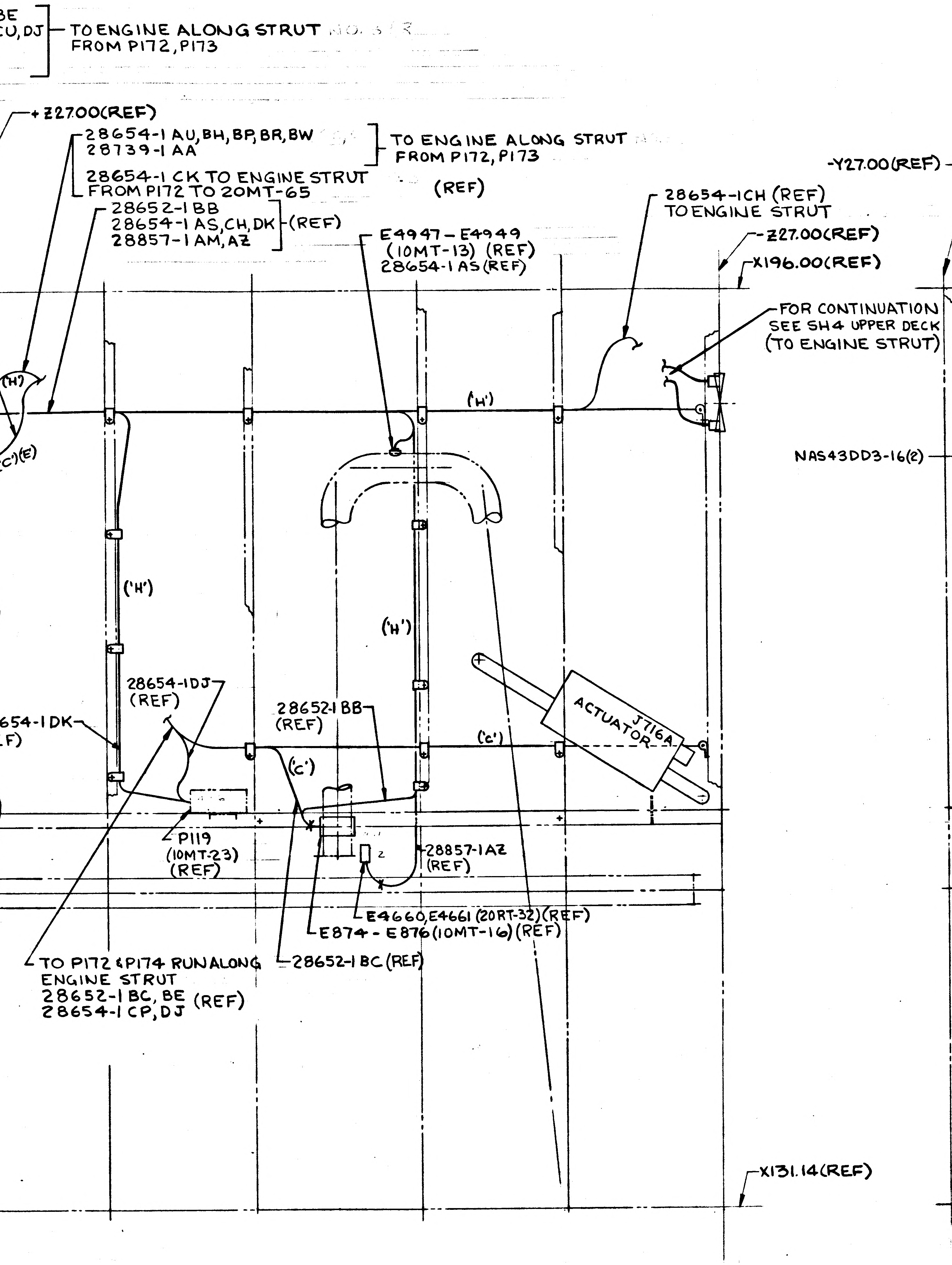
48
47
46
45
44
FOR CONTINUATION SEE SH 4 UPPER DECK
+Z38.483 (REF)
+Z65.906 (REF)
28654-1 AG BJ
28857-1 BD,BF,BG (REF)
28652-1 AT
28857-1 BG,BH,BE,AN,AP,AU,AV
28654-1 AW,BK (REF)
+Z27.00 (REF)
FOR CONTINUATION SEE SH4 UPPER DECK
+Z81.00 (REF)
X196.00 (REF)
(E2)
ZONE 48A SH7
AE
TO E.D. RELAY BOX
P774 J774
('H')
('E')
GT11F-BR-08-12 (SEE NOTE 7)
P75 J75
GT11F-BR-08-10 (SEE NOTE 7)
P101A P101B
N R-R (SH7 ZONE 49D)
KING DOWN E.D. RELAY
FOR CONTINUATION SEE SH 4 VIEW C-C ZONE 3B
28857-1 BH (REF)
20RT30 +Z APEX ONLY (REF)
GT535U-8 SEE NOTE 11
SPLICE LANDING LEG WIRES IN THIS AREA
FOR CONTINUATION SEE SH4 VIEW CC ZONE 3B
+Z81.00 (REF)
28857-1 AU +Z (SHOWN) (REF)
2RT-1 +Z AXIS SHOWN (REF)
KING UP E.D. RELAY
G ZONE 47B
(A,E,C)
(F)
(H)
28652-1 BN (REF)
(D)
2RT13 +Z (REF)
28857-1 BE +Z ONLY (REF)
(REF)
('H')
(A,E,C)
AE
AC
AC
AC,AD (REF)
AB,AC
AY
M (REF)
FOR CONTINUATION SEE VIEW H-H ZONE 50A
FOR CONTINUATION SEE SH4 VIEW C-C ZONE 3B
S2895 (REF)
S2894 (REF)
(E)
J716B ACTUATOR
LANDING LEG CROSS BRACE (REF)
('F')
('H')
2S16 (FROM P173 TO S2894, FROM S2895 TO S2896) (SEE SH 4 VIEW GC ZONE 3B)
FOR CONTINUATION SEE SH 4 VIEWS GC, D-D, E-E & FF (REF)
VIEW W-W ZONE 46B SH7
W
W ZONE 44B SH7
2S16, E2892, E2893, 28654-1 BG (+Z ONLY)
SEE SH4 VIEW C-C ZONE 2B
2S18, E2890, E2891, 28654-1 BA (+Y ONLY)
SEE SH4 VIEW F-F ZONE 13A
(REF)
28857-1 AV (+Z SHOWN)
(2RT-2) (REF)
EF)
X131.14 (REF)
P1381 (REF)
28652-1 BM
28857-1 BU,CE (REF)
LANDING LEG CROSS BRACE (REF)
28857-1 BD +Z SHOWN (REF)
FOR CONTINUATION SEE SH 5 LOWER DECK
-Y27.0 (REF)
28652-1 AT +Z (SHOWN)
28857-1 AW -Y
28857-1 AX -Z
28857-1 BC +Y (REF)
28857-1 BR (REF)
2RT13 +Z R.H. SIDE ONLY (REF)
28857-1 BE (REF)
21961-1 (REF)
2RT-3 +Z AXIS SHOWN
2RT-4 -Y
2RT-5 -Z
2RT-6 +Y (REF)
S
FOR CONTINUATION SEE SH 5 LOWER DECK
21964-1 (REF)
21642-1 (REF)
21963-1 (REF)
21643-1 (REF)
21962-1 (REF)
GN511L-0420(3) SEE NOTE 10
21956-1 (REF)
21644-1 (REF)
21955-1 (REF)
2RT-12 +Z STRUT (REF) ON L.H. SIDE ONLY
28857-1 AP (SHOWN)
AR (-Y)
AS (-Z)
AT (+Y) (REF)
(H)
(C)
(E)
NAS43DD3-56(1)
VIEW G-G (SH4 ZONE 5A)
21965-1 (REF)
21641-1 (REF)
21966-1 (REF)
MS21043-4(3) SEE NOTE 9
MS21043-4(3) SEE NOTE 9
VIEW OF +Z W
(LOOKING OUTBRD)
VIEW AE-AE ZONE 47C SH7
L H L
L H L
L H L
L H L
GN511L-0420(3) SEE NOTE 10
2RT-8 +Z AXIS (SHOWN)
2RT-14 -Y AXIS
2RT-10 -Z AXIS
2RT-15 +Y AXIS (REF)
28857-1 AN FOR +Z PAD ONLY (REF)
GN511L-0420(3) SEE NOTE 10
DETAIL S ZONE 50B SCALE: NONE
DETAIL T ZONE 50C SCALE: NONE
DETAIL U ZONE 50C SCALE: NONE
DETAIL V ZONE 50B SCALE: NONE
A2
MS21043-4(3) SEE NOTE 9
MS21043-4(3) SEE NOTE 9
GN511L-0420(3) SEE NOTE 10
LANDING LEG SHOWN IN THIS POSITION FOR REF
2RT-7 +Z ONLY (REF)
CODE IDENT NO. 26512
LDW280-28607 SH 7
48
47
46
44

02704

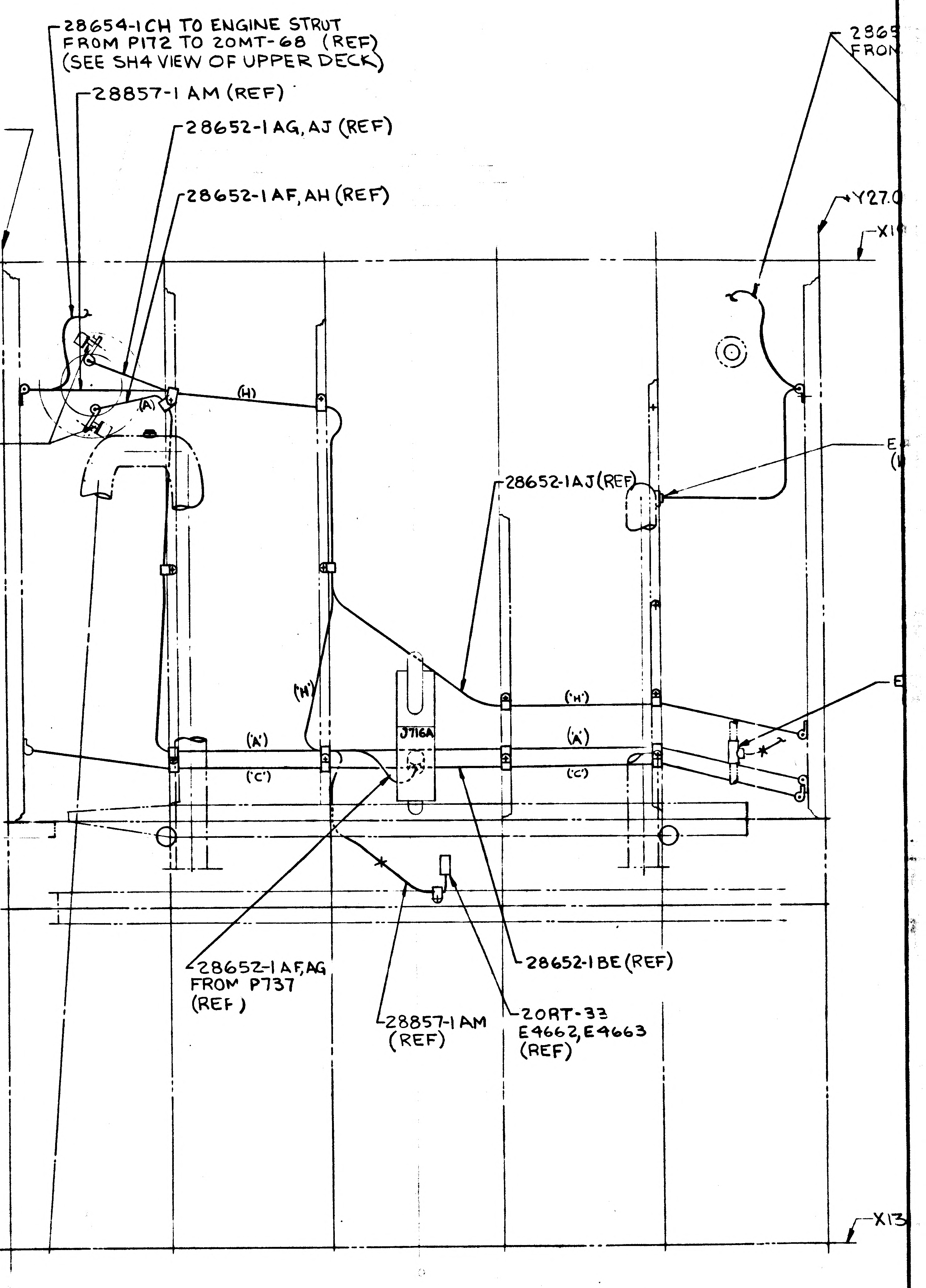
NAS 9-1100


28652-1BD
28654-1AM, AP, BZ, CF, CR (REF)
28857-1AY, BB
X196.00(REF)
NAS43DD3-16
NAS43DD3-16
('H')
('C')('E')
28857-1AA TO P1566
AB " P1567
AD " P1382
AE " P1383
AH " P1388
AJ " P1380
AM " P1381
CM " P1384
CN " P1385
CP " P1386
(REF)
J716B ACTUATOR
NAS43DD3-16
NAS43DD3-16
P1380 (REF)
P1383 (REF)
P1388 (REF)
P1384 (REF)
P1386 (REF)
P1385 (REF)
28857-1AY (REF)
E4658, E4659 (20RT-31) (REF)
P1381 (REF)
P1567 (REF)
P1382 (REF)
P1566 (REF)
27.0 (REF)
+Y27.00(REF)
X131.14(REF)

VIEW OF +Z WALL
(LOOKING OUTBRD)


28652-1BC, BE
28654-1CP, CU, DJ
28739-1AB
28857-1BP
(REF)
TO ENGINE ALONG STRUT
FROM P172, P173
+Z27.00(REF)
28654-1AU, BH, BP, BR, BW
28739-1AA
TO ENGINE ALONG STRUT
FROM P172, P173
28654-1CK TO ENGINE STRUT
FROM P172 TO 20MT-65
(REF)
28652-1BB
28654-1AS, CH, DK (REF)
28857-1AM, AZ
E4947-E4949
(10MT-13) (REF)
28654-1AS (REF)
28654-1CH (REF)
TO ENGINE STRUT
-Z27.00(REF)
X196.00(REF)
FOR CONTINUATION
SEE SH4 UPPER DECK
(TO ENGINE STRUT)
('H')
('C')(E)
('H')
('H')
('H')
28654-1DJ (REF)
28654-1DK (REF)
28652-1BB (REF)
('C')
('C')
ACTUATOR J716A
P119 (10MT-23) (REF)
28857-1AZ (REF)
E4660, E4661 (20RT-32) (REF)
E874 - E876 (10MT-16) (REF)
28652-1BC (REF)
TO P172 & P174 RUN ALONG
ENGINE STRUT
28652-1BC, BE (REF)
28654-1CP, DJ
X131.14(REF)

VIEW OF +Y WALL
(LOOKING OUTBRD)


-Y27.00(REF)
28654-1CH TO ENGINE STRUT
FROM P172 TO 20MT-68 (REF)
(SEE SH4 VIEW OF UPPER DECK)
28857-1AM (REF)
28652-1AG, AJ (REF)
28652-1AF, AH (REF)
NAS43DD3-16(2)
(A)
(H)
28652-1AJ (REF)
('H')
('A')
('C')
J716A
('H')
('A')
('C')
28652-1AF, AG
FROM P737
(REF)
28857-1AM (REF)
20RT-33
E4662, E4663
(REF)
28652-1BE (REF)
+Y27.0
X1
X13

VIEW OF -Z WALL
(LOOKING OUTBRD)

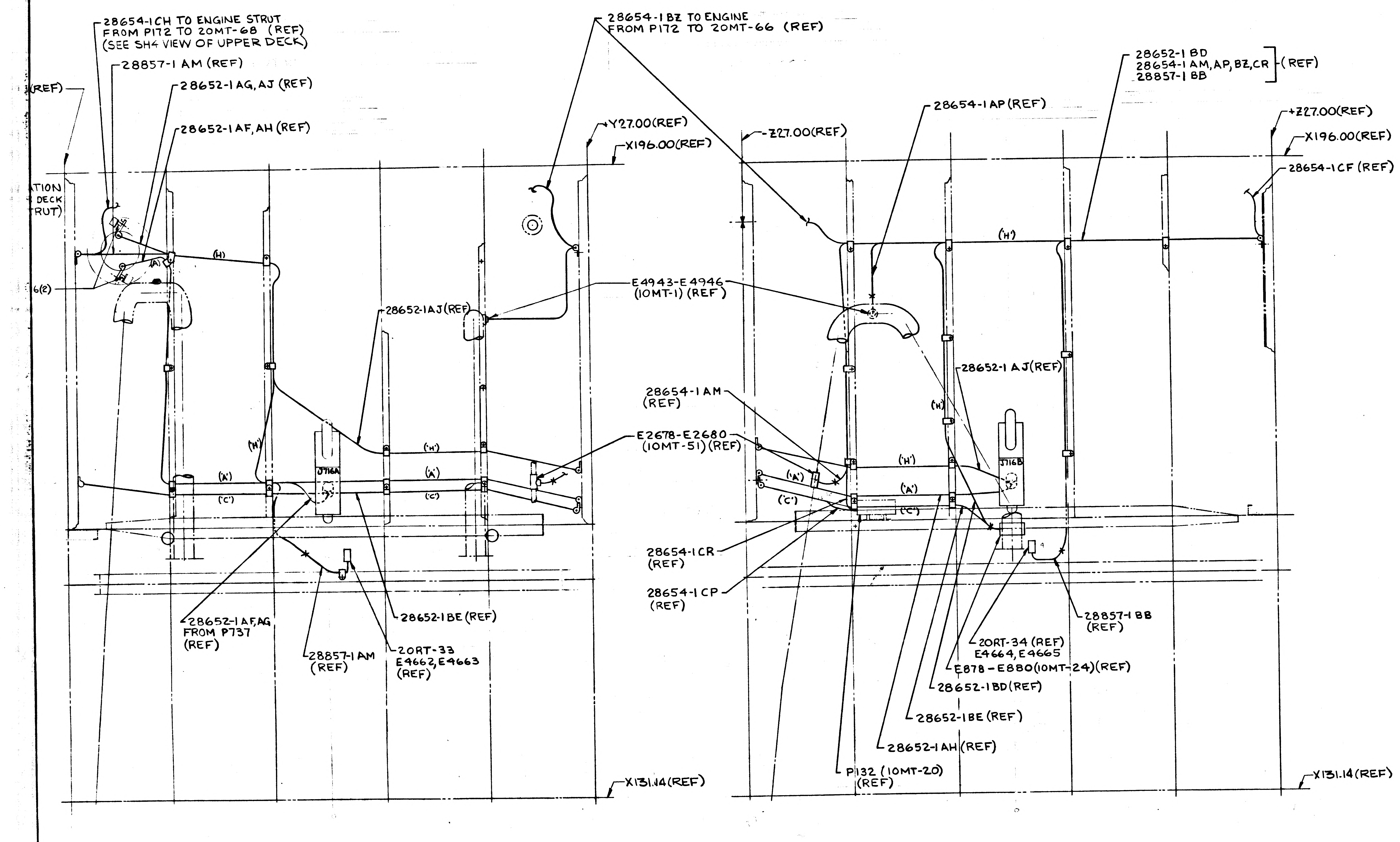
UN)] (REF)

28857-1AN FOR +Z PAD ONLY (REF)

03/04 NAS 9-1100

DE IDENT NO. 26512
DW280-28607 SH 7

CODE IDENT NO. 26512
LDW280-28607 SH 7



28654-1CH TO ENGINE STRUT FROM P172 TO 20MT-68 (REF) (SEE SH4 VIEW OF UPPER DECK)
28857-1 AM (REF)
(REF)
28652-1AG, AJ (REF)
28652-1AF, AH (REF)
ATION
DECK
RUT)
6(2)
(H)
(A)
Y27.00(REF)
X196.00(REF)
28654-1BZ TO ENGINE FROM P172 TO 20MT-66 (REF)
E4943-E4946 (10MT-1) (REF)
28652-1AJ(REF)
('H')
('A')
('C')
J116A
E2678-E2680 (10MT-51)(REF)
28652-1AF, AG FROM P737 (REF)
28857-1AM (REF)
20RT-33 E4662, E4663 (REF)
28652-1BE (REF)
X131.14(REF)
-Z27.00(REF)
28654-1AP(REF)
28652-1BD
28654-1AM, AP, BZ, CR (REF)
28857-1BB
+Z27.00(REF)
X196.00(REF)
28654-1CF (REF)
28652-1AJ(REF)
28654-1AM (REF)
J116B
28654-1CR (REF)
28654-1CP (REF)
28857-1BB (REF)
20RT-34 (REF) E4664, E4665
E878-E880(10MT-24)(REF)
28652-1BD(REF)
28652-1BE (REF)
28652-1AH (REF)
P132 (10MT-20) (REF)
X131.14(REF)

VIEW OF -Z WALL
(LOOKING OUTBR'D)

VIEW OF -Y WALL
(LOOKING OUTBR'D)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ☒
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 ▽ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 ▽ FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL ✓ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 167

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 180) = 45 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 11 SQ. FT.

PRINT TRIM LINE

C
B
A

LDW280-28607A

LDW280-28607A

04/04

NAS 9-1100

CODE IDENT NO. 26512
LDW280-28607
SH 7

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
J	26512	LDW280-28607	A

LM
MODEL OR END ITEM
SCALE 1/4
SHEET 7

4FR

LDW280-28607

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28508	LTA-8(18)	1
PART NO. LDW280-28607-1		GAEC SCH NO. 501	

MAY BE REDRAWN ON PRODUCTION FORMAT 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00	4	5	6	7		
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	AG	GRUMMAN REL INFO	
		PRIM NO.	E(001)
LAST DASH NO. USED	-1	227	MP-14 11/22-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
– – –

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS9-1100
LINE ITEM * 1
DOCUMENTATION TYPE II

DRAWN BY	B.EBERLE/T.BIANCHI	RELIABILITY	
LAYOUT BY	B.EBERLE 11/16/66		
CHECKED BY			
GRLEADER	11/17/66		
VDI	11/21		
STRUCTURES	11/21/66	PROJ ENGR	R.M. Carbee Ⓔ 11-21-66
STRUCTURES	✓ EB 11/21	REL GROUP	11/23/66
WEIGHTS			

Ⓟ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

LINES INSTALLATION
ELECTRONIC - DESCENT STAGE

SIZE B
CODE IDENT NO. 26512
LDW280-28607
SCALE NONE
SHEET 1.00 OF 8

ENG 77.1 12-65

CDR 12/9/66

01 NAS 9-1100

CL	QTY PER ASSEMBLY					-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						8		AN960D10L	E	WASHER	STD PART						
						136		AN960D4L	E	WASHER	STD PART						
						10		AN960D416L	E	WASHER	STD PART						
						4		GB511J-3-2	E	BOLT	STD PART						
						4		AN4-5A	E	BOLT	STD PART						
						1		AN4-4A	E	BOLT	STD PART						
						4		MS21042L10	E	NUT	STD PART						
						68		MS21042L04	E	NUT	STD PART						
						32		MS21043-4	E	NUT	STD PART						
						5		MS21042L4	E	NUT	STD PART						
						7		NAS43DD3-56	E	SPACER TUBE	STD PART						
						5		-24									
						13		-32									
						11		NAS43DD3-16		SPACER TUBE	STD PART						
						A/R		GT535U-8		TAPE	GRUMMAN STD						
						16		GT11F-BR-08-12		TERMINAL INSTL	GRUMMAN STD						
						4		GT11F-BR-08-10		TERMINAL INSTL	GRUMMAN STD						
						68		GB511J-04-2		BOLT	GRUMMAN STD						
						2		LDW280M16125		CLAMP	SEE DWG						
								LDW390-28014-1		AREA INSTL	SEE DWG						
B								LDW280-28607-1	E	LINES INSTL							

CL = CLEANLINESS LEVEL/LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28607

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

NOTES:

1. ALL CONNECTOR NUMBERS SHALL BE PLACED ON STRUCTURE ADJACENT TO THE RESPECTIVE CONNECTOR BY RUBBER STAMP PER LSP-14-002 TYPE VII CLASS 2 3/16 HIGH LETTERS
2. PRIOR TO ASSEMBLY OF GT11F TERMINAL INSTALLATION, CLEAN STRUCTURE IN ACCORDANCE WITH LSP390-001, PAR 3.10.
3. AFTER ASSEMBLY OF GT11F TERMINAL INSTALLATION AND THE ADDITION OF ALL TERMINAL LUGS REQUIRED, BRUSH COAT THE ENTIRE ASSEMBLY WITH EPON 919. MIX EPON 919 PER LSP14-14.201
4. SUBSTITUTION OF NAS1132V, AN525-832R & AN525-832 SCREWS FOR THE GB511J-08 BOLTS IS PERMISSIBLE.
5 THIS INSTALLATION IS IN ACCORDANCE WITH LSP390-002
6 ALL CABLE CALLOUTS ARE PREFIXED BY LDW390-
7. GROUND ALL N4 GROUND WIRES TO NEAREST GROUND STUD FROM CONNECTORS AND TERMINALS (SEE SHEETS 4,5,6 & 7)
8. SELECTION AND INSTALLATION OF LINE CLAMPS TO BE IN ACCORDANCE WITH LPC-280-23 EXCEPT AS NOTED. MS21919 CLAMPS WILL BE USED IN PLACE OF THE GC500S CLAMPS
9. FOR ECA NO.1 & NO.2 TORQUE MS21043-4 NUTS TO 60±5 INCH POUNDS.
10. FOR BATTERIES NO.1, 2, 3, & 4 TORQUE MS21043-4 NUTS TO 20±5 INCH POUNDS.
11. TAPE WIRES TO OUTRIGGERS WITH GT535U-8 EVERY 6 INCHES. TAPE ACROSS BUNDLE TO EXTEND 1 1/2 INCHES ON EACH SIDE.
12. BOND WIRES TO SURFACE WITH MIL-A-5090D (TYPE I EPON 934A AND CURING AGENT 934B). AS PER LSP-14-22500

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

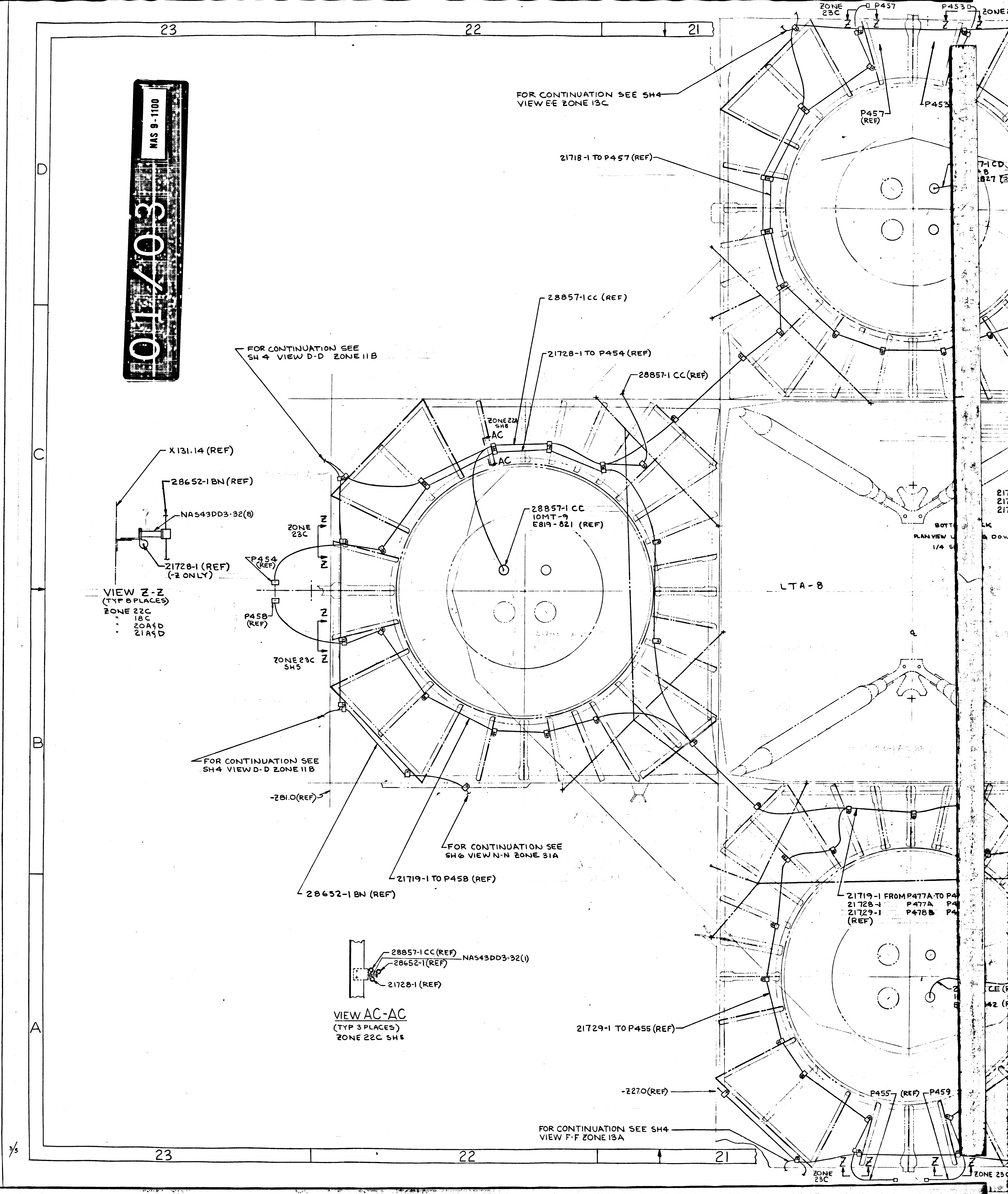
SIZE	CODE IDENT NO.	
B	26512	LDW280-28607
SCALE NONE		SHEET 3.00

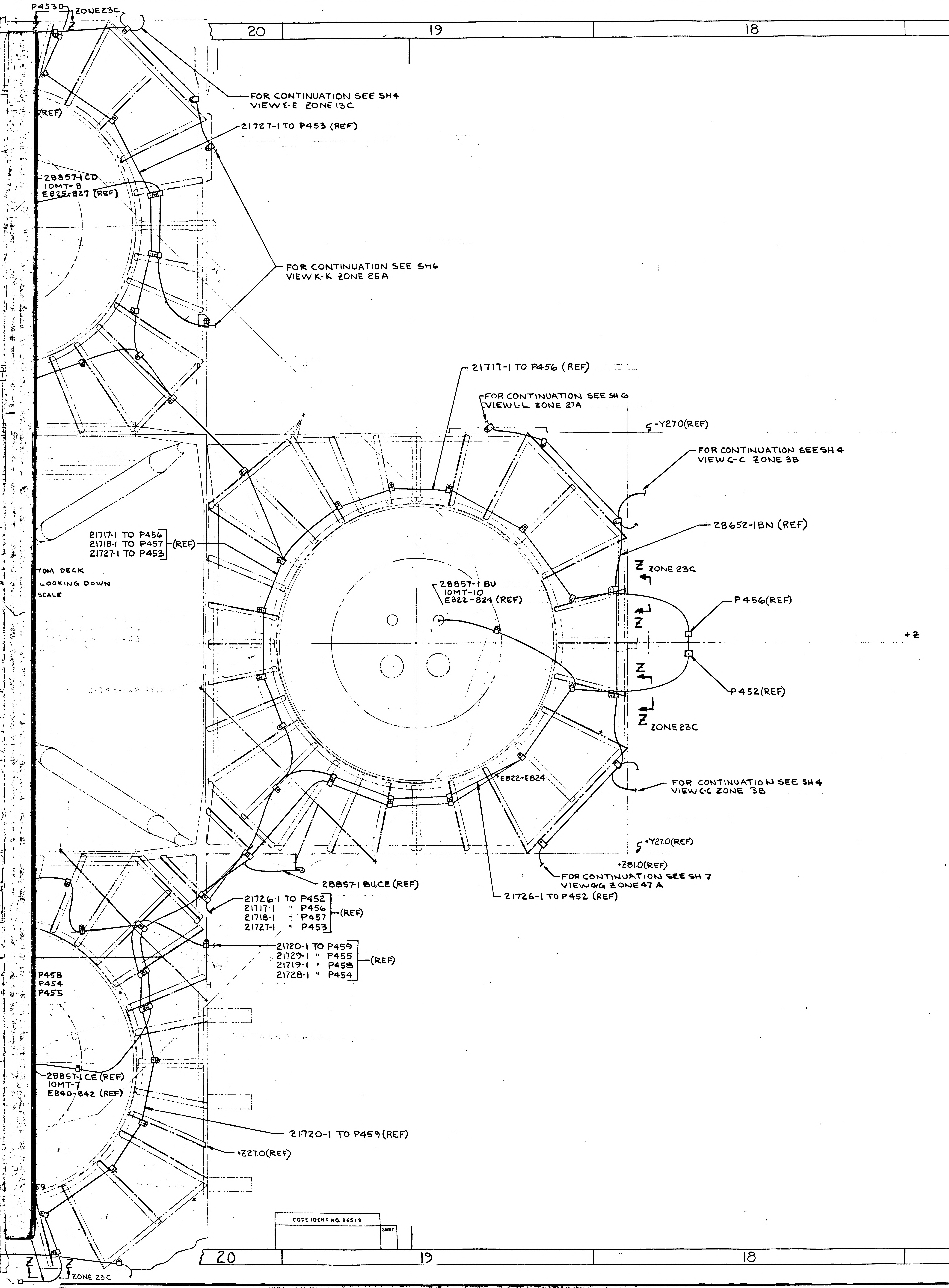
ENG 73.1 6-64

01

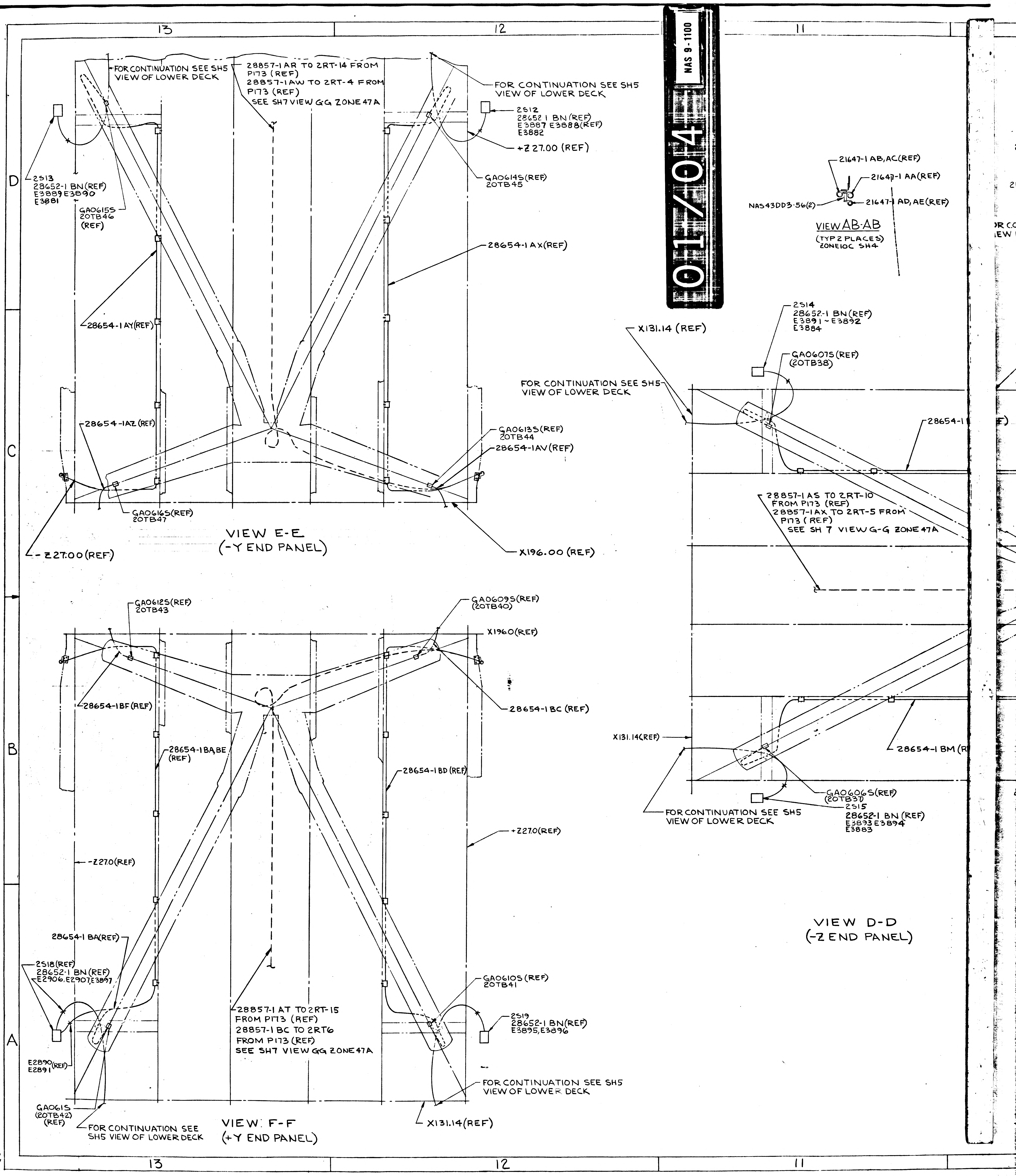
NAS 9-1100

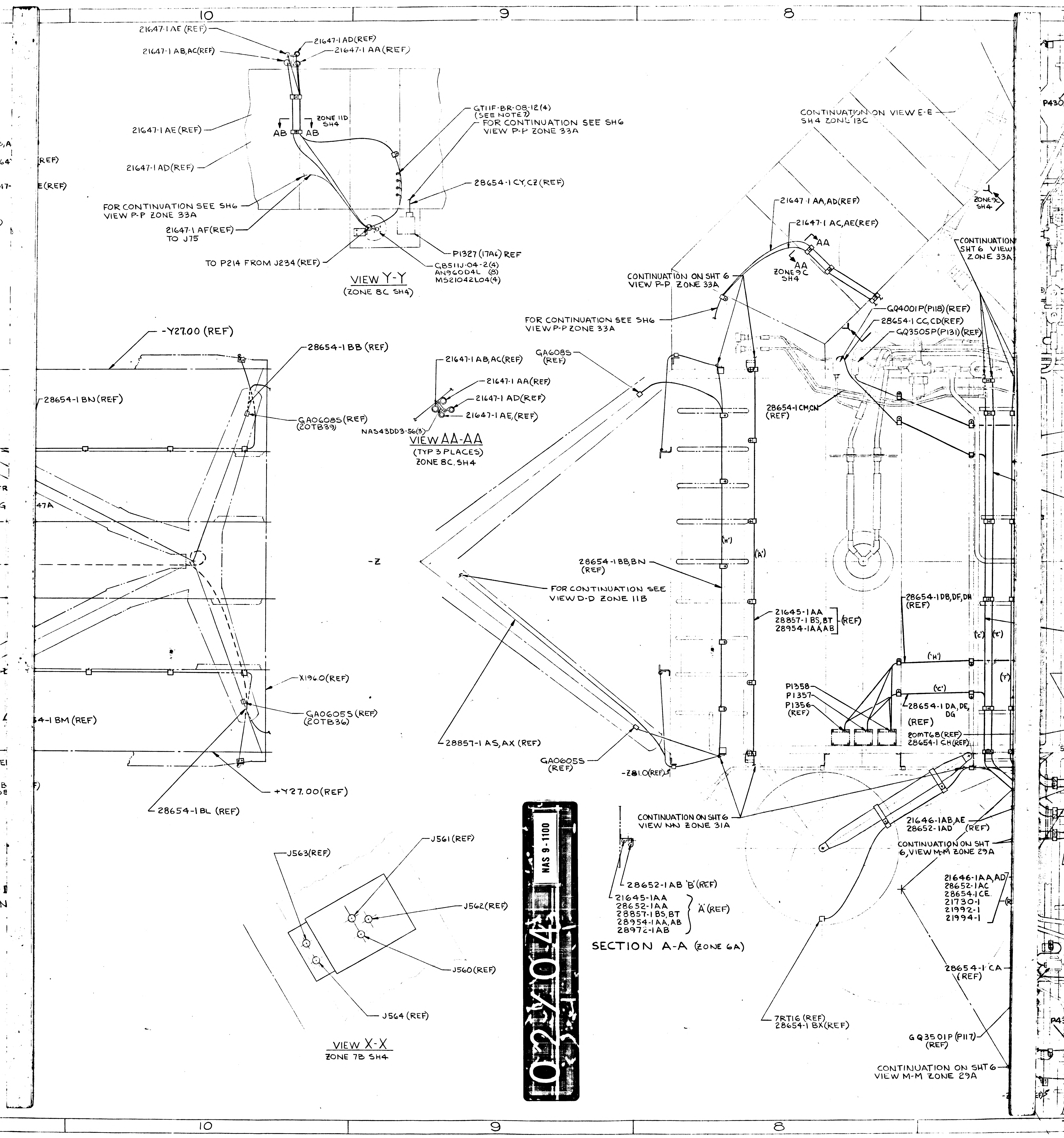
01/03 NAS 9-1100


23
22
21
D
C
B
A
FOR CONTINUATION SEE SH4 VIEW E-E ZONE 13C
21718-1 TO P457 (REF)
ZONE 23C
P457
P453
P457 (REF)
28857-1cc (REF)
FOR CONTINUATION SEE SH 4 VIEW D-D ZONE 11B
21728-1 TO P454 (REF)
28857-1 CC (REF)
ZONE 22A SH8
AC
X 131.14 (REF)
28652-1 BN (REF)
NAS43DD3-32(8)
21728-1 (REF) (-Z ONLY)
VIEW Z-Z
(TYP 8 PLACES)
ZONE 22C
" 18C
" 20A&D
" 21A&D
ZONE 23C
P454 (REF)
P458 (REF)
ZONE 23C SH5
Z
28857-1 CC
10MT-9
E819-821 (REF)
LTA-8
BOTTOM
PLAN VIEW
1/4
FOR CONTINUATION SEE SH4 VIEW D-D ZONE 11B
-281.0 (REF)
FOR CONTINUATION SEE SH6 VIEW N-N ZONE 31A
21719-1 TO P458 (REF)
28652-1 BN (REF)
21719-1 FROM P477A TO
21728-1 P477A
21729-1 P478B
(REF)
28857-1CC (REF)
28652-1 (REF)
NAS43DD3-32(1)
21728-1 (REF)
VIEW AC-AC
(TYP 3 PLACES)
ZONE 22C SH5
21729-1 TO P455 (REF)
-227.0 (REF)
P455
(REF)
P459
FOR CONTINUATION SEE SH4 VIEW F-F ZONE 13A
ZONE 23C
3/5

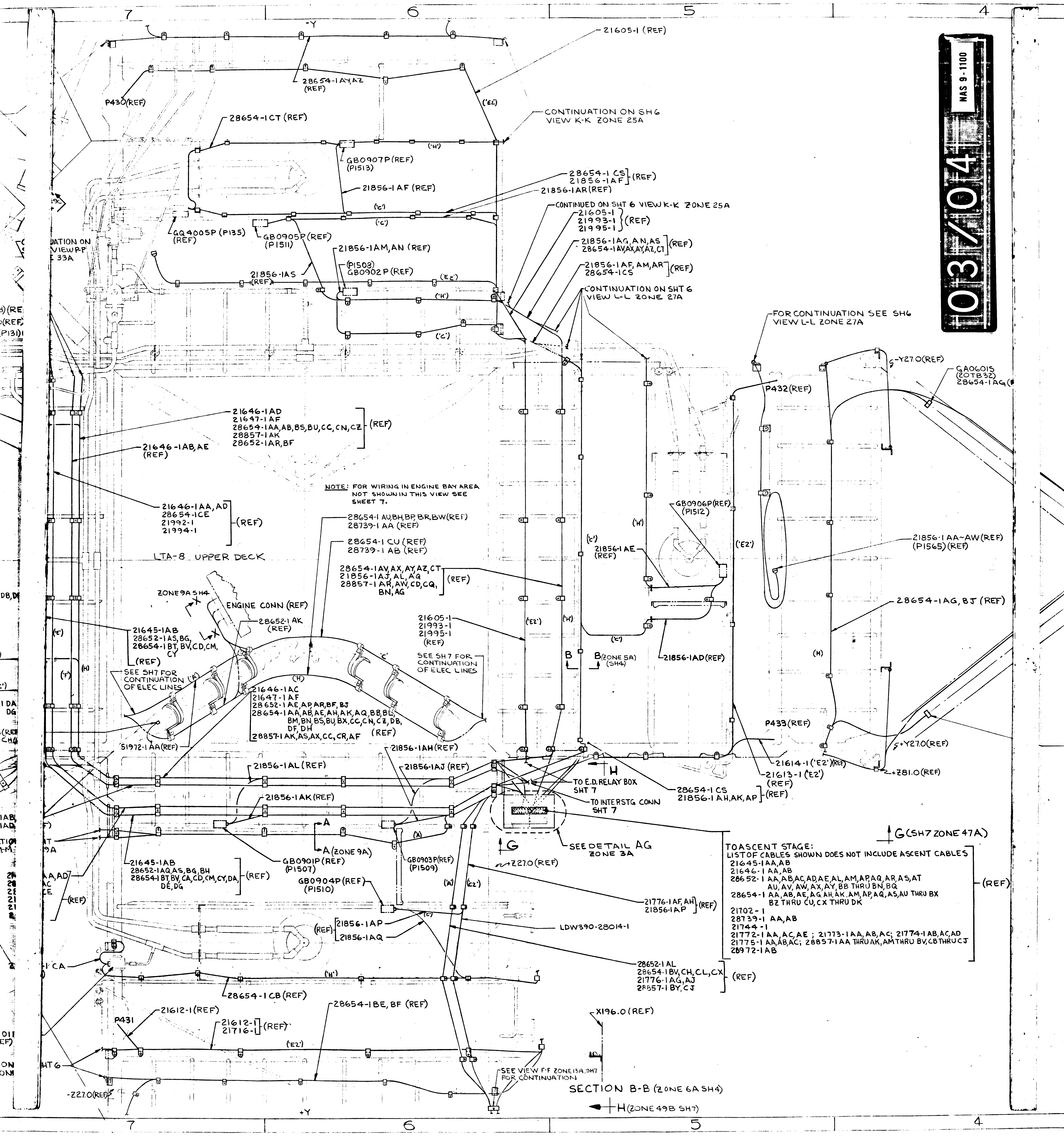

P453
ZONE 23C
20
19
18
17
FOR CONTINUATION SEE SH4 VIEW E-E ZONE 13C
21727-1 TO P453 (REF)
(REF)
28857-1 CD
10MT-8
E825-827 (REF)
FOR CONTINUATION SEE SH6 VIEW K-K ZONE 25A
21717-1 TO P456 (REF)
FOR CONTINUATION SEE SH 6 VIEW L-L ZONE 27A
-Y27.0(REF)
FOR CONTINUATION SEE SH 4 VIEW C-C ZONE 3B
28652-1BN (REF)
21717-1 TO P456
21718-1 TO P457
21727-1 TO P453
(REF)
TOM DECK
LOOKING DOWN
SCALE
28857-1 BU
10MT-10
E822-824 (REF)
Z
ZONE 23C
P456(REF)
P452(REF)
+Z
E822-E824
FOR CONTINUATION SEE SH4 VIEW C-C ZONE 3B
+Y27.0(REF)
+281.0(REF)
FOR CONTINUATION SEE SH 7 VIEW G-G ZONE 47 A
28857-1 BUCE (REF)
21726-1 TO P452 (REF)
21726-1 TO P452
21717-1 " P456
21718-1 " P457
21727-1 " P453
(REF)
21720-1 TO P459
21729-1 " P455
21719-1 " P458
21728-1 " P454
(REF)
P458
P454
P455
28857-1 CE (REF)
10MT-7
E840-842 (REF)
21720-1 TO P459 (REF)
+Z27.0(REF)
59
CODE IDENT NO. 26512
SHEET

02/03 NAS 9-1100


01/04
NAS 9-1100
13
12
11
D
C
B
A
FOR CONTINUATION SEE SH5 VIEW OF LOWER DECK
28857-1AR TO 2RT-14 FROM P173 (REF)
28857-1AW TO 2RT-4 FROM P173 (REF)
SEE SH7 VIEW GG ZONE 47A
FOR CONTINUATION SEE SH5 VIEW OF LOWER DECK
2S12
28652-1 BN(REF)
E3887 E3888(REF)
E3882
+Z 27.00 (REF)
2S13
28652-1 BN(REF)
E3889 E3890
E3881
GA0615S
20TB46
(REF)
GA0614S(REF)
20TB45
28654-1AX(REF)
28654-1AY(REF)
28654-1AZ(REF)
GA0613S(REF)
20TB44
28654-1AV(REF)
GA0616S(REF)
20TB47
-Z27.00(REF)
VIEW E-E
(-Y END PANEL)
X196.00 (REF)
GA0612S(REF)
20TB43
GA0609S(REF)
(20TB40)
X1960(REF)
28654-1BF(REF)
28654-1BC (REF)
28654-1BA,BE
(REF)
28654-1BD (REF)
+Z27.0(REF)
-Z27.0(REF)
28654-1BA(REF)
2S18(REF)
28652-1 BN (REF)
E2906.E2907,E3897
28857-1AT TO 2RT-15
FROM P173 (REF)
28857-1BC TO 2RT6
FROM P173 (REF)
SEE SH7 VIEW GG ZONE 47A
GA0610S (REF)
20TB41
2S19
28652-1 BN(REF)
E3895,E3896
E2890(REF)
E2891
GA061S
(20TB42)
(REF)
FOR CONTINUATION SEE SH5 VIEW OF LOWER DECK
VIEW F-F
(+Y END PANEL)
FOR CONTINUATION SEE SH5 VIEW OF LOWER DECK
X131.14(REF)
21647-1AB,AC(REF)
21647-1AA(REF)
NAS43DD3-56(2)
21647-1AD,AE(REF)
VIEW AB-AB
(TYP 2 PLACES)
ZONE 10C SH4
2S14
28652-1 BN(REF)
E3891 ~ E3892
E3884
X131.14 (REF)
GA0607S(REF)
(20TB38)
FOR CONTINUATION SEE SH5 VIEW OF LOWER DECK
28654-1
28857-1AS TO 2RT-10
FROM P173 (REF)
28857-1AX TO 2RT-5 FROM
P173 (REF)
SEE SH 7 VIEW G-G ZONE 47A
X131.14(REF)
28654-1BM(R
GA0606S(REF)
(20TB37)
2S15
28652-1 BN (REF)
E3893 E3894
E3883
FOR CONTINUATION SEE SH5 VIEW OF LOWER DECK
VIEW D-D
(-Z END PANEL)


10
9
8
21647-1AE (REF)
21647-1AD(REF)
21647-1AB,AC(REF)
21647-1AA (REF)
ZONE 11D SH4
AB
AB
21647-1AE (REF)
21647-1AD(REF)
GTIIF-BR-08-12(4) (SEE NOTE 7)
FOR CONTINUATION SEE SH6 VIEW P-P ZONE 33A
28654-1CY,CZ(REF)
FOR CONTINUATION SEE SH6 VIEW P-P ZONE 33A
21647-1AF(REF) TO J75
P1327 (17A6) REF
TO P214 FROM J234 (REF)
CB511J-04-2(4) AN960D4L (8) MS21042L04(4)
VIEW Y-Y
(ZONE 8C SH4)
CONTINUATION ON VIEW E-E SH4 ZONE 13C
ZONE 9C SH4
21647-1AA,AD(REF)
21647-1AC,AE(REF)
AA
AA
ZONE 9C SH4
CONTINUATION SHT 6 VIEW ZONE 33A
CONTINUATION ON SHT 6 VIEW P-P ZONE 33A
FOR CONTINUATION SEE SH6 VIEW P-P ZONE 33A
GQ4001P(P118)(REF)
28654-1CC,CD(REF)
GQ3505P(P131)(REF)
-Y27.00 (REF)
28654-1BB (REF)
28654-1BN(REF)
GA06085(REF) (20TB39)
21647-1AB,AC(REF)
21647-1AA(REF)
21647-1AD(REF)
21647-1AE,(REF)
NAS43DD3-56(3)
VIEW AA-AA
(TYP 3 PLACES)
ZONE 8C, SH4
GA6085 (REF)
28654-1CM,CN (REF)
-Z
28654-1BB,BN (REF)
FOR CONTINUATION SEE VIEW D-D ZONE 11B
('H')
('A')
21645-1AA
28857-1BS,BT
28954-1AAAB
(REF)
28654-1DB,DF,DH (REF)
('C')
('E')
('H')
('C')
('F')
X196.0(REF)
GA06055(REF) (20TB36)
54-1BM (REF)
28857-1AS,AX (REF)
P1358
P1357
P1356
(REF)
28654-1DA,DE, DG
(REF)
80MT68(REF)
28654-1CH(REF)
GA06055 (REF)
-Z81.0(REF)
+Y27.00(REF)
28654-1BL (REF)
CONTINUATION ON SHT 6 VIEW NN ZONE 31A
21646-1AB,AE
28652-1AD (REF)
CONTINUATION ON SHT 6, VIEW M-M ZONE 29A
J561(REF)
J563(REF)
J562(REF)
J560(REF)
J564 (REF)
VIEW X-X
ZONE 7B SH4
28652-1AB 'B'(REF)
21645-1AA
28652-1AA
28857-1BS,BT
28954-1AA,AB
28972-1AB
'A'(REF)
SECTION A-A (ZONE 6A)
21646-1AA,AD
28652-1AC
28654-1CE
21730-1
21992-1
21994-1
28654-1CA (REF)
7RT16 (REF)
28654-1BX(REF)
GQ3501P (P117) (REF)
CONTINUATION ON SHT 6 VIEW M-M ZONE 29A
P430

NAS 9-1100


7
6
5
4
-Y
21605-1 (REF)
28654-1AY,AZ (REF)
P430(REF)
('E2')
CONTINUATION ON SH6 VIEW K-K ZONE 25A
28654-1CT (REF)
('H')
GB0907P(REF) (P1513)
21856-1AF (REF)
28654-1CS
21856-1AF (REF)
21856-1AR(REF)
('C')
CONTINUED ON SHT 6 VIEW K-K ZONE 25A
21605-1
21993-1
21995-1 (REF)
GQ4005P (P135) (REF)
GB0905P(REF) (P1511)
21856-1AM,AN (REF)
21856-1AG,AN,AS
28654-1AV,AX,AY,AZ,CT (REF)
21856-1AF,AM,AR
28654-1CS (REF)
21856-1AS (REF)
(P1508) GB0902P(REF)
CONTINUATION ON SHT 6 VIEW L-L ZONE 27A
FOR CONTINUATION SEE SH6 VIEW L-L ZONE 27A
-Y27.0(REF)
GA0601S (20TB32) 28654-1AG
P432(REF)
21646-1AD
21647-1AF
28654-1AA,AB,BS,BU,CC,CN,CZ (REF)
28857-1AK
28652-1AR,BF
21646-1AB,AE (REF)
21646-1AA,AD
28654-1CE
21992-1
21994-1 (REF)
28654-1AU,BH,BP,BR,BW(REF)
28739-1AA (REF)
28654-1CU (REF)
28739-1AB (REF)
GB0906P(REF) (P1512)
21856-1AE (REF)
21856-1AA~AW(REF) (P1565)(REF)
LTA-8 UPPER DECK
28654-1AV,AX,AY,AZ,CT
21856-1AJ,AL,AQ
28857-1AR,AW,CD,CQ,BN,AG (REF)
ZONE 9A SH4
X
ENGINE CONN (REF)
28652-1AK (REF)
21605-1
21993-1
21995-1 (REF)
SEE SH7 FOR CONTINUATION OF ELEC LINES
('E2')
('H')
B
B (ZONE 5A) (SH4)
21856-1AD(REF)
28654-1AG,BJ (REF)
(H)
21645-1AB
28652-1AS,BG,
28654-1BT,BV,CD,CM,CY (REF)
SEE SH7 FOR CONTINUATION OF ELEC LINES
21646-1AC
21647-1AF
28652-1AE,AP,AR,BF,BJ
28654-1AA,AB,AE,AH,AK,AQ,BB,BL,BM,BN,BS,BU,BX,CC,CN,CZ,DB,DF,DH
28857-1AK,AS,AX,CC,CR,AF (REF)
P433(REF)
51972-1AA(REF)
21856-1AH(REF)
21856-1AL (REF)
21856-1AJ (REF)
21614-1('E2')(REF)
21613-1('E2') (REF)
+Z81.0(REF)
-Y27.0(REF)
TO E.D. RELAY BOX SHT 7
H
28654-1CS
21856-1AH,AK,AP (REF)
21856-1AK(REF)
TO INTERSTG CONN SHT 7
A
A (ZONE 9A)
GB0901P(REF) (P1507)
GB0903P(REF) (P1509)
G
SEE DETAIL AG ZONE 3A
G(SH7 ZONE 47A)
-Z27.0(REF)
21645-1AB
28652-1AQ,AS,BG,BH
28654-1BT,BV,CA,CD,CM,CY,DA,DE,DG (REF)
GB0904P(REF) (P1510)
21776-1AF,AH
21856-1AP (REF)
21856-1AP
21856-1AQ (REF)
LDW390-28014-1
28652-1AL
28654-1BV,CH,CL,CX
21776-1AG,AJ
28857-1BY,CJ (REF)
28654-1CB(REF)
P431
21612-1(REF)
21612-1
21716-1 (REF)
28654-1BE,BF (REF)
X196.0 (REF)
('E2')
SEE VIEW F-F ZONE 13A, SH7 FOR CONTINUATION
-Z27.0(REF)
+Y
SECTION B-B (ZONE 6A SH4)
H(ZONE 49B SH7)

NOTE: FOR WIRING IN ENGINE BAY AREA NOT SHOWN IN THIS VIEW SEE SHEET 7.

TO ASCENT STAGE:
LIST OF CABLES SHOWN DOES NOT INCLUDE ASCENT CABLES
21645-1AA,AB
21646-1AA,AB
28652-1AA,AB,AC,AD,AE,AL,AM,AP,AQ,AR,AS,AT AU,AV,AW,AX,AY,BB THRU BN,BQ
28654-1AA,AB,AE,AG,AH,AK,AM,AP,AQ,AS,AU THRU BX BZ THRU CU,CX THRU DK
21702-1
28739-1AA,AB
21744-1
21772-1AA,AC,AE; 21773-1AA,AB,AC; 21774-1AB,AC,AD
21775-1AA,AB,AC; 28857-1AA THRU AK,AM THRU BV,CB THRU CJ
28972-1AB
(REF)

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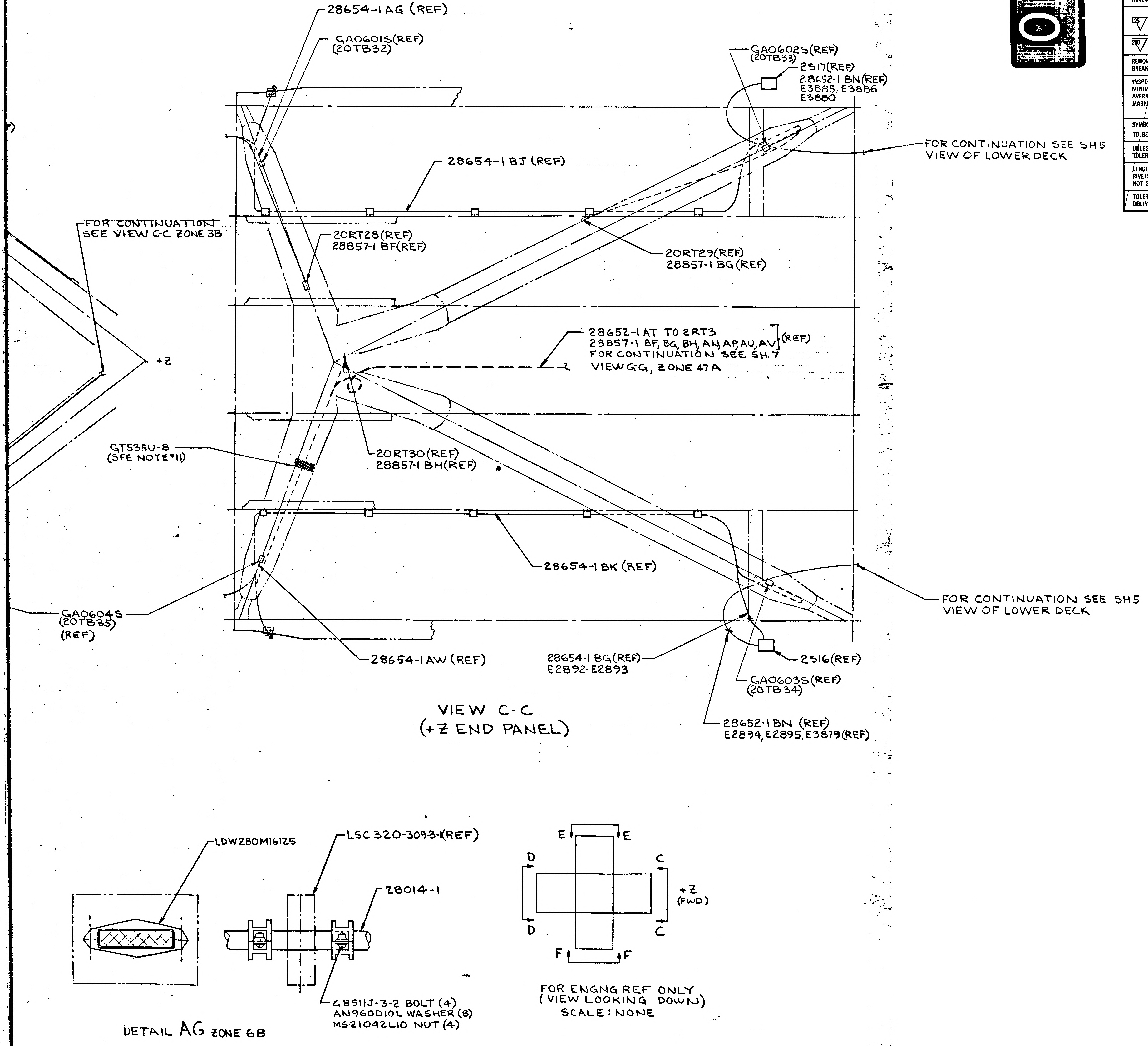


28654-1AG (REF)
GA0601S(REF)
(20TB32)
GA0602S(REF)
(20TB33)
2517(REF)
28652-1 BN(REF)
E3885, E3886
E3880
28654-1 BJ (REF)
FOR CONTINUATION SEE SH5
VIEW OF LOWER DECK
FOR CONTINUATION
SEE VIEW C-C ZONE 3B
20RT28(REF)
28857-1 BF(REF)
20RT29(REF)
28857-1 BG(REF)
28652-1AT TO 2RT3
28857-1 BF, BG, BH, AN, AP, AU, AV (REF)
FOR CONTINUATION SEE SH.7
VIEW G-G, ZONE 47A
+Z
GT535U-8
(SEE NOTE *11)
20RT30(REF)
28857-1 BH(REF)
28654-1 BK (REF)
FOR CONTINUATION SEE SH5
VIEW OF LOWER DECK
GA0604S
(20TB35)
(REF)
28654-1AW (REF)
28654-1 BG(REF)
E2892-E2893
2516(REF)
GA0603S(REF)
(20TB34)
28652-1BN (REF)
E2894, E2895, E3879(REF)
VIEW C-C
(+Z END PANEL)
LDW280M16125
LSC320-3093-1(REF)
28014-1
GB511J-3-2 BOLT (4)
AN960D10L WASHER (8)
MS21042L10 NUT (4)
DETAIL AG ZONE 6B
E
E
D
C
D
C
+Z
(FWD)
F
F
FOR ENGNG REF ONLY
(VIEW LOOKING DOWN)
SCALE: NONE

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 40 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (42 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.
PRINT TRIM LINE

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE	CODE IDENT NO.		
LM	K	26512	LDW280-28607	
MODEL OR END ITEM	SCALE 1/4			SHEET 4

1 THIS IS AN ORIGINAL DWG

LDW280-28607

LDW280-28607

03/03 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE K	CODE IDENT NO. 26512	LDW280-28607
SCALE 1/4		SHEET 5

MODEL OR END ITEM LM

~~MANUFACTURING OPERATIONS~~
~~UNLESS OTHERWISE SPECIFIED~~
~~NOTES CHECKED ✓ APPLY TO THIS DWG.~~

~~PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.~~

~~FILLET AND INSIDE CORNER RADII TOLERANCES~~
~~.016R TO .062R ± .010~~
~~.063R TO .250R ± .015~~
~~OVER .250R ± .030~~

~~DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.~~

~~EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.~~

~~DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.~~

~~MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.~~

~~DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING~~

~~HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.~~

~~ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES~~

~~125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10~~

~~200 FOR ALL DRILLED HOLES~~

~~REMOVE ALL BURRS. BREAK ALL EDGES .015-.031~~

~~INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS~~

~~SYMBOL ⟋ DENOTES SURFACE TO BE MACHINED~~

~~UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32~~

~~LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.~~

~~TOLERANCE ON LOFTED DELINEATIONS IS~~

DWG SIZE 40 X

LDW280-28607 A

LDW280-28607 B

C

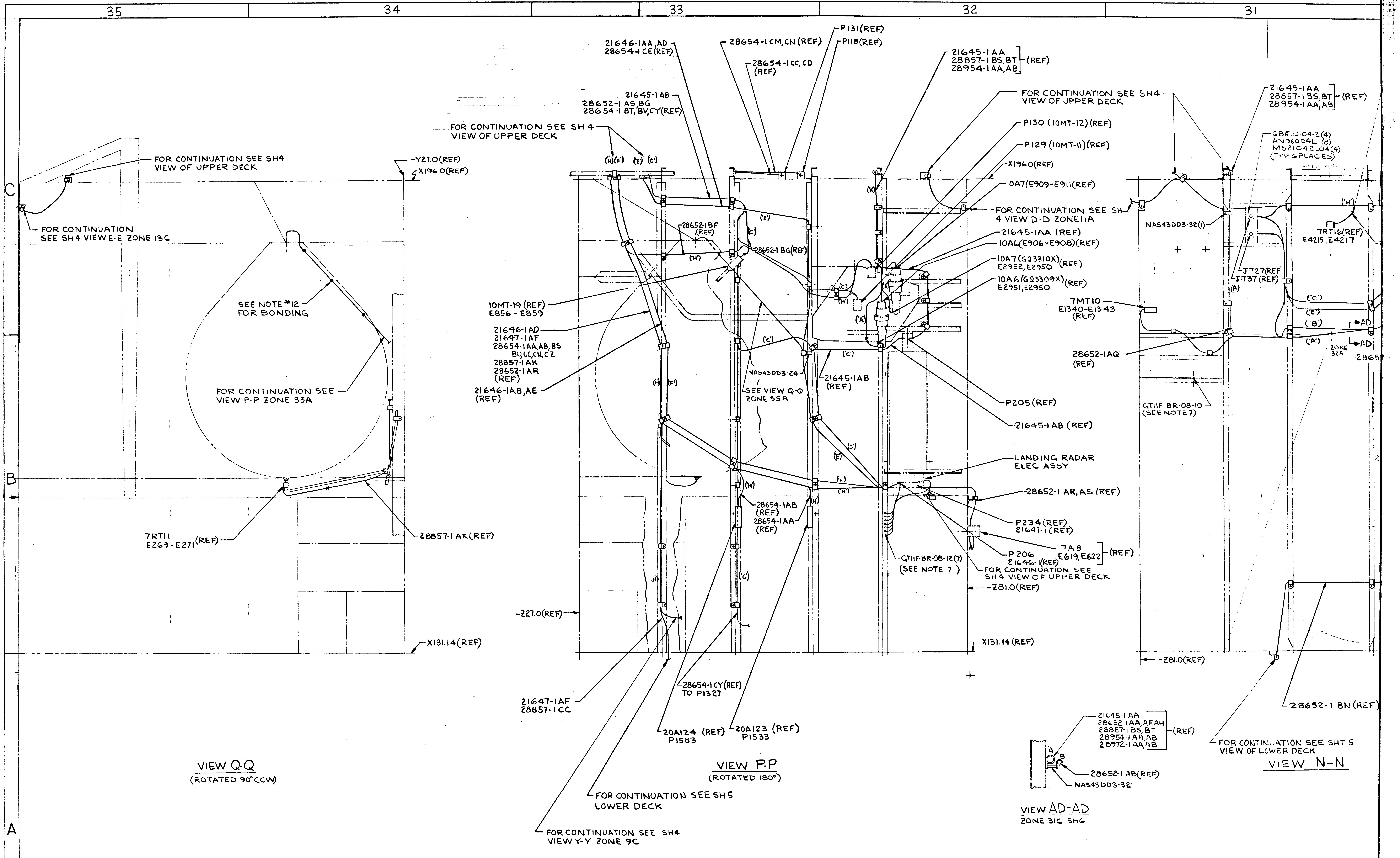
D

PRINTING INFO ONLY

PRINT TRIM LINE

FULL SIZE SHEET AREA (42 X)= SQ. FT.

1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.


35
34
33
32
31
C
B
A
FOR CONTINUATION SEE SH4 VIEW OF UPPER DECK
FOR CONTINUATION SEE SH4 VIEW E-E ZONE 13C
-Y27.0(REF)
X196.0(REF)
SEE NOTE #12 FOR BONDING
FOR CONTINUATION SEE VIEW P-P ZONE 33A
7RT11 E269-E271(REF)
28857-1AK(REF)
X131.14(REF)
21646-1AA,AD
28654-1CE(REF)
28654-1CM,CN(REF)
P131(REF)
P118(REF)
28654-1CC,CD (REF)
21645-1AA
28857-1BS,BT
28954-1AA,AB
(REF)
21645-1AB
28652-1AS,BG
28654-1BT,BV,CY(REF)
FOR CONTINUATION SEE SH 4 VIEW OF UPPER DECK
FOR CONTINUATION SEE SH4 VIEW OF UPPER DECK
P130 (10MT-12)(REF)
P129 (10MT-11)(REF)
X196.0(REF)
10A7(E909-E911(REF)
FOR CONTINUATION SEE SH-4 VIEW D-D ZONE 11A
21645-1AA (REF)
10A6(E906-E908)(REF)
10A7(GQ3310X) E2952,E2950 (REF)
10A6(GQ3309X) E2951,E2950 (REF)
28652-1BF (REF)
28652-1BG(REF)
10MT-19 (REF)
E856-E859
21646-1AD
21647-1AF
28654-1AA,AB,BS BU,CC,CN,CZ
28857-1AK
28652-1AR
(REF)
21646-1AB,AE (REF)
NAS43DD3-24
SEE VIEW Q-Q ZONE 35A
21645-1AB (REF)
P205(REF)
21645-1AB (REF)
LANDING RADAR ELEC ASSY
28652-1 AR,AS (REF)
P234(REF)
21647-1 (REF)
7A8
E619,E622
(REF)
P206
21646-1(REF)
FOR CONTINUATION SEE SH4 VIEW OF UPPER DECK
Z81.0(REF)
28654-1AB (REF)
28654-1AA (REF)
GT11F-BR-08-12(7) (SEE NOTE 7)
Z27.0(REF)
X131.14(REF)
21647-1AF
28857-1CC
28654-1CY(REF) TO P1327
20A124 (REF) P1583
20A123 (REF) P1533
FOR CONTINUATION SEE SH5 LOWER DECK
FOR CONTINUATION SEE SH4 VIEW Y-Y ZONE 9C
(H)
(F)
(E)
(C)
(A)
(B)
21645-1AA
28857-1BS,BT
28954-1AA,AB
(REF)
GB51U-04-2(4)
AN960D4L (8)
MS21042L04(4)
(TYP 6 PLACES)
NAS43DD3-32(1)
7RT16(REF)
E4215,E4217
J727(REF)
J737 (REF)
7MT10
E1340-E1343
(REF)
AD
ZONE 32A
28652-1AQ (REF)
GT11F-BR-08-10 (SEE NOTE 7)
Z81.0(REF)
28652-1 BN(REF)
FOR CONTINUATION SEE SHT 5 VIEW OF LOWER DECK
21645-1AA
28652-1AA,AF,AH
28857-1BS,BT
28954-1AA,AB
28972-1AA,AB
(REF)
28652-1 AB(REF)
NAS43DD3-32

VIEW Q-Q
(ROTATED 90° CCW)

VIEW P-P
(ROTATED 180°)

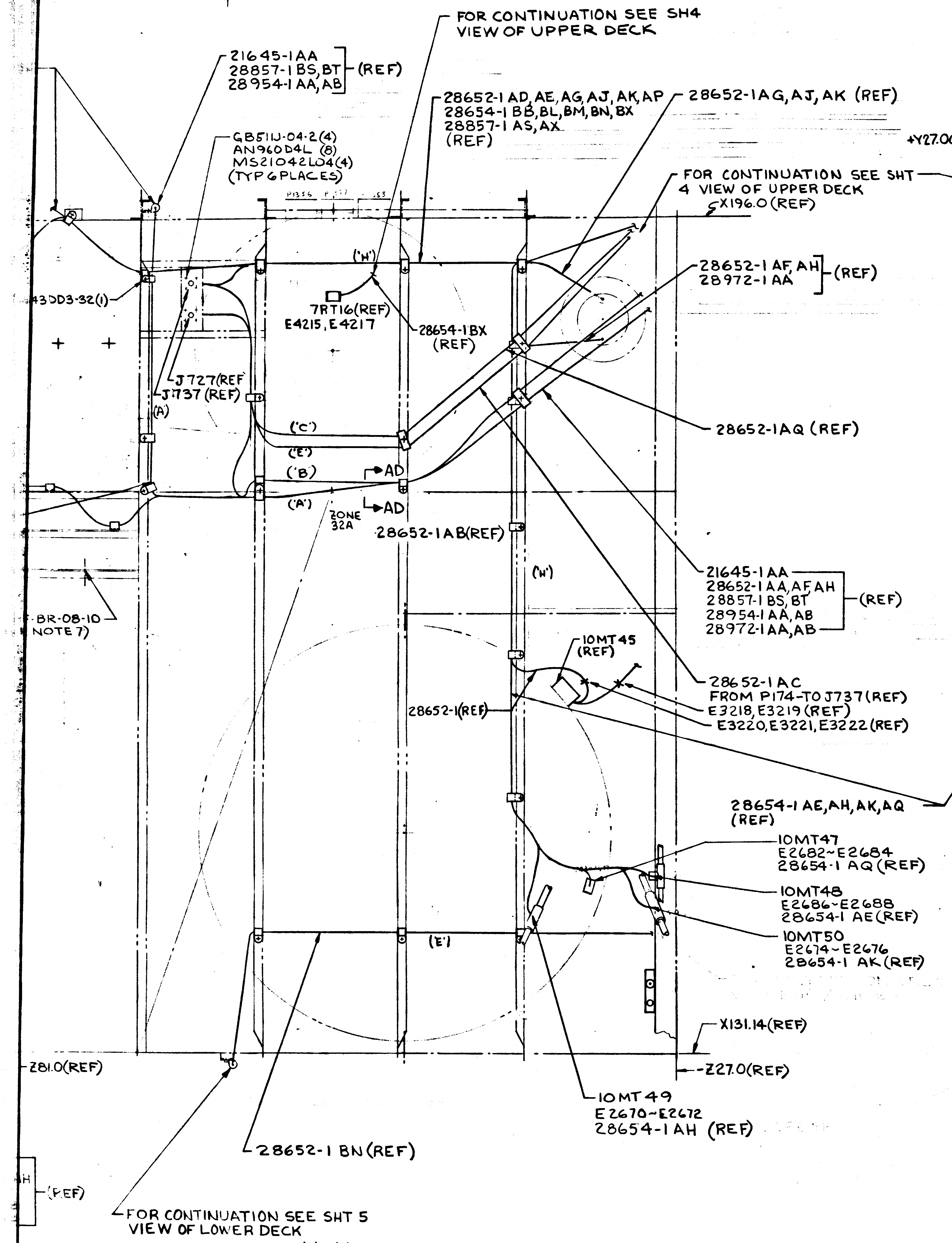
VIEW N-N

VIEW AD-AD
ZONE 31C SH6

01/03 NAS 9-1100

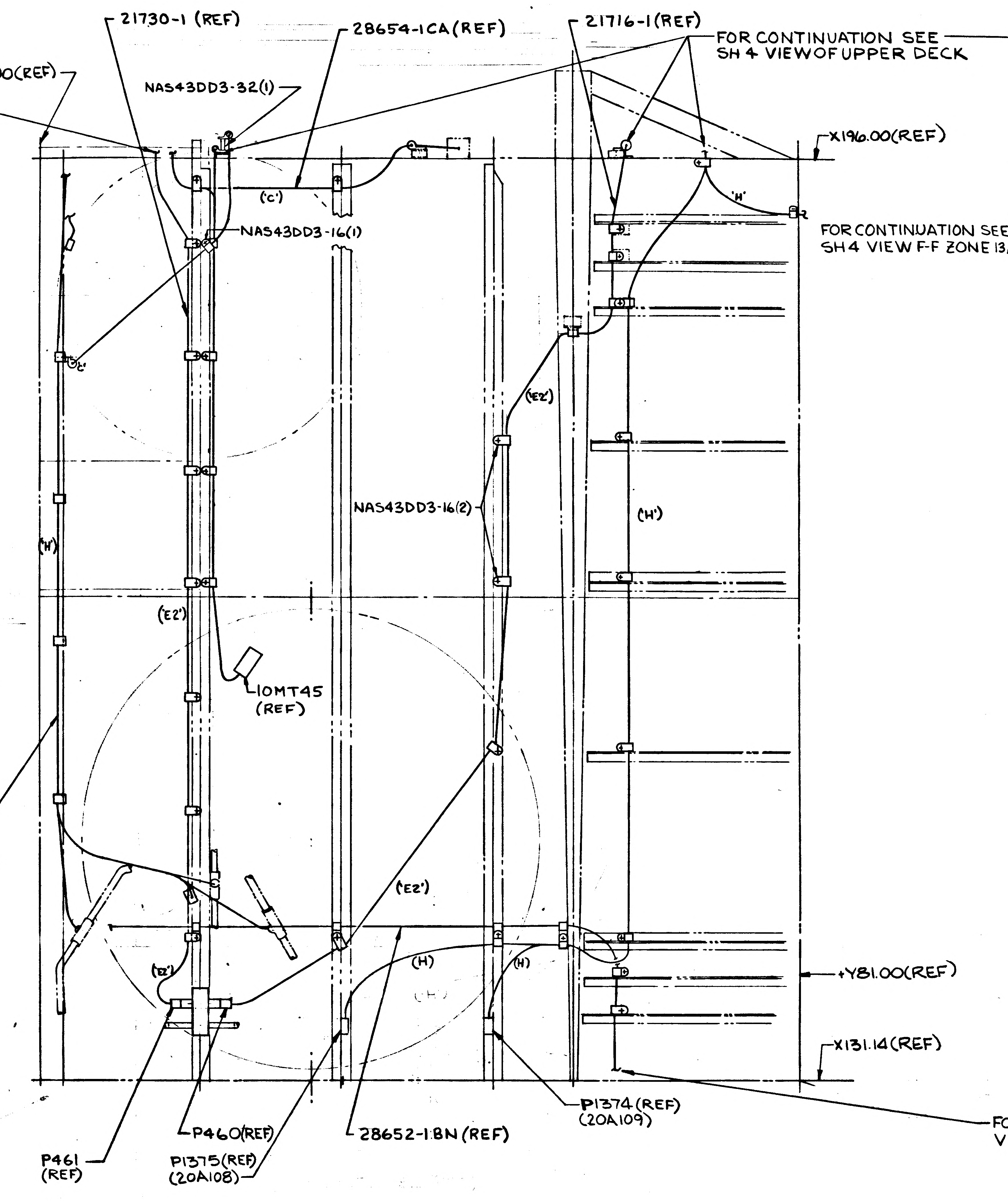
CODE IDENT NO. 26512
LDW280-28607
SH 6

3/3



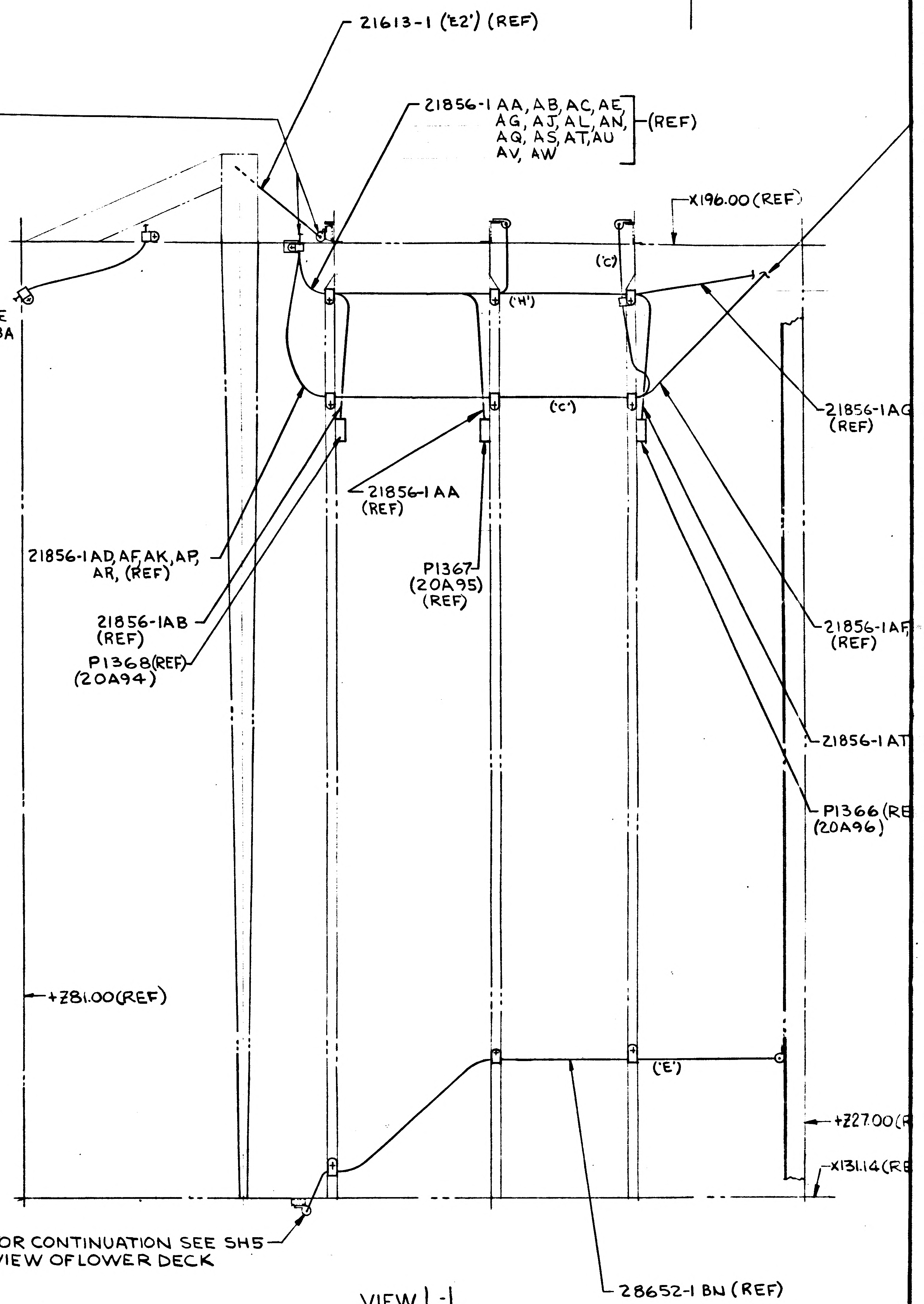
FOR CONTINUATION SEE SH4 VIEW OF UPPER DECK
21645-1AA
28857-1BS,BT (REF)
28954-1AA,AB
28652-1AD,AE,AG,AJ,AK,AP
28654-1BB,BL,BM,BN,BX
28857-1AS,AX
(REF)
28652-1AG,AJ,AK (REF)
GB511J-04-2(4)
AN960D4L (8)
MS21042L04(4)
(TYP 6 PLACES)
FOR CONTINUATION SEE SHT 4 VIEW OF UPPER DECK
X196.0 (REF)
28652-1AF,AH
28972-1AA (REF)
43DD3-32(1)
('H')
7RT16(REF)
E4215, E4217
28654-1BX (REF)
J727(REF
J737 (REF)
(A)
('C')
('E')
('B')
AD
('A')
ZONE 32A
AD
28652-1AB(REF)
28652-1AQ (REF)
('H')
BR-08-10
NOTE 7)
21645-1AA
28652-1AA,AF,AH
28857-1BS,BT
28954-1AA,AB
28972-1AA,AB
(REF)
10MT45 (REF)
28652-1AC
FROM P174-TO J737(REF)
E3218,E3219 (REF)
E3220,E3221,E3222 (REF)
28652-1(REF)
28654-1AE,AH,AK,AQ (REF)
10MT47
E2682~E2684
28654-1AQ (REF)
10MT48
E2686~E2688
28654-1AE (REF)
10MT50
E2674~E2676
28654-1AK (REF)
('E')
X131.14 (REF)
Z81.0 (REF)
Z27.0 (REF)
10MT49
E2670~E2672
28654-1AH (REF)
28652-1BN (REF)
(REF)
FOR CONTINUATION SEE SHT 5 VIEW OF LOWER DECK

VIEW N-N



21730-1 (REF)
28654-1CA (REF)
21716-1 (REF)
FOR CONTINUATION SEE SH 4 VIEW OF UPPER DECK
+Y27.00 (REF)
NAS43DD3-32(1)
X196.00 (REF)
('C')
NAS43DD3-16(1)
('H')
FOR CONTINUATION SEE SH4 VIEW F-F ZONE 13A
('E2')
('H')
NAS43DD3-16(2)
('H')
('E2')
10MT45 (REF)
('E2')
(E2)
(H)
(H)
+Y81.00 (REF)
X131.14 (REF)
P461 (REF)
P460(REF)
P1375(REF) (20A108)
28652-1BN (REF)
P1374 (REF) (20A109)
FOR CONTINUATION SEE SH5 VIEW OF LOWER DECK

VIEW M-M
(ROTATED 90° CCW)



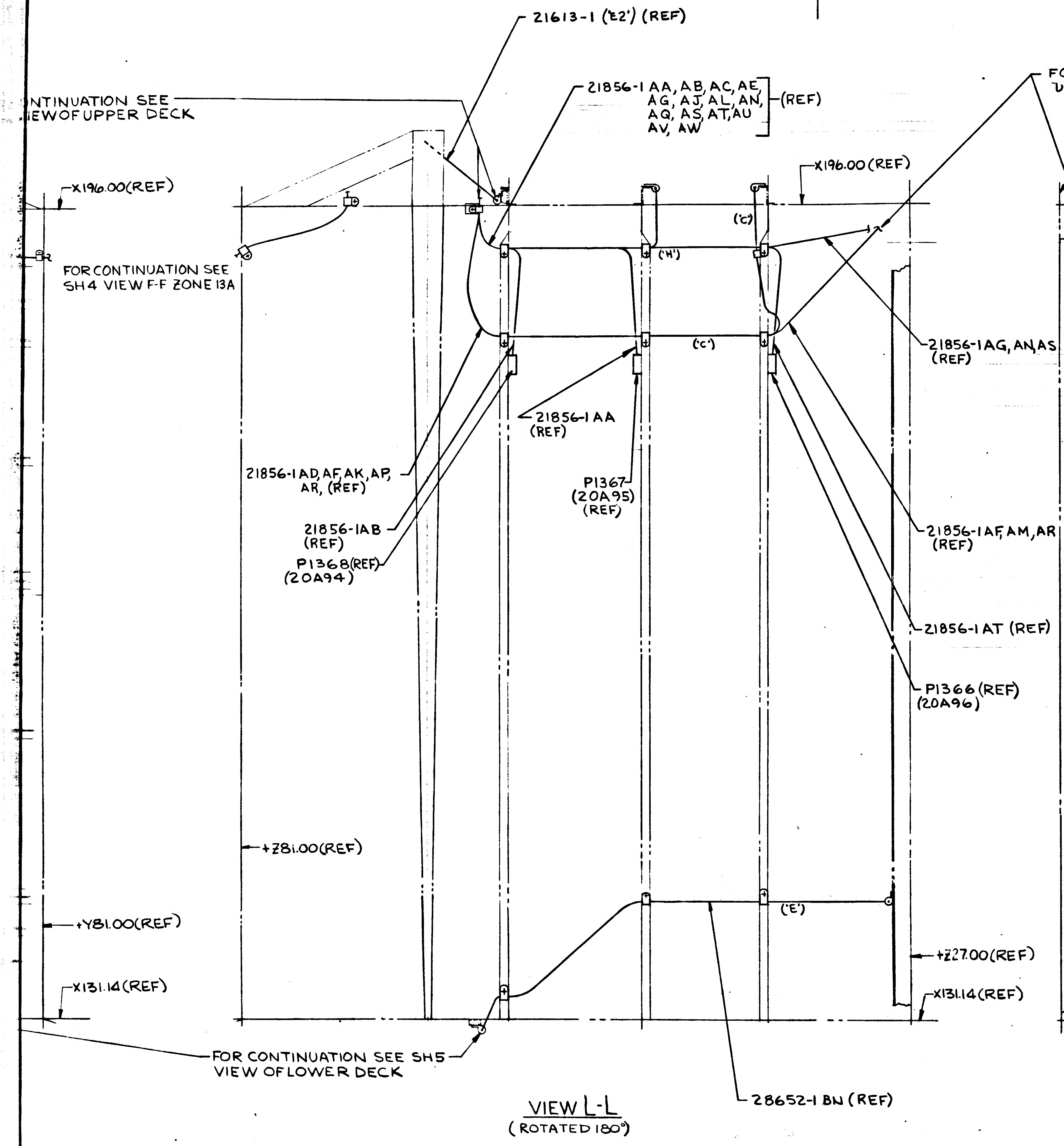
21613-1 ('E2') (REF)
21856-1AA,AB,AC,AE,
AG,AJ,AL,AN,
AQ,AS,AT,AU
AV,AW (REF)
X196.00 (REF)
('C')
('H')
('C')
21856-1AG (REF)
21856-1AA (REF)
21856-1AD,AF,AK,AP,
AR, (REF)
21856-1AB (REF)
P1368(REF) (20A94)
P1367 (20A95) (REF)
21856-1AF (REF)
21856-1AT
P1366 (RE (20A96)
+Z81.00 (REF)
('E')
+Z27.00 (R
X131.14 (RE
28652-1BN (REF)

VIEW L-L
(ROTATED 180°)

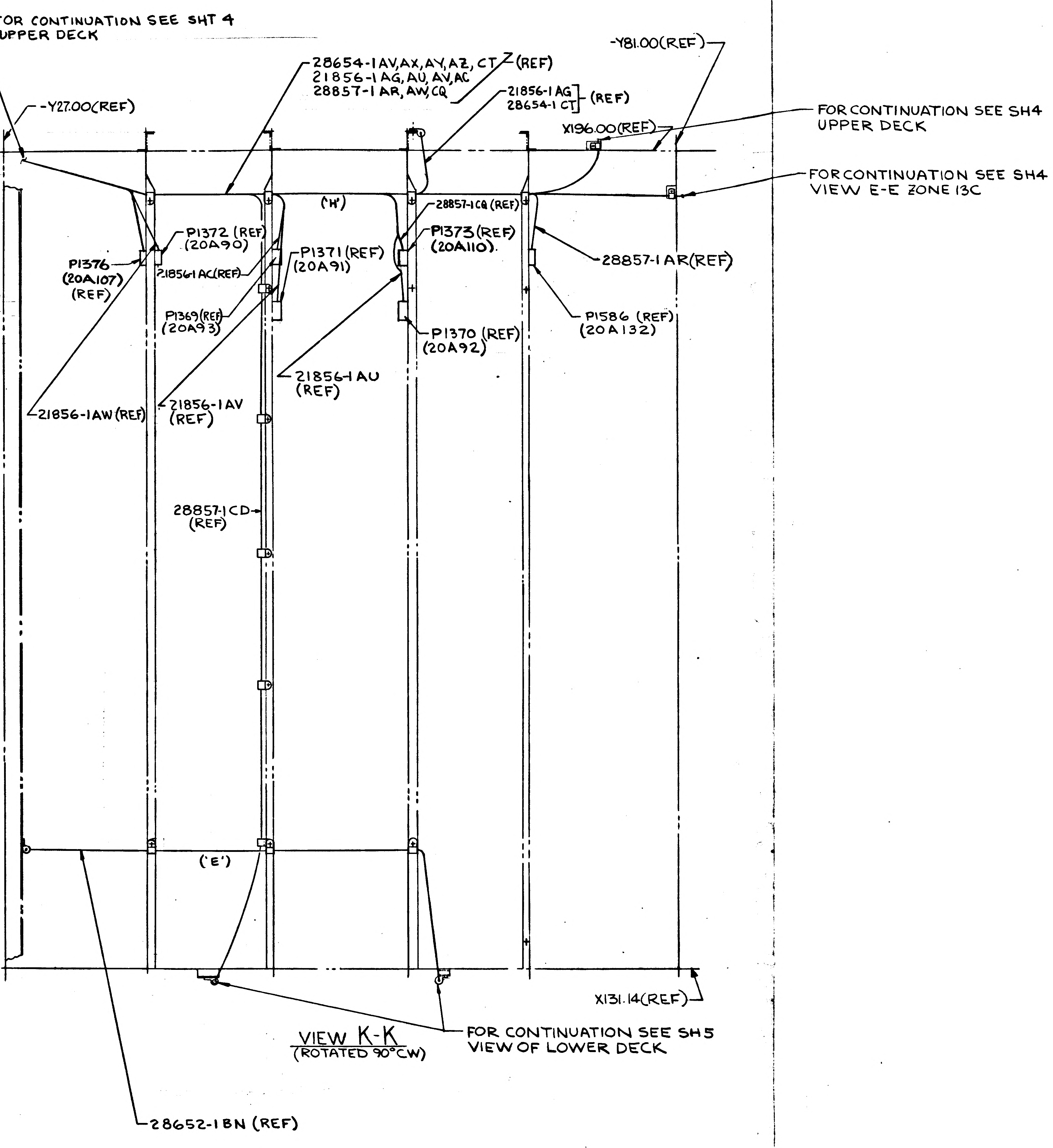
02/03 NAS 9-1100

CODE IDENT NO. 26512
LDW280-28607 SH 6

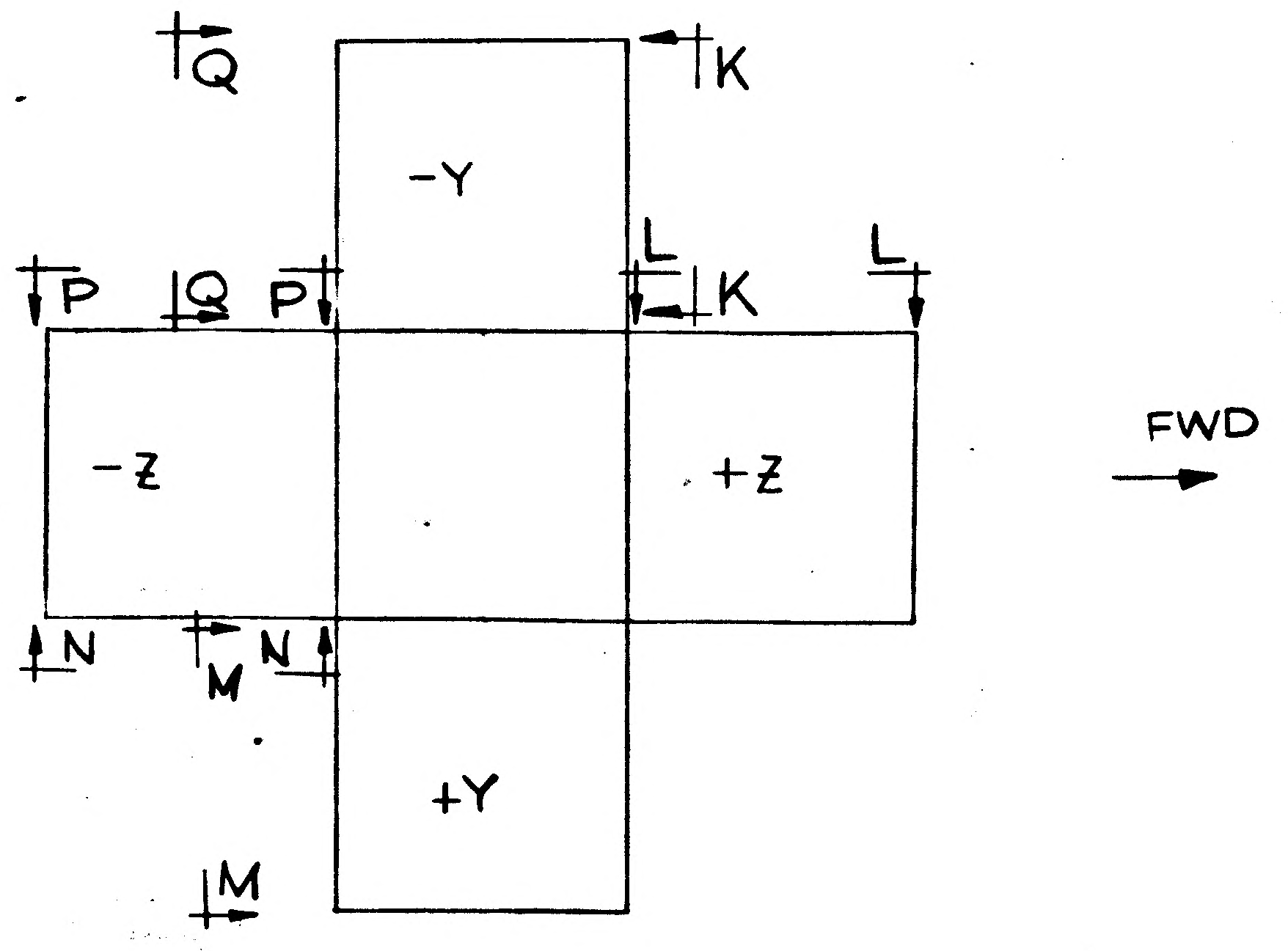
CODE IDENT NO. 26512
LDW280-28607 SH 6


21613-1 ('E2') (REF)
NTINUATION SEE
IEW OF UPPER DECK
21856-1AA, AB, AC, AE, AG, AJ, AL, AN, AQ, AS, AT, AU AV, AW (REF)
-X196.00(REF)
X196.00 (REF)
('C')
('H')
('C')
FOR CONTINUATION SEE SH4 VIEW F-F ZONE 13A
21856-1AG, AN, AS (REF)
21856-1AA (REF)
21856-1AD, AF, AK, AP, AR, (REF)
21856-1AB (REF)
P1368(REF) (20A94)
P1367 (20A95) (REF)
21856-1AF, AM, AR (REF)
21856-1AT (REF)
P1366 (REF) (20A96)
+Z81.00(REF)
+Y81.00(REF)
('E')
+Z27.00(REF)
X131.14(REF)
X131.14(REF)
FOR CONTINUATION SEE SH5 VIEW OF LOWER DECK
28652-1 BN (REF)

VIEW L-L
(ROTATED 180°)


FOR CONTINUATION SEE SHT 4 UPPER DECK
-Y27.00(REF)
28654-1AV, AX, AY, AZ, CT
21856-1AG, AU, AV, AC
28857-1AR, AW, CQ (REF)
21856-1AG
28654-1CT (REF)
-Y81.00(REF)
X196.00(REF)
FOR CONTINUATION SEE SH4 UPPER DECK
FOR CONTINUATION SEE SH4 VIEW E-E ZONE 13C
('H')
28857-1CQ (REF)
P1372 (REF) (20A90)
P1376 (20A107) (REF)
21856-1AC(REF)
P1371 (REF) (20A91)
P1373 (REF) (20A110).
28857-1AR(REF)
P1369(REF) (20A93)
P1370 (REF) (20A92)
P1586 (REF) (20A132)
21856-1AU (REF)
21856-1AW (REF)
21856-1AV (REF)
28857-1CD (REF)
('E')
X131.14(REF)
FOR CONTINUATION SEE SH5 VIEW OF LOWER DECK
28652-1BN (REF)

VIEW K-K
(ROTATED 90° CW)


Q
K
-Y
P
Q
P
L
K
L
-Z
+Z
N
M
N
+Y
M
FWD

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 118

30 SQ. FT.
7.5 SQ. FT.
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 120)=
1/2 SIZE SHEET AREA (1/4 OF FULL)=
PRINT TRIM LINE

C

B

A

LDW280-28607

LDW280-28607

03/03

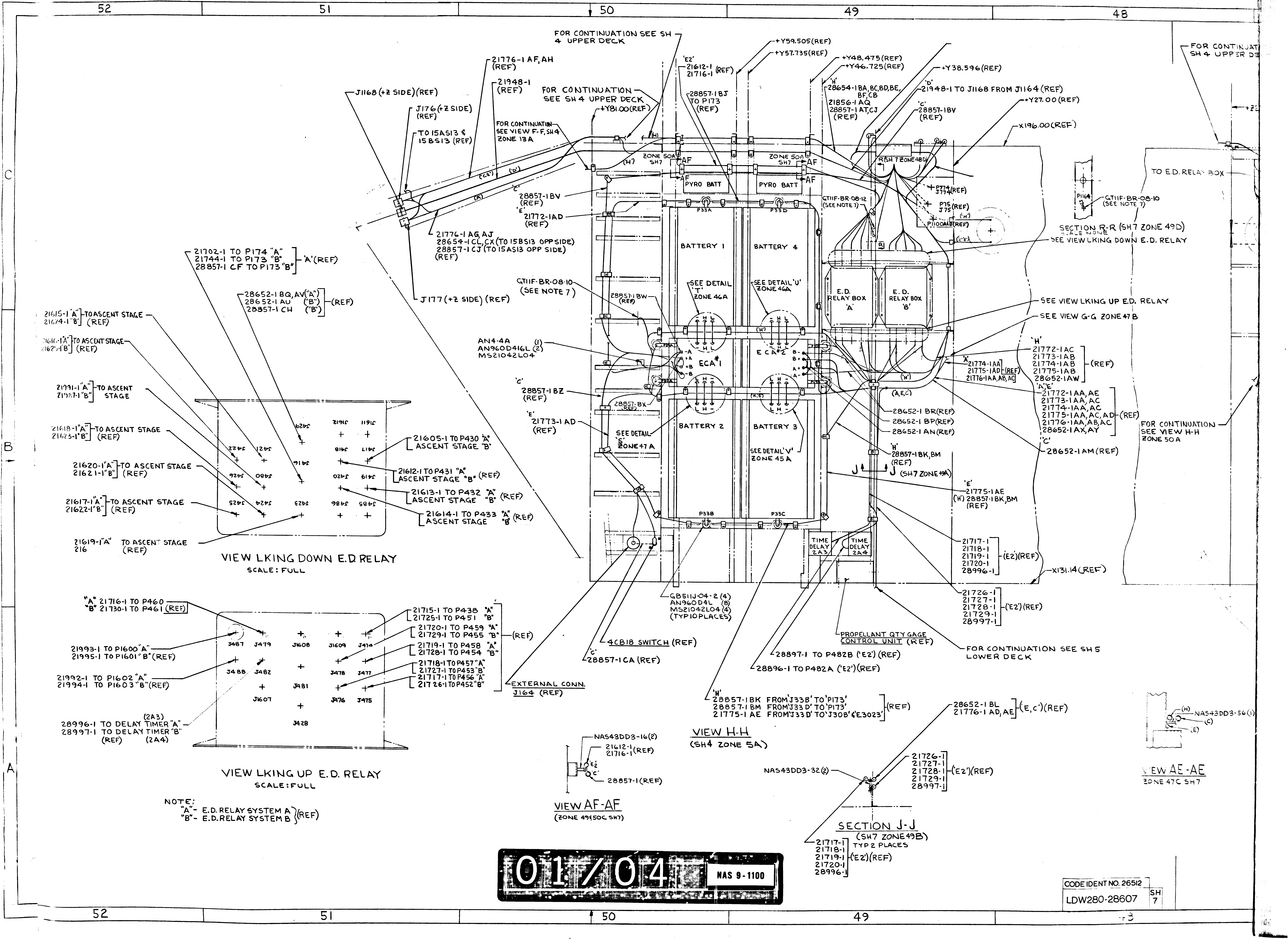
NAS 9-1100

CODE IDENT NO. 26512
LDW280-28607 SH 6

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
J	26512	LDW280-28607

LM
MODEL OR END ITEM
SCALE 1/4
SHEET 6



52
51
50
49
48
C
B
A
FOR CONTINUATION SEE SH 4 UPPER DECK
21776-1 AF, AH (REF)
21948-1 (REF)
J1168 (+Z SIDE) (REF)
J176 (+Z SIDE) (REF)
TO 15AS13 & 15BS13 (REF)
FOR CONTINUATION SEE SH 4 UPPER DECK
+Y81.00 (REF)
FOR CONTINUATION SEE VIEW F-F, SH4 ZONE 13A
'E2' 21612-1 21716-1 (REF)
28857-1BJ TO P173 (REF)
+Y59.505 (REF)
+Y57.735 (REF)
+Y48.475 (REF)
+Y46.725 (REF)
+Y38.596 (REF)
'H' 28654-1BA, BC, BD, BE, BF, CB 21856-1AQ 28857-1AT, CJ (REF)
'D' 21948-1 TO J1164 FROM J1164 (REF)
'C' 28857-1BV (REF)
+Y27.00 (REF)
X196.00 (REF)
ZONE 50A SH7
AF
PYRO BATT
PYRO BATT
R(SH7 ZONE 48D)
P774 J774 (REF)
P75 J75 (REF)
P1100 (REF)
GT11F-BR-08-12 (SEE NOTE 7)
28857-1BV (REF)
'E' 21772-1AD (REF)
P33A
P33D
BATTERY 1
BATTERY 4
SEE DETAIL 'T' ZONE 46A
SEE DETAIL 'U' ZONE 46A
E.D. RELAY BOX 'A'
E.D. RELAY BOX 'B'
21776-1AG, AJ 28654-1CL, CX (TO 15BS13 OPP SIDE) 28857-1CJ (TO 15AS13 OPP SIDE) (REF)
J177 (+Z SIDE) (REF)
21702-1 TO P174 "A" 21744-1 TO P173 "B" 28857-1 CF TO P173 "B" 'A' (REF)
28652-1BQ, AV ("A") 28652-1AU ("B") 28857-1CH ("B") (REF)
GT11F-BR-08-10 (SEE NOTE 7)
28857-1BW (REF)
AN4-4A (1) AN960D416L (2) MS21042L04
ECA 1
ECA 2
'C' 28857-1BZ (REF)
28857-BX (REF)
'E' 21773-1AD (REF)
SEE DETAIL 'S' ZONE 47A
BATTERY 2
BATTERY 3
SEE DETAIL 'V' ZONE 45A
P33B
P33C
TIME DELAY 2A3
TIME DELAY 2A4
TO E.D. RELAY BOX
P1164
GT11F-BR-08-10 (SEE NOTE 7)
SECTION R-R (SH7 ZONE 49D) SCALE NONE
SEE VIEW LKING DOWN E.D. RELAY
SEE VIEW LKING UP E.D. RELAY
SEE VIEW G-G ZONE 47B
'A' 21774-1AA 21775-1AD (REF) 21776-1AA, AB, AC
'H' 21772-1AC 21773-1AB 21774-1AB 21775-1AB 28652-1AW (REF)
'A', 'E' 21772-1AA, AE 21773-1AA, AC 21774-1AA, AC 21775-1AA, AC, AD 21776-1AA, AB, AC 28652-1AX, AY (REF)
'C' 28652-1AM (REF)
(A, E, C)
28652-1BR (REF)
28652-1BP (REF)
28652-1AN (REF)
'H' 28857-1BK, BM (REF)
J J (SH7 ZONE 49A)
'E' 21775-1AE ('H') 28857-1BK, BM (REF)
FOR CONTINUATION SEE VIEW H-H ZONE 50A
21717-1 21718-1 21719-1 21720-1 28996-1 ('E2') (REF)
X131.14 (REF)
21726-1 21727-1 21728-1 21729-1 28997-1 ('E2') (REF)
FOR CONTINUATION SEE SH 5 LOWER DECK
PROPELLANT QTY GAGE CONTROL UNIT (REF)
28897-1 TO P482B ('E2') (REF)
28896-1 TO P482A ('E2') (REF)
GB511J-04-2 (4) AN960D4L (8) MS21042L04 (4) (TYP 10 PLACES)
4CB18 SWITCH (REF)
'C' 28857-1CA (REF)
EXTERNAL CONN. J164 (REF)
'H' 28857-1BK FROM 'J33B' TO 'P173' 28857-1BM FROM 'J33D' TO 'P173' 21775-1AE FROM 'J33D' TO 'J30B' & 'E3023' (REF)
VIEW H-H (SH4 ZONE 5A)
28652-1BL 21776-1AD, AE (E, C') (REF)
21615-1 "A" 21674-1 "B" TO ASCENT STAGE (REF)
21616-1 "A" 21625-1 "B" TO ASCENT STAGE (REF)
21991-1 "A" 21987-1 "B" TO ASCENT STAGE
21618-1 "A" 21623-1 "B" TO ASCENT STAGE (REF)
21620-1 "A" 21621-1 "B" TO ASCENT STAGE (REF)
21617-1 "A" 21622-1 "B" TO ASCENT STAGE (REF)
21619-1 "A" 216 TO ASCENT STAGE (REF)
J429 J1915 J1911
J422 J421 J418 J417
J480 J416
J426 J420 J419
J425 J424 J423 J486 J485
21605-1 TO P430 "A" ASCENT STAGE "B"
21612-1 TO P431 "A" ASCENT STAGE "B" (REF)
21613-1 TO P432 "A" ASCENT STAGE "B" (REF)
21614-1 TO P433 "A" ASCENT STAGE "B" (REF)
VIEW LKING DOWN E.D RELAY
SCALE: FULL
"A" 21716-1 TO P460 "B" 21730-1 TO P461 (REF)
21993-1 TO P1600 "A" 21995-1 TO P1601 "B" (REF)
21992-1 TO P1602 "A" 21994-1 TO P1603 "B" (REF)
28996-1 TO DELAY TIMER "A" (2A3) 28997-1 TO DELAY TIMER "B" (REF) (2A4)
J487 J479 J1608 J1609 J474
J488 J482 J478 J477
J481 J1607 J476 J475 J428
21715-1 TO P438 "A" 21725-1 TO P451 "B"
21720-1 TO P459 "A" 21729-1 TO P455 "B" (REF)
21719-1 TO P458 "A" 21728-1 TO P454 "B"
21718-1 TO P457 "A" 21727-1 TO P453 "B"
21717-1 TO P456 "A" 21726-1 TO P452 "B"
VIEW LKING UP E.D. RELAY
SCALE: FULL
NOTE: "A" - E.D. RELAY SYSTEM A "B" - E.D. RELAY SYSTEM B (REF)
NAS43DD3-16 (2)
21612-1 21716-1 (REF)
E2
C'
28857-1 (REF)
VIEW AF-AF (ZONE 49 & 50C SH7)
NAS43DD3-32 (2)
21726-1 21727-1 21728-1 21729-1 28997-1 ('E2') (REF)
SECTION J-J (SH7 ZONE 49B)
21717-1 21718-1 21719-1 21720-1 28996-1 TYP 2 PLACES ('E2') (REF)
(H) NAS43DD3-56 (1)
(C)
(E)
VIEW AE-AE ZONE 47C SH7
FOR CONTINUATION SEE SH 4 UPPER DECK

01/04

NAS 9-1100

CODE IDENT NO. 26512

LDW280-28607

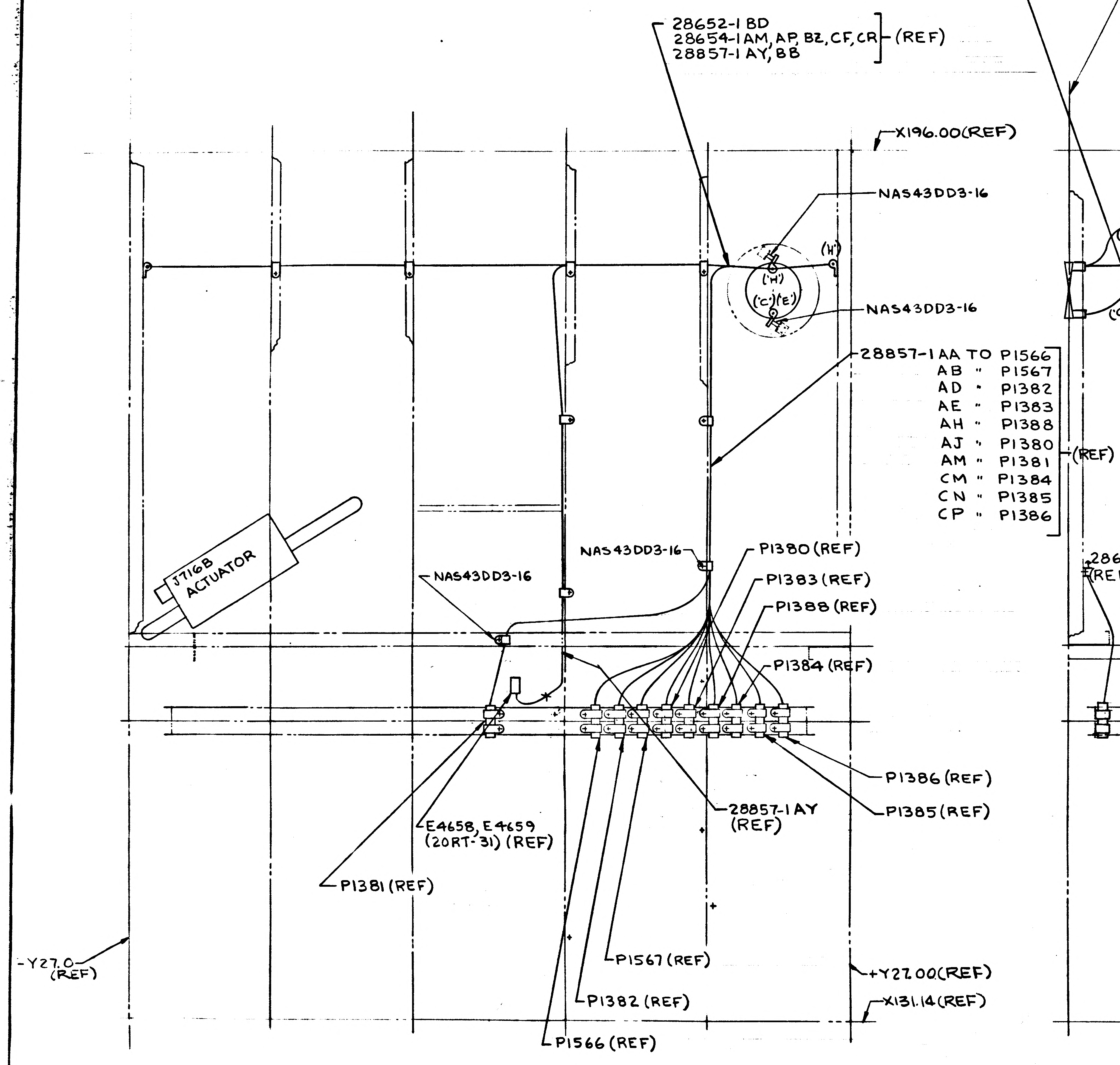
SH 7

02/04 NAS 9-1100

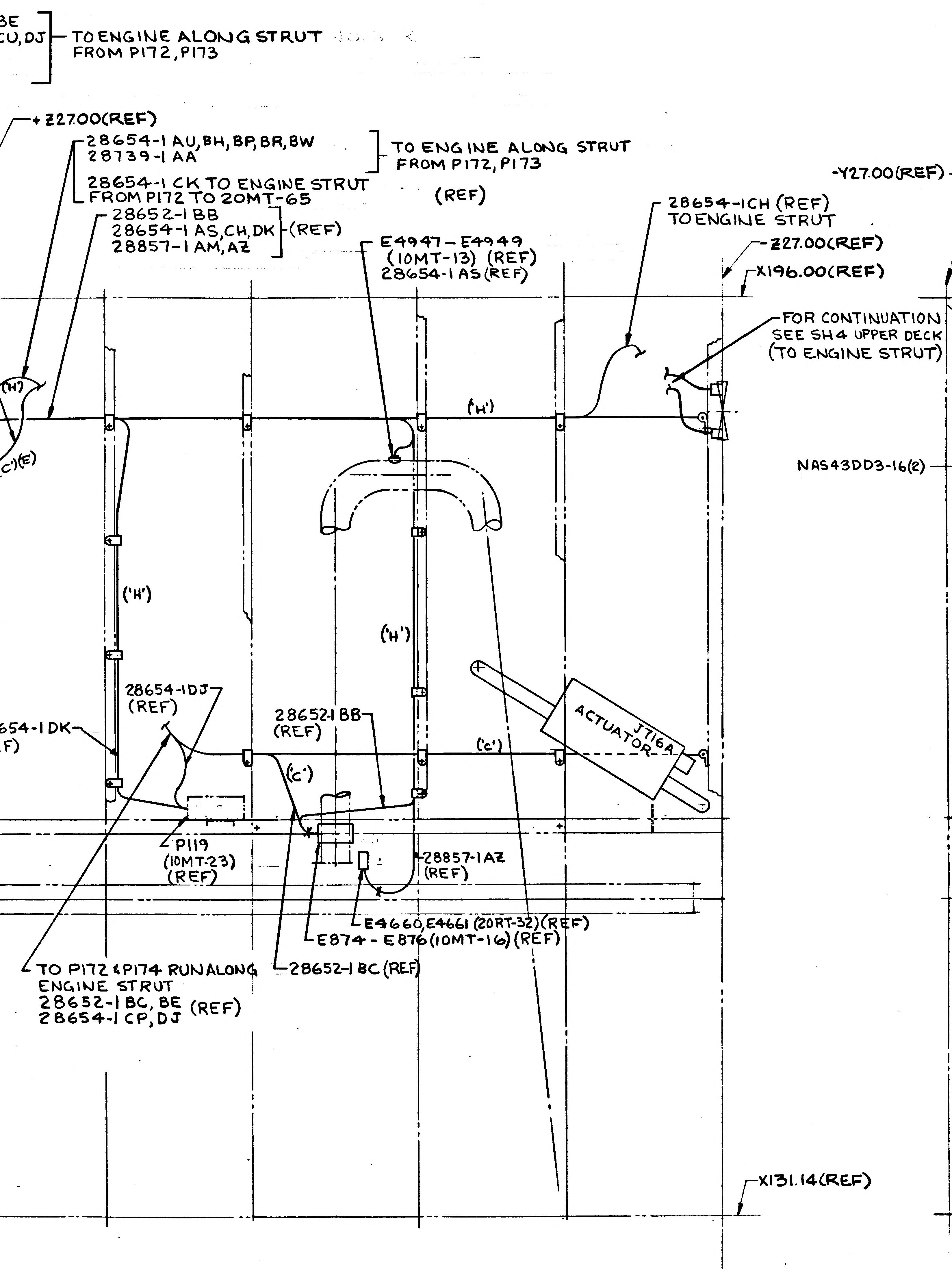
48
47
46
45
44
FOR CONTINUATION SEE SH 4 UPPER DECK
+Z38.483 (REF)
+Z65.906 (REF)
28654-1 AG BJ
28857-1 BD,BF,BG (REF)
28652-1 AT
28857-1 BG,BH,BE,AN,AP,AU,AV
28654-1 AW,BK (REF)
+Z81.00(REF)
X196.00(REF)
Z27.00(REF)
FOR CONTINUATION SEE SH4 UPPER DECK
(E2)
ZONE 48A SH7
AE
(H')
(E')
TO E.D. RELAY BOX
P774 J774
P75 J75
P101A P101B
GT11F-BR-08-12 (SEE NOTE 7)
GT11F-BR-08-10 (SEE NOTE 7)
P1164
SECTION R-R (SH7 ZONE 49D)
SCALE NONE
VIEW LKING DOWN E.D. RELAY
VIEW LKING UP E.D. RELAY
VIEW G-G ZONE 47B
FOR CONTINUATION SEE SH4 VIEW C-C ZONE 3B
28857-1 BH (REF)
2ORT30 +Z APEX ONLY (REF)
GT535U-8 SEE NOTE #11
FOR CONTINUATION SEE SH4 VIEW CC ZONE 3B
+Z81.00 (REF)
SPLICE LANDING LEG WIRES IN THIS AREA
28857-1 AU +Z (SHOWN) (REF)
2RT-1 +Z AXIS SHOWN (REF)
2RT13 +Z (REF)
28857-1 BE +Z ONLY (REF)
LANDING LEG CROSS BRACE (REF)
J716B ACTUATOR
VIEW W-W ZONE 46B SH7
28652-1 BN (REF)
(D)
(E)
(F')
(H')
(A,E,C)
FOR CONTINUATION SEE VIEW H-H ZONE 50A
FOR CONTINUATION SEE SH4 VIEW C-C ZONE 3B
S2895 (REF)
S2894 (REF)
2S16 (FROM P173 TO S2894, FROM S2895 TO S2896) (SEE SH4 VIEW CC ZONE 3B) FOR CONTINUATION SEE SH4 VIEWS CC, D-D, E-E & FF (REF)
W
W ZONE 44B SH7
2S16, E2892, E2893, 28654-1 BG (+Z ONLY) SEE SH4 VIEW C-C ZONE 2B
2S18, E2890, E2891, 28654-1 BA (+Y ONLY) SEE SH4 VIEW F-F ZONE 13A (REF)
X131.14 (REF)
131.14 (REF)
28857-1 AV (+Z SHOWN)
(2RT-2) (REF)
LANDING LEG CROSS BRACE (REF)
28857-1 BD +Z SHOWN (REF)
28652-1 BM
28857-1 BU, CE (REF)
28857-1 BR (REF)
FOR CONTINUATION SEE SH 5 LOWER DECK
FOR CONTINUATION SEE SH 5 LOWER DECK
2RT13 +Z R.H. SIDE ONLY (REF)
28857-1 BE (REF)
21961-1 (REF)
21643-1 (REF)
21962-1 (REF)
21956-1 (REF)
21644-1 (REF)
21955-1 (REF)
21964-1 (REF)
21642-1 (REF)
21963-1 (REF)
21965-1 (REF)
21641-1 (REF)
21966-1 (REF)
2RT-12 +Z STRUT (REF) ON L.H. SIDE ONLY
28652-1 AT +Z (SHOWN)
28857-1 AW -Y
28857-1 AX -Z
28857-1 BC +Y (REF)
2RT-3 +Z AXIS SHOWN
2RT-4 -Y
2RT-5 -Z
2RT-6 +Y (REF)
28857-1 AP (SHOWN)
AR (-Y)
AS (-Z)
AT (+Y) (REF)
2RT-8 +Z AXIS (SHOWN)
2RT-14 -Y AXIS
2RT-10 -Z AXIS
2RT-15 +Y AXIS (REF)
28857-1 AN FOR +Z PAD ONLY (REF)
2RT-7 +Z ONLY (REF)
LANDING LEG SHOWN IN THIS POSITION FOR REF
-Y27.0 (REF)
P1381 (REF)
VIEW OF +Z W
(LOOKING OUTBRD
SEE SH5
1AC
1AB
1AB
1AB
2-1AW (REF)
72-1AA, AE
73-1AA, AC
74-1AA, AC
75-1AA, AC, AD
76-1AA, AB, AC
52-1AX, AY (REF)
652-1AM (REF)
REF)
EF)
NAS43DD3-56 (1)
(H)
(C)
(E)
VIEW AE-AE
ZONE 47C SH7
VIEW G-G
(SH4 ZONE 5A)
L H —
DETAIL S
ZONE 50B SCALE: NONE
DETAIL T
ZONE 50C SCALE: NONE
DETAIL U
ZONE 50C SCALE: NONE
DETAIL V
ZONE 50B SCALE: NONE

CODE IDENT NO. 26512
LDW280-28607 SH 7

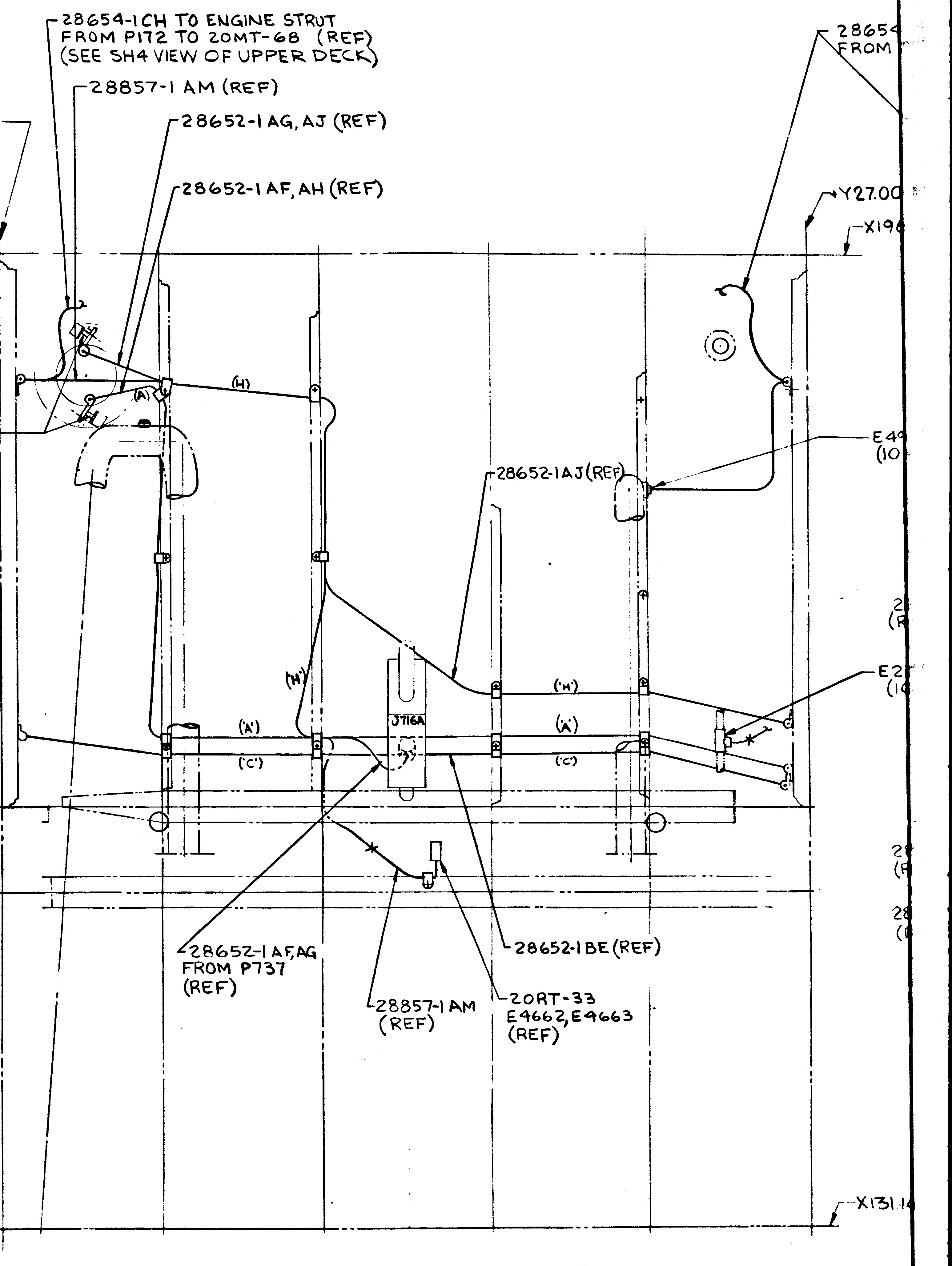
CODE IDENT NO. 26512
LDW280-28607 SH 7


28652-1BD
28654-1AM, AP, BZ, CF, CR (REF)
28857-1AY, BB
X196.00(REF)
NAS43DD3-16
('H')
('H')
('C')('E')
NAS43DD3-16
28857-1AA TO P1566
AB " P1567
AD " P1382
AE " P1383
AH " P1388
AJ " P1380
AM " P1381
CM " P1384
CN " P1385
CP " P1386
(REF)
J716B ACTUATOR
NAS43DD3-16
NAS43DD3-16
P1380 (REF)
P1383 (REF)
P1388 (REF)
P1384 (REF)
P1386 (REF)
P1385 (REF)
28857-1AY (REF)
E4658, E4659 (20RT-31) (REF)
P1381 (REF)
P1567 (REF)
P1382 (REF)
P1566 (REF)
-Y27.0 (REF)
+Y27.00(REF)
X131.14(REF)

VIEW OF +Z WALL
(LOOKING OUTBRD)


28652-1BC, BE
28654-1CP, CU, DJ
28739-1AB
28857-1BP
(REF)
TO ENGINE ALONG STRUT FROM P172, P173
+Z27.00(REF)
28654-1AU, BH, BP, BR, BW
28739-1AA
TO ENGINE ALONG STRUT FROM P172, P173
(REF)
28654-1CK TO ENGINE STRUT FROM P172 TO 20MT-65
28652-1BB
28654-1AS, CH, DK (REF)
28857-1AM, AZ
E4947 - E4949 (10MT-13) (REF)
28654-1AS (REF)
28654-1CH (REF) TO ENGINE STRUT
-Z27.00(REF)
X196.00(REF)
FOR CONTINUATION SEE SH4 UPPER DECK (TO ENGINE STRUT)
('H')
('C')(E)
('H')
('H')
('H')
28654-1DJ (REF)
28654-1DK (REF)
28652-1BB (REF)
('C')
('C')
ACTUATOR J716A
P119 (10MT-23) (REF)
28857-1AZ (REF)
E4660, E4661 (20RT-32) (REF)
E874 - E876 (10MT-16) (REF)
28652-1BC (REF)
TO P172 & P174 RUN ALONG ENGINE STRUT
28652-1BC, BE (REF)
28654-1CP, DJ
X131.14(REF)

VIEW OF +Y WALL
(LOOKING OUTBRD)


28654-1CH TO ENGINE STRUT FROM P172 TO 20MT-68 (REF) (SEE SH4 VIEW OF UPPER DECK)
28857-1AM (REF)
-Y27.00(REF)
28652-1AG, AJ (REF)
28652-1AF, AH (REF)
NAS43DD3-16(2)
(A')
(H)
28652-1AJ(REF)
('H')
('H')
('A')
('A')
('C')
('C')
J716A
28652-1AF, AG FROM P737 (REF)
28857-1AM (REF)
28652-1BE (REF)
20RT-33 E4662, E4663 (REF)
+Y27.00
X196
X131.14

VIEW OF -Z WALL
(LOOKING OUTBRD)

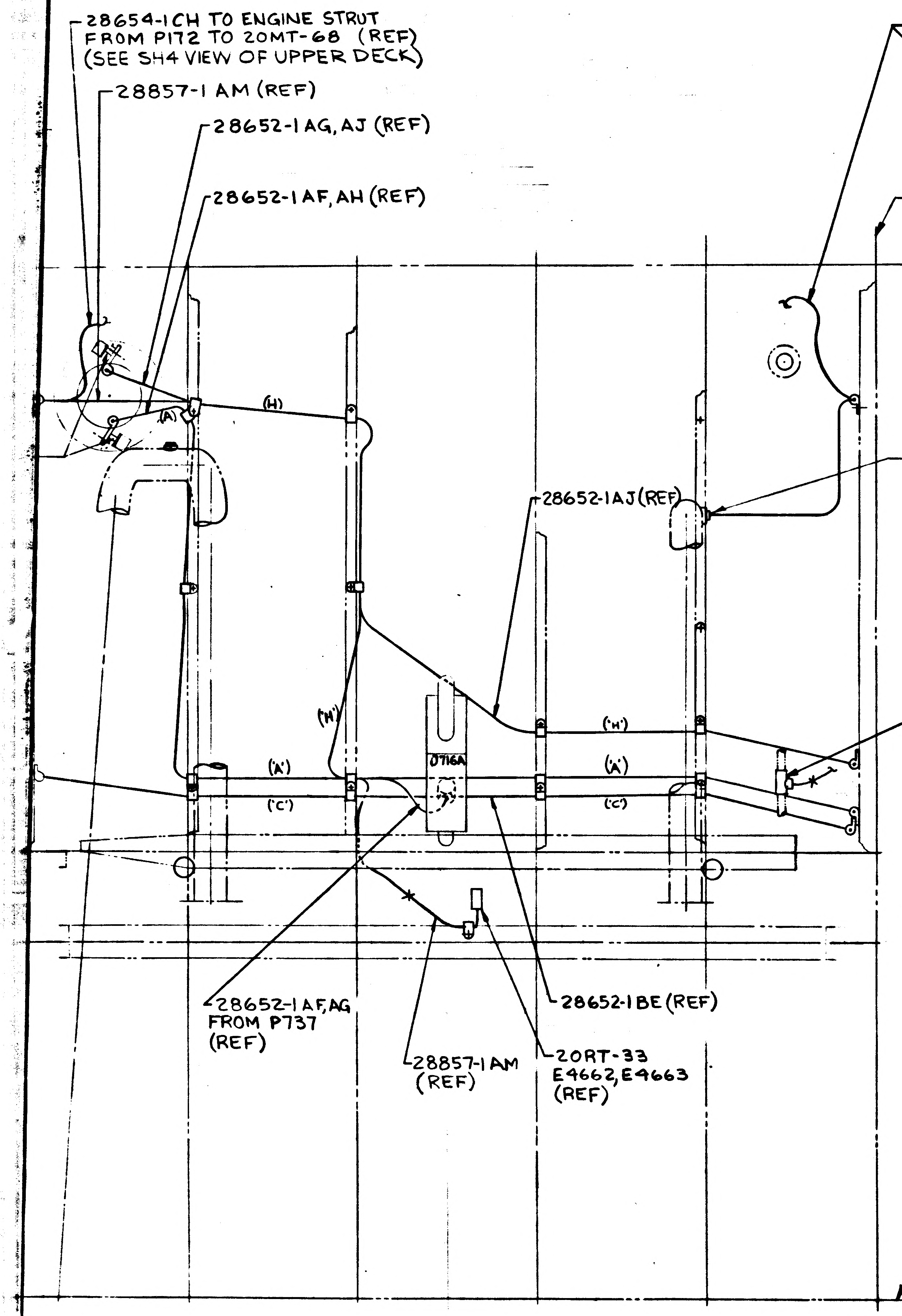
H(W.I.) (REF)

28857-1AN FOR +Z PAD ONLY (REF)

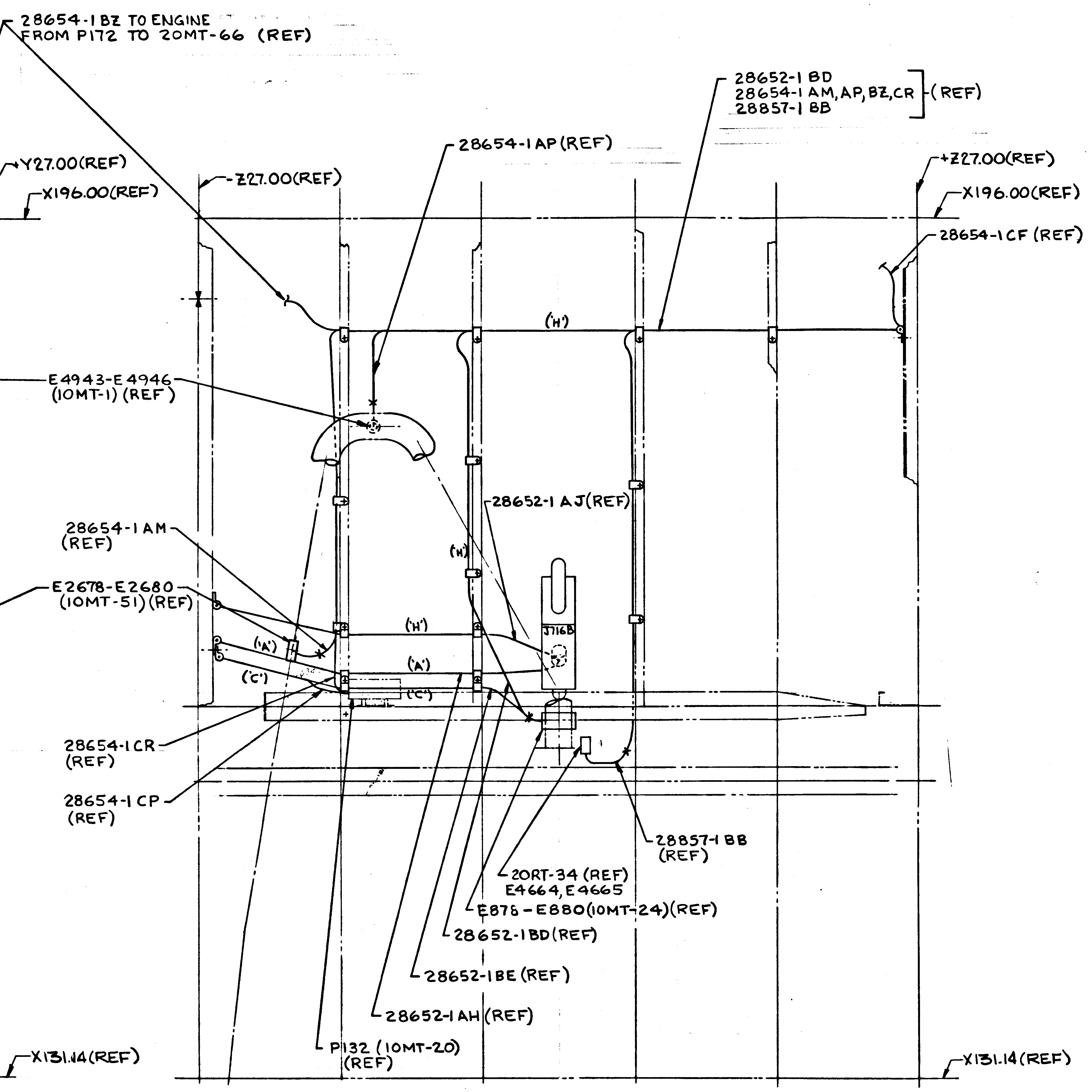
03704 NAS 9-1100

CODE IDENT NO. 26512
LDW280-28607 SH 7

CODE IDENT NO. 26512
LDW280-28607 SH 7


28654-1CH TO ENGINE STRUT
FROM P172 TO 20MT-68 (REF)
(SEE SH4 VIEW OF UPPER DECK)
28857-1 AM (REF)
28652-1AG, AJ (REF)
28652-1AF, AH (REF)
Y27.00(REF)
X196.00(REF)
28652-1AJ(REF)
('H')
('A')
('C')
J716A
28652-1AF,AG
FROM P737
(REF)
28857-1AM
(REF)
20RT-33
E4662,E4663
(REF)
28652-1BE (REF)
X131.14(REF)

VIEW OF -Z WALL
(LOOKING OUTBRD)


28654-1BZ TO ENGINE
FROM P172 TO 20MT-66 (REF)
-Z27.00(REF)
28654-1AP(REF)
28652-1 BD
28654-1 AM, AP, BZ, CR -(REF)
28857-1 BB
+Z27.00(REF)
X196.00(REF)
28654-1CF (REF)
E4943-E4946
(10MT-1) (REF)
28652-1 AJ(REF)
28654-1 AM
(REF)
E2678-E2680
(10MT-51)(REF)
('H')
('A')
('C')
J716B
28654-1CR
(REF)
28654-1CP
(REF)
28857-1 BB
(REF)
20RT-34 (REF)
E4664, E4665
E876-E880(10MT-24)(REF)
28652-1BD(REF)
28652-1BE (REF)
28652-1AH (REF)
P132 (10MT-20)
(REF)
X131.14(REF)

VIEW OF -Y WALL
(LOOKING OUTBRD)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP THDS.
BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003 MIN.
TO .0005 MAX. MIN. THICKNESS TO
BE .0002 ON THREADED AREAS.
NO ALLOWANCE FOR PLATING IN
HOLES

125 SURFACE ROUGHNESS
INCLUDING REAMED HOLES
PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE
TO BE MACHINED

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY
RIVETS SHORTER THAN 1 INCH ARE
NOT SPECIFIED.

TOLERANCE ON LOFTED
DELINEATIONS IS

DWG SIZE 34 X 166

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 168)= 42 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 10.5 SQ. FT.

PRINT TRIM LINE

LDW280-28607

LDW280-28607

04/04

NAS 9-1100

CODE IDENT NO. 26512
LDW280-28607 SH 7

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
J	26512	LDW280-28607

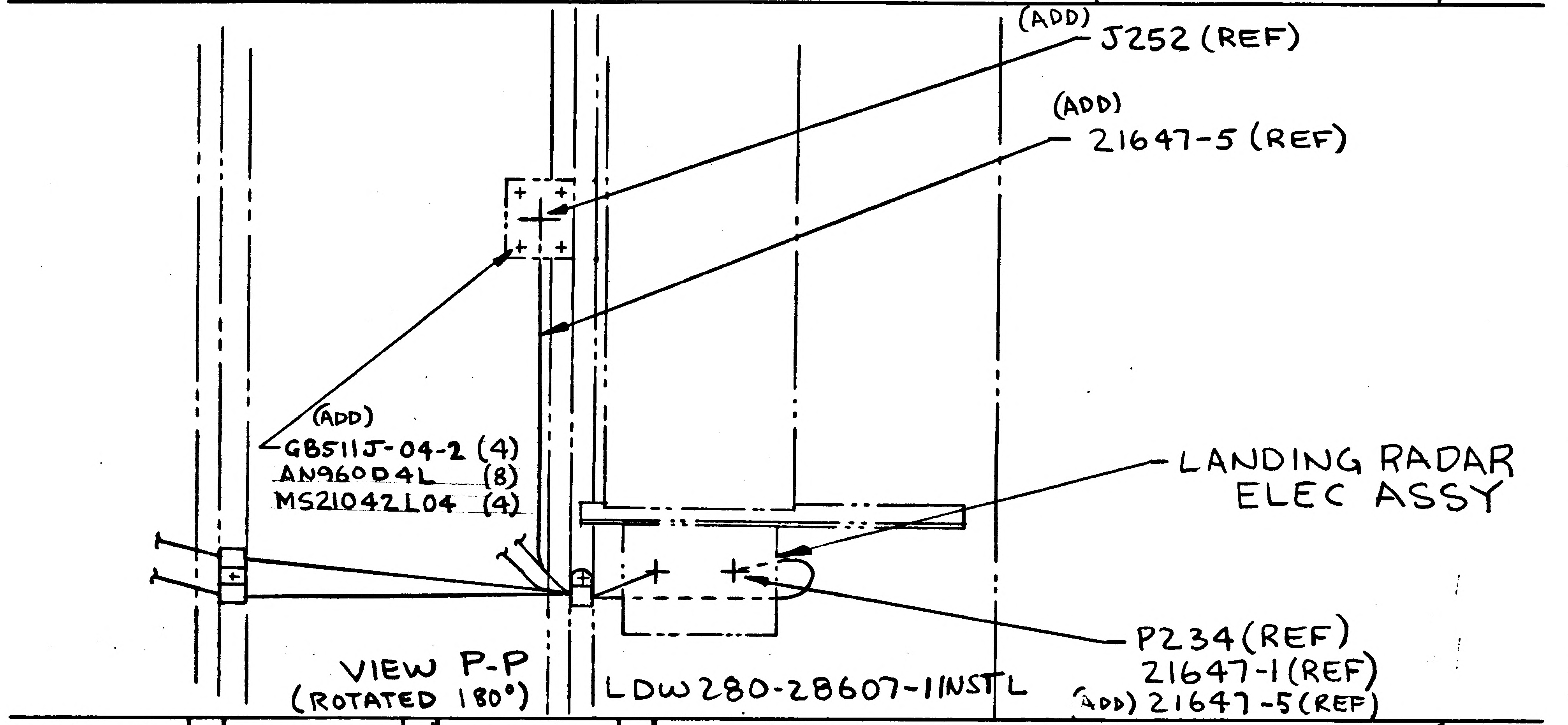
LM
MODEL OR END ITEM
SCALE 1/4
SHEET 7

B RELEASED BY LIAISON *

ENG 32.1

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28607
EO NO. A1
CONTROL INFO NO. LM-5-12111


(ADD) J252 (REF)
(ADD) 21647-5 (REF)
(ADD)
GB511J-04-2 (4)
AN960D4L (8)
MS21042L04 (4)
LANDING RADAR ELEC ASSY
P234(REF)
21647-1(REF)
(ADD) 21647-5(REF)
VIEW P-P (ROTATED 180°)
LDW280-28607-1INSTL

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO	ADDITION OF CABLE RUN AND CONNECTOR WITH ASSOC HDW
DESCRIPTION OF EO	IN F/D FIXED PIX ADDED CABLE RUN 21647-5(REF) & INSTL J252(REF) CONN. IN F/D & B/M ADDED GB511J-04-2(4), AN960D4L(8), MS21042L04 (4).
GAEC EO RELEASE	5 VE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
REVISE DWG	RECORD EO	REWORK	SCRAP	APPROVED BY	JW			VF	CH	RM	
✓		✓		DATE	1/6/67			1-6-67	1-6-67	1-9-67	1/10/67
				1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY C
DRAWING TITLE LINES INSTALLATION ELECTRONIC DESCENT STAGE
DRAWING NO. LDW280-28607
EO NO. A1

ISSUED BY R. EBERLE X6655 SECTION EQUIP LINES (VDI) GROUP NO. 332 PL 5

01 NAS 9-1100

B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28607 | EO NO. A2
CONTROL INFO NO. LDW280A4766

IN B/M: (ADD) 12 (REQD) GN511L-0420 (P/N) E (I&T) NUT (NOMEN) GRUMMAN STD (MATL)

MS21043-4 NUT 20 REQD (WAS) 32 REQD

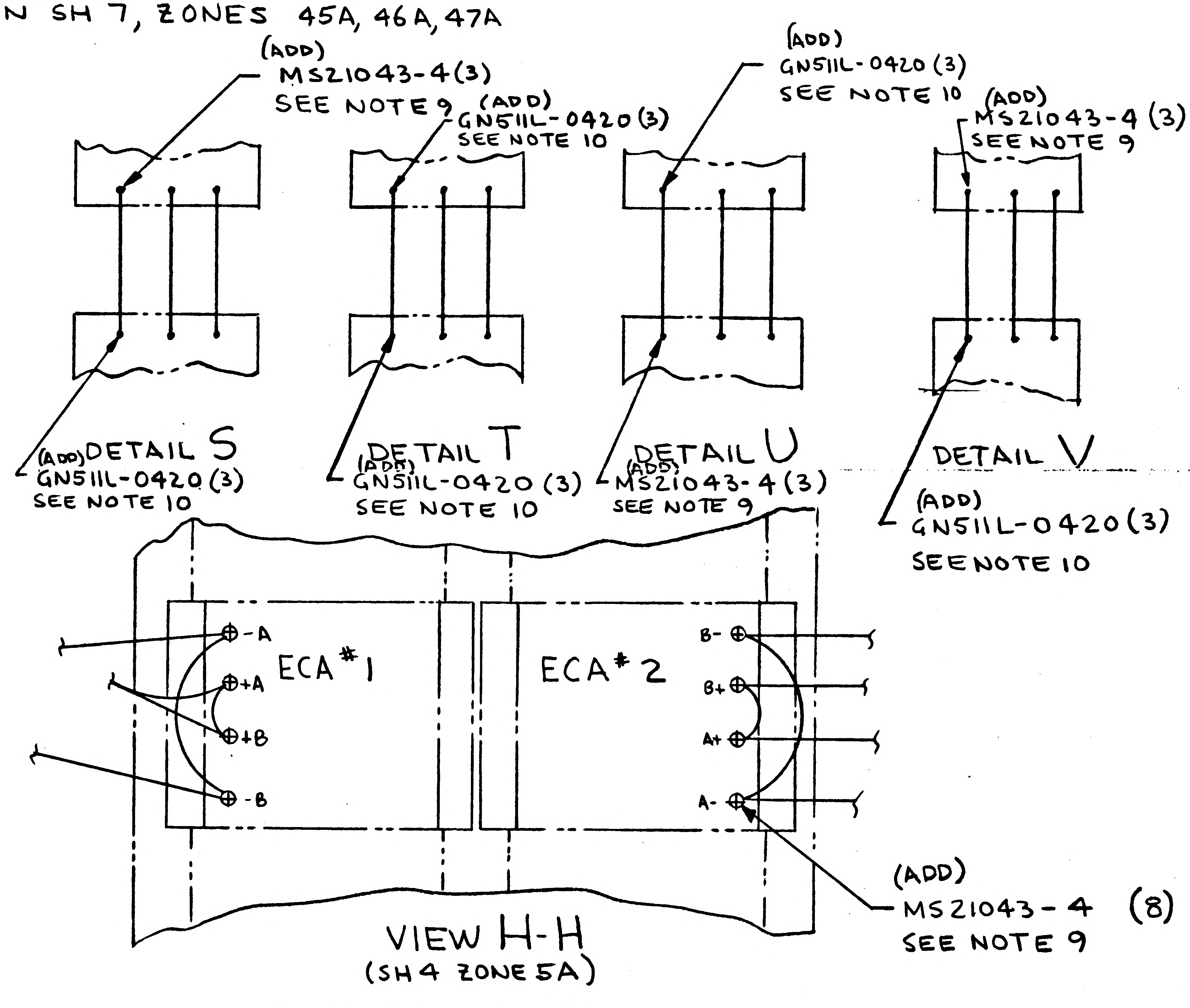
IN NOTES:

10. FOR BATTERIES NO. 1, 2, 3 & 4 TORQUE GN511L-0420 NUTS TO 20±5 INCH POUNDS.

(WAS)

10. FOR BATTERIES NO. 1, 2, 3 & 4 TORQUE MS21043-4 NUTS TO 20±5 INCH POUNDS.

IN F/D
ON SH 7, ZONES 45A, 46A, 47A


(ADD)
MS21043-4(3)
SEE NOTE 9
(ADD)
GN511L-0420(3)
SEE NOTE 10
(ADD)
GN511L-0420 (3)
SEE NOTE 10
(ADD)
MS21043-4 (3)
SEE NOTE 9
(ADD) DETAIL S
GN511L-0420 (3)
SEE NOTE 10
DETAIL T
(ADD)
GN511L-0420 (3)
SEE NOTE 10
DETAIL U
(ADD)
MS21043-4 (3)
SEE NOTE 9
DETAIL V
(ADD)
GN511L-0420 (3)
SEE NOTE 10
-A
+A
+B
-B
ECA #1
ECA #2
B-
B+
A+
A-
(ADD)
MS21043-4 (8)
SEE NOTE 9
VIEW H-H
(SH 4 ZONE 5A)

LDW280-28607-1 INSTL

5

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: BATTERY TERMINAL STUDS HAVE NON-STANDARD THREADS

DESCRIPTION OF EO: IN F/D ADDED GN511L-0420 (12), MS21043-4(20). IN B/M ADD GN511L-0420, MS21043-4(20) WAS(32), REVISED NOTE 10 TORQUE GN511L-0420 NUTS (WAS) TORQUE MS21043-4 NUTS.

GAEC EO RELEASE: C LE 1/17/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
✓		✓		APPROVED BY	JW	—	-		W/H			
				DATE	1/10/67				1/10/67		1/16/67	1/16/67
				1								

PRIORITY: C
DRAWING TITLE: LINES INSTALLATION ELECTRONIC DESCENT STAGE
DRAWING NO. LDW280-28607
EO NO. A2

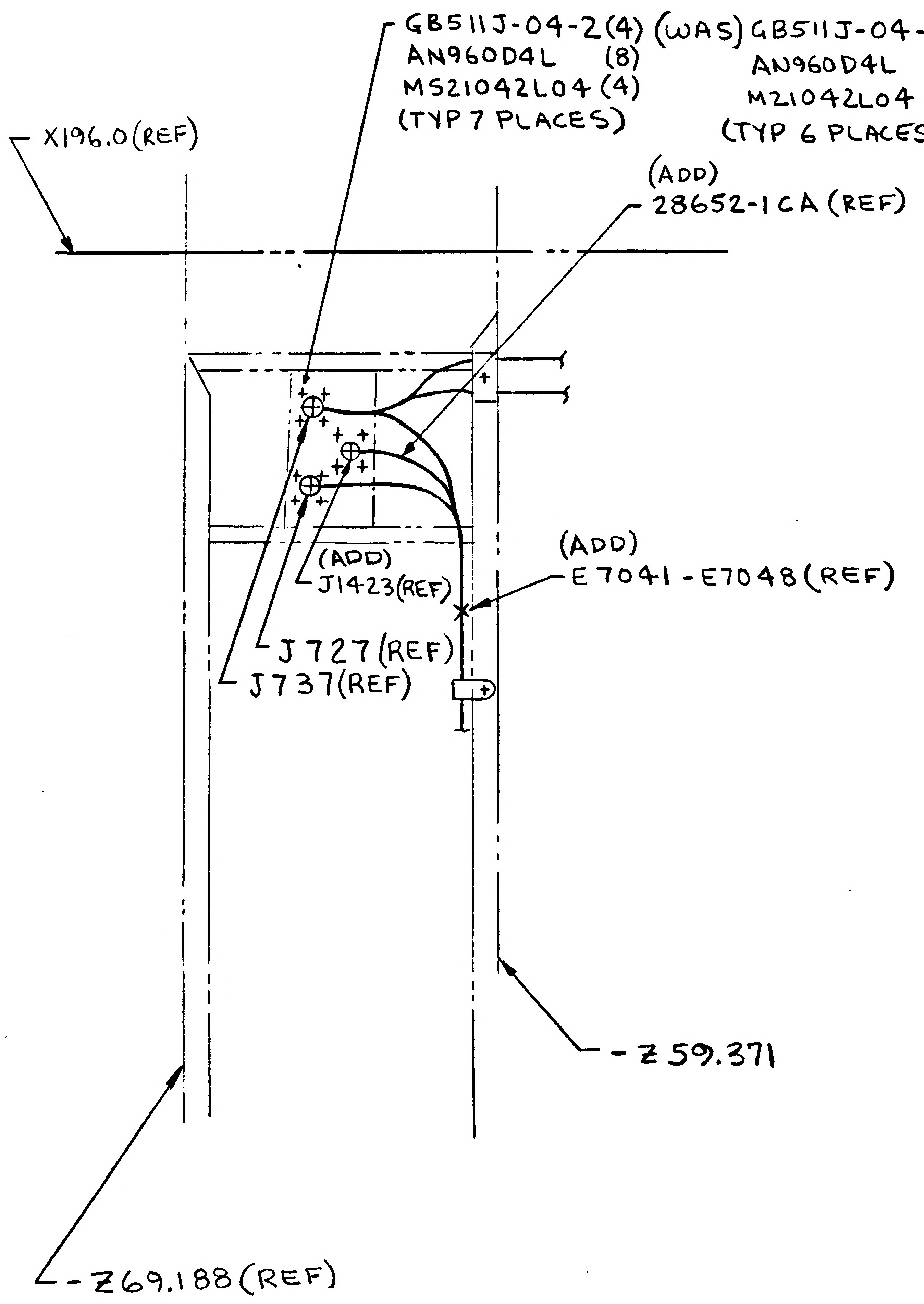
ISSUED BY R. EBERLE X 1441 SECTION EQUIP LINES (VDI) GROUP NO. 332 PL 5

ENG 32.2 REV 3-65 B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28607
EO NO. 1
CONTROL INFO NO. LDW280A5177

ON-1


GB511J-04-2(4) (WAS) GB511J-04-2(4)
AN960D4L (8) AN960D4L (8)
MS21042L04(4) M21042L04 (4)
(TYP 7 PLACES) (TYP 6 PLACES)
X196.0(REF)
(ADD) 28652-1CA (REF)
(ADD) J1423(REF)
(ADD) E7041-E7048(REF)
J727(REF)
J737(REF)
-Z59.371
-Z69.188(REF)

VIEW N-N

LDW280-28607-1INSTL

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑
CL I ENGRG CHG	☐		

REASON FOR EO: ADDITION OF SHORTING PLUG

DESCRIPTION OF EO: ON-1 INSTALLED CONNECTOR (J1423(REF)) & WIRE RUN 28652-1 (REF). ADDED E7041-E7048(REF). ADDED GB511J-04-2(4), AN960D4L(8), MS21042L04(4)

GAEC EO RELEASE 5 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	1/23/67			1/23/67	1/23/67		1/23/67	1/23/67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: LINES INSTALLATION ELECTRONIC DESCENT STAGE

DRAWING NO. LDW280-28607

EO NO. 1

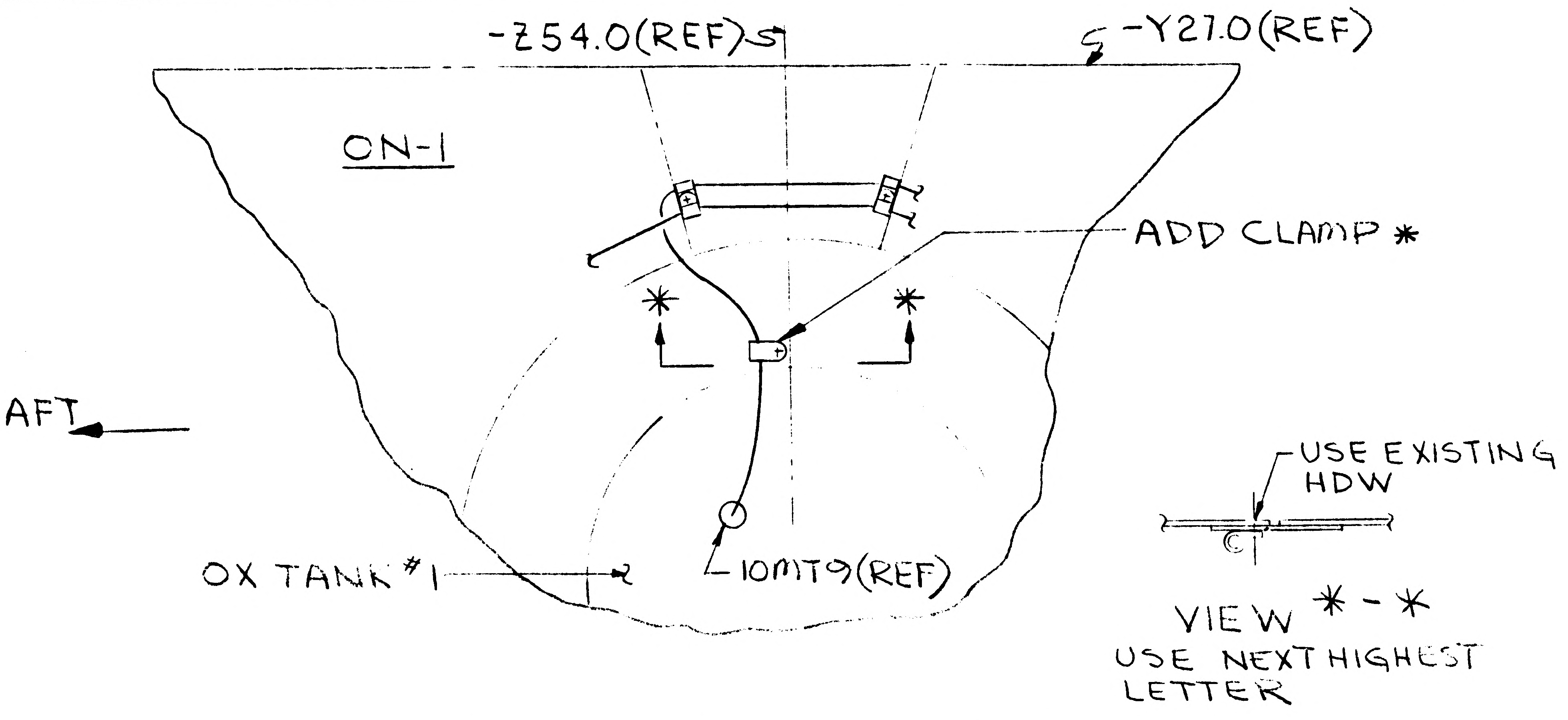
ISSUED BY K EBERLE X1441 SECTION EQUIP LINES GROUP NO. 332

01 NAS 9-1100

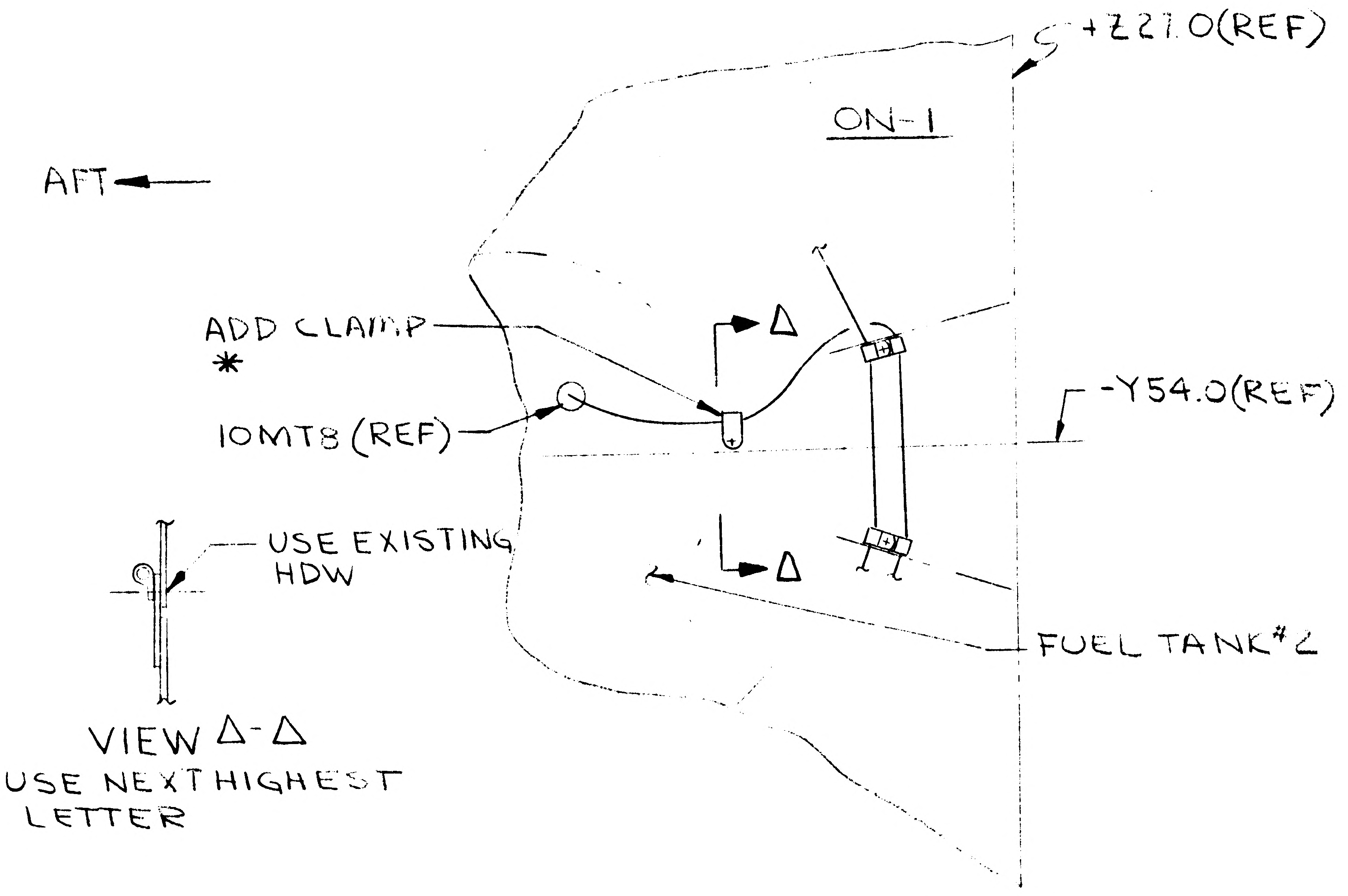
ENG 32.2 REV 3-65 B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-28607	EO NO. 14
CONTROL INFO NO. LDW280A 5178	


-Z54.0(REF)
-Y27.0(REF)
ON-1
ADD CLAMP *
AFT
*
*
OX TANK #1
10MT9(REF)
USE EXISTING HDW
VIEW * - *
USE NEXT HIGHEST LETTER

VIEW OF BOTTOM DECK
(ZONE 22C SH5)


+Z27.0(REF)
ON-1
AFT
ADD CLAMP *
Δ
Δ
10MT8 (REF)
-Y54.0(REF)
USE EXISTING HDW
FUEL TANK #2
VIEW Δ-Δ
USE NEXT HIGHEST LETTER

VIEW OF BOTTOM DECK
(ZONE 20D SH5)

* ADD CLAMP PER LPC 280-23

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG									5
REASON FOR EO				DESCRIPTION OF EO									GAEC C EO RELEASE
PROVIDE SUPPORT FOR WIRING				ON-1 ADDED CLAMPS & VIEWS *-*, Δ-Δ									12/24/67
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY					
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		✓		DATE 1/23/67			1-23-67	1/24/67	1/23/67 · 1/24/67
LM		LTA-8(12)		REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP · LIAISON ENGRG · PROJ ENGRG · ~~GOVT~~
				PRIORITY	DRAWING TITLE						DRAWING NO.		EO NO.
				C	LINES INSTALLATION ELECTRONIC DESCENT STAGE						LDW280-28607		14

ISSUED BY T. BIANCHI X1441 SECTION EQUIP LINES GROUP NO. 332 PL 35

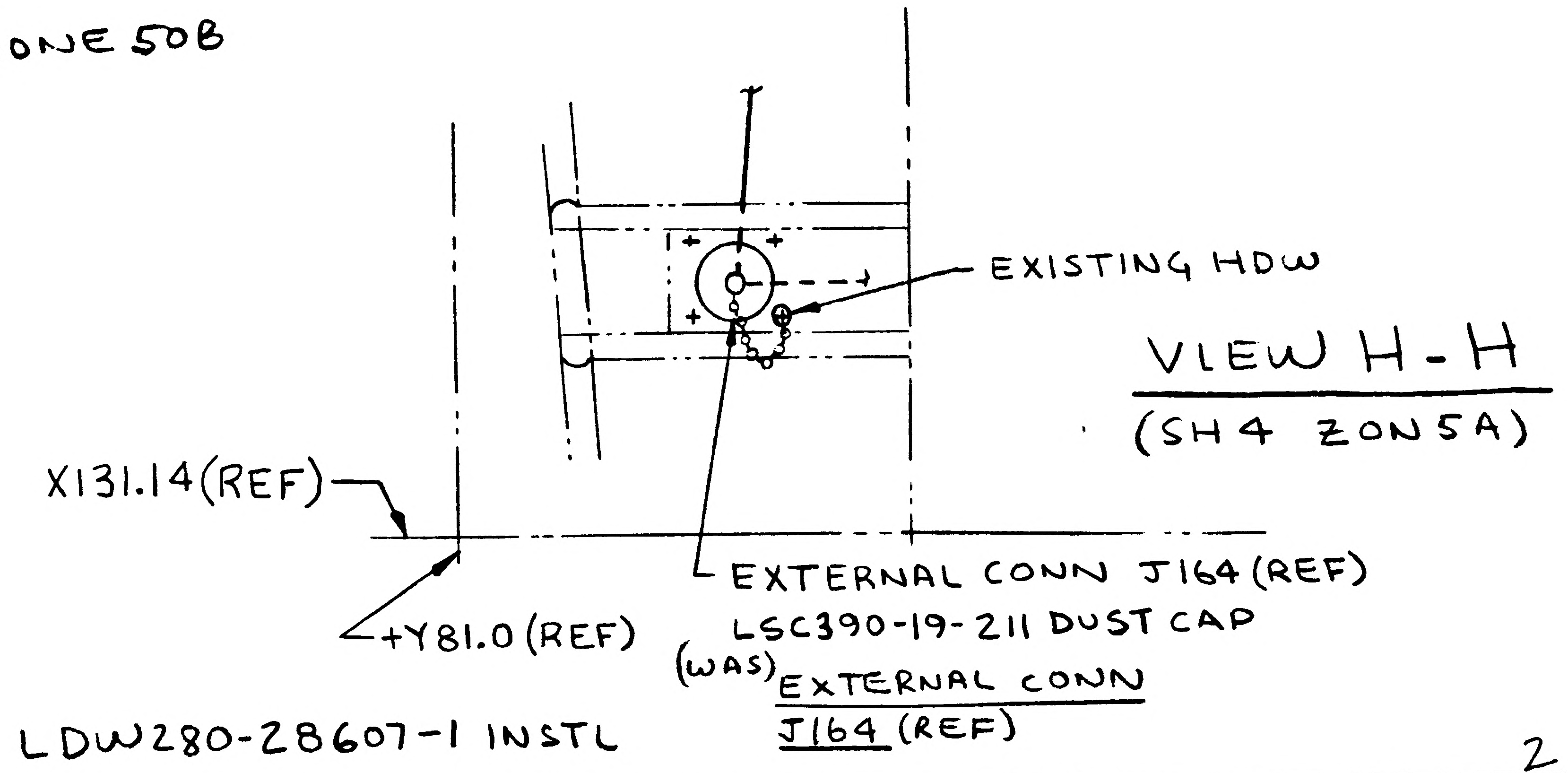
01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28607		EO NO. A5
CONTROL INFO NO. LDW280A5327		

ON-1
SH 7, ZONE 50B


EXISTING HDW
VIEW H-H
(SH4 ZON5A)
X131.14(REF)
+Y81.0(REF)
EXTERNAL CONN J164 (REF)
LSC390-19-211 DUST CAP
(WAS) EXTERNAL CONN
J164 (REF)

LDW280-28607-1 INSTL

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐								
REASON FOR EO					DESCRIPTION OF EO								GAEC EO RELEASE
ADDITION OF DUST CAP FOR CONNECTOR					ON-1 INSTL ADDED LSC390-19-211 DUST CAP								2/6/67
MODEL	EFFECTIVITY				DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY		—	—	—
	PROCURING ACTIVITY NO.	GAEC UNIT NO	SUB CONTR UNIT NO.		✓		✓		DATE	2/[illegible]			—
LM		LTA-8(18)			REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER

		STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY		WJG		[illegible]
DATE		2/2/67		2-3-67

PRIORITY	DRAWING TITLE	DRAWING NO	EO NO.
C	LINES INSTL ELECTRONIC D/S	LDW280-28607	A5

ISSUED BY R. EBERLE x7033
SECTION VDI (EQUIP LINES) GROUP NO. 332 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LED 280
EO NO. 468
CONTROL INFO NO. LDW280A5258

TO THE FOLLOWING INSTALLATIONS ADD NOTE * (* USE NEXT AVAIL NO.)

DRAWING NUMBER	CHANGE NO.	EFF
LDW280-28360 ✓	A6	LTA-8(18)
LDW280-28607 ✓	A6	
LDW280-51360 ✓	B1	LM-1 (31)
LDW280-51607 ✓	D4	
LDW280-52360	A10	LM-2(32)
LDW280-52607	A10	

DRAWING NUMBER	CHANGE NO.	EFF
LDW280-53360	A7	LM-3(33)
LDW280-53607	A8	

* UPON INSTALLATION OF TERMINAL LUGS ON BATTERIES, ECA'S AND CIRCUIT BREAKERS IMMEDIATELY CONFORMAL COAT AS FOLLOWS:

a) APPLY PRIMER PER LSP-14-14201. CARE MUST BE TAKEN NOT TO APPLY TOO HEAVY A COAT OF PRIMER.

b) AFTER ALLOWING A MINIMUM OF 30 MINUTES DRYING TIME FOR PRIMER, MIX (EC1663A/B) SEALANT COMPOUND PER LSP-14-14201 & APPLY FIRST COATING OVER ALL EXPOSED SURFACES.

c) AFTER FIRST COATING CURES, APPLY SECOND & THIRD COAT OF SAME SEALANT COMPOUND, ALLOWING 24 HOURS CURING TIME BETWEEN COATS PER LSP-14-14201.
NOTE: CARE MUST BE TAKEN THAT EACH COAT COMPLETELY COVERS PRECEEDING COAT & ANY EXPOSED PRIMER.

(5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: TO PROVIDE PROTECTION FOR ELECTRICAL TERMINALS

DESCRIPTION OF EO: TO SH 3 ADD NOTE *

GAEC C EO RELEASE: 2/8/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓		DATE	1/27/67	2/7/67		1-27-67	1/27/67		~~2-3-67~~	2-8-67
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VD1	~~SUPPORT~~ MAT'L	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: LINES INSTL. ~ ELEC
DRAWING NO.: LE0280
EO NO.: 468

ISSUED BY R. EBERLE X1441 SECTION VD1 (EQUIP LINES) GROUP NO. 332 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28607
EO NO. A7
CONTROL INFO NO. LM-5-11891

CANCEL E.O. A3

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: IMPOSSIBLE TO ACCOMPLISH AT PRESENT STAGE OF FABRICATION

DESCRIPTION OF EO: CANCELLED E.O. A3

GAEC EO RELEASE ⓔ C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

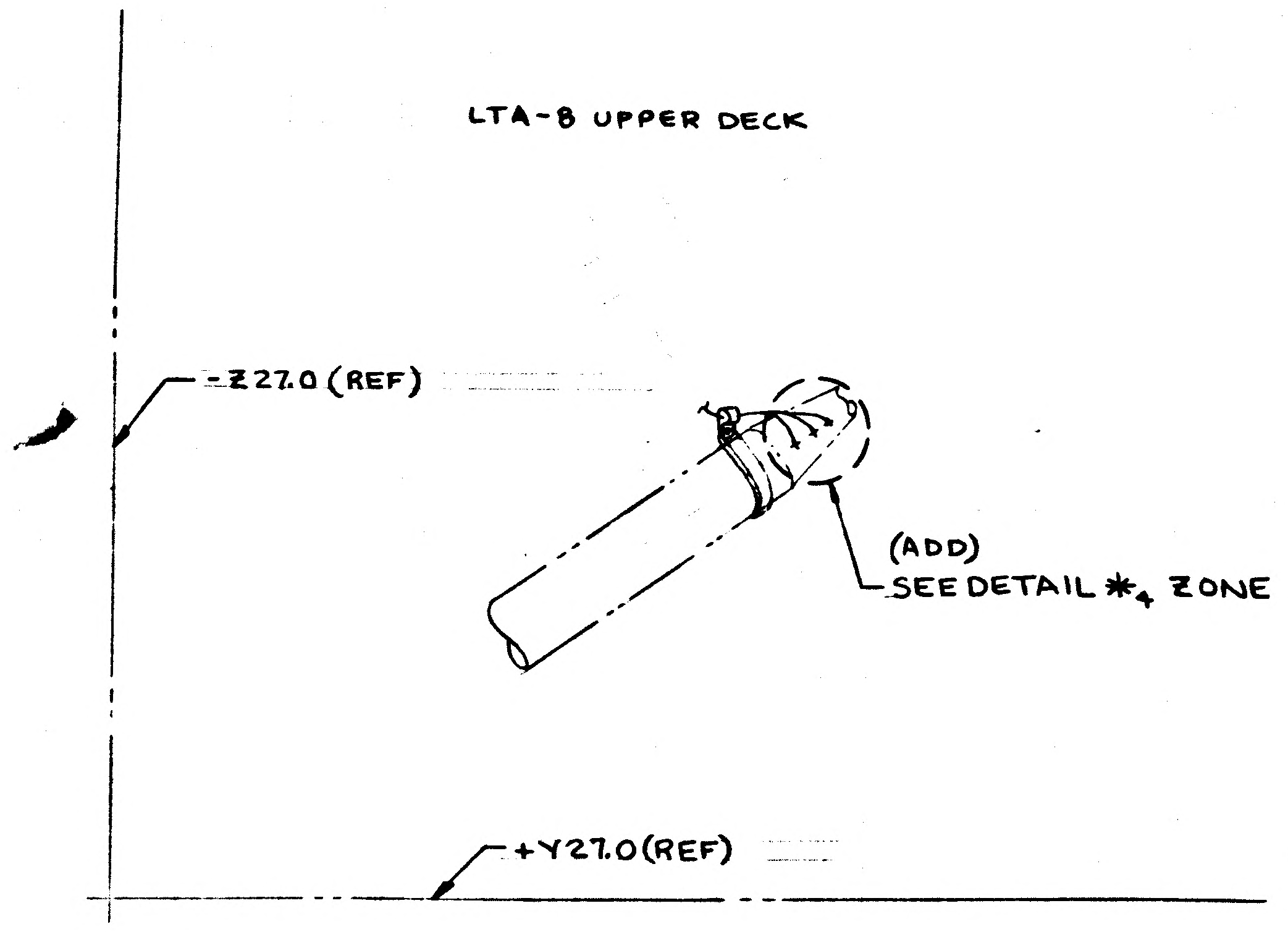
DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	WT			~			RW (E)	
DATE	2/23/67			~			3-2-67	2/24/67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

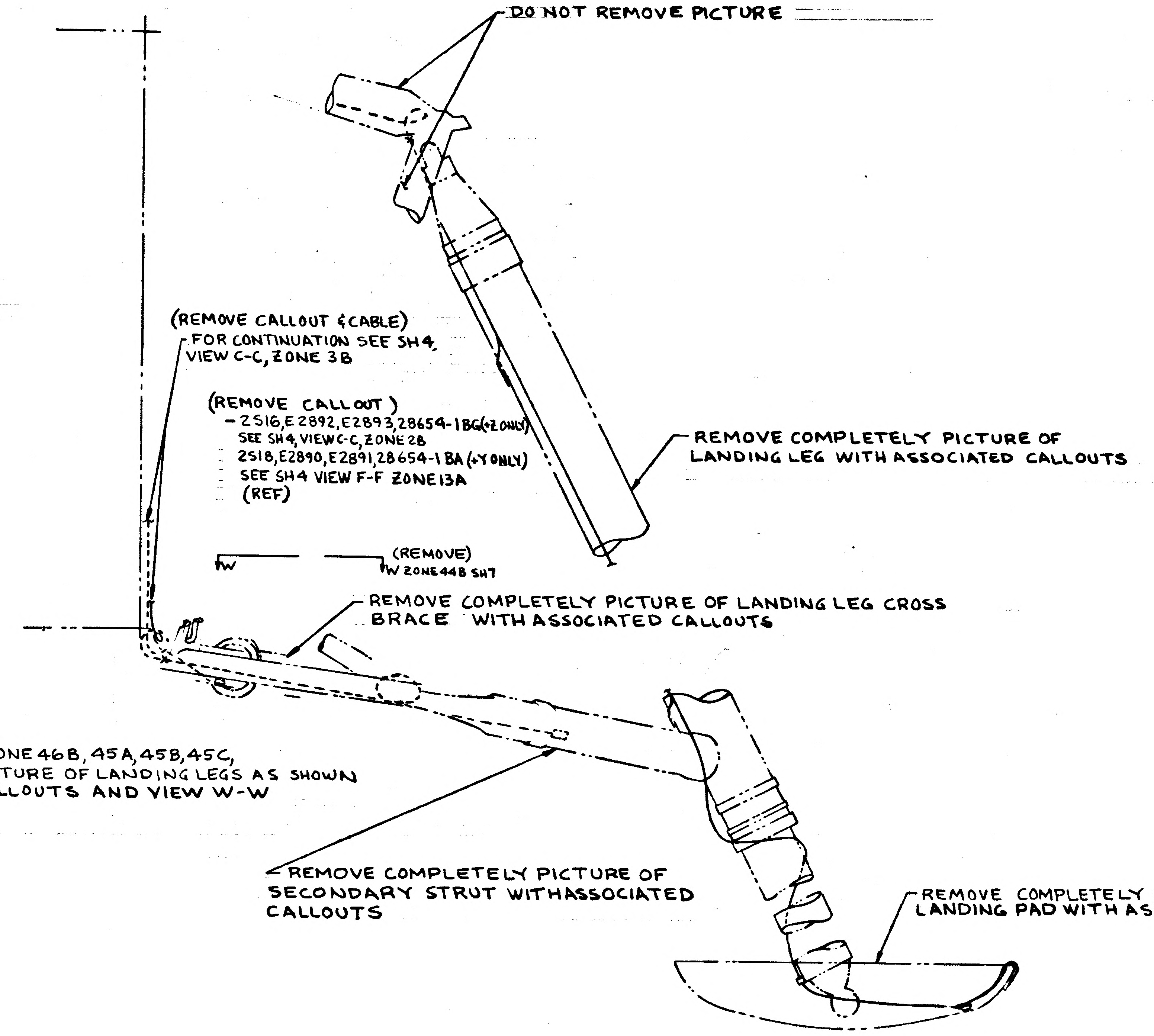
PRIORITY: C
DRAWING TITLE: LINES INSTALLATION ELECTRONIC DESCENT STAGE
DRAWING NO.: LDW280-28607
EO NO.: A7

ISSUED BY F. STEINMETZ X6510 SECTION VDI GROUP NO. 335 PL 5

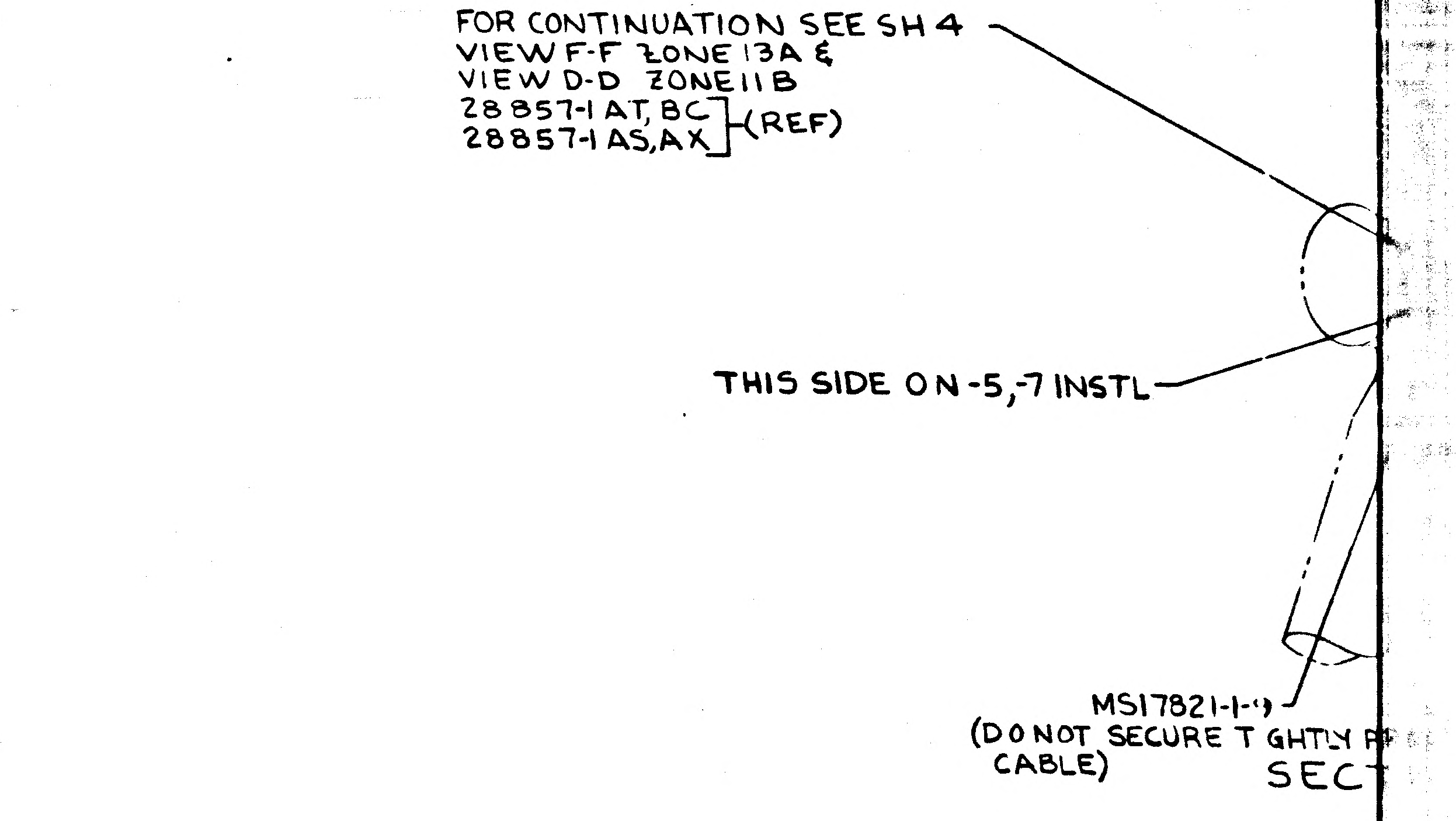
01 NAS 9-1100

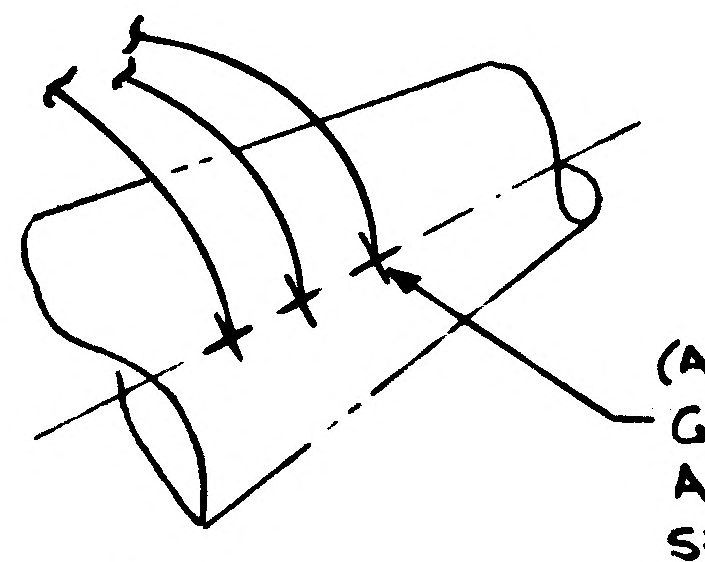

LTA-8 UPPER DECK
-Z27.0 (REF)
(ADD)
SEE DETAIL $*_4$ ZONE
+Y27.0(REF)

AT ZONE 7B, SH4 ADD ABOVE INFO:


DO NOT REMOVE PICTURE
(REMOVE CALLOUT & CABLE)
FOR CONTINUATION SEE SH4, VIEW C-C, ZONE 3B
(REMOVE CALLOUT)
- 2S16, E2892, E2893, 28654-1BG (+Z ONLY)
SEE SH4, VIEW C-C, ZONE 2B
2S18, E2890, E2891, 28654-1BA (+Y ONLY)
SEE SH4 VIEW F-F ZONE 13A
(REF)
REMOVE COMPLETELY PICTURE OF LANDING LEG WITH ASSOCIATED CALLOUTS
W
(REMOVE)
W ZONE 44B SH7
REMOVE COMPLETELY PICTURE OF LANDING LEG CROSS BRACE WITH ASSOCIATED CALLOUTS
REMOVE COMPLETELY PICTURE OF SECONDARY STRUT WITH ASSOCIATED CALLOUTS
REMOVE COMPLETELY PICTURE OF LANDING PAD WITH ASSOCIATED CALLOUTS

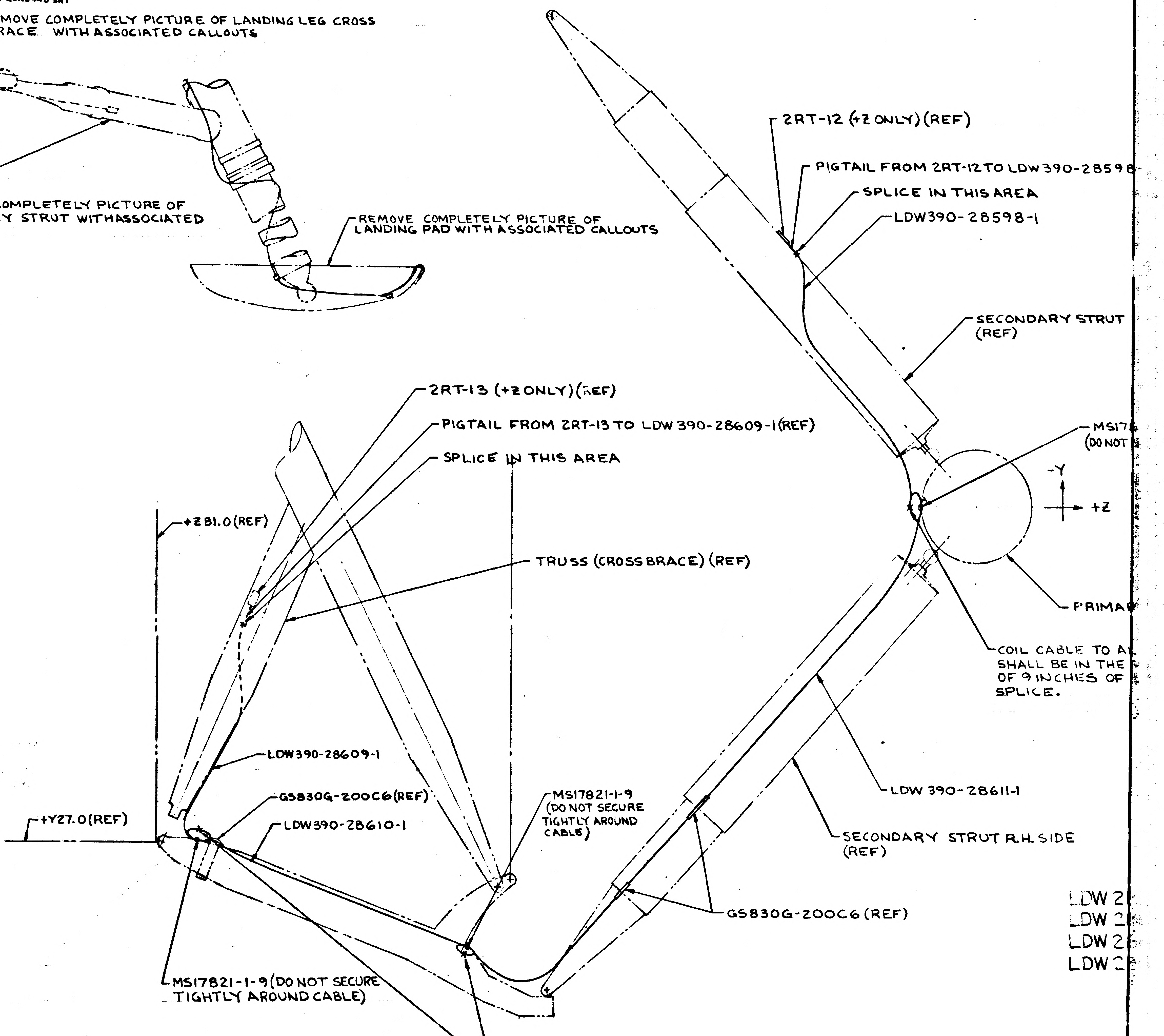
ON SH 7, VIEW G-G, ZONE 46B, 45A, 45B, 45C, 44A, 44B REMOVE PICTURE OF LANDING LEGS AS SHOWN WITH ASSOCIATED CALLOUTS AND VIEW W-W


FOR CONTINUATION SEE SH 4
VIEW F-F ZONE 13A &
VIEW D-D ZONE 11B
28857-1 AT, BC
28857-1 AS, AX
(REF)
THIS SIDE ON -5,-7 INSTL
MS17821-1-9
(DO NOT SECURE TIGHTLY A
CABLE)
SEC


(ADD TO F/D & B/M)
GS550C-08S8 (3)
AN960D8L (3)
SEE NOTE 3 (N4 GROUNDS REF)

(ADD)

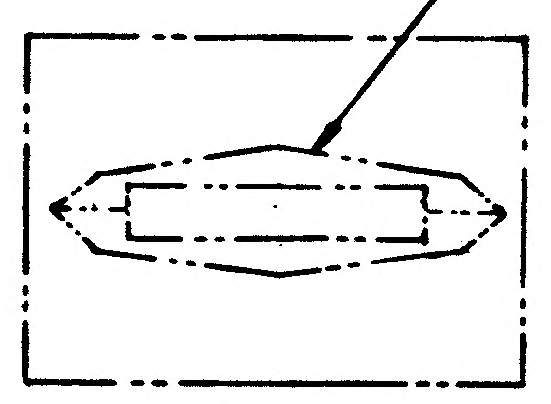
DETAIL $*_4$ ZONE 7B

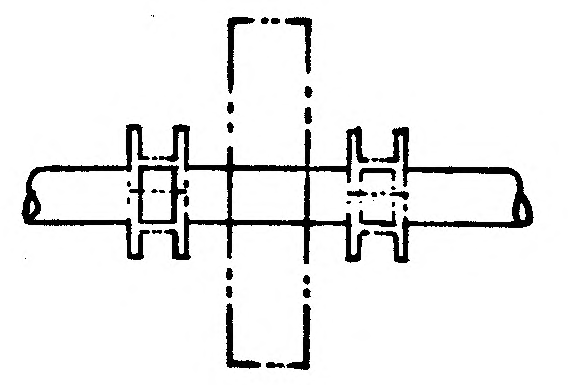

2RT-12 (+Z ONLY) (REF)
PIGTAIL FROM 2RT-12 TO LDW390-28598
SPLICE IN THIS AREA
LDW390-28598-1
SECONDARY STRUT
(REF)
MS17
(DO NOT
-Y
+Z
PRIMA
COIL CABLE TO A
SHALL BE IN THE
OF 9 INCHES OF
SPLICE.
2RT-13 (+Z ONLY) (REF)
PIGTAIL FROM 2RT-13 TO LDW 390-28609-1 (REF)
SPLICE IN THIS AREA
+Z81.0 (REF)
TRUSS (CROSS BRACE) (REF)
LDW 390-28611-1
LDW390-28609-1
GS830G-200C6 (REF)
LDW390-28610-1
MS17821-1-9
(DO NOT SECURE TIGHTLY AROUND CABLE)
SECONDARY STRUT R.H. SIDE
(REF)
+Y27.0 (REF)
GS830G-200C6 (REF)
MS17821-1-9 (DO NOT SECURE TIGHTLY AROUND CABLE)

COIL CABLE TO ALLOW FOR RESPLICING.
SPLICE (X) SHALL BE IN THE MIDDLE OF THE COIL WITH A MINIMUM OF 9 INCHES OF EXCESS CABLE ON EACH SIDE OF SPLICE.

SECTION $*_2 - *_2$

LDW 2
LDW 2
LDW 2
LDW 2


LDW280M16125(4)
(WAS)
LDW280M16125



AT ZONE 3A, SH4 FIX PICTURE

DETAIL AG ZONE 6B

01/03 NAS 9-1100

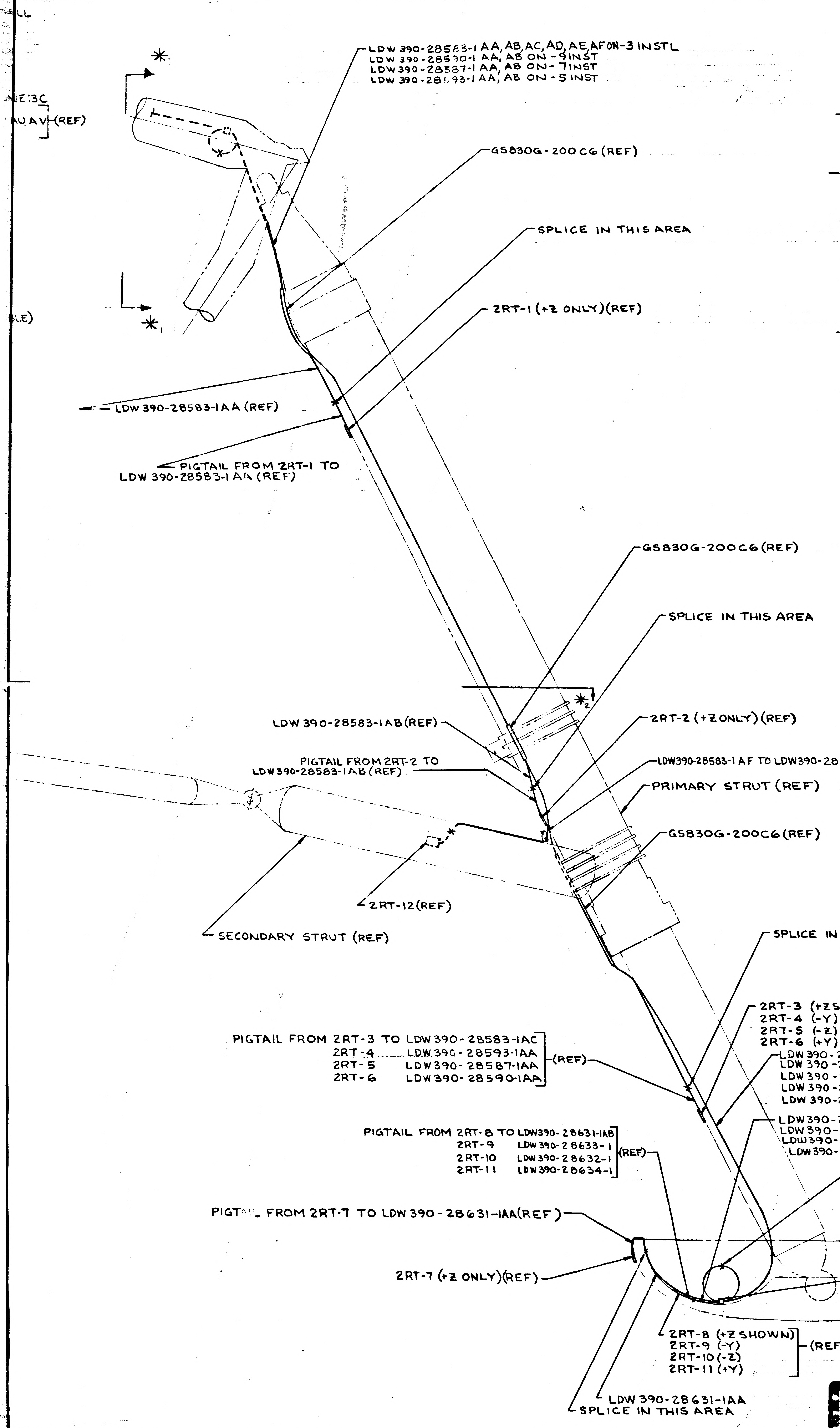
COIL CABLE TO ALLOW FOR RESPLICING. SPLICE (X) SHALL BE IN THE MIDDLE OF THE COIL WITH A MINIMUM OF 9 INCHES OF EXCESS CABLE ON EACH SIDE OF SPLICE.
FOR CONTINUATION SEE SH 4 VIEW F-F ZONE 13A & VIEW D-D ZONE 11B 28857-1 AT BC 28857-1 AS, AX (REF)
FOR CONTINUATION SEE SH 4 VIEW CC, ZONE 2B & VIEW E-E, ZONE 13C 28652-1 AT 28857-1 BD, BE, BF, BG, BH, AN, AP, AU, AV (REF) 28857-1 AR, AW
THIS SIDE ON -5,-7 INSTL
THIS SIDE ON -3,-9 INSTL
MS17821-1-9 (DO NOT SECURE TIGHTLY AROUND CABLE)
MS17821-1-9 (DO NOT SECURE TIGHTLY AROUND CABLE)
SECTION *1 - *1
*1
*1
LDW 390-28583-1 AA, AB, AC, AD, AE, AF ON -3 INSTL
LDW 390-28590-1 AA, AB ON -9 INST
LDW 390-28587-1 AA, AB ON -7 INST
LDW 390-28593-1 AA, AB ON -5 INST
GS830G-200C6 (REF)
SPLICE IN THIS AREA
2RT-1 (+Z ONLY) (REF)
LDW 390-28583-1 AA (REF)
PIGTAIL FROM 2RT-1 TO LDW 390-28583-1 AA (REF)
-Y27.0 (REF)
X131.14 (REF)
X196.0 (REF)
(REMOVE CALLOUT & CABLE) 28857-1 AS TO 2RT-10 FROM P173 (REF) 28857-1 AX TO 2RT-5 FROM P173 (REF) SEE SH 7, VIEW G-G, ZONE 47A
(ADD) 28857-1 AS, AX (REF)
+Y27.0 (REF)
(ADD) FOR CONTINUATION SEE SH *3 ZONE
ON -1 INSTL
VIEW D-D
AT ZONE 11B, SH 4
(REMOVE CALLOUT & CABLE) 28857-1 AR TO 2RT-14 FROM P173 (REF) 28857-1 AW TO 2RT-4 FROM P173 (REF) SEE SH 7, VIEW G-G, ZONE 47A
X131.14 (REF)
+Z27.0
-Z27.0
-Z27.0 (REF)
(ADD) FOR SH *3
X196.0 (REF)
(ADD) 28857-1 AR, AW (REF)
VIEW E-E
(-Y END PANEL)
AT ZONE 13C, SH 4
DESCRIPTION OF ON SH 4; AT ZONE
AT ZONE
AT ZONE
AT ZONE
AT ZONE
AT ZONE
ON SH 7
AT ZONE
AT ZONE
AT ZONE
2RT-12 (+Z ONLY) (REF)
PIGTAIL FROM 2RT-12 TO LDW 390-28598-1 (REF)
SPLICE IN THIS AREA
LDW 390-28598-1
SECONDARY STRUT L.H. SIDE (REF)
28609-1 (REF)
MS17821-1-9 (DO NOT SECURE TIGHTLY AROUND CABLE)
-Y
+Z
(REF)
PRIMARY STRUT (REF)
COIL CABLE TO ALLOW FOR RESPLICING. SPLICE (X) SHALL BE IN THE MIDDLE OF THE COIL WITH A MINIMUM OF 9 INCHES OF EXCESS CABLE ON EACH SIDE OF SPLICE.
LDW 390-28611-1
SECONDARY STRUT R.H. SIDE (REF)
GS830G-200C6 (REF)
R RESPLICING. MIDDLE OF THE COIL WITH F EXCESS CABLE ON EACH
*2
*2
GS830G-200C6 (REF)
SPLICE IN THIS AREA
LDW 390-28583-1 AB (REF)
2RT-2 (+Z ONLY) (REF)
PIGTAIL FROM 2RT-2 TO LDW 390-28583-1 AB (REF)
LDW 390-28583-1 AF TO LDW 390-28611-1 (REF)
PRIMARY STRUT (REF)
GS830G-200C6 (REF)
2RT-12 (REF)
SECONDARY STRUT (REF)
SPLICE IN THIS AREA
2RT-3 (+Z SHOWN) 2RT-4 (-Y) 2RT-5 (-Z) 2RT-6 (+Y) (REF)
PIGTAIL FROM 2RT-3 TO LDW 390-28583-1 AC, 2RT-4 LDW 390-28593-1 AA, 2RT-5 LDW 390-28587-1 AA, 2RT-6 LDW 390-28590-1 AA (REF)
LDW 390-28583-1 AD TO LDW 390-28631-1 AB
LDW 390-28583-1 AE TO LDW 390-28631-1 AA
LDW 390-28590-1 AB TO LDW 390-28633-1
LDW 390-28587-1 AB TO LDW 390-28632-1
LDW 390-28593-1 AB TO LDW 390-28634-1
LDW 390-28631-1 AB LDW 390-28633-1 LDW 390-28632-1 LDW 390-28634-1
PIGTAIL FROM 2RT-8 TO LDW 390-28631-1 AB, 2RT-9 LDW 390-28633-1, 2RT-10 LDW 390-28632-1, 2RT-11 LDW 390-28634-1 (REF)
CABLE SHALL BE LOOSE IN MS17821-1-9 TY-RAP TO ALLOW FOR MOVEMENT. COIL A SUFFICIENT AMOUNT OF CABLE TO PERMIT CABLE TO EXTEND A MINIMUM OF 12 INCHES BETWEEN CLAMPS, WITH THE SPLICE (X) IN THE MIDDLE OF THE COIL (TYP -3,-5,-7,-9 INSTL)
PIGTAIL FROM 2RT-7 TO LDW 390-28631-1 AA (REF)
MS17821-1-9 (DO NOT SECURE TIGHTLY AROUND CABLE)
2RT-7 (+Z ONLY) (REF)
2RT-8 (+Z SHOWN) 2RT-9 (-Y) 2RT-10 (-Z) 2RT-11 (+Y) (REF)
LDW 390-28631-1 AA
SPLICE IN THIS AREA

(ADD WITH ASSOCIATED SECTIONS)
LDW 280-28607-3 INSTL (+Z) SHOWN
LDW 280-28607-5 INSTL (+Y)
LDW 280-28607-7 INSTL (-Z)
LDW 280-28607-9 INSTL (-Y)

*1, *2, *4 ADD NEXT HIGHER LETTER
*3 ADD NEXT HIGHER NUMBER

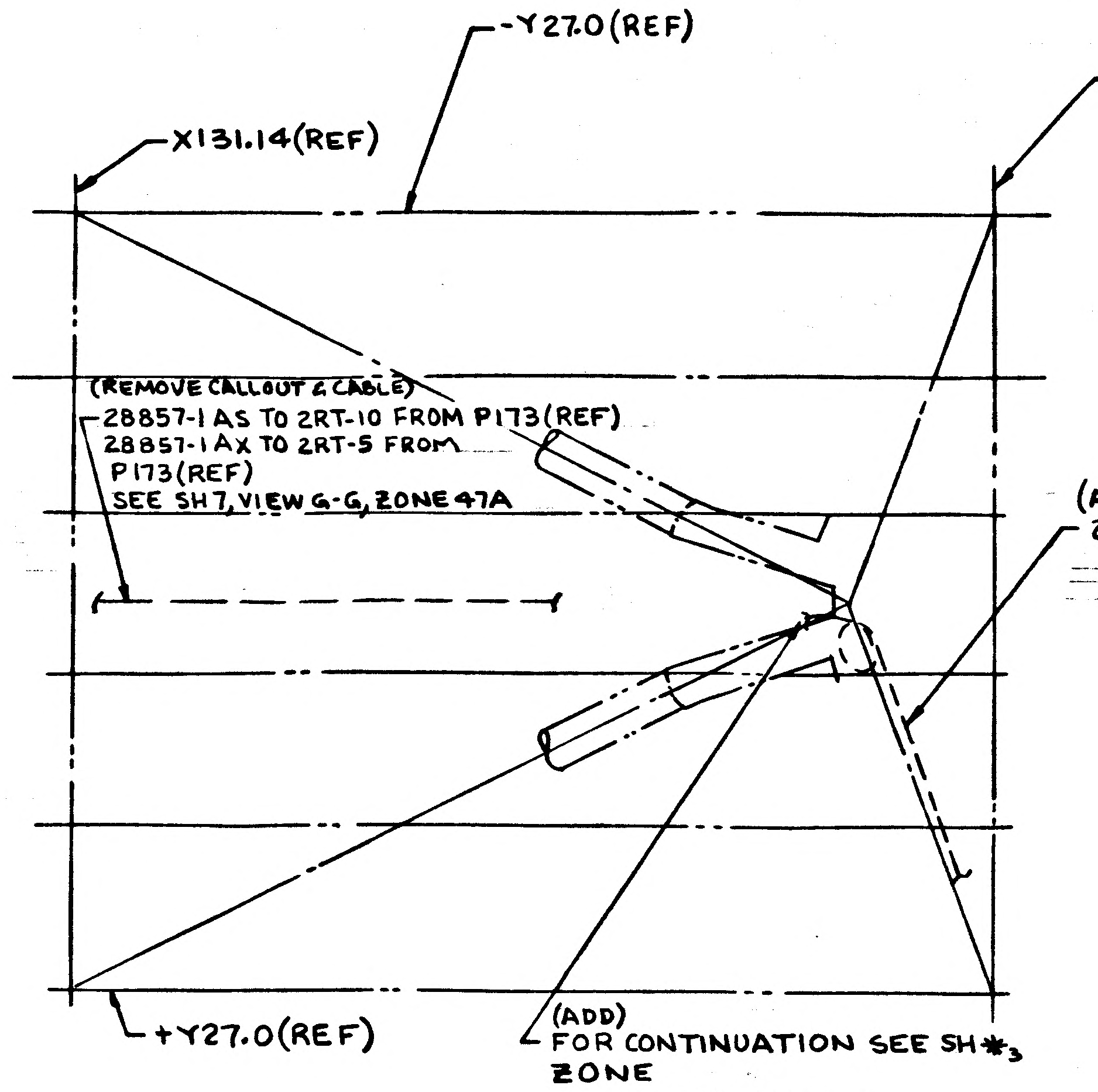
DETAIL SPEC REQD | | CLASS
REAS
REVISEᒥ W
DIS-ASSY F R
MODEL | PROCURING ACT. NO.
LM
ISSUED BY R.E ERLE X7033 SECTION /D
ENG 32.3 REV 3-66

02/03 NAS 9-1100


LL
E13C
AU AV (REF)
LE)
*
*1
*2
LDW 390-28583-1 AA, AB, AC, AD, AE, AF ON-3 INSTL
LDW 390-28590-1 AA, AB ON -9 INST
LDW 390-28587-1 AA, AB ON -7 INST
LDW 390-28593-1 AA, AB ON -5 INST
GS830G-200C6 (REF)
SPLICE IN THIS AREA
2RT-1 (+Z ONLY)(REF)
LDW 390-28583-1AA (REF)
PIGTAIL FROM 2RT-1 TO LDW 390-28583-1AA (REF)
GS830G-200C6 (REF)
SPLICE IN THIS AREA
LDW 390-28583-1AB (REF)
2RT-2 (+Z ONLY) (REF)
PIGTAIL FROM 2RT-2 TO LDW390-28583-1AB (REF)
LDW390-28583-1AF TO LDW390-28611-1 (REF)
PRIMARY STRUT (REF)
GS830G-200C6 (REF)
2RT-12 (REF)
SECONDARY STRUT (REF)
SPLICE IN THIS AREA
2RT-3 (+Z SHOWN)
2RT-4 (-Y)
2RT-5 (-Z)
2RT-6 (+Y)
(REF)
PIGTAIL FROM 2RT-3 TO LDW390-28583-1AC
2RT-4 LDW390-28593-1AA
2RT-5 LDW390-28587-1AA
2RT-6 LDW390-28590-1AA
(REF)
LDW390-28583-1AD TO LDW390-28631-1AB
LDW390-28583-1AE TO LDW390-28631-1AA
LDW390-28590-1AB TO LDW390-28633-1
LDW390-28587-1AB TO LDW390-28632-1
LDW390-28593-1AB TO LDW390-28634-1
LDW390-28631-1AB
LDW390-28633-1
LDW390-28632-1
LDW390-28634-1
PIGTAIL FROM 2RT-8 TO LDW390-28631-1AB
2RT-9 LDW390-28633-1
2RT-10 LDW390-28632-1
2RT-11 LDW390-28634-1
(REF)
PIGTAIL FROM 2RT-7 TO LDW390-28631-1AA (REF)
MS17821-1-9 (DO NOT SECURE TIGHTLY AROUND CABLE)
2RT-7 (+Z ONLY)(REF)
2RT-8 (+Z SHOWN)
2RT-9 (-Y)
2RT-10 (-Z)
2RT-11 (+Y)
(REF)
LDW 390-28631-1AA
SPLICE IN THIS AREA

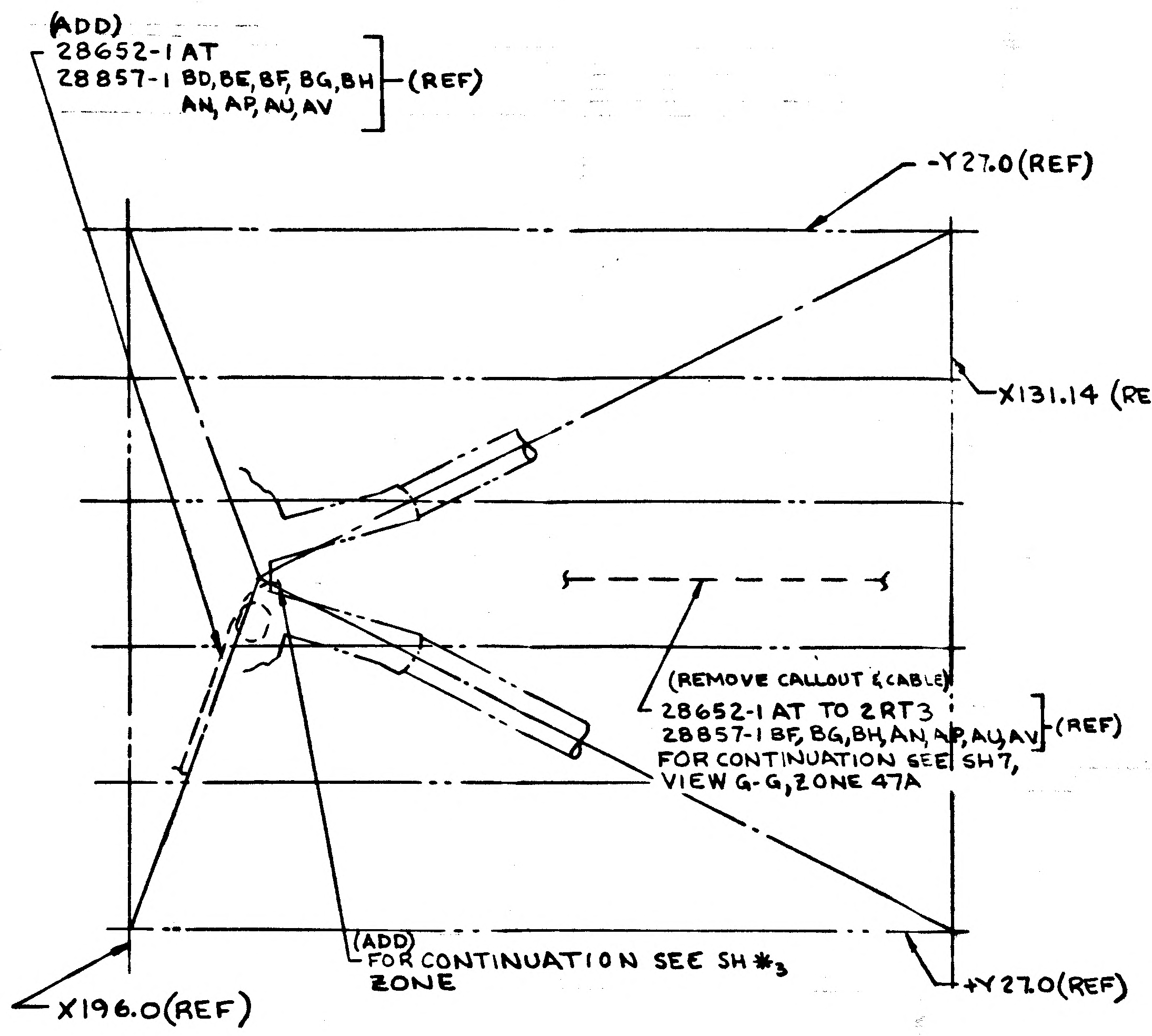
CABLE SHALL BE LOOSE IN MS17821-1-9 TY-RAP TO ALLOW FOR MOVEMENT. COIL A SUFFICIENT AMOUNT OF CABLE TO PERMIT CABLE TO EXTEND A MINIMUM OF 12 INCHES BETWEEN CLAMPS, WITH THE SPLICE (X) IN THE MIDDLE OF THE COIL (TYP -3, -5, -7, -9 INSTL)

*1, *2, *4 ADD NEXT HIGHER LETTER
*3 ADD NEXT HIGHER NUMBER

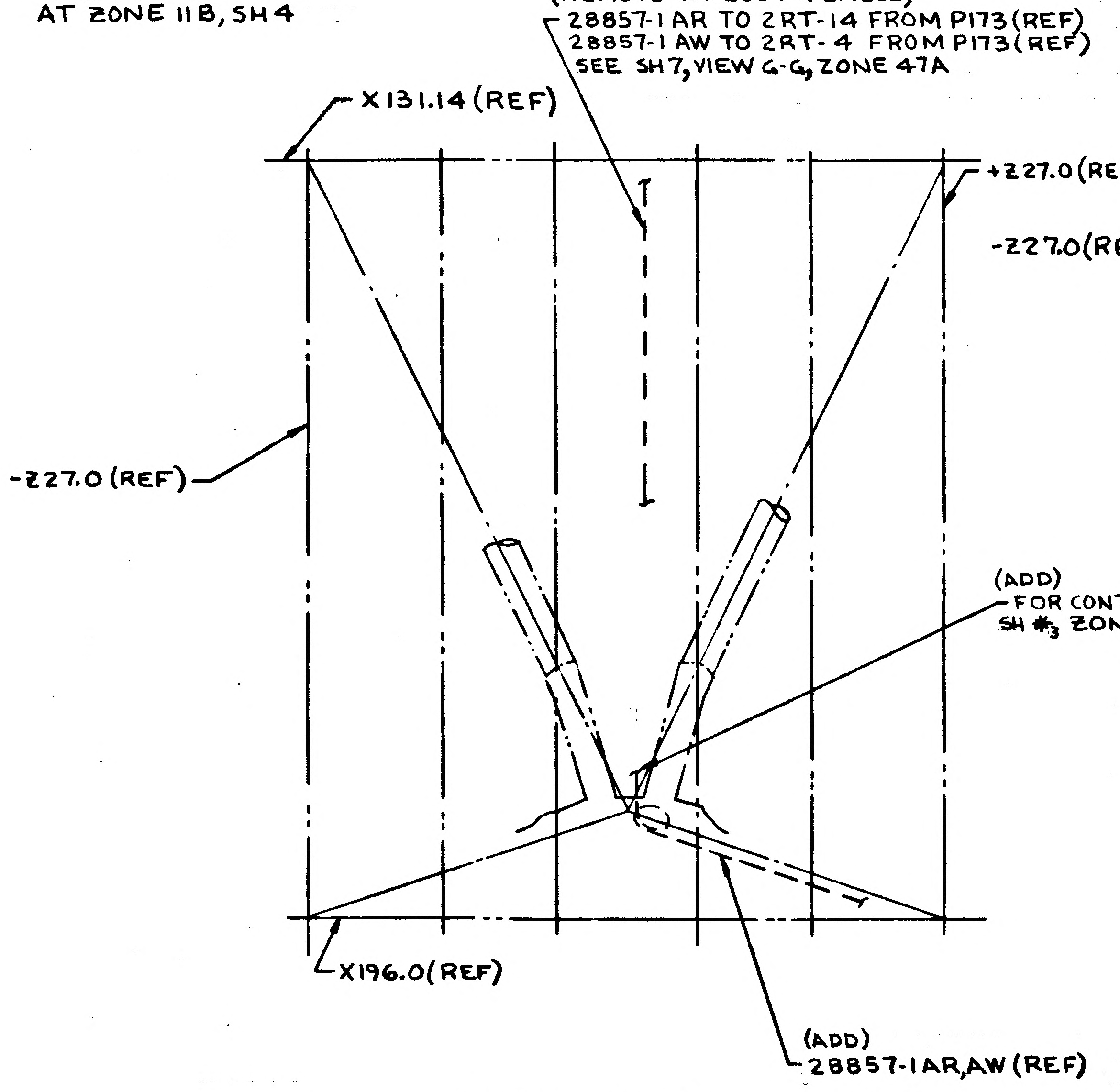

-Y27.0 (REF)
X196.0 (REF)
X131.14 (REF)
(REMOVE CALLOUT & CABLE)
28857-1AS TO 2RT-10 FROM P173 (REF)
28857-1AX TO 2RT-5 FROM P173 (REF)
SEE SH7, VIEW G-G, ZONE 47A
(ADD)
28857-1AS, AX (REF)
+Y27.0 (REF)
(ADD)
FOR CONTINUATION SEE SH *3 ZONE

VIEW D-D
AT ZONE 11B, SH4

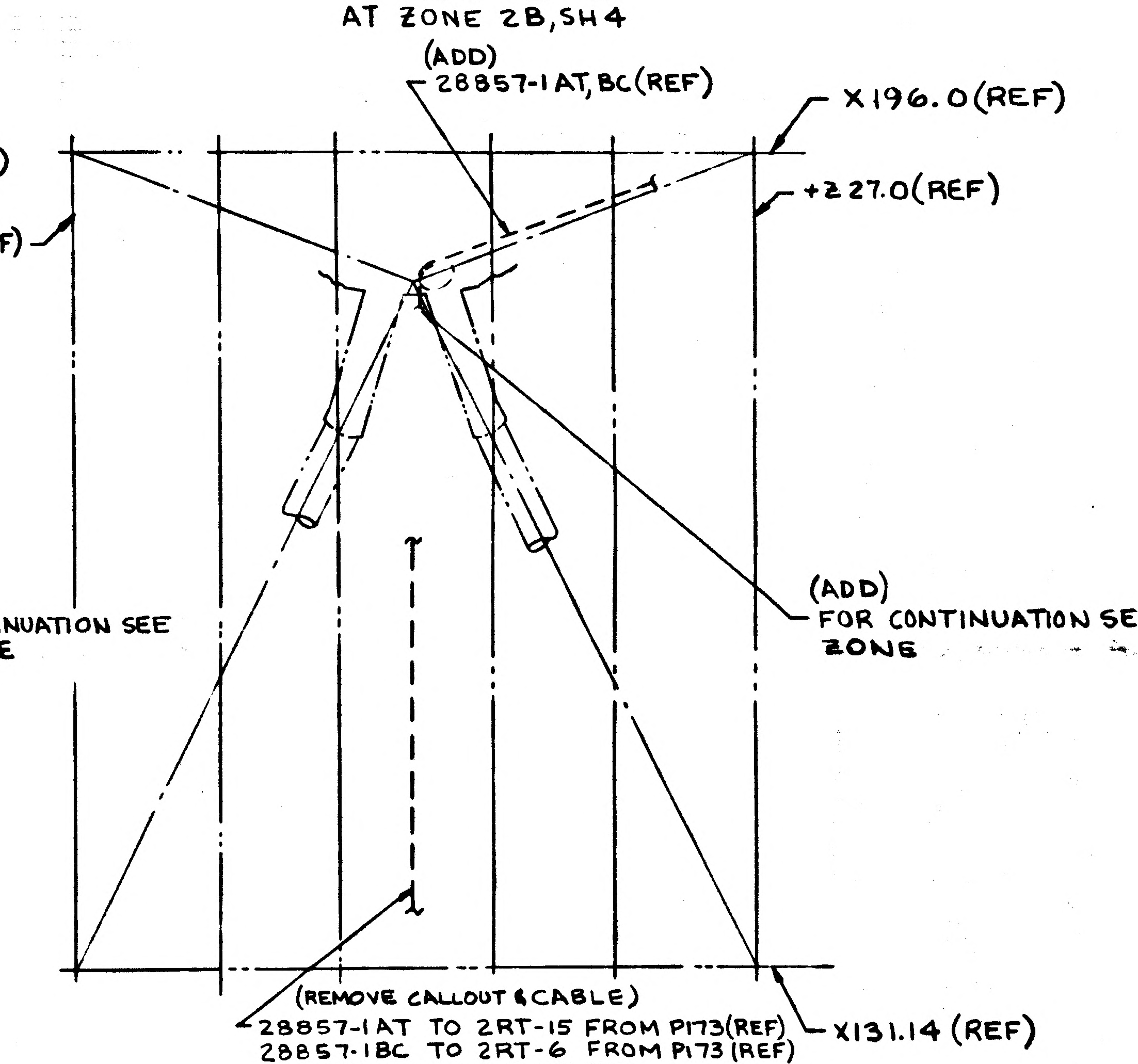
ON-1 INSTL


(ADD)
28652-1AT
28857-1 BD, BE, BF, BG, BH, AN, AP, AU, AV (REF)
-Y27.0 (REF)
X131.14 (REF)
(REMOVE CALLOUT & CABLE)
28652-1AT TO 2RT3
28857-1BF, BG, BH, AN, AP, AU, AV (REF)
FOR CONTINUATION SEE SH7, VIEW G-G, ZONE 47A
(ADD)
FOR CONTINUATION SEE SH *3 ZONE
X196.0 (REF)
+Y27.0 (REF)

VIEW C-C
AT ZONE 2B, SH4


(REMOVE CALLOUT & CABLE)
28857-1AR TO 2RT-14 FROM P173 (REF)
28857-1AW TO 2RT-4 FROM P173 (REF)
SEE SH7, VIEW G-G, ZONE 47A
X131.14 (REF)
+Z27.0 (REF)
-Z27.0 (REF)
-Z27.0 (REF)
X196.0 (REF)
(ADD)
28857-1AR, AW (REF)

VIEW E-E
(-Y END PANEL)
AT ZONE 13C, SH4


(ADD)
FOR CONTINUATION SEE SH *3 ZONE
(ADD)
28857-1AT, BC (REF)
X196.0 (REF)
+Z27.0 (REF)
(ADD)
FOR CONTINUATION SEE SH *3 ZONE
(REMOVE CALLOUT & CABLE)
28857-1AT TO 2RT-15 FROM P173 (REF)
28857-1BC TO 2RT-6 FROM P173 (REF)
SEE SH7, VIEW G-G, ZONE 47A
X131.14 (REF)

VIEW F-F
(+Y END PANEL) AT ZONE 13A, SH4

DESCRIPTION OF E.O. ON-1 INSTL:

ON SH4; AT ZONE 2B VIEW C-C ADDED: 28652-1AT (REF), 28857-1 BD, BE, BF, BG, BH, AN, AP, AU, AV (REF), FOR CONTINUATION SEE SH *3 ZONE . REMOVED: 28652-1 AT TO 2RT3 (REF), 28857-1 BF, BG, BH, AN, AP, AU, AV (REF) FOR CONTINUATION SEE SH7, VIEW G-G, ZONE 47A.

AT ZONE 11B VIEW D-D ADDED: 28857-1AS, AX (REF), FOR CONTINUATION SEE SH *3 ZONE. REMOVED: 28857-1AS TO 2RT-10 FROM P173 (REF), 28857-1AX TO 2RT-5 FROM P173 (REF), SEE SH7, VIEW G-G, ZONE 47A.

AT ZONE 13C VIEW E-E ADDED: 28857-1 AR, AW (REF), FOR CONTINUATION SEE SH *3 ZONE . REMOVED: 28857-1AR TO 2RT-14 FROM P173 (REF), 28857-1AW TO 2RT-4 FROM P173 (REF), SEE SH7, VIEW G-G, ZONE 47A.

AT ZONE 13A VIEW F-F ADDED: 28857-1 AT, BC (REF), FOR CONTINUATION SEE SH *3 ZONE . REMOVED: 28857-1AT TO 2RT-15 FROM P173 (REF), 28857-1BC TO 2RT-6 FROM P173 (REF), SEE SH7, VIEW G-G, ZONE 47A.

AT ZONE 3A DETAIL AG LDW280M16125 (4) WAS LDW280M16125

AT ZONE 7B ADDED: SEE DETAIL *4 & ADDED: DETAIL *4, ADDED TO F/D & B/M: GS550C-08S8 (3), AN960D8L (3).

ON SH7 AT ZONE 46B, 45A, 45B, 45C, 44A, 44B COMPLETELY REMOVED PICTURE OF LANDING LEG, LANDING LEG CROSS BRACE, SECONDARY STRUT & LANDING PAD WITH ASSOCIATED CALLOUTS, VIEW W-W.

AT ZONE 46B VIEW G-G REMOVED: FOR CONTINUATION SEE SH 4, VIEW C-C, ZONE 3B AND ASSOCIATED WIRING, - 2S16, E2892, E2893, 28654-1BG (+Z ONLY) SEE SH4, VIEW C-C, ZONE 2B. 2S18, E2890, E2891, 28654-1BA (+Y ONLY) SEE SH 4 VIEW F-F ZONE 13A (REF)

AT ZONE 46C VIEW G-G 28654-1AC, AW, BT (REF), 28857-1 BD, BF, BG (REF) WAS 28654-1AG, BT (REF), 28857-1 BD, BF, BG (REF) 28652-1AT (REF), 28857-1BH, BE, AN, AP, AU, AV (REF), 28654-1 BG, BK (REF), WAS 28652-1AT (REF), 28857-1 BC, BH BE, AN, AP, AU, AV (REF). 28654-1AW, BK (REF) . ADDED SH *3 & -3, -5, -7, -9, INSTL WITH ASSOC SECT. 5

DETAIL SPEC REQD	☐	CLASS II ENGRG CHG	☒	CLASS I ENGRG CHG	☐	LCD19-1085, LCD19-1086, LCD19-1077		CONTROL INFO NO. LDW280A5871

REASON FOR EO REVISED WIRING TO PERMIT DIS-ASSY FOR SHIPPING	DESCRIPTION OF EO SEE ABOVE	GRUMMAN EO RELEASE JK 4/10/7

MODEL	EFFECTIVITY PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING REVISION REQD		DISPOSITION OF PARTS		BY / DATE							
✓		✓		4/4/67			4/4/67	4/5/67		4/7/67	4/10/67
REVISE DWG	RECORD EO	REWORK	SCRAP	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	

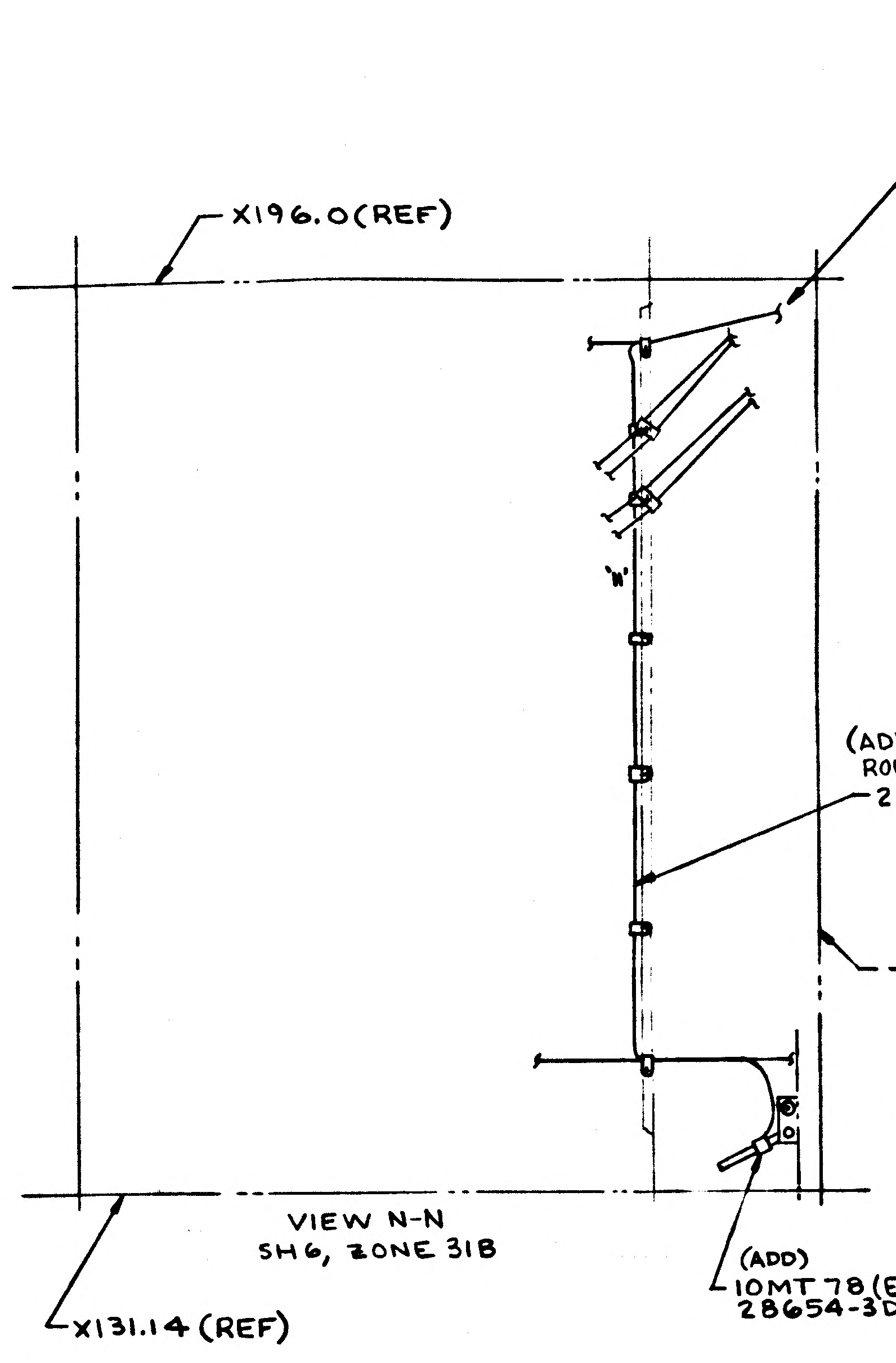
PRIORITY	DRAWING TITLE	ENGINEERING ORDER DRAWING NO.	EO NO.
C	LINES INSTALLATION ELECTRONIC DESCENT STAGE	LDW280-28607	B1

ISSUED BY R.EBERLE X7033 SECTION VDI (EQUIP LINES) GROUP NO. 332 PL 35	CODE IDENT NO. 26512	GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE, L. I., N. Y.

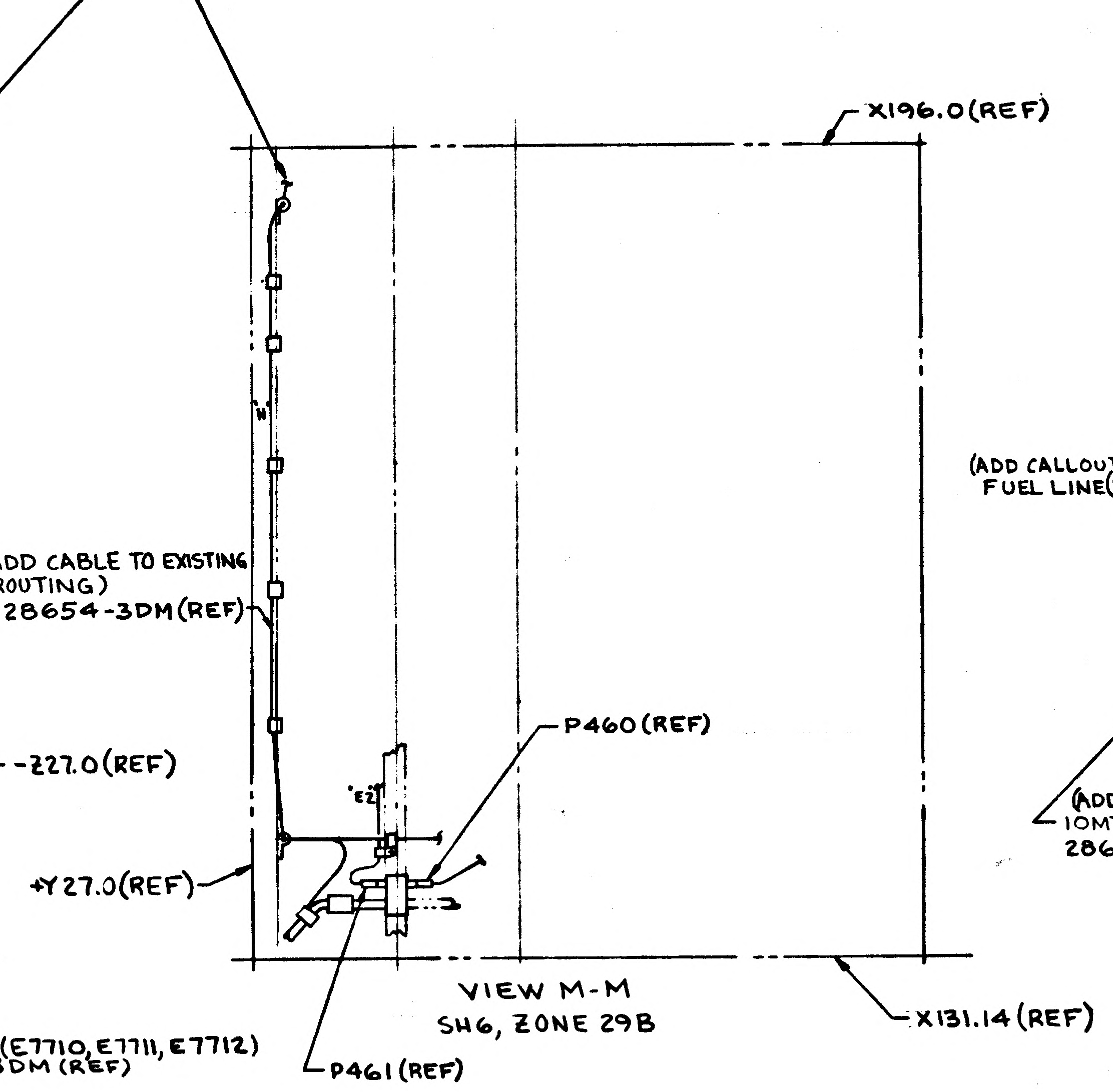
ENG 32.3 REV 3-65

Q3/03

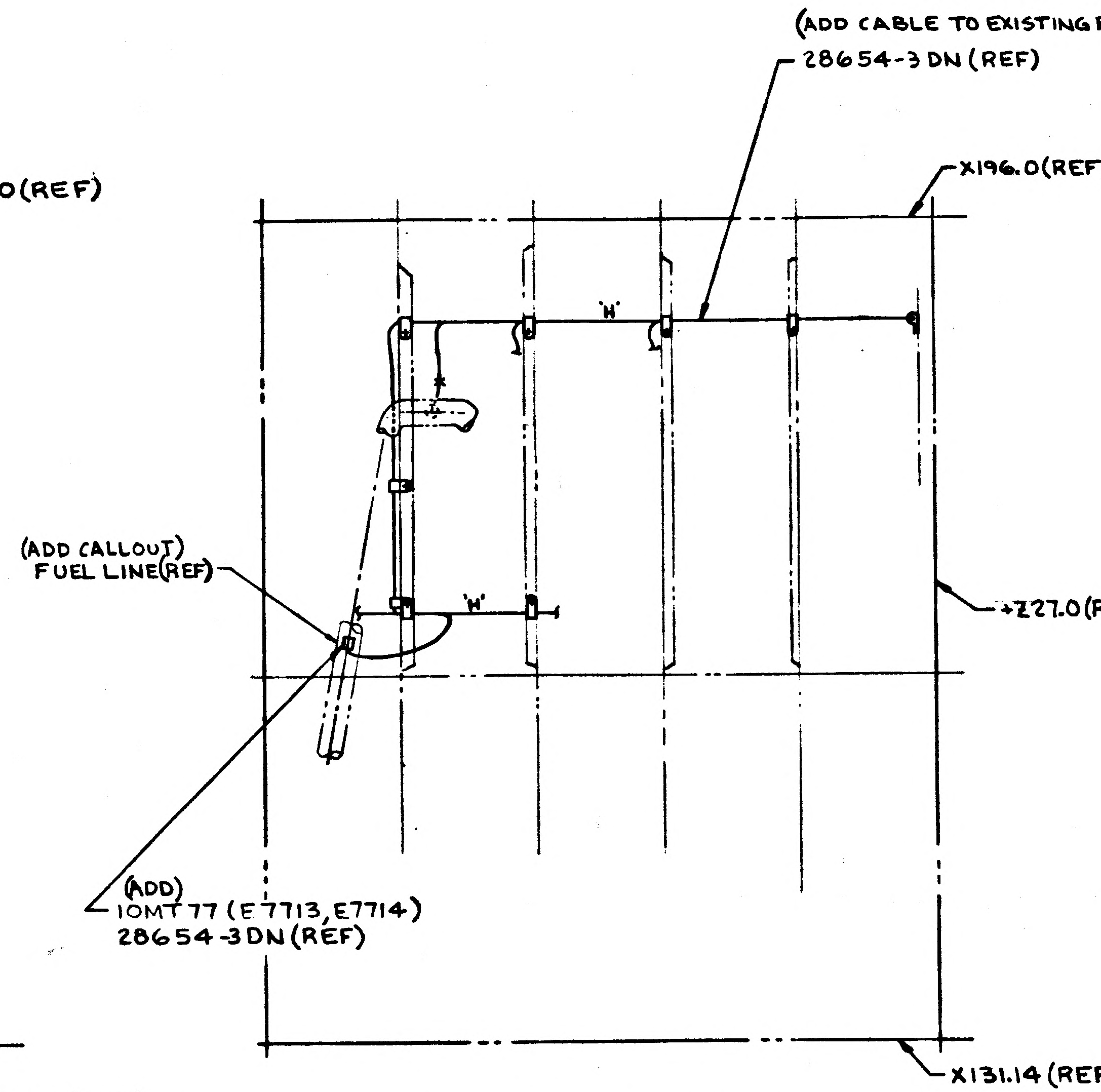
NAS 9-1100


FOR CONTINUATION SEE SH4, UPPER DECK ZONE 7B
X196.0(REF)
'H'
-Z27.0(REF)
X131.14(REF)
(ADD)
10MT78 (E7710, E7711, E7712)
28654-3DM (REF)

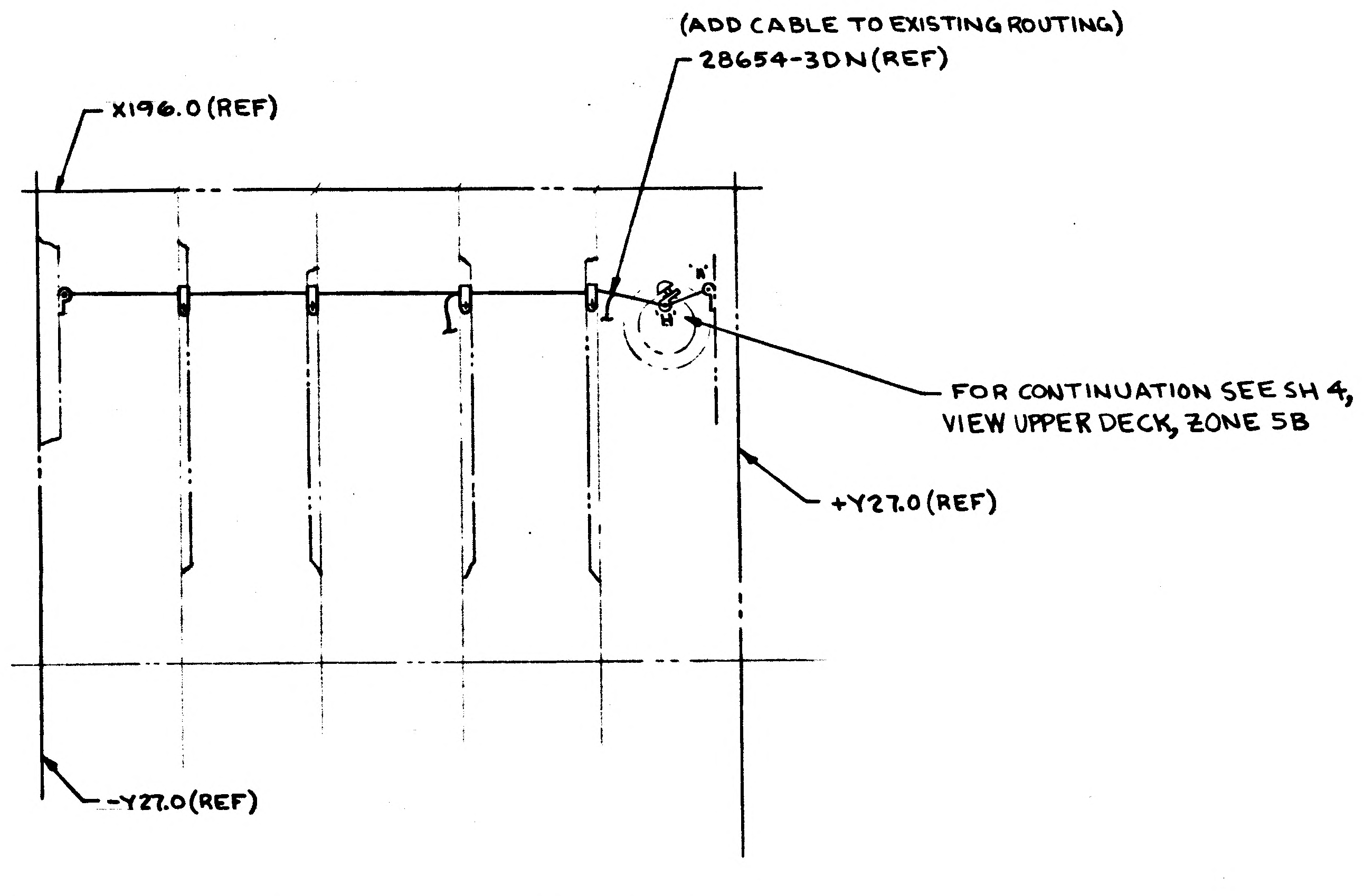
VIEW N-N
SH6, ZONE 31B


X196.0(REF)
'H'
(ADD CABLE TO EXISTING ROUTING)
28654-3DM(REF)
P460(REF)
'E2'
+Y27.0(REF)
P461(REF)
X131.14(REF)

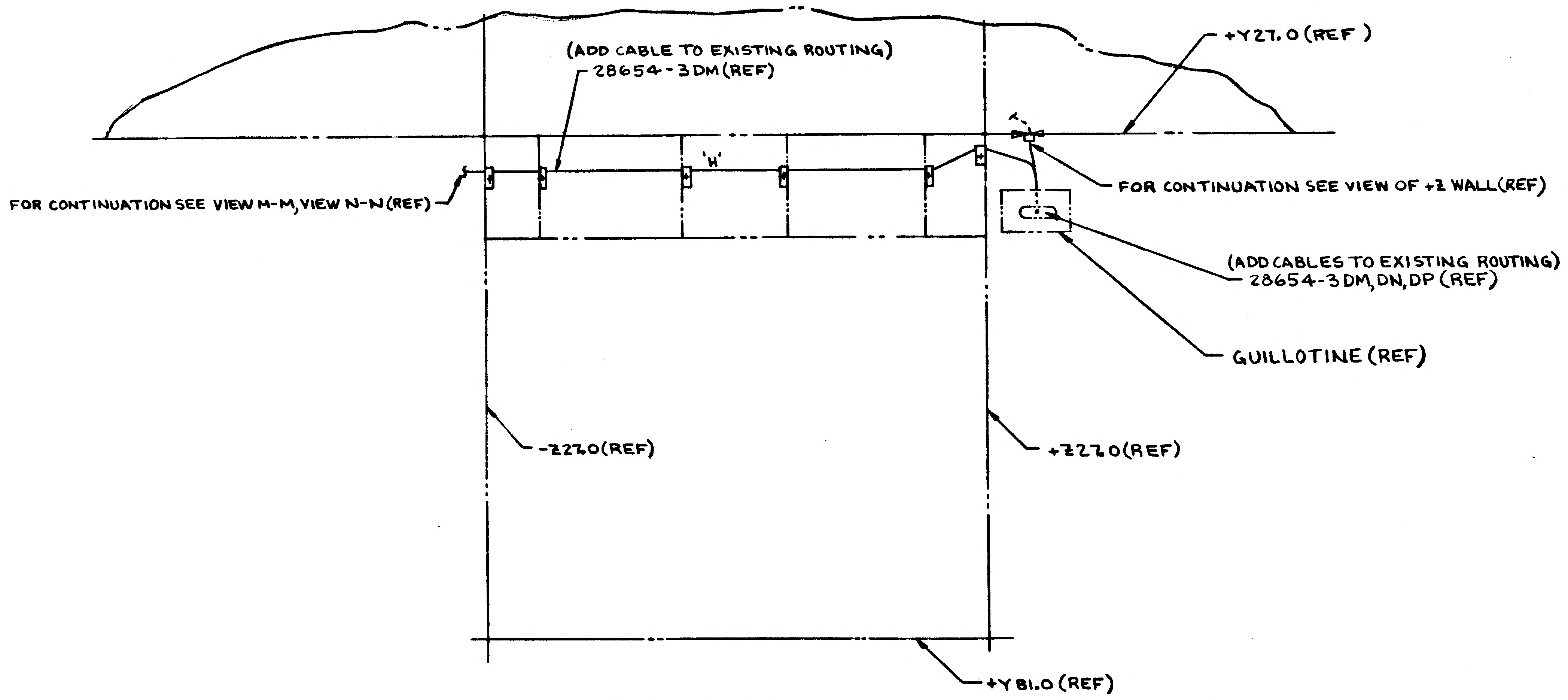
VIEW M-M
SH6, ZONE 29B


(ADD CABLE TO EXISTING ROUTING)
28654-3DN (REF)
X196.0(REF)
'H'
(ADD CALLOUT)
FUEL LINE(REF)
'H'
+Z27.0(REF)
(ADD)
10MT77 (E7713, E7714)
28654-3DN (REF)
X131.14(REF)

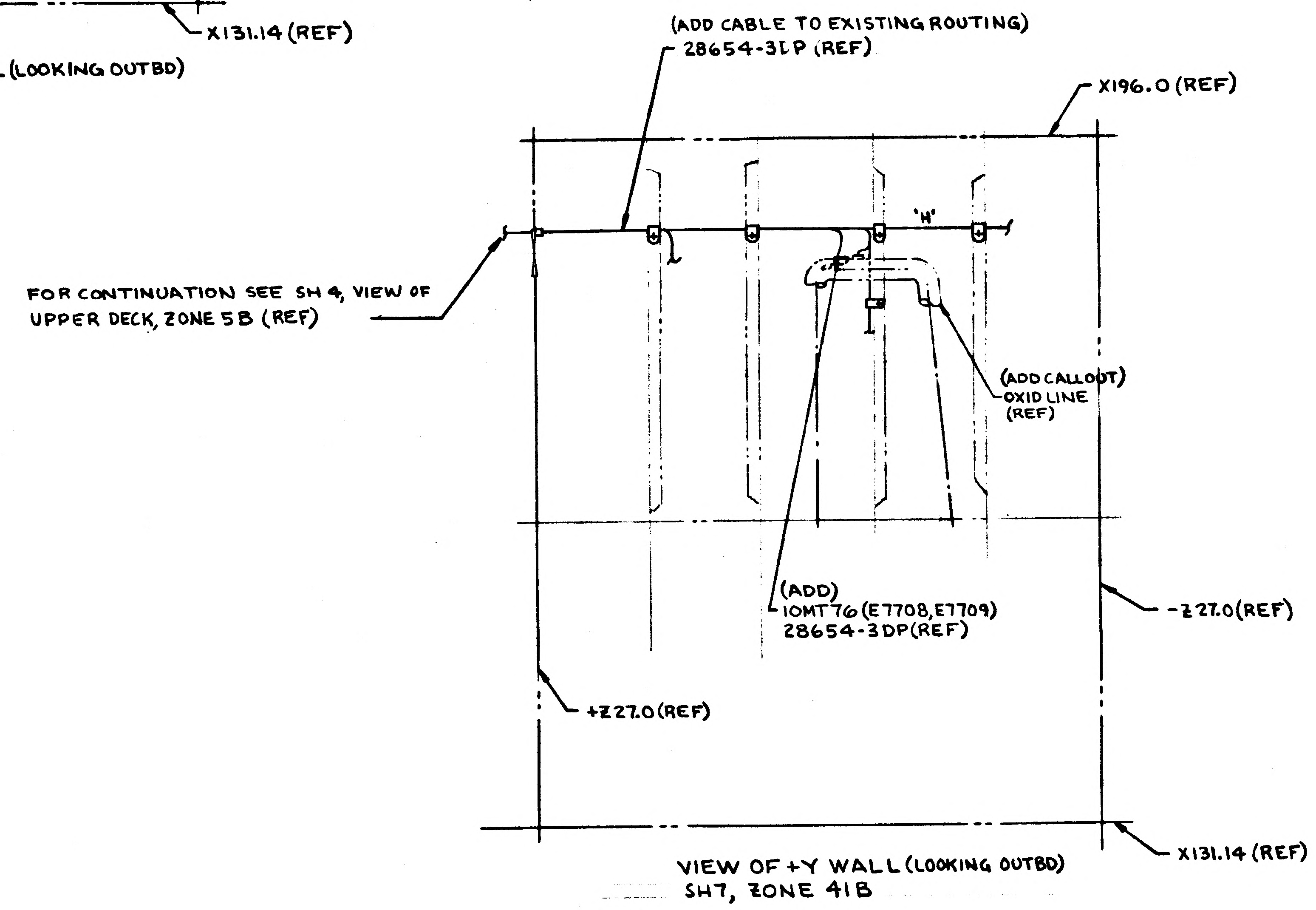
VIEW OF -Y WALL (LOOKING OUTBD)
SH 7, ZONE 38B


X196.0(REF)
(ADD CABLE TO EXISTING ROUTING)
28654-3DN(REF)
'H'
FOR CONTINUATION SEE SH 4, VIEW UPPER DECK, ZONE 5B
+Y27.0(REF)
-Y27.0(REF)

VIEW OF +Z WALL (LOOKING OUTBD)
SH 7, ZONE 43B


+Y27.0 (REF)
(ADD CABLE TO EXISTING ROUTING)
28654-3DM(REF)
'H'
FOR CONTINUATION SEE VIEW M-M, VIEW N-N (REF)
FOR CONTINUATION SEE VIEW OF +Z WALL(REF)
(ADD CABLES TO EXISTING ROUTING)
28654-3DM, DN, DP (REF)
GUILLOTINE (REF)
-Z27.0(REF)
+Z27.0(REF)
+Y81.0 (REF)

VIEW OF UPPER DECK
SH 4, ZONES 5B-7B


(ADD CABLE TO EXISTING ROUTING)
28654-3LP (REF)
X196.0 (REF)
FOR CONTINUATION SEE SH 4, VIEW OF UPPER DECK, ZONE 5B (REF)
'H'
(ADD CALLOUT)
OXID LINE
(REF)
(ADD)
10MT76 (E7708, E7709)
28654-3DP(REF)
-Z27.0(REF)
+Z27.0(REF)
X131.14 (REF)

VIEW OF +Y WALL (LOOKING OUTBD)
SH7, ZONE 41B

PRINTING INFO ONLY
FULL SIZE SHEET AREA (30 x 53) = 11.0 SQFT
1/2 SIZE SHEET AREA (1/4 OF FULL) = 3.0 SQFT

5

DETAIL SPEC REQD		CLASS II ENGRG CHG	☒	CLASS I ENGRG CHG		LCD 1550	CONTROL INFO NO. LDW 280A 77 33

REASON FOR EO	DESCRIPTION OF EO	GRUMMAN EO RELEASE
ADDITION OF XDUCERS	ON-1 INSTL ADDED ROUTING LDW390-28654-3DM, DN, DP (REF)	② C. JL 7-3-67

MODEL	EFFECTIVITY PROCURING ACT. NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING REVISION REQD		DISPOSITION OF PARTS		BY / DATE	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	GOV'T
✓ REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP	6/27/67 VDI			6/27/67	6/28/67		6/29/67	7-3-67

PRIORITY	DRAWING TITLE	ENGINEERING ORDER DRAWING NO.	EO NO.
C	LINES INSTALLATION ELECTRONIC DESCENT STAGE	LDW280-28607	B2

X1153 6-23-67
ISSUED BY R. EBERLE SECTION VDI (EQUIP LINES) GROUP NO. 332 PL 25

CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

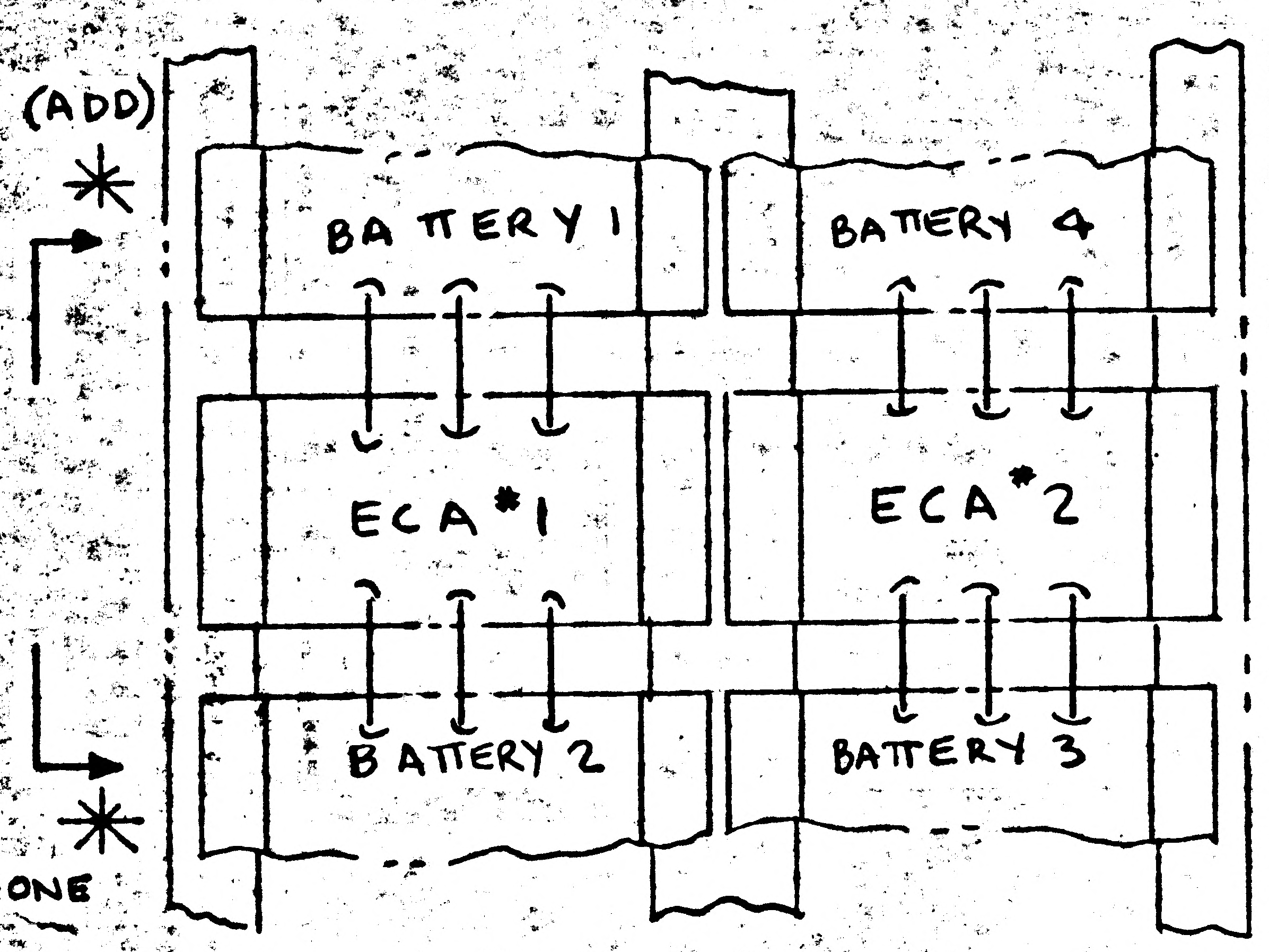
ENG 32.3 REV 3-65

01 NAS 9-1100

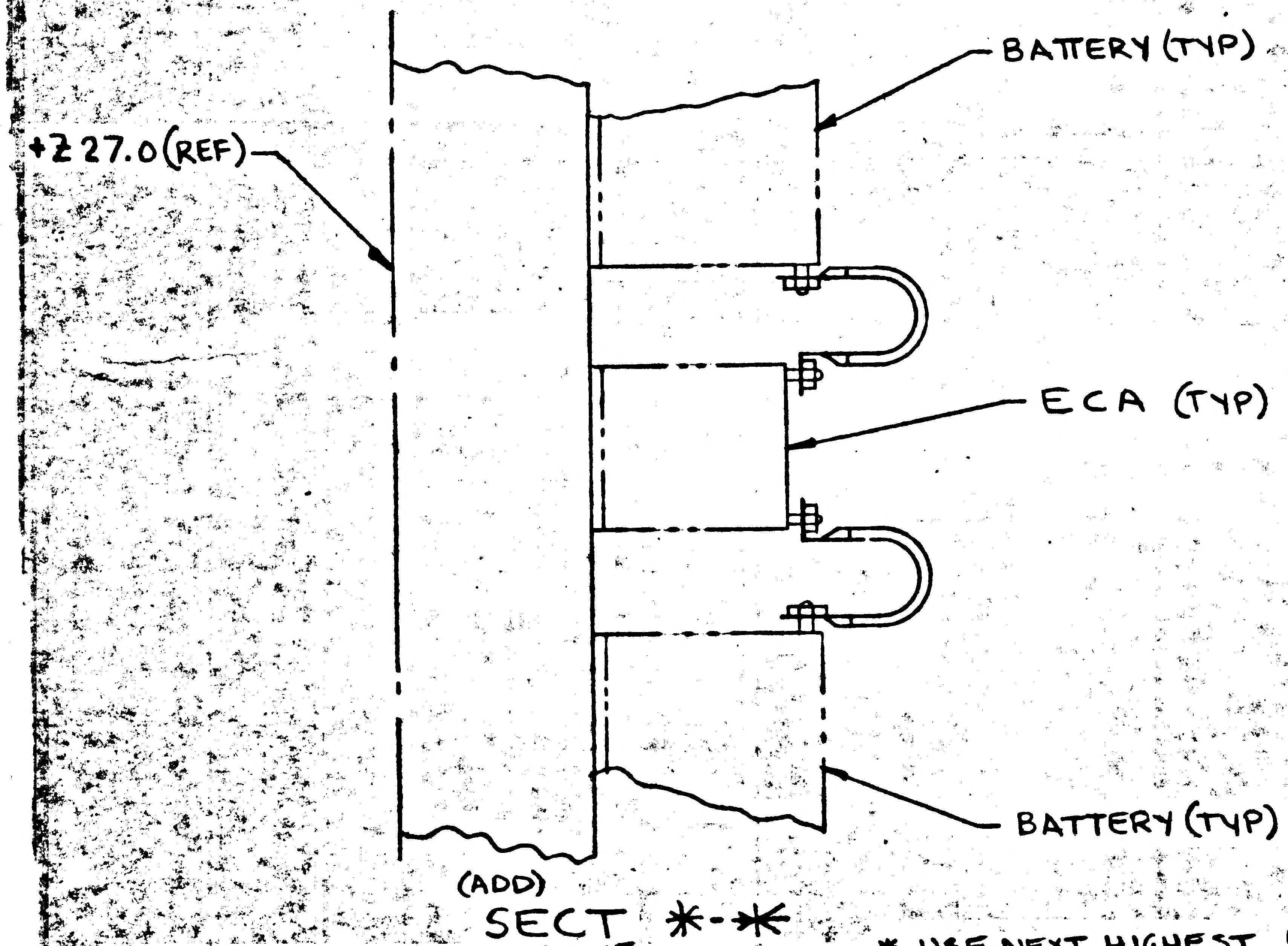
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28607		EO NO. B3
CONTROL INFO NO. LDW280A8303		

ON-1 INSTL


(ADD)
*
ZONE
*
BATTERY 1
BATTERY 4
ECA #1
ECA #2
BATTERY 2
BATTERY 3

VIEW H-H
(SH 7, ZONE 49B)


+227.0 (REF)
BATTERY (TYP)
ECA (TYP)
BATTERY (TYP)

(ADD)
SECT *-*
ZONE

* USE NEXT HIGHEST LETTER

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☒	CL I ENGRG CHG	☐ LCD 1078

REASON FOR EO: SHOW EXACT INSTL OF JUMPER CABLES

DESCRIPTION OF EO: ON-1 INSTL ADDED SECTION * - *

Ⓡ GAEC EO RELEASE: JK 8/2/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
M		LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG.	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	Jaf			JW / CHC	WJH		9wRB	JLP
DATE	7/31/67			7/31/67	8/1/67		8/1/67	8-2-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	LINES INSTALLATION ELECTRONIC DESCENT STAGE	LDW280-28607	B3

8/3 ISSUED BY R. EBERLE X1153 SECTION VDI (EQUIP LINES) GROUP NO. 332 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-28607 EO NO. B4
CONTROL INFO NO. LDW280B1061

IN F/D (SH 4 ZONE 3A) AND B/M 'DELETE
LDW 280M16125-1

DETAIL SPEC REQ	✓	CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: PART NOT REQUIRED (CDR LIST)

DESCRIPTION OF EO: IN F/D AND B/M DELETED LDW 280M16125-1

GAEC EO RELEASE: JK 1/6/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQ'D.	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQ'D

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	1/4/68			1-4-68	1/4/68		1/4/68	1-6-68

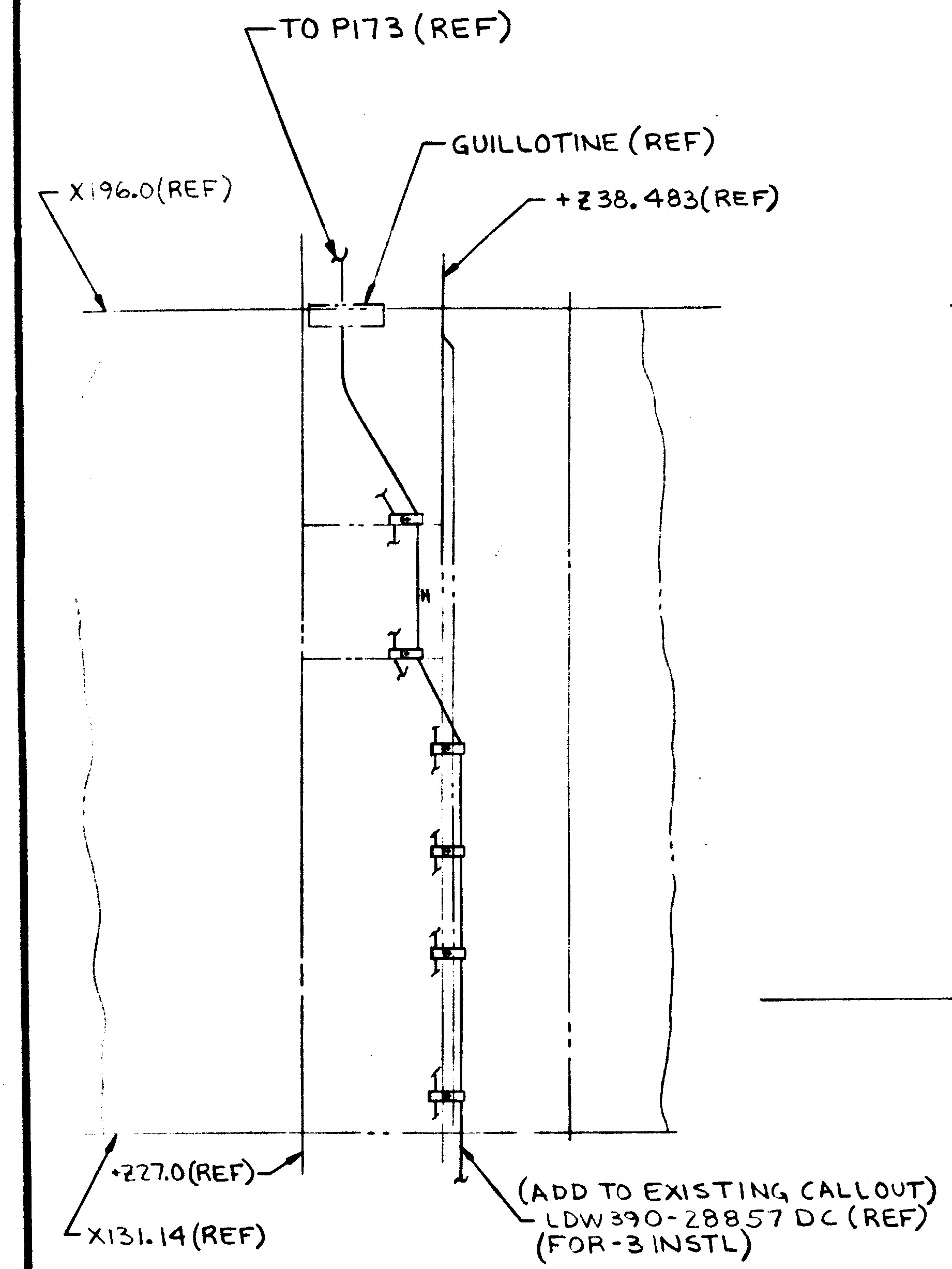
PRIORITY: E
DRAWING TITLE: LINES INSTALLATION ELECTRONIC-DESCENT STAGE
DRAWING NO. LDW280-28607
EO NO. B4

ISSUED BY H. MUTOLI SECTION EQUIPMENT LINES GROUP NO. 332 PL 25

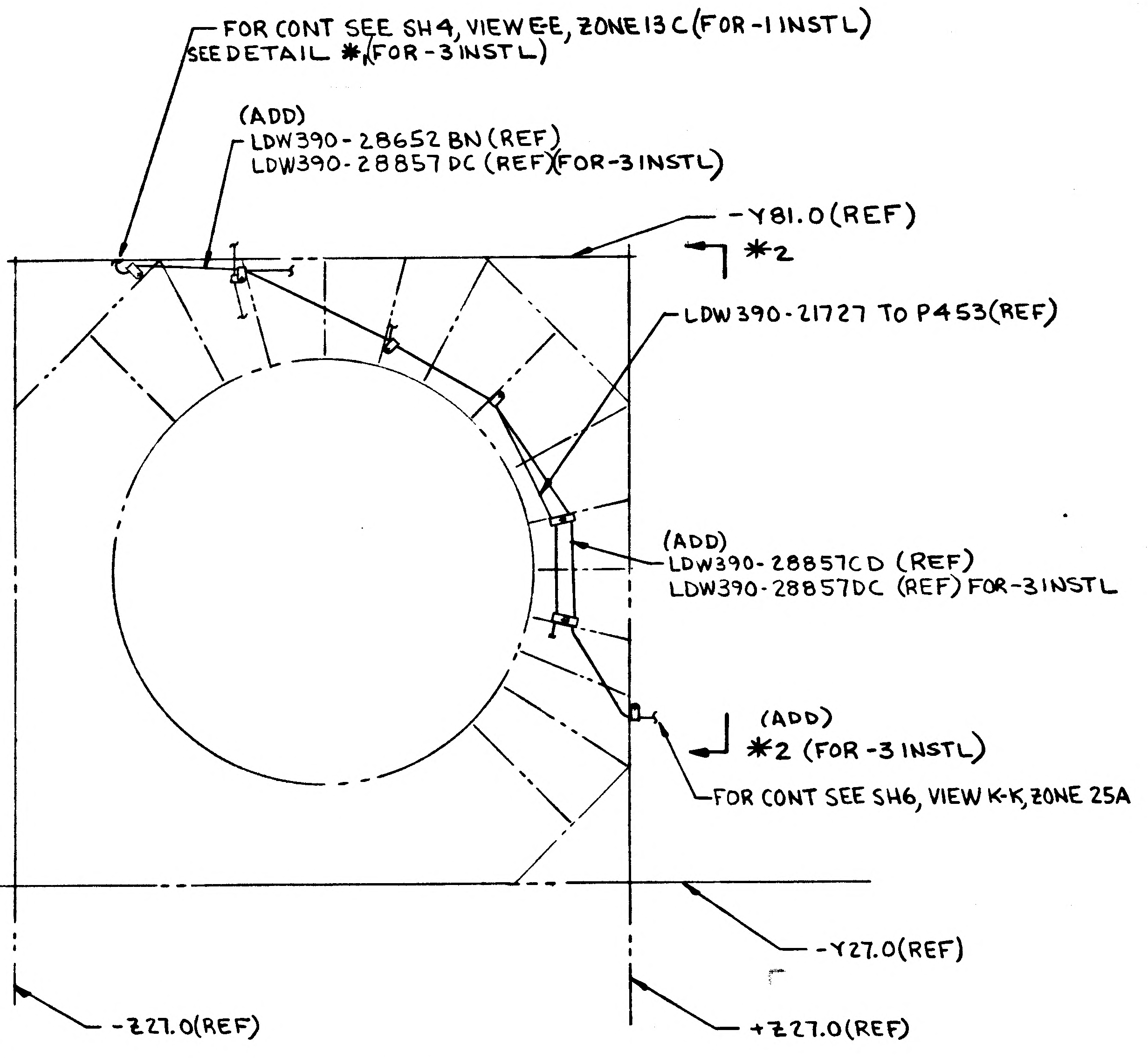
01

NAS 9-1100

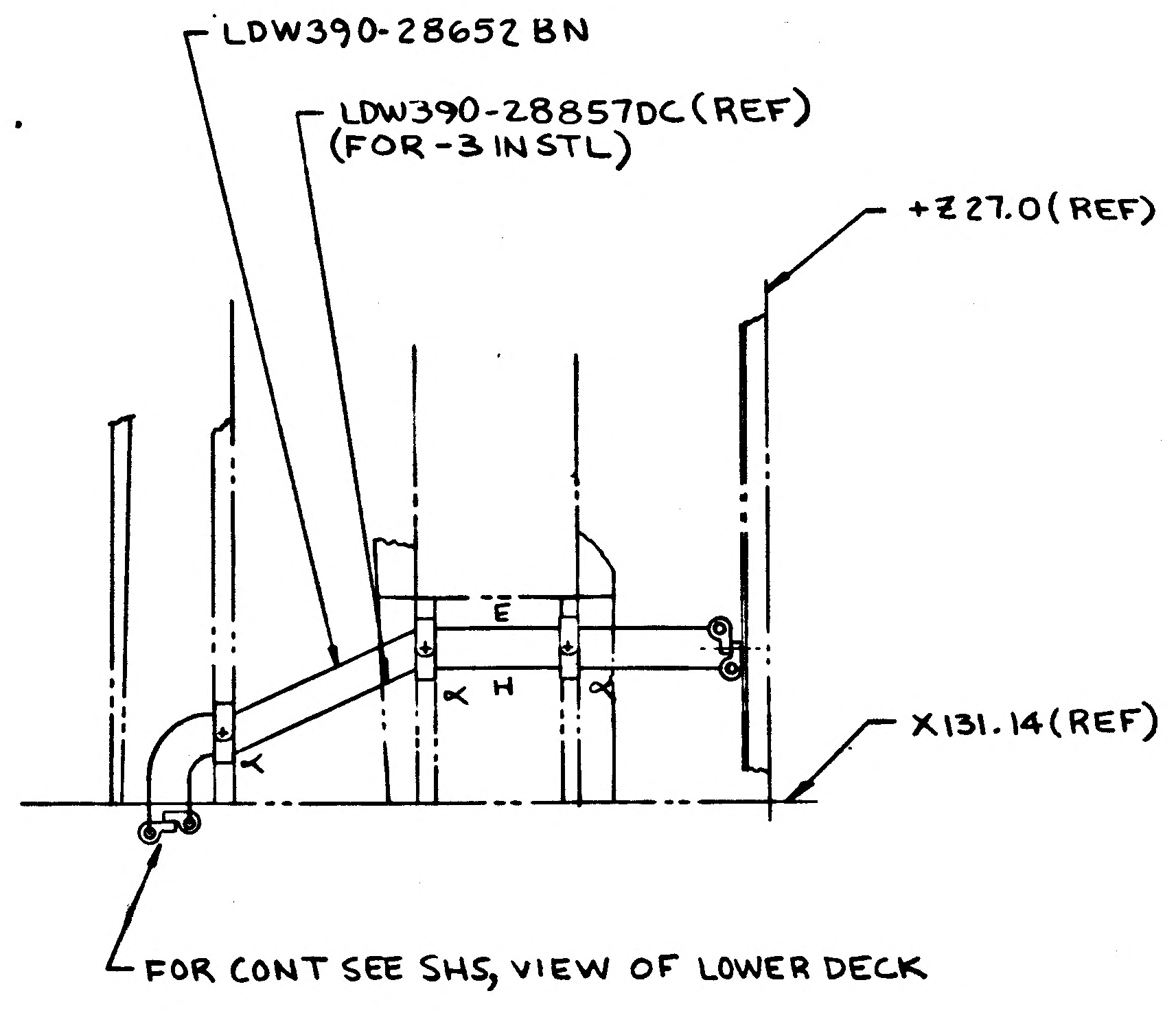
ON SH 4,5,6,7&8; DELETE: -1 FROM THE REF CABLE ASSY CALLOUTS.


TO P173 (REF)
GUILLOTINE (REF)
X196.0 (REF)
+Z38.483 (REF)
-Z27.0 (REF)
X131.14 (REF)
(ADD TO EXISTING CALLOUT)
LDW390-28857 DC (REF)
(FOR-3 INSTL)

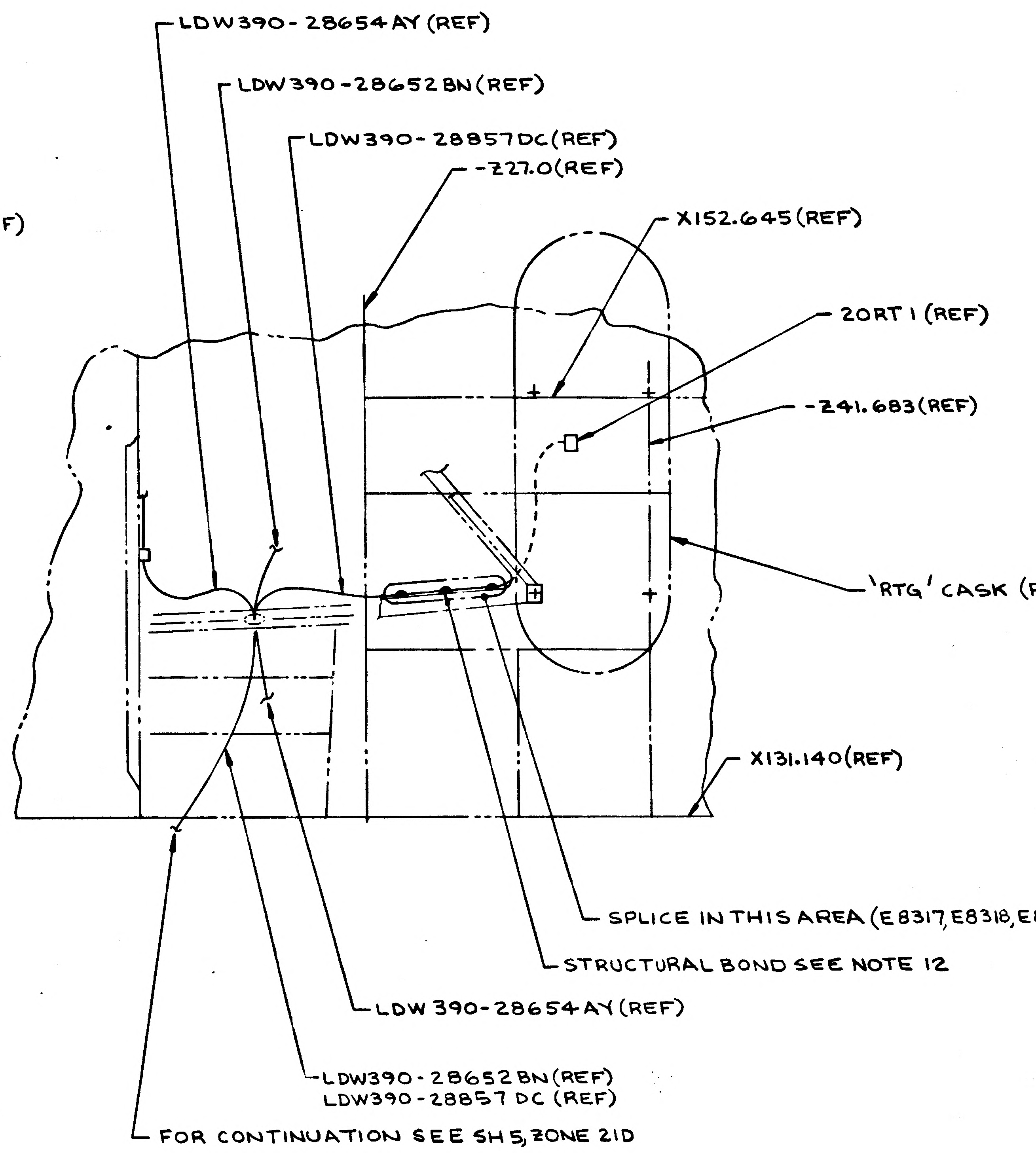
VIEW G-G
(SH 7, ZONE 47B)


FOR CONT SEE SH4, VIEW E-E, ZONE 13 C (FOR-1 INSTL)
SEE DETAIL *1 (FOR-3 INSTL)
(ADD)
LDW390-28652 BN (REF)
LDW390-28857 DC (REF) (FOR-3 INSTL)
-Y81.0 (REF)
*2
LDW390-21727 TO P453 (REF)
(ADD)
LDW390-28857 CD (REF)
LDW390-28857 DC (REF) FOR-3 INSTL
(ADD)
*2 (FOR-3 INSTL)
FOR CONT SEE SH6, VIEW K-K, ZONE 25A
-Y27.0 (REF)
-Z27.0 (REF)
+Z27.0 (REF)

VIEW OF LOWER DECK
(SH 5, ZONE 20D, 21D)

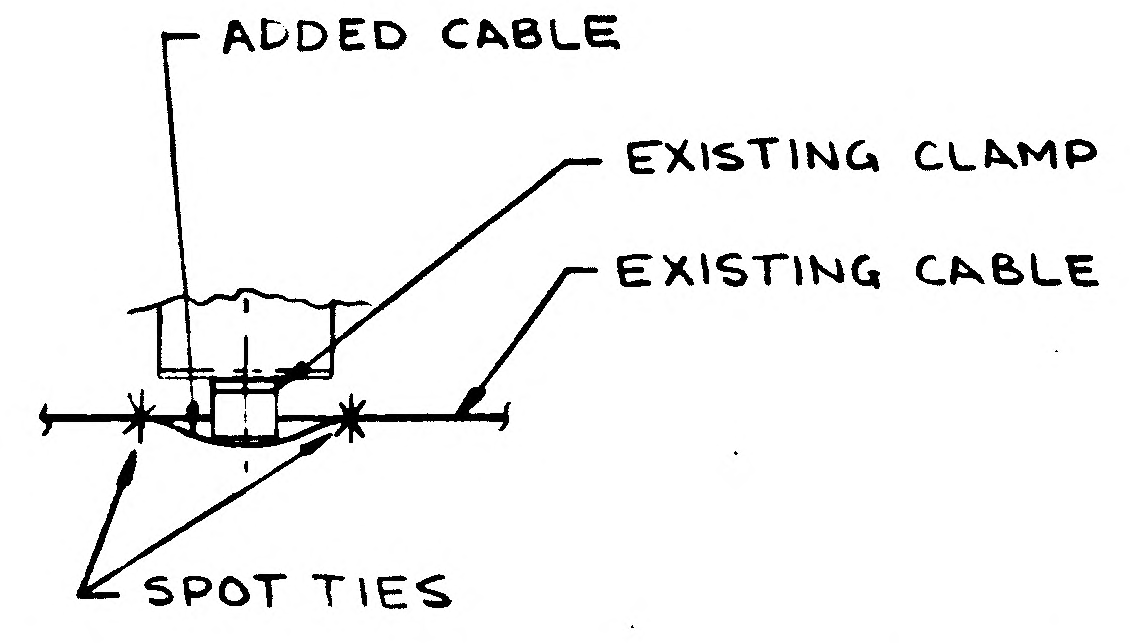

LDW390-28652 BN
LDW390-28857 DC (REF)
(FOR-3 INSTL)
+Z27.0 (REF)
E
H
α
X131.14 (REF)
FOR CONT SEE SH5, VIEW OF LOWER DECK

(ADD)
VIEW *3-*3
(FOR -3 INSTL)
(ROTATED 180°)

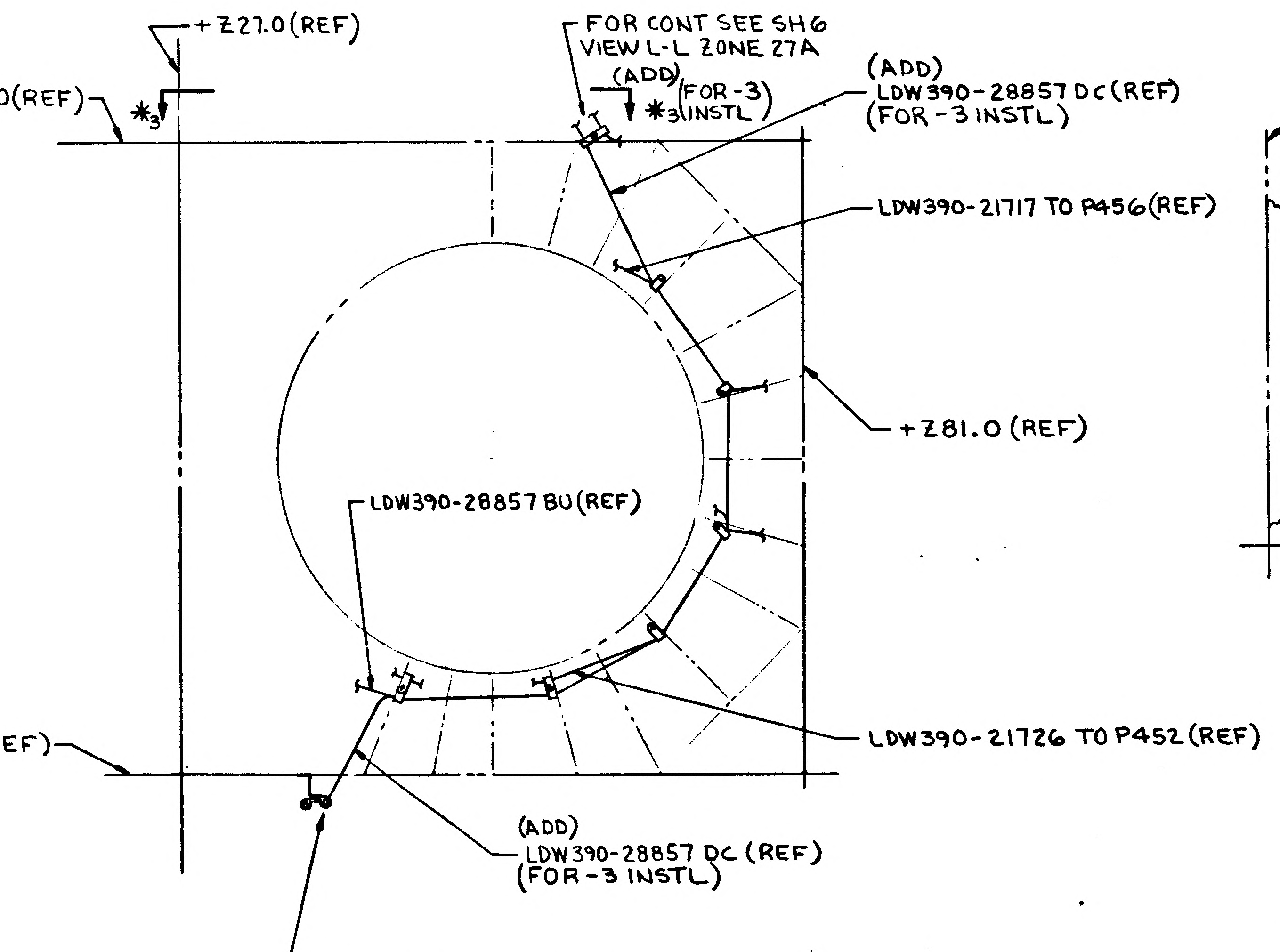

LDW390-28654 AY (REF)
LDW390-28652 BN (REF)
LDW390-28857 DC (REF)
-Z27.0 (REF)
X152.645 (REF)
20RT1 (REF)
-Z41.683 (REF)
'RTG' CASK (REF)
X131.140 (REF)
SPLICE IN THIS AREA (E8317, E8318, E8319)
STRUCTURAL BOND SEE NOTE 12
LDW 390-28654 AY (REF)
LDW390-28652 BN (REF)
LDW390-28857 DC (REF)
FOR CONTINUATION SEE SH 5, ZONE 21D

(ADD)
DETAIL *1 (FOR-3 INSTL)
VIEW OF -Y END PANEL AND
S.E.Q. BAY END CLOSURE

DESCRIPTION OF E.O.
CREATED: -3 INSTL IDENT
FOLLOWING: ADD -2885
PER LPC 280-23, EFF FOR LFM 12
ON SH 5, ZONES 19B, 19C A
LDW 390-28857 DC
ON SH 5, ZONE 20D ADDED
LDW390-28857 CD (R
LDW 390-28857 DC (
ON SH 5, ZONE 21D ADDE
LDW390-28652 BN
LDW390-28857 DC
IN F/D ADDED:
DETAIL *1 & *4 ; VIE
ON SH7, ZONE 47B ADDED
LDW390-28857 DC (RE
ON SH 5, ZONE 21D :
FOR CONTINUATION
SEE DETAIL *1 (FO
WAS
FOR CONTINUATION
ON SH 4,5,6,7&8 DELETED:
-1 FROM THE REF CAB
ON SH 3 ADDED:
NOTE Δ.

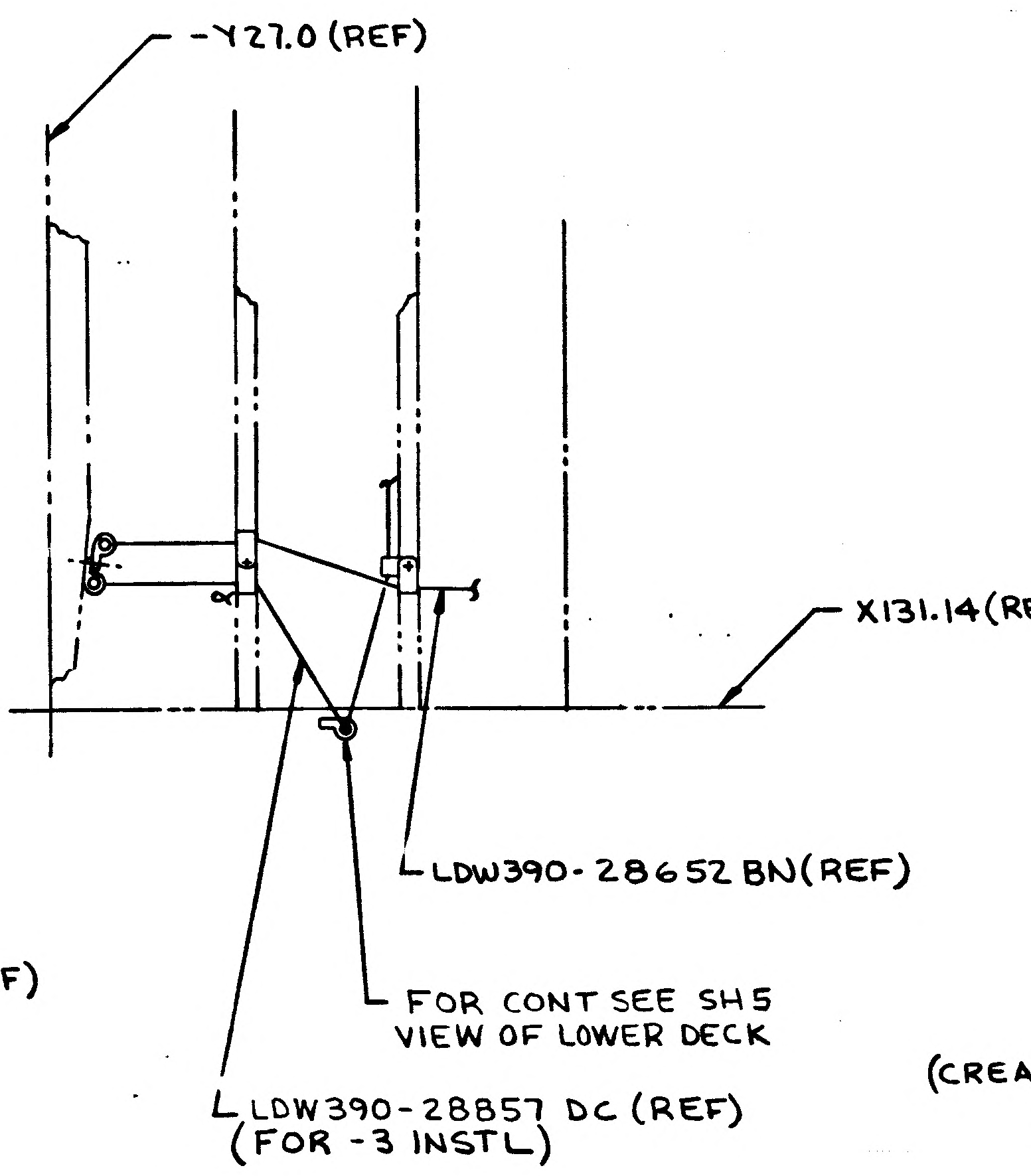

ADDED CABLE
EXISTING CLAMP
EXISTING CABLE
SPOT TIES

(ADD)
DETAIL *4 (TYP)
(SEE SH 3.00, NOTE Δ)


+Z27.0 (REF)
-Y27.0 (REF)
*3
FOR CONT SEE SH6
VIEW L-L ZONE 27A
(ADD) (FOR-3)
*3 INSTL
(ADD)
LDW390-28857 DC (REF)
(FOR-3 INSTL)
LDW390-21717 TO P456 (REF)
+Z81.0 (REF)
LDW390-28857 BU (REF)
+Y27.0 (REF)
LDW390-21726 TO P452 (REF)
(ADD)
LDW390-28857 DC (REF)
(FOR-3 INSTL)

VIEW OF LOWER DECK
(SH5, ZONE 19 B, 19C)

FOR CONT SEE SH7, VIEW G-G, ZONE 47B


-Y27.0 (REF)
X131.14 (REF)
LDW390-28652 BN (REF)
FOR CONT SEE SH5
VIEW OF LOWER DECK
LDW390-28857 DC (REF)
(FOR -3 INSTL)

(ADD)
VIEW *2-*2
(FOR -3 INSTL)
(ROTATED 90° CLOCKWISE)

(CREATE)
LDW280-28607-3 INSTL IDENTICAL TO
-1 INSTL EXCEPT FOR THE FOLLOWING:
ADD -28857 DC (REF) CABLE ASSY AND
GC500AA-1D02 (4) CLAMPS PER LPC 280-23

(ADD)
NOTE:
Δ. ON-3 INSTL ONLY, 28857 DC (REF) CABLE MAY BE ROUTED OVER ALL EXISTING CLAMPS THAT ARE IMPRACTICAL TO OPEN. TIE 28857 DC (REF) CABLE TO THE EXISTING BUNDLE ON EITHER SIDE OF THE CLAMP AS SHOWN IN DETAIL *4 (SH , ZONE).

(E.O. REF NOTES:)
1) THE PREFIX LDW390- IS FOR E.O. REF ONLY AND SHOU
2) α = INSTALL GC500AA CLAMPS PER LFC 280-23.
3) *1, *2-*2, *3-*3, *4 = USE NEXT HIGHER AVAILABLE LETTER(S
4) Δ = USE NEXT HIGHER NUMBERS.
5) NOTE 12. BOND WIRES TO SURFACE WITH MIL-A-5090D (TYPE I EPON 9
LSP-14-22500.

DETAIL SPEC REQD		CLASS II ENGRG CHG	☒	CLASS I ENGRG CHG		LCD 1021-29

REASON FOR EO
RTG TEMPERATURE
MEASUREMENT

DES
SEE ABOVE

MODEL	EFFECTIVITY PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM122	LTA-8 (19)	

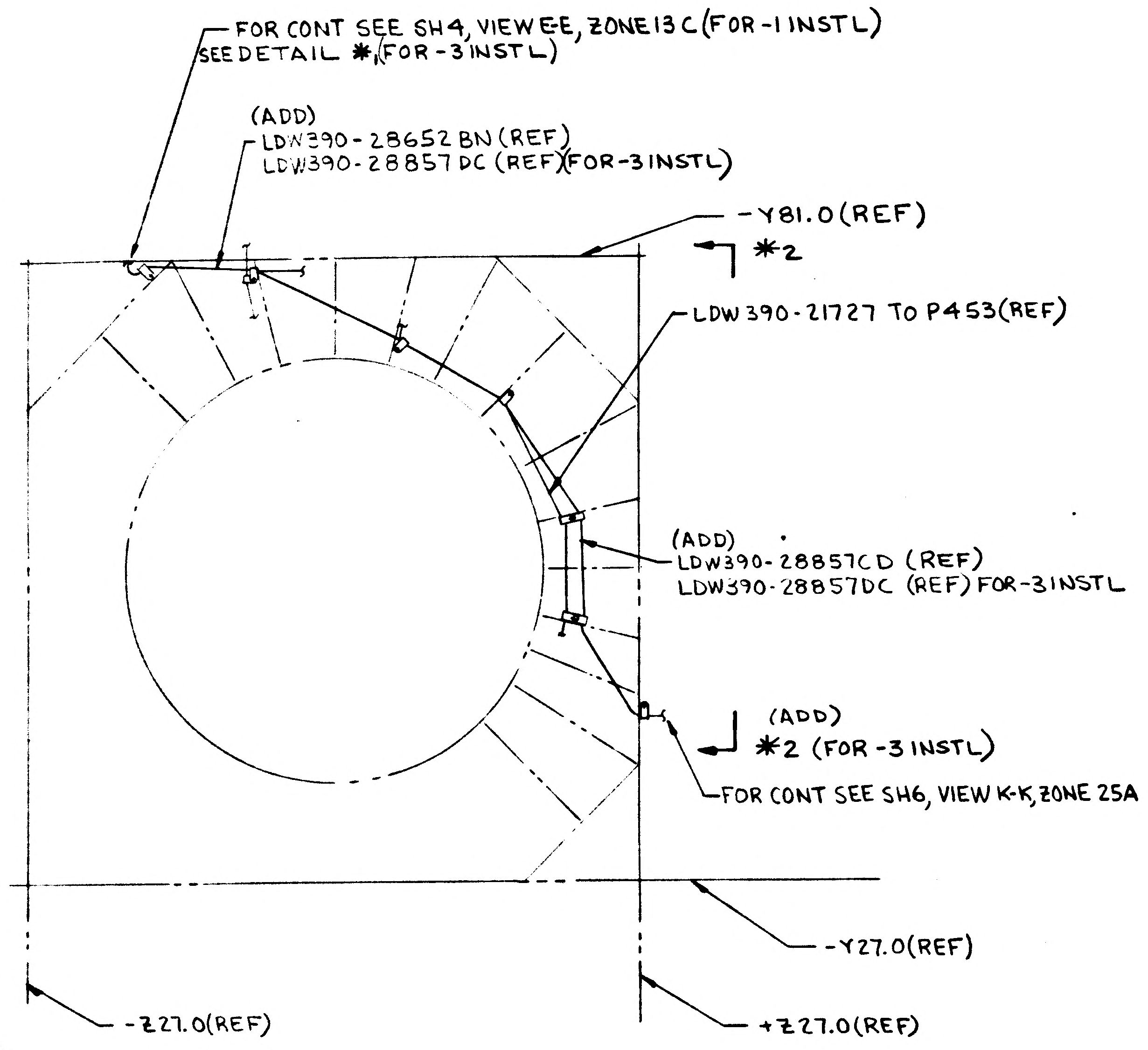
DRAWING REVISION REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP
BY
DATE
PRIORITY
C
DRAWING TIT
LINES INSTALLAT
ELECTRONIC DESC

6/3
ISSUED BY R. EBERLE
SECTION VDI (EQUIP LINES) GROUP NO. 332. PL 25
CODE IDENT
2651
ENG 32 3 REV 3-65

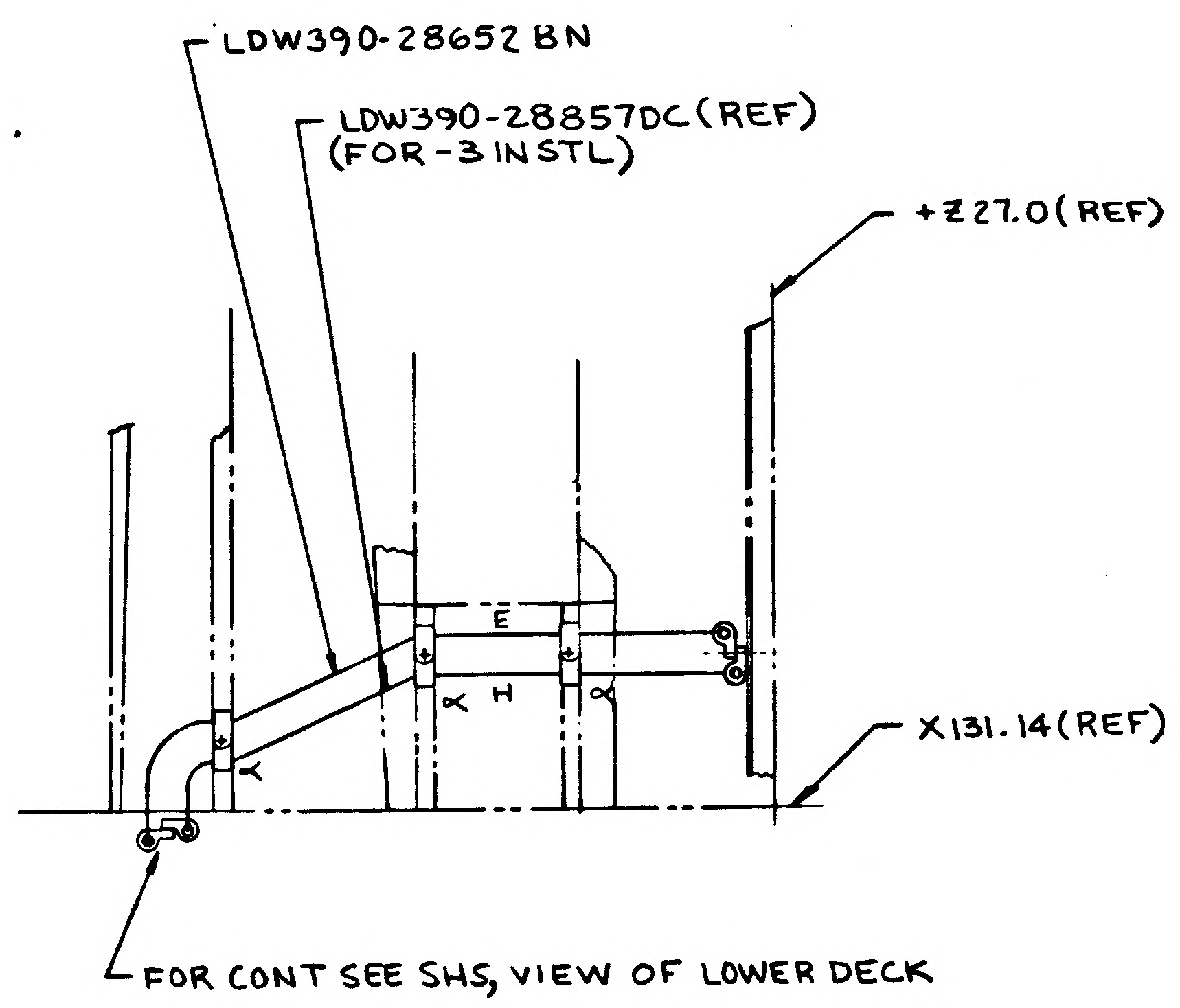
01/02 NAS 9-1100

ON SH 4,5,6,7&8; DELETE:-1 FROM THE REF CABLE ASSY CALLOUTS.

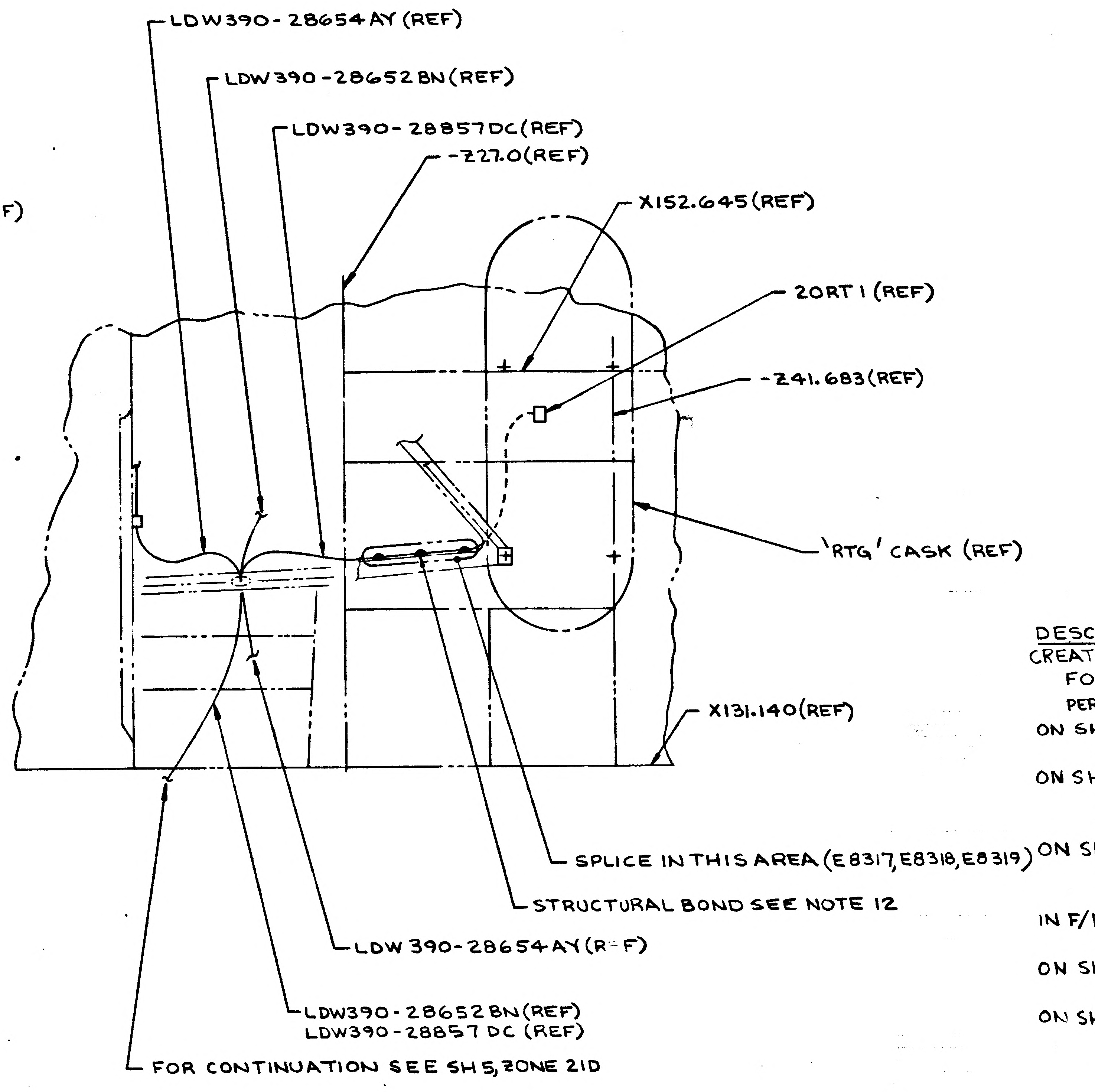
PRINTING INFO ONLY
FULL SIZE SHEET (30 x 56) = 11.5 SQ FT
1/2 SIZE SHEET AREA (1/4 OF FULL) = 3 SQ FT


FOR CONT SEE SH4, VIEW E-E, ZONE 13C (FOR-1 INSTL)
SEE DETAIL *1 (FOR-3 INSTL)
(ADD)
LDW390-28652 BN (REF)
LDW390-28857 DC (REF) (FOR-3 INSTL)
-Y81.0 (REF)
*2
LDW390-21727 TO P453 (REF)
(ADD)
LDW390-28857CD (REF)
LDW390-28857DC (REF) FOR-3 INSTL
(ADD)
*2 (FOR-3 INSTL)
FOR CONT SEE SH6, VIEW K-K, ZONE 25A
-Y27.0 (REF)
-Z27.0 (REF)
+Z27.0 (REF)

VIEW OF LOWER DECK
(SH 5, ZONE 20D, 21D)


LDW390-28652 BN
LDW390-28857DC (REF)
(FOR-3 INSTL)
+Z27.0 (REF)
X131.14 (REF)
FOR CONT SEE SH5, VIEW OF LOWER DECK

(ADD)
VIEW *3-*3
(FOR-3 INSTL)
(ROTATED 180°)


LDW390-28654AY (REF)
LDW390-28652BN (REF)
LDW390-28857DC (REF)
-Z27.0 (REF)
X152.645 (REF)
ZORT1 (REF)
-Z41.683 (REF)
'RTG' CASK (REF)
X131.140 (REF)
SPLICE IN THIS AREA (E8317, E8318, E8319)
STRUCTURAL BOND SEE NOTE 12
LDW390-28654AY (REF)
LDW390-28652BN (REF)
LDW390-28857 DC (REF)
FOR CONTINUATION SEE SH5, ZONE 21D

(ADD)
DETAIL *1 (FOR-3 INSTL)
VIEW OF -Y END PANEL AND
S.E.Q. BAY END CLOSURE

DESCRIPTION OF E.O.

CREATED: -3 INSTL IDENTICAL TO -1 INSTL EXCEPT FOR THE FOLLOWING: ADD -28857DC (REF) CABLE ASSY & GC500AA-1D02 (4) CLAMP PER LPC 280-23, EFF FOR LFM 122, LTA-8(18), N/A LDW280-28508, 1 REQD.

ON SH 5, ZONES 19B, 19C ADDED:
LDW390-28857DC (REF) (FOR-3 INSTL)

ON SH5, ZONE 20D ADDED:
LDW390-28857CD (REF)
LDW390-28857DC (REF) (FOR-3 INSTL)

ON SH 5, ZONE 21D ADDED:
LDW390-28652BN (REF)
LDW390-28857 DC (REF) (FOR-3 INSTL)

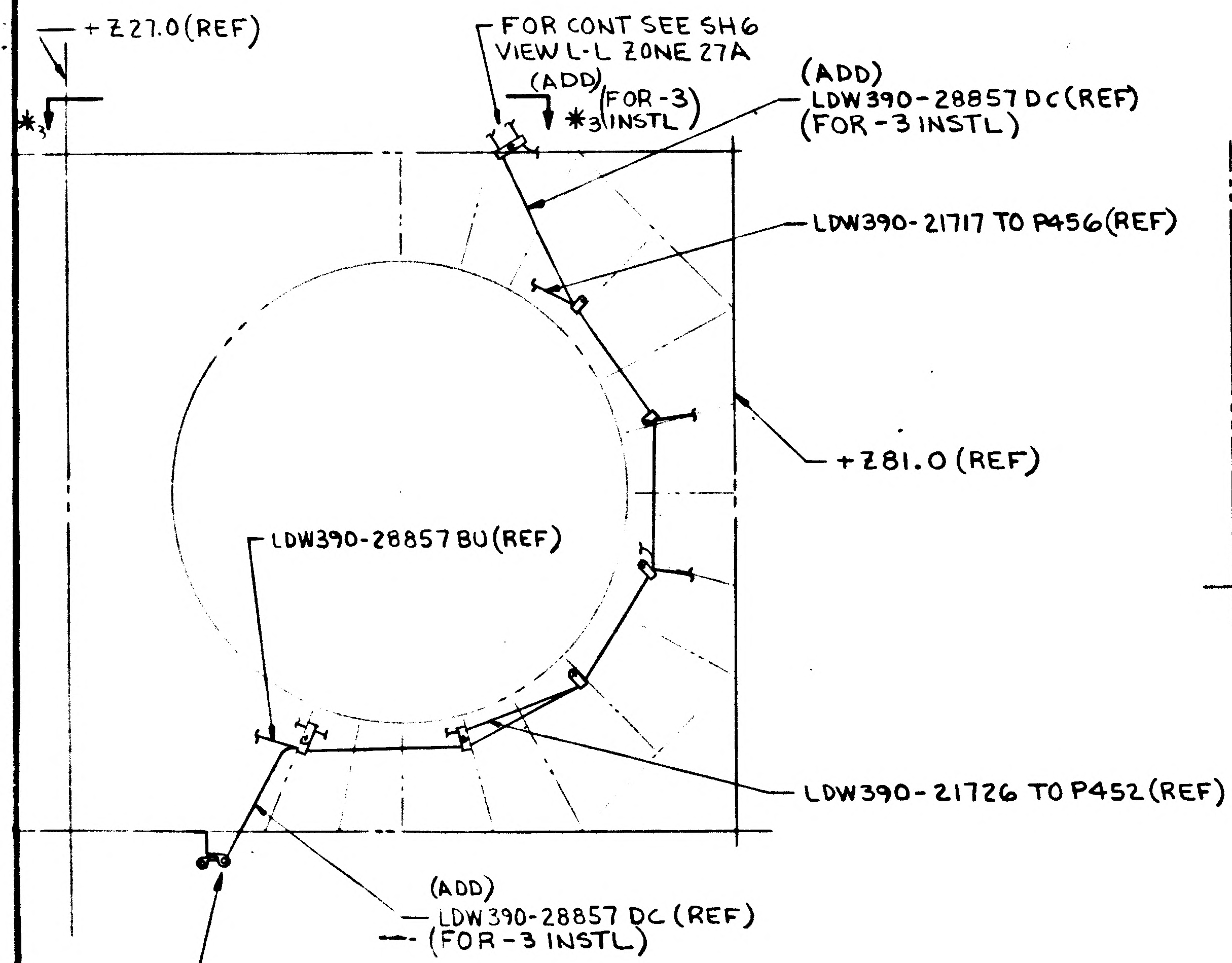
IN F/D ADDED:
DETAIL *1 & *4; VIEWS *2-*2, *3-*3

ON SH7, ZONE 47B ADDED TO EXISTING CALLOUT:
LDW390-28857DC (REF) (FOR-3 INSTL)

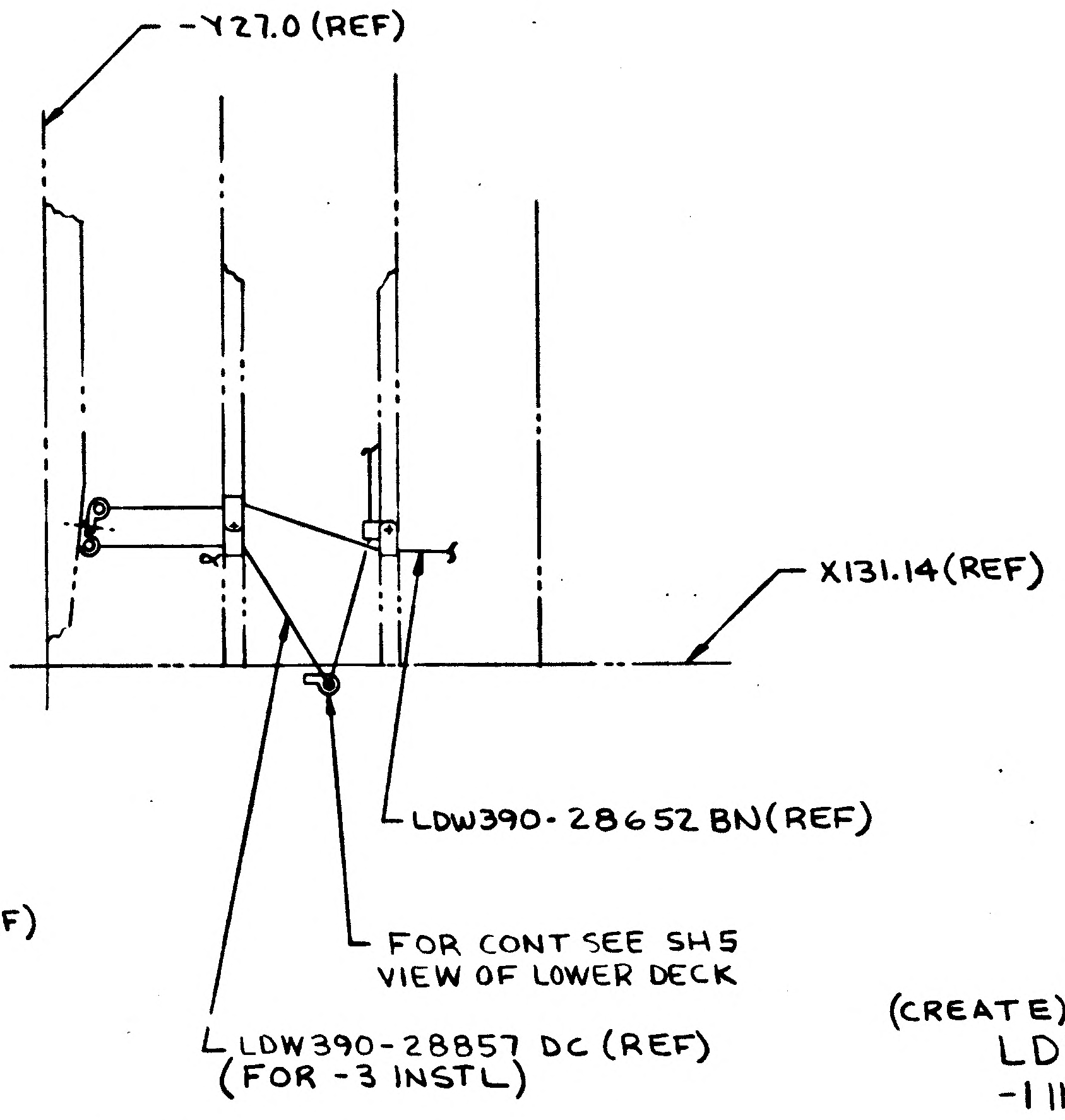
ON SH 5, ZONE 21D:
FOR CONTINUATION SEE SH 4, VIEW E-E, ZONE 13C (FOR-1 INSTL)
SEE DETAIL *1 (FOR-3 INSTL)
WAS
FOR CONTINUATION SEE SH4, VIEW E-E, ZONE 13C.

ON SH 4,5,6,7&8 DELETED:
-1 FROM THE REF CABLE ASSY CALLOUTS.

ON SH 3 ADDED:
NOTE Δ.


+Z27.0 (REF)
*3
FOR CONT SEE SH6
VIEW L-L ZONE 27A
(ADD)
*3 (FOR-3 INSTL)
(ADD)
LDW390-28857 DC (REF)
(FOR-3 INSTL)
LDW390-21717 TO P456 (REF)
+Z81.0 (REF)
LDW390-28857 BU (REF)
LDW390-21726 TO P452 (REF)
(ADD)
LDW390-28857 DC (REF)
(FOR-3 INSTL)
FOR CONT SEE SH7, VIEW G-G, ZONE 47B

VIEW OF LOWER DECK
(SH5, ZONE 19 B, 19C)


-Y27.0 (REF)
X131.14 (REF)
LDW390-28652 BN (REF)
FOR CONT SEE SH5
VIEW OF LOWER DECK
LDW390-28857 DC (REF)
(FOR-3 INSTL)

(ADD)
VIEW *2-*2
(FOR-3 INSTL)
(ROTATED 90° CLOCKWISE)

(CREATE)
LDW280-28607-3 INSTL IDENTICAL TO -1 INSTL EXCEPT FOR THE FOLLOWING:
ADD -28857 DC (REF) CABLE ASSY AND GC500AA-1D02 (4) CLAMPS PER LPC 280-23

(ADD)
NOTE:
Δ. ON-3 INSTL ONLY, 28857DC (REF) CABLE MAY BE ROUTED OVER ALL EXISTING CLAMPS THAT ARE IMPRACTICAL TO OPEN. TIE 28857DC (REF) CABLE TO THE EXISTING BUNDLE ON EITHER SIDE OF THE CLAMP AS SHOWN IN DETAIL *4 (SH , ZONE).

(E.O. REF NOTES:)
1) THE PREFIX LDW390- IS FOR E.O. REF ONLY AND SHOULD NOT BE USED IN F/D.
2) α = INSTALL GC500AA CLAMPS PER LPC 280-23.
3) *1, *2-*2, *3-*3, *4 = USE NEXT HIGHER AVAILABLE LETTER(S).
4) Δ = USE NEXT HIGHER NUMBERS.
5) NOTE 12. BOND WIRES TO SURFACE WITH MIL-A-5090D (TYPE I EPON 934A AND CURING AGENT 934B) AS PER LSP-14-22500.

02/02 NAS 9-1100

(5)

DETAIL SPEC REQD		CLASS II ENGRG CHG	☒	CLASS I ENGRG CHG		LCD 1021-29 PKG 2		CONTROL INFO NO. LDW230B 2087	
REASON FOR EO RTG TEMPERATURE MEASUREMENT				DESCRIPTION OF EO SEE ABOVE				GRUMMAN EO RELEASE JK 6/4/68	
MODEL	EFFECTIVITY PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING REVISION REQD	DISPOSITION OF PARTS	BY / DATE	SUPPORT / RELIAB GROUP	GROUP LEADER 6/28/68 / STRESS GROUP 5/21/68 / LIAISON ENGRG / PROJ ENGR 5/29/68	Bauman 6-4-68
LM	LFM122	LTA-8 (18)		✓ REVISE DWG / RECORD EO	✓ REWORK / SCRAP	5/29/68 — VDI			
				PRIORITY C	DRAWING TITLE LINES INSTALLATION ELECTRONIC DESCENT STAGE		ENGINEERING ORDER DRAWING NO. LDW280-28607		EO NO. 35
6/3 ISSUED BY R. EBERLE	X-53	SECTION VDI (EQUIP LINES) GROUP NO. 332	PL 25	CODE IDENT NO. 26512	GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE, L. I., N. Y.				

ENG 22.3 REV 3-66

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280 28607
EO NO. B6
CONTROL INFO NO. LDW280B 3888

THIS IS A REVISION TO E.O. B5

CREATE -3 S/B CREATE -11

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☒	CL I ENGRG CHG	☐ LCD 1021-29 PKG2 ⑤

REASON FOR EO: RTG TEMPERATURE MEASUREMENT

DESCRIPTION OF EO: REF EO B5
CREATE -3 S/B CREATE -11

GAEC EO RELEASE: VK 6/18/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 122	LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	REQD
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	6/14	6/17		6/12/68	6/13/68		6/17/68	6-19-68
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	LINES INSTL ELECTRONIC DESCENT STAGE	LDW 280-28607	B6

6/13 ISSUED BY R. EBERLE X1153 SECTION VDI (EQUIP LINES) GROUP NO. 332 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 28607
EO NO. B7
CONTROL INFO NO. LDW280B4229

THIS E.O. CANCELS E.O. 'B5' & 'B6' & -11 INSTL CREATED BY. EO B6

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1021-29 PKG 2 (5)

REASON FOR EO: RTG TEMP MEASUREMENT

DESCRIPTION OF EO: THIS E.O. CANCELLED E.O. 'B5' & 'B6' & -11 INSTL CREATED THEREON

GAEC EO RELEASE: C
JK 7/13/8

MODEL	EFFECTIVITY		
	EI ~~[illegible]~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM-122	LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT	REQD	DATE	6/26/8	6/28		6/21/68			6/28/68	7-12-68
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

Bauman

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	LINES INSTALLATION ELECTRONIC DESCENT STAGE	LDW280-28607	B7

7/3
ISSUED BY R.EBERLE X1153 SECTION EQUIP LINES GROUP NO. 332 PL 25

01 NAS 9-1100

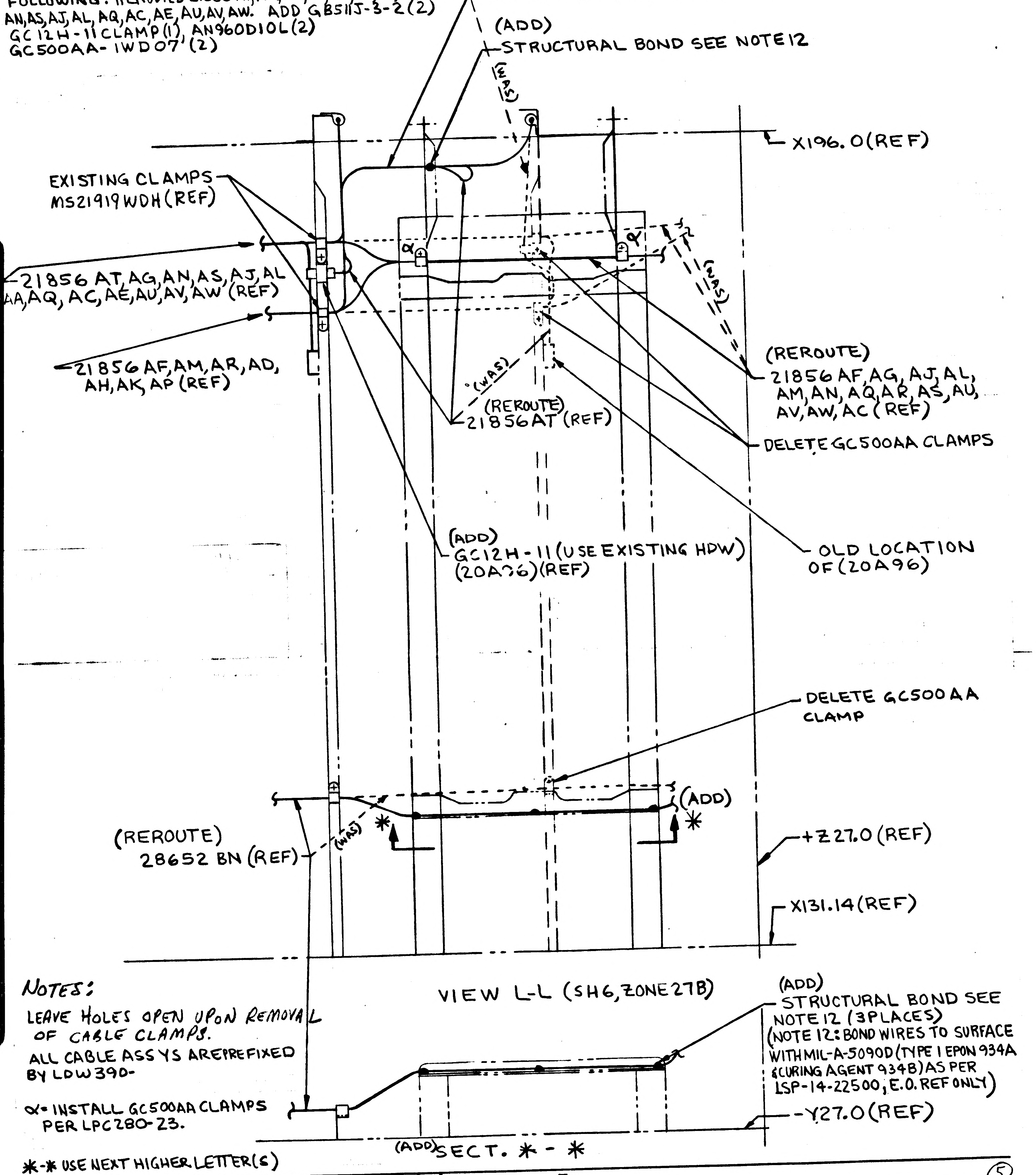
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO.	LDW280-28607	EO NO.	B8
CONTROL INFO NO.	LDW280B4798		

ENG 32.2 REV 3-65

LDW280-28607-1-1 INSTL IDENT TO -1 EXCEPT FOR THE FOLLOWING: REROUTED 21856 AF, AM, AR, AD, AH, AK, AP, AT, AG AN, AS, AJ, AL, AQ, AC, AE, AU, AV, AW. ADD GB511J-3-2 (2) GC12H-11 CLAMP (1), AN960D10L (2) GC500AA-1WD07 (2)


(REROUTE)
21856 AD, AH, AK, AP, AT (REF)
(ADD)
STRUCTURAL BOND SEE NOTE 12
(WAS)
X196.0 (REF)
EXISTING CLAMPS
MS21919WDH (REF)
21856 AT, AG, AN, AS, AJ, AL, AA, AQ, AC, AE, AU, AV, AW (REF)
21856 AF, AM, AR, AD, AH, AK, AP (REF)
α
(WAS)
(REROUTE)
21856 AT (REF)
(REROUTE)
21856 AF, AG, AJ, AL, AM, AN, AQ, AR, AS, AU, AV, AW, AC (REF)
DELETE GC500AA CLAMPS
(ADD)
GC12H-11 (USE EXISTING HDW) (20A96) (REF)
OLD LOCATION OF (20A96)
DELETE GC500AA CLAMP
(ADD)
*
(REROUTE)
28652 BN (REF)
(WAS)
+Z27.0 (REF)
X131.14 (REF)
VIEW L-L (SH6, ZONE 27B)
(ADD)
STRUCTURAL BOND SEE NOTE 12 (3 PLACES)
(NOTE 12: BOND WIRES TO SURFACE WITH MIL-A-5090D (TYPE I EPON 934A & CURING AGENT 934B) AS PER LSP-14-22500, E.O. REF ONLY)
-Y27.0 (REF)
(ADD) SECT. * - *

NOTES:

LEAVE HOLES OPEN UPON REMOVAL OF CABLE CLAMPS.

ALL CABLE ASSYS ARE PREFIXED BY LDW390-

α = INSTALL GC500AA CLAMPS PER LPC280-23.

- USE NEXT HIGHER LETTER(S)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☒	CL I ENGRG CHG	☐	LCD1021-5C

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO RECONFIGURE LTA8 D/S PER LCR1021-5C LFM111	IN F/D & B/M ADDED -1-1 INSTL	C ⑤ HF 7/27/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM	LFM111	LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY				JJW	WW		
DATE	7/23/68 VDI			7/20/68	9/2/68	7/23/68	7-25-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	LINES INSTL ELECTRONIC DESCENT STAGE	LDW280-28607	B8

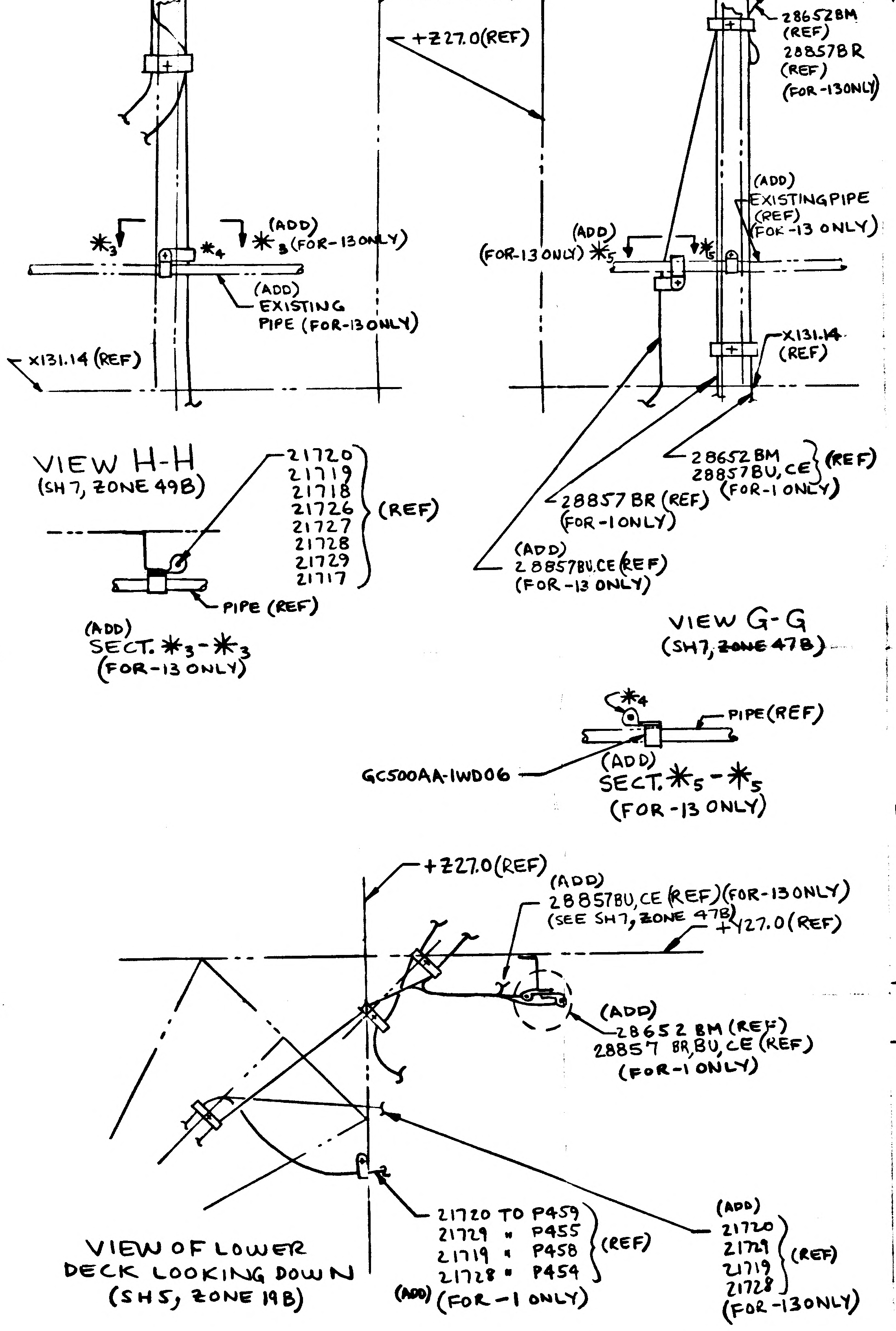
ISSUED BY R. EBERLE X3352 SECTION EQUIP LINES GROUP NO. 332 PL 25

01
NAS 9-1100

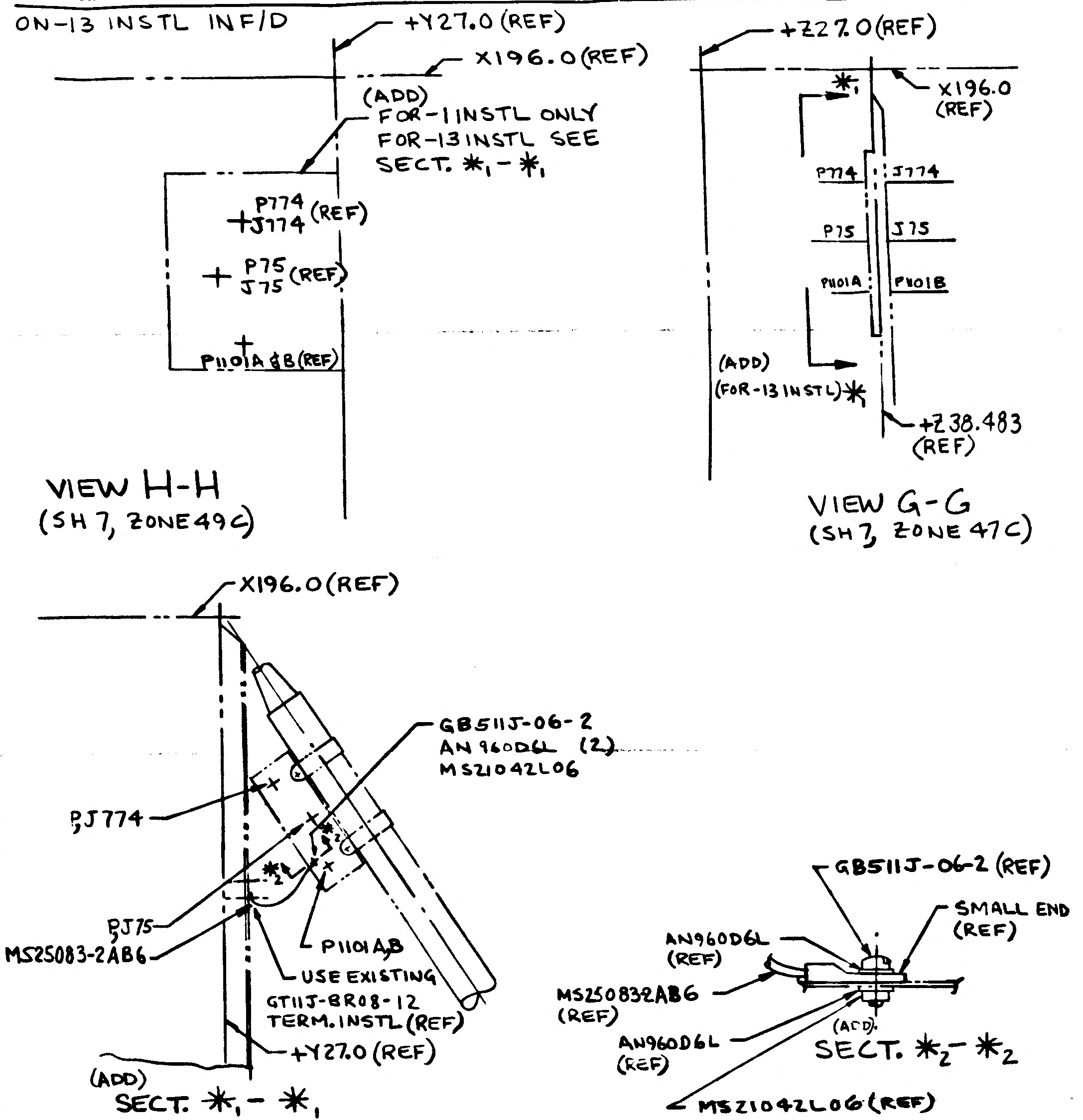
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. -DW280-23607 | EO NO. B9
CONTROL INFO NO. LM52-2386

ENG 32.2 REV 3-65


+Y27.0(REF)
+Z27.0(REF)
*3
*4
(ADD) *3 (FOR-13 ONLY)
(ADD) EXISTING PIPE (FOR-13 ONLY)
X131.14 (REF)
VIEW H-H
(SH 7, ZONE 49B)
21720
21719
21718
21726
21727
21728
21729
21717
(REF)
PIPE (REF)
(ADD) SECT. *3-*3 (FOR-13 ONLY)
28652BM (REF)
28857BR (REF) (FOR-13 ONLY)
(ADD) EXISTING PIPE (REF) (FOR-13 ONLY)
(ADD) (FOR-13 ONLY) *5
X131.14 (REF)
28652BM
28857BU,CE (REF) (FOR-1 ONLY)
28857BR (REF) (FOR-1 ONLY)
(ADD) 28857BU,CE (REF) (FOR-13 ONLY)
VIEW G-G
(SH 7, ~~ZONE 47B~~)
PIPE (REF)
GC500AA-1WD06
(ADD) SECT. *5-*5 (FOR-13 ONLY)
+Z27.0(REF)
(ADD) 28857BU,CE (REF) (FOR-13 ONLY)
(SEE SH 7, ZONE 47B)
+Y27.0(REF)
(ADD) 28652BM (REF)
28857BR,BU,CE (REF)
(FOR-1 ONLY)
VIEW OF LOWER DECK LOOKING DOWN
(SH 5, ZONE 19B)
21720 TO P459
21729 " P455
21719 " P458
21728 " P459
(REF)
(ADD) (FOR-1 ONLY)
(ADD)
21720
21729
21719
21728
(REF)
(FOR-13 ONLY)

ON-13 INSTL IN F/D


+Y27.0(REF)
X196.0(REF)
(ADD) FOR-1 INSTL ONLY
FOR-13 INSTL SEE SECT. *1-*1
P774 J774 (REF)
P75 J75 (REF)
P1101A&B (REF)
VIEW H-H
(SH 7, ZONE 49C)
+Z27.0(REF)
X196.0 (REF)
*1
P774 J774
P75 J75
P1101A P1101B
(ADD) (FOR-13 INSTL) *1
+Z38.483 (REF)
VIEW G-G
(SH 7, ZONE 47C)
X196.0(REF)
GB511J-06-2
AN960D6L (2)
MS21042L06
PJ774
PJ75
MS25083-2AB6
P1101A,B
USE EXISTING GT11J-8R08-12 TERM.INSTL (REF)
+Y27.0 (REF)
(ADD) SECT. *1-*1 (FOR-13 ONLY)
GB511J-06-2 (REF)
SMALL END (REF)
AN960D6L (REF)
MS250832AB6 (REF)
AN960D6L (REF)
(ADD) SECT. *2-*2
MS21042L06 (REF)

*1, *2, *3, *5 USE NEXT HIGHER AVAILABLE LETTER(S)
*4 INSTALL CLAMPS PER LPC280-23.
ALL CABLE ASSY'S ARE PREFIXED BY LDW 390-.

DESCRIPTION OF E.O. CONT. IN B/M ADDED GC500AA-1WD06(1)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD1021-5C

REASON FOR EO: TO RECONFIGURE LTA-8 D/S PER LCR1021-5C LFM III

DESCRIPTION OF EO: ON-13 INSTL IN F/D & B/M ADDED GB511J-06-2(1), AN960D6L(2), MS21042L06(1), MS25083-2AB6(1) IN F/D ADDED: SECT. *1-*1, *2-*2, *3-*3, *5-*5 (FOR-1 ONLY) & (FOR-13 ONLY) TO EXISTING CALLOUTS.

GAEC EO RELEASE: C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM III	LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP	DATE	8/14/68	8/27/68	—	—	—	8/13/68		8/28
					MAC		RELIAB. GROUP	GROUP LEADER	STRESS GROUP		PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO	EO NO
C	LINES INSTL ELECTRONIC DESCENT STAGE	LDW 280-28607	B9

ISSUED BY R.EBERLE X84662 8/10/68 SECTION EQUIP LINES GROUP NO. 332 PL 25

01
NAS 9-1100

LDW280-28608 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 126	LDW280-28508	LTA8(18)	1
PART NO. LDW280-28608-3		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28508	LTA-8(18)	1
PART NO. LDW280-28608-1		GAEC SCH NO. 501	

TO BE REDRAWN ON PRODUCTION FORMAT 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	2.01	2.02	2.03	2.04	2.05	2.06	
REV	A	A	A	A	A	A	A	A	
SHEET	3.00	3.01	3.02	1.10	1.11	1.12	4.00	5.00	6.00
REV			A	A	A	A	A	A	A
SHEET	7.00								
REV	A								

LAST SECT LTR USED S

LAST DASH NO. USED -99

GRUMMAN REL INFO A

PRIM NO. 470 JK (001) MP 16A-3/1/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT ✓

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM 009

DOCUMENTATION TYPE II

DRAWN BY HUGH RYAN

LAYOUT BY K. BIRKEL

CHECKED BY

GR LEADER J. Wolf 8-18-66

VDI [illegible] 1/8/3

STRUCTURES [illegible] 1/23

STRUCTURES [illegible] 8/24

WEIGHTS [illegible] 9-1

PROJ ENGR R McCabe 8/24

RELI GROUP Botte 9-6-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

LINES INSTL.
PROPULSION & PRESSURIZATION SYSTEM
DESCENT STAGE

SIZE B

CODE IDENT NO. 26512

LDW280-28608 A

SCALE NONE

SHEET 1. OF 18

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 3.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									ADDED SHEETS 1.10, 1.11, 1.12, 3.02 & 7.00; LAST SECT LTR USED "S" WAS "F"; LAST DASH NO. USED -99 WAS -1; SH 1.00 OF 18 WAS SH 1.00 OF 13.						
A	1	4.00 3.02 2.05	7C 8B,C 9A 9B 9C					E.O. A1	ON -1, ADDED: MS20470DD5 (32), GB511K-08 (69) GB512H-08(69) NOTES 14, 15 & 17, SHIM .250 MAX. ADDED: SECTIONS G-G THRU R-R; DETAIL "M".	LTA-8 (18)	✓		H. BARUCH APR 15, 1968		
	2	4.00 6.00 2.00 2.06 2.05 2.07 2.02	4A 4C 5A 5B 5C 6A 6B 7B 19A 21A 21C 22B 23B 26C					E.O. A2	ENGINE COMPARTMENT; -Y27.00 - REMOVED PICTURES & CALLOUTS LSC269-228-4 (2), -154DSF-4 & -155DSF-4 (2), PICTURE OF TRANSDUCER. ADDED: PICTURES & CALLOUTS LSC269-228-4 (2), GP11F-4. +Y27.00 - REMOVED PICTURES & CALLOUTS LSC269-228-4 (2), -139 DSO-4 & -138DSO-4(2) REMOVED PICTURE OF TRANSDUCER. ADDED PICTURES & CALLOUTS LSC269-205-4 & GP11F-4. FUEL TANK #2 & OXYGEN TANK #1 - ADDED CALLOUT LSC269-113-4. FUEL TANKS #1 & 2, & OXYGEN TANKS #1 & 2 - ADDED CALLOUT GS13AJ-133 (2), NAS673V3H (16). SEE NOTE #4. FWD & AFT TANK BAYS - REMOVED CALLOUTS LSC270-809-7 & -8. LEFT & RIGHT TANK BAYS - REMOVED CALLOUTS LSC270-809-6. QUADRANT III - REMOVED PICTURE & CALLOUT LSC269-363-4, & REPLACED WITH LSC269-206-24. REMOVED PICTURES & CALLOUTS LSC269-224-4, & -135DFD-4. DRILLED #30 HOLE IN BOTTOM OF LSC269-206-24. QUADRANT IV - REMOVED PICTURE & CALLOUT LSC269-362-1 REPLACED WITH LSC269-208-28. REMOVED PICTURES & CALLOUTS LSC269-224-4, & -136DOD-4. DRILLED #30 HOLE IN BOTTOM OF LSC269-208-28. ENGINE COMPARTMENT, -Y27.00 - REVISED PICTURE. QUADRANT III - ADDED WELD CALLOUTS TO LSC269-341-5. QUADRANT IV - ADDED WELD CALLOUTS TO LSC269-341-6. RIGHT TANK BAY - ADDED PICTURES & CALLOUTS LSC269-118-6 (4) & -381DFD-6 THRU -388DFD-6						

CHG APPROVED

LTR	GROUP LDR									

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28608	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 3.12

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	2	4.00 6.00 2.06 2.01 2.05 2.00 2.07 2.02						E.O. A2	AFT TANK BAY, -Y27.00 — REMOVED PICTURES & CALLOUTS LSC269-224-4, LSC269-226-4, -183DSH-4 & -189 DSH-4. ADDED PICTURES & CALLOUTS LSC269-205-4 & GP11F-4. ADDED CALLOUT -408DSH-4. LEFT TANK BAY, -Z27.00 — REMOVED PICTURES & CALLOUTS LSC269-224-4 & -158DSH-4 ADDED PICTURE & CALLOUT LSC269-205-4. ADDED CALLOUT -407DSH-4. RIGHT TANK BAY, -Z27.00 — REMOVED PICTURES & CALLOUTS LSC269-224-4 & -161 DSH-4. ADDED PICTURE & CALLOUT GP11F-4. REMOVED PICTURE OF TRANSDUCER FROM AFT, LEFT, & RIGHT TANK BAYS. QUADRANT IV, +Y 27.00 — ADDED CALLOUT LSC269-200-6. ALL TANK BAYS — REMOVED PICTURES & CALLOUTS LSC269-364-1 (8). REPLACED WITH LSC269-200-10(8). SECTION VIEW E-E — REMOVED PICTURE & CALLOUT LSC269-234-2. REPLACED WITH LDW280-1640-1.	LTA-8(18	✓	✓	H. BARUCH APR 15 1968		
	3	5.00 2.02	12B 16B	3			✓	E.O.A3	ON-1 INSTL: REVISED PICTURES, LDW280-17388-498DSF-32 WAS LSC270-807-1; LDW280-17388-497DSO-32 WAS LSC270-808-1.						
	4	4.00 2.03 2.05 2.06	7A	2				E.O. A4	ON-1 INSTL: DELETED LDW280-17388-265DSH-8 (1); -267DSH-8 (1); -269 DSH-6 (1); -273 DSH-4 (1); LSC360-605-409 (1); -407 ( ); LSC269-218-8 (2); -224-4(1)			✓			
	5							E.O.A5	CANCELLED BY E.O.A6						
	6			1			✓	E.O.A6	CANCELS E.O.A5		NOT	REQ'D			
	7	4.00, 2.00 2.05	6A	1				E.O.A7	ON-1 INSTL: ADDED LDW280-28608-99(4); AN737TW-30(8)						
	8	4.00 2.04	3B					E.O.A8	REMOVED VENDOR-SUPPLIED SHIPPING PLUG & SEAL FROM INSTRUMENT PRESSURE PORT IN +Y & +Z TANK COVER, & REPLACED WITH LSC269-160-4(2), LSC269-112-4(2)--CONT'D		✓				

CHG APPROVED

LTR	GROUP LDR

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28608	A
SCALE NONE			SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
A	8	4.00 2.04	3B				√	E.O. A8	LSC 269-113-4(2), *TORQUE PER* LSP 14-17402. REMOVED VENDOR-SUPPLIED COVER LEVEL SENSOR SHIPPING PORT, TO REMOVE 6843333-145 "O" RING. REPLACED "O" RING WITH MS 29513-145 (4 PLACES), & REINSTALLED ON TANK. REMOVED 6847194 SNAP-TITE QD, & 6843332-12 SEAL & REPLACED WITH MS 29512-12 SEAL & AN814-12D PLUG (4 PLACES); ADDED DETAIL 'S'.	LTA-8(18)	✓		H.BARUCH 3 JAN '68		
	9	4.00 2.07	3B					E.O. A9	MS 29513-230(4) WAS MS 29513-145(4), ADDED NOTE #16						
	10	7.00	30B 1.00 2.00 3.02	LFM 126		√		LCD 1021-33 OK.	CREATED -3 INSTL & ADDED NOTE 18						5-1-68
	11	6.00	21A 22B 21C 20B						IN FIELD REMOVE LDW280-28366-1(2), LDW280-28366-3 & LDW280-28366-5. IN FIELD & B/M ADDED GP11F-10(4) & LSC269-200-10(4) (DWG ERROR CORRECTION)		NOT	REQD			
	12	2.00					√		IN B/M REMOVED 143DS0-4 & -370DFD-4 (DWG ERROR CORRECTION)						
	13	2.06							IN B/M REMOVED LSC269-203-12, LSC269-220-8, LSC269-204-4(4) & LSC269-226-6 (DWG ERROR CORRECTION						
	14	4.00	4A 6A					Ⓑ	IN FIELD, CALLOUT LSC269-362-2 WAS -341-6 & LSC269-363-2 WAS -341-5 TO AGREE WITH B/M (DWG ERROR CORRECTION) A10→A14 B/M 0.3.					4/12/68	

CHG APPROVED

LTR	GROUP LDR	VDI		STRUCT	STRUCT
A	JWolf 4/13/68	4/15/68		4/17/68	4/19

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW 280-28608	A Ⓑ

SCALE NONE SHEET 1.12

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY -3	QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			LDW280-17388									
	1		-160DSH-4	E	TUBE	SEE DWG						
	1		-159DSH-4									
	1		-157DSH-4									
	1		-156DSF-4									
	1		-153DSF-4									
	1		-152DFD-4									
	1		-151DFD-4									
	1		-149DFD-4									
	1		-148DSF-4									
	1		-147DSF-4									
	1		-146DSF-4									
	1		-145DOD-4									
	1		-144DOD-4									
	1		-142DSO-4									
	1		-141DSO-4									
	1		-140DSO-4									
	1		-137DSO-4	E	TUBE	SEE DWG						
			LDW280-17388									
	4		LDW280-28608-99	E	TUBE	AL ALY	MIL-T-7081	6061-T6	3/8 OD X .028 WT X 11"			
			LDW280-28608-3	E	LINES INSTL							
1			LDW280-28608-1	E	LINES INSTL							

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-28608 | A

SCALE NONE | SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

QTY PER ASSEMBLY					-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
							LDW280-17388									
					1		-407 DSH-4	E	TUBE	SEE DWG						
					1		-408 DSH-4									
					1		-195 DSH-10									
					1		-194 V-6									
					1		-193 DSH-10									
					1		-192 DSH-10									
					1		-191 DSH-4									
					1		-190 DSH-4									
					1		-188 DSH-4									
					1		-187 DSH-4									
					1		-186 DSH-10									
					1		-185 DSH-10									
					1		-184 DSH-10									
					1		-207 DSO-4									
					1		-182 V-12									
					1		-181 V-6									
					1		-180 DSH-10									
					1		-179 DSH-10									
					1		-178 DSH-10									
					1		-177 DSH-10									
					1		-176 DSH-10									
					1		-168 DSH-12									
					1		-167 DSH-4									
					1		-166 DSH-12									
					1		-165 DSH-10									
					1		-164 DSH-10									
					1		-163 DSH-10									
					1		-162 DSH-10	E	TUBE	SEE DWG.						
							LDW280-17388									

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28608	A
SCALE NONE		SHEET 2.01	

ENG 77.2 7-65

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AS REQD		MS20995C32	E	LOCKWIRE	STD PART						
4		AN837-6D	E	ELBOW							
4		AN837-4C		ELBOW							
1		AN832-12C		UNION							
4		AN815-6D		UNION							
1		AN924-12C		NUT							
4		AN924-6D		NUT							
4		AN924-4C	E	NUT	STD PART						
2		GP10N-140	E	ORIFICE	GRUMMAN STD						
6		AN4C7A	E	BOLT	STD PART						
8		AN960C416L		WASHER							
8		MS21042-4		NUT							
4		MS29513-145		SEAL 'O' RING							
2		AN174C7A		BOLT							
6		AN4DD6A		BOLT	STD PART						
1		LDW280-16040-1		TEE WELD	SEE DWG						
		LDW280-17388									
1		-497DS0-32	E	TUBE	SEE DWG						
1		-498DSF-32									
1		-388DFD-6									
1		-387DFD-6									
1		-386DFD-6									
1		-385DFD-6									
1		-384DFD-6									
1		-383DFD-6									
1		-382DFD-6									
1		-381DFD-6	E	TUBE	SEE DWG						
		LDW280-17388									

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28608	A

SCALE NONE
SHEET 2.02

ENG 77.2 7-65

01

NAS 9-1100

QTY PER ASSEMBLY	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			LDW280-17388									
	1		-524	E	WELDED ASSY	SEE DWG						
	1		-523									
	1		-522									
	1		-521									
	1		-520									
	1		-519									
	1		-518									
	1		-517									
	1		-516									
	1		-515									
	1		-514		WELDED ASSY							
	1		-275 DSH-4		TUBE							
	1		-274 DSH-4									
	1		-272 DSH-6									
	1		-271 DSH-6									
	1		-270 DSH-6									
	1		-268 DSH-8									
	1		-266 DSH-8									
	1		-264 DSH-8									
	1		-263 DSH-8									
	1		-369 DSH-4									
	1		-212 DSH-4									
	1		-211 DSH-8									
	1		-210 DSH-8	E	TUBE	SEE DWG						
			LDW280-17388									

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28608 A
SCALE NONE
SHEET 2.03

ENG 77.2 7-65

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
2		LSC 269-160-4	E	PLUG	SEE NOTE 6						
4		LSC 269-113-4	E	SEAL	"						
2		LSC 269-112-4	E	NUT COUPLING	SEE NOTE-6						
4		LDW270-28350-3	E	FLEX HOSE	SEE DWG						
4		LDW270-28350-1	E	FLEX HOSE	SEE DWG						
1		LDW360-28293-5	E	XDUCER INSTL	SEE DWG						
1		LDW360-28293-3	E	XDUCER INSTL	SEE DWG						
1		LDW360-28293-1	E	XDUCER INSTL	SEE DWG						
1		LDW280-16001-9	E	FEED TEE	SEE DWG						
1		LDW280-16001-7	E	FEED TEE	SEE DWG						
2		LDW360-21291-1	E	XDUCER INSTL	SEE DWG						
		LDW280-17388									
1		-574	E	WELDED ASSY	SEE DWG						
1		-564									
1		-538									
1		-537									
1		-536									
1		-535									
1		-534									
1		-533									
1		-573									
1		-531									
1		-530									
1		-529									
1		-568									
1		-527									
1		-526									
1		-525	E	WELDED ASSY	SEE DWG						
		LDW280-17388									

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28608	A

SCALE NONE

SHEET 2,04

ENG 77.2 7-65

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1		LSC 269-363-2	A	TEE TANG.	SEE NOTE 6						
1		LSC269-362-2		TEE TANG.	SEE NOTE 6						
4		LSC269-118-6		SEAL	SEE NOTE 6						
69		GN512 H-08		NUT	GRUMMAN STD						
96		NAS673V3H		BOLT	STD PART						
6		GB 511J-08		BOLT	GRUMMAN STD						
		GB 511J-3		BOLT							
69		GB511K-08		BOLT							
		GC 12H		CLAMP	GRUMMAN STD						
4		AN814-12D		PLUG	STD PART						
		MS21042L08		NUT	STD PART						
32		MS 20470 DD5		RIVET	STD PART						
4		GP11 F-10		PLUG	GRUMMAN STD						
1		GP11 F-8		PLUG							
1		GP11 F-6		PLUG							
4		GP11 F-4		PLUG	GRUMMAN STD						
		AN960D8L		WASHER	STD PART						
		AN960D10									
4		AN960D716L									
8		AN960D916									
1		AN960D1716L		WASHER							
8		AN737TW-30		CLAMP	STD PART						
4		GS13AJ-139		ORIFICE "O" RING							
4		GS13AJ-137		OX TANK "O" RING							
4		GS13AJ-133	E	FUEL TANK "O" RING	STD PART						

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28608	A

SCALE NONE

SHEET 2.05

ENG 77.2 7-65

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
4		LSC269-205-4	E	CAP	SEE NOTE 6						
1		-248-1		UNION (RED)							
1		-221-6		ELBOW							
1		-221-4		ELBOW							
4		-222-4		TEE							
1		-252-3									
1		-252-2									
3		-234-24									
1		-234-15									
2		-234-13									
1		-222-8									
4		-204-10		TEE							
1		-200-6		UNION							
3		-226-4		ELBOW							
8		-203-10									
2		-202-12									
3		-202-4		ELBOW							
13		-224-4		UNION							
4		-218-8									
4		-218-6									
4		-218-4									
8		-206-32									
8		-206-28									
8		-206-24									
2		-200-12									
12		-200-10									
4		LSC269-200-4	E	UNION	SEE NOTE 6						

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28608	A

SCALE NONE

SHEET 2.06

ENG 77.2 7-65

01

NAS 9-1100

NOTES (CONTINUED)

14. SHIM AS REQUIRED, USING 2024-T3 AL. ALY SHEET, PER QQ-A-250/4, FIN. 88.

15. GB511K-08 GRIP LENGTH SHALL BE DETERMINED AS REQUIRED ON INSTALLATION.

16. TORQUE TO 70-75 IN. LBS., 8 BOLTS HOLDING COVER. LEVEL SENSOR SHIPPING PORT.

17. INSTALL GB511K PER LSP14-15306.

18 -3 INSTL MAY BE CREATED FROM -1 INSTL BY REMOVING THESE PARTS AS LISTED:-
LDW280-17388-192 DSH-10, -185 DSH-10, -164 DSH-10, -162 DSH-10, -176 DSH-10, -178 DSH-10, -165 DSH-10
-157 DSH-4, -159 DSH-4, -160 DSH-4, -182 V-12, -407 DSH-4, -408 DSH-4, -190 DSH-4, -191 DSH-4, -187 DSH-4
-188 DSH-4, -166 DSH-12, LSC269-204-10 (4), -234-15, -234-24, -226-4 (3), -224-4 (8), -202-12 (2), -222-4 (2),
AN832-12C, AN960D1716L, AN924-12C & GC12H CLAMPS FOR ABOVE LINES.
LINES MAY BE CUT, USING OWN DISCRETION, FOR EASY REMOVAL FROM VEHICLE.

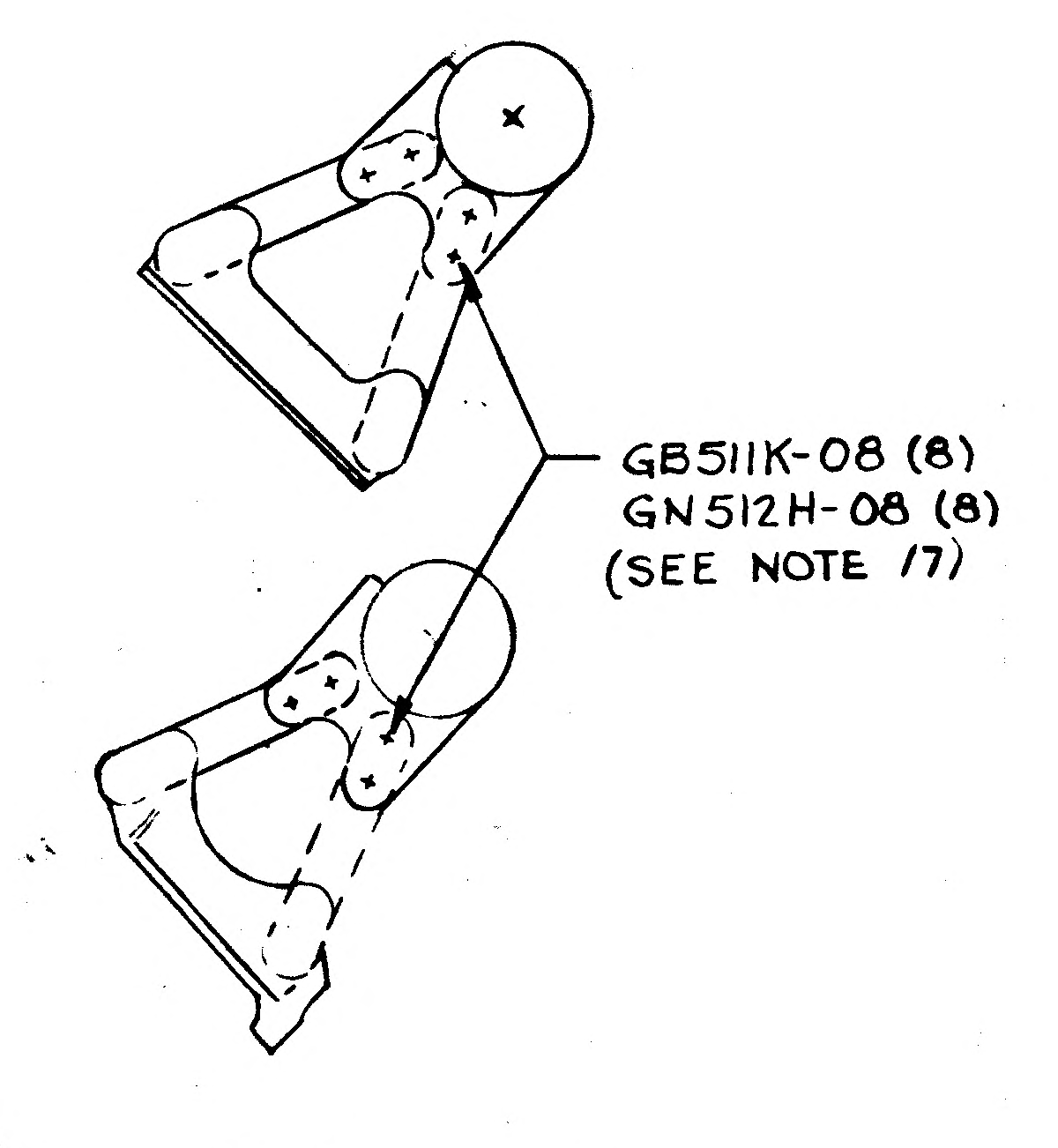
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28608	A
SCALE		SHEET 3.02	

ENG 73.1 6-64

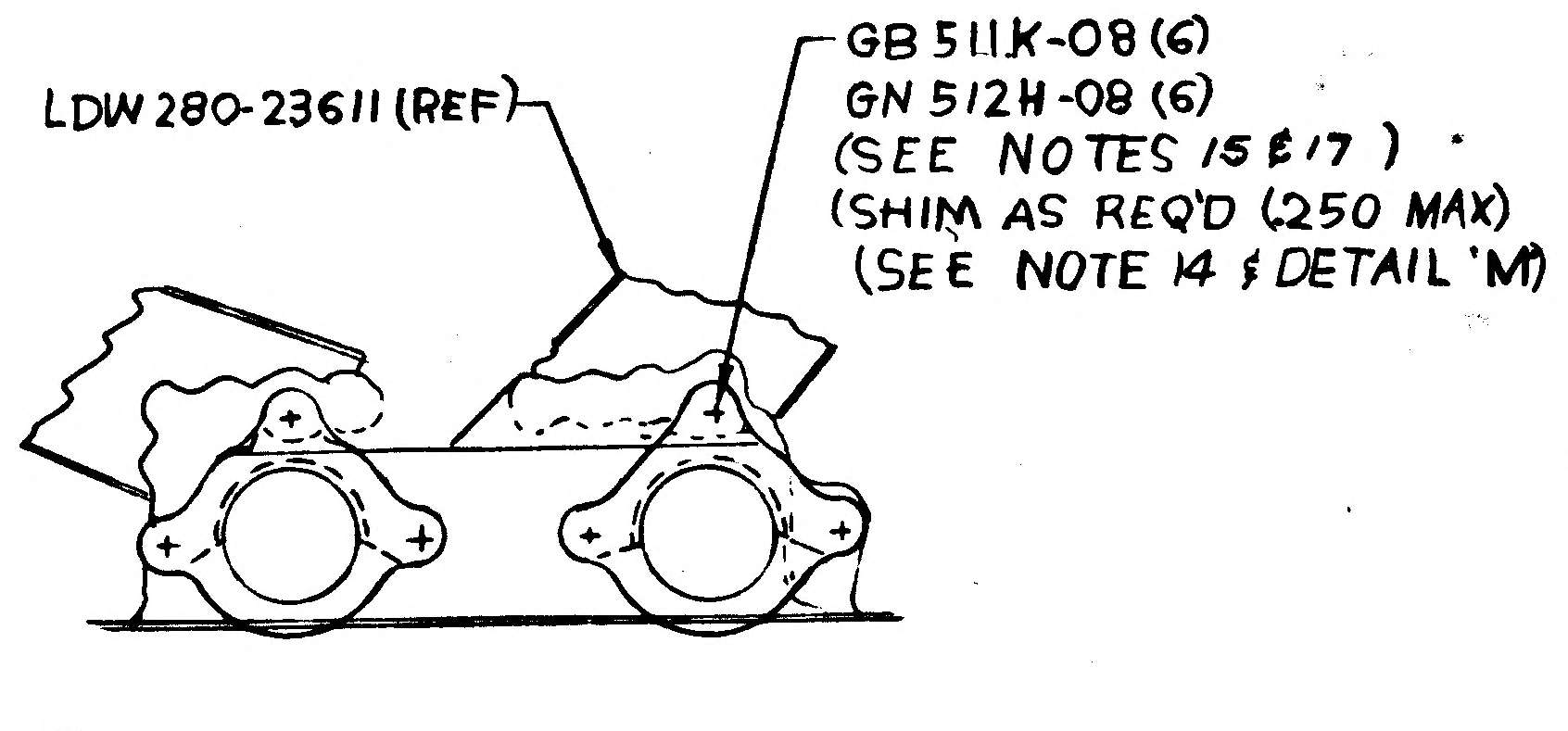
01

NAS 9-1100



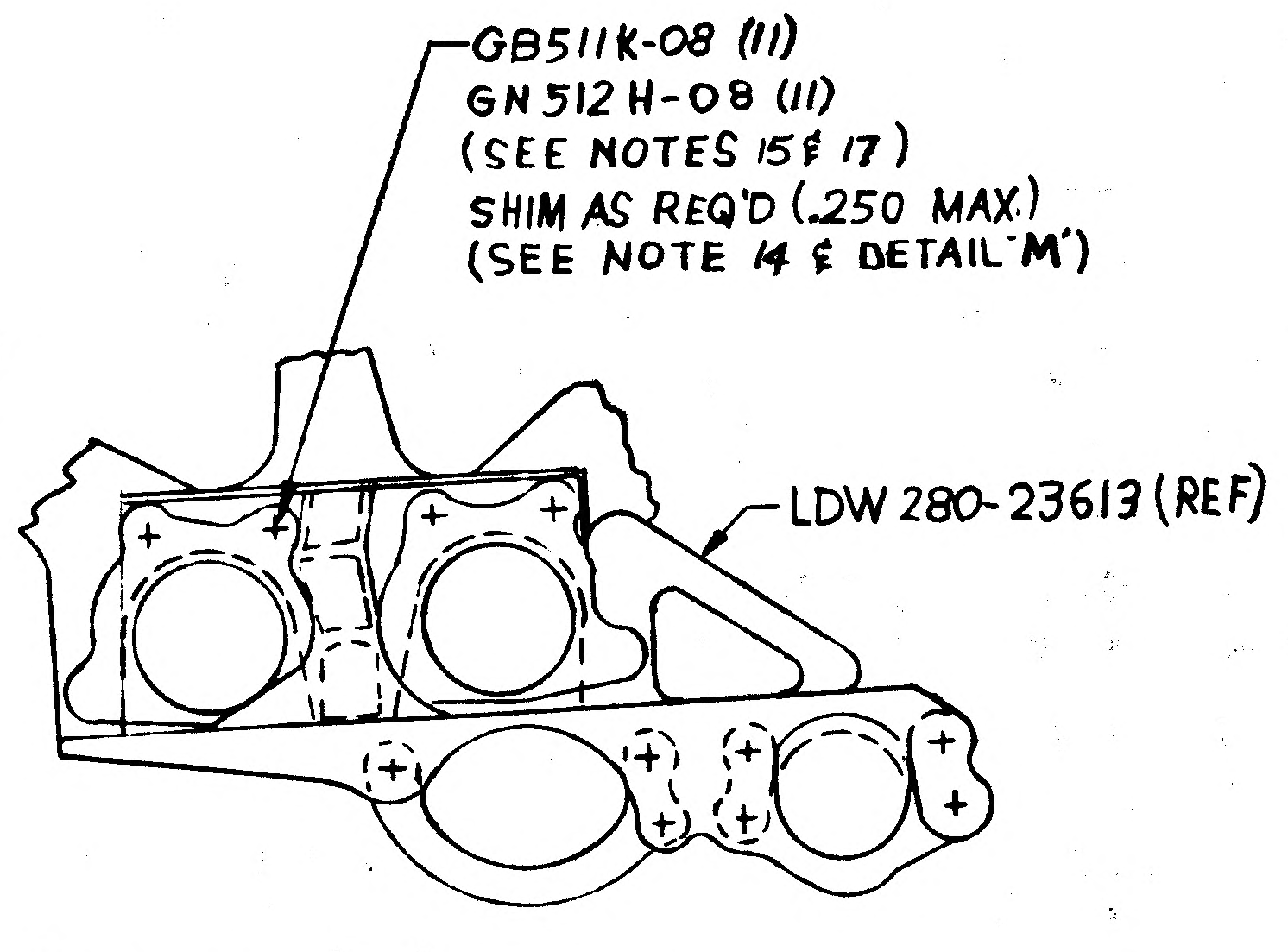
GB511K-08 (8)
GN512H-08 (8)
(SEE NOTE 17)

Ⓐ1 SECT R-R (ZONE 4B)
TYP 2-PLACES



LDW280-23611 (REF)
GB511K-08 (6)
GN512H-08 (6)
(SEE NOTES 15 & 17)
(SHIM AS REQ'D (.250 MAX)
(SEE NOTE 14 & DETAIL 'M')

Ⓐ1 SECT H-H (ZONE 6C)
ROTATED CW 135°

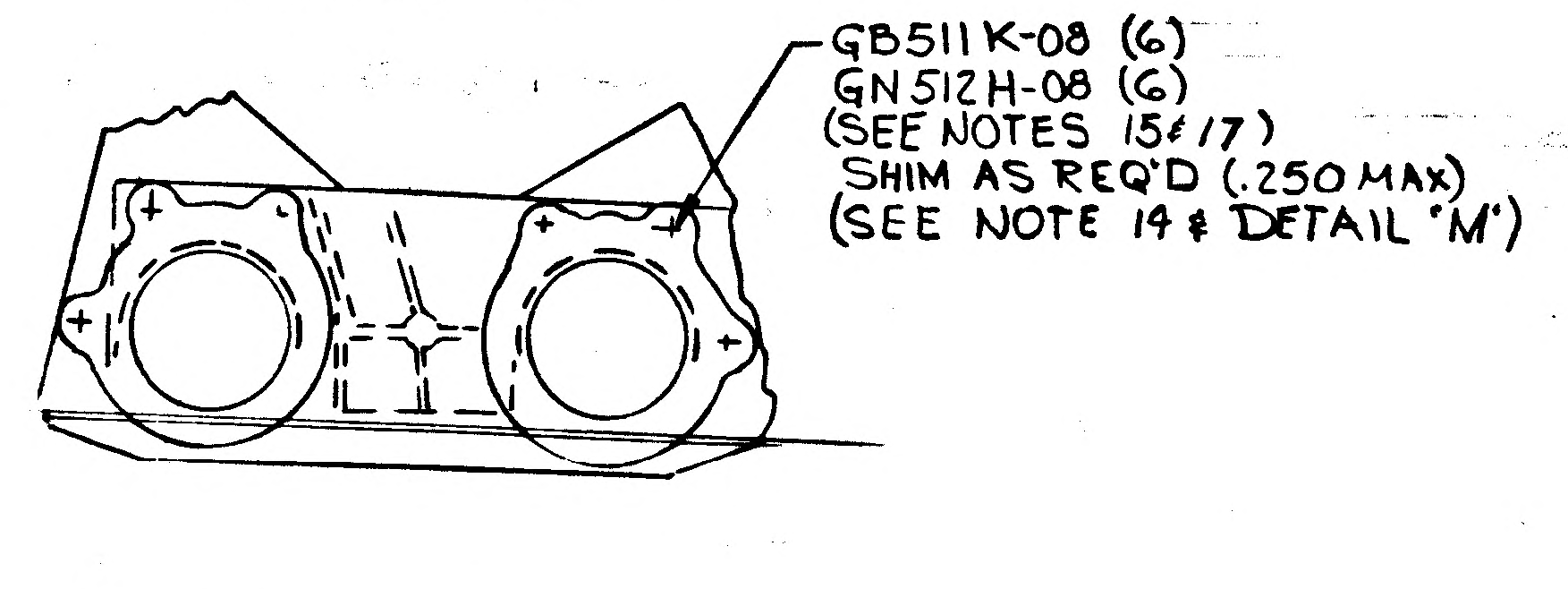


GB511K-08 (11)
GN512H-08 (11)
(SEE NOTES 15 & 17)
SHIM AS REQ'D (.250 MAX)
(SEE NOTE 14 & DETAIL 'M')
LDW280-23613 (REF)

Ⓐ1 SECT J-J (ZONE 6A)
ROTATED 180°

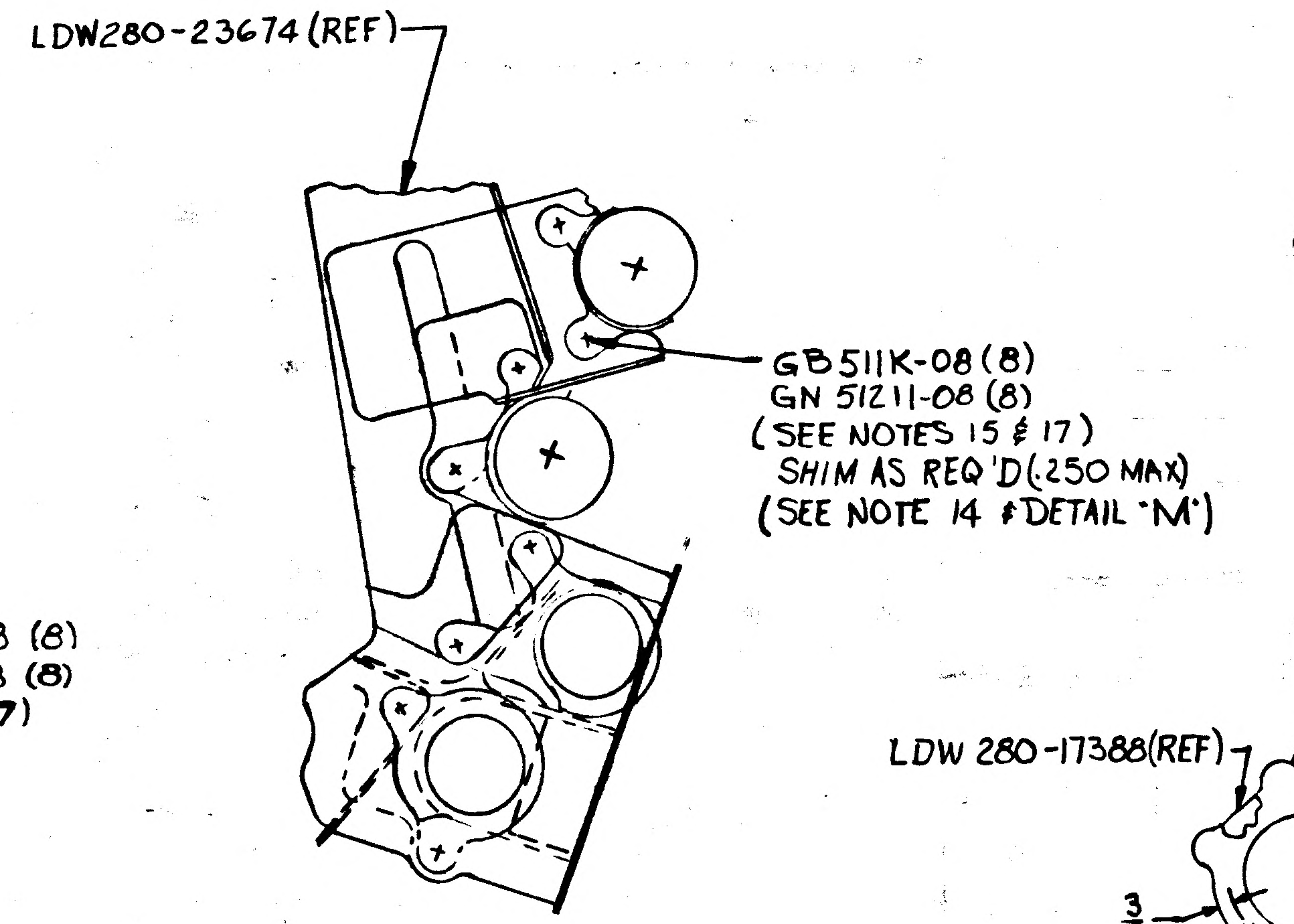
LDW 280-23612 (REF)
GB511K-08 (6)
GN512H-08 (6)
(SEE NOTES 15 & 17)
SHIM AS REQ'D (.250 MAX)
(SEE NOTE 14 & DETAIL 'M')

Ⓐ1 SECT P-P (ZONE 6P)
ROTATED 45° CW



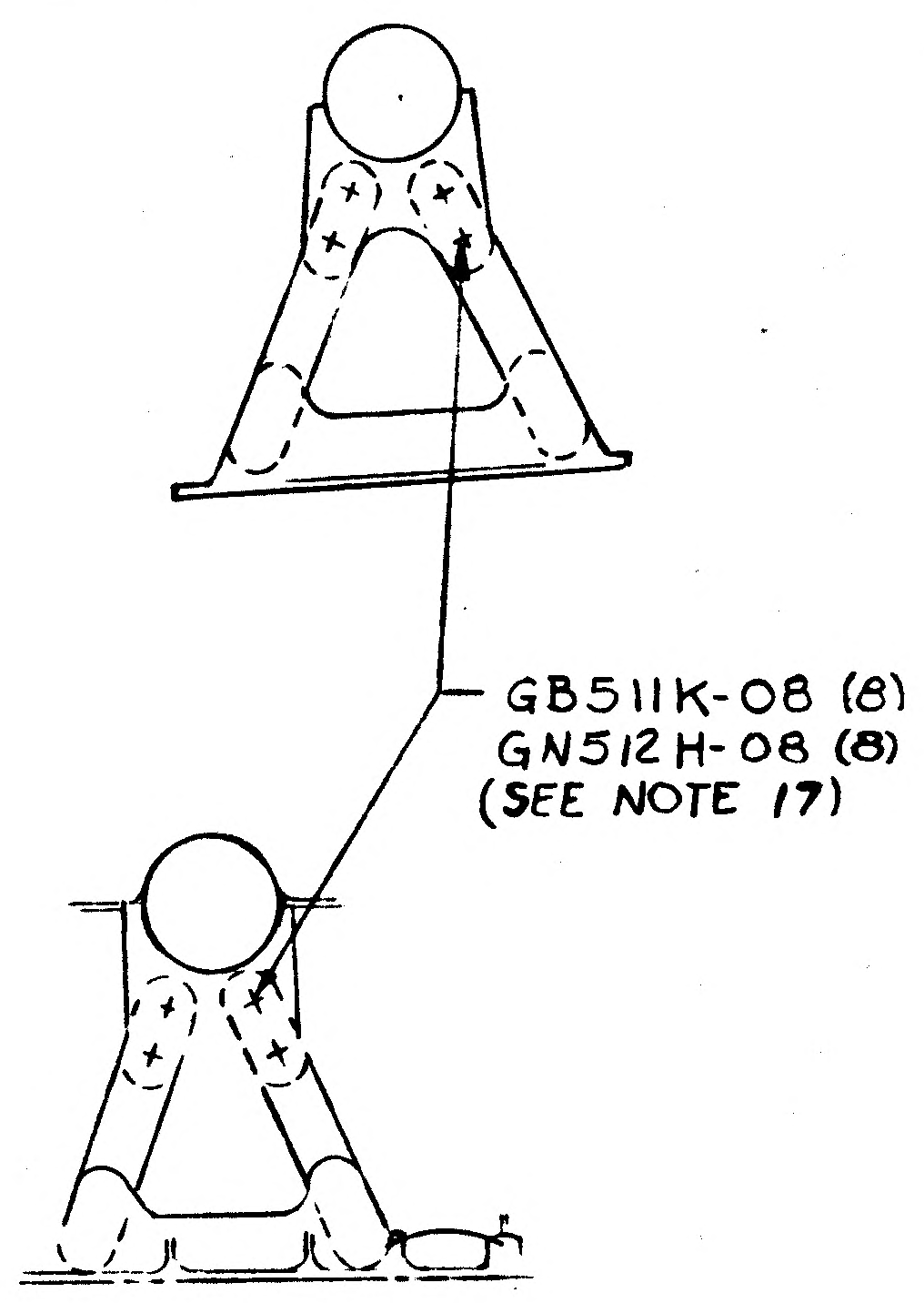
GB511K-08 (6)
GN512H-08 (6)
(SEE NOTES 15 & 17)
SHIM AS REQ'D (.250 MAX)
(SEE NOTE 14 & DETAIL 'M')

Ⓐ1 SECT L-L (ZONE 4B)
ROTATED 135° CW



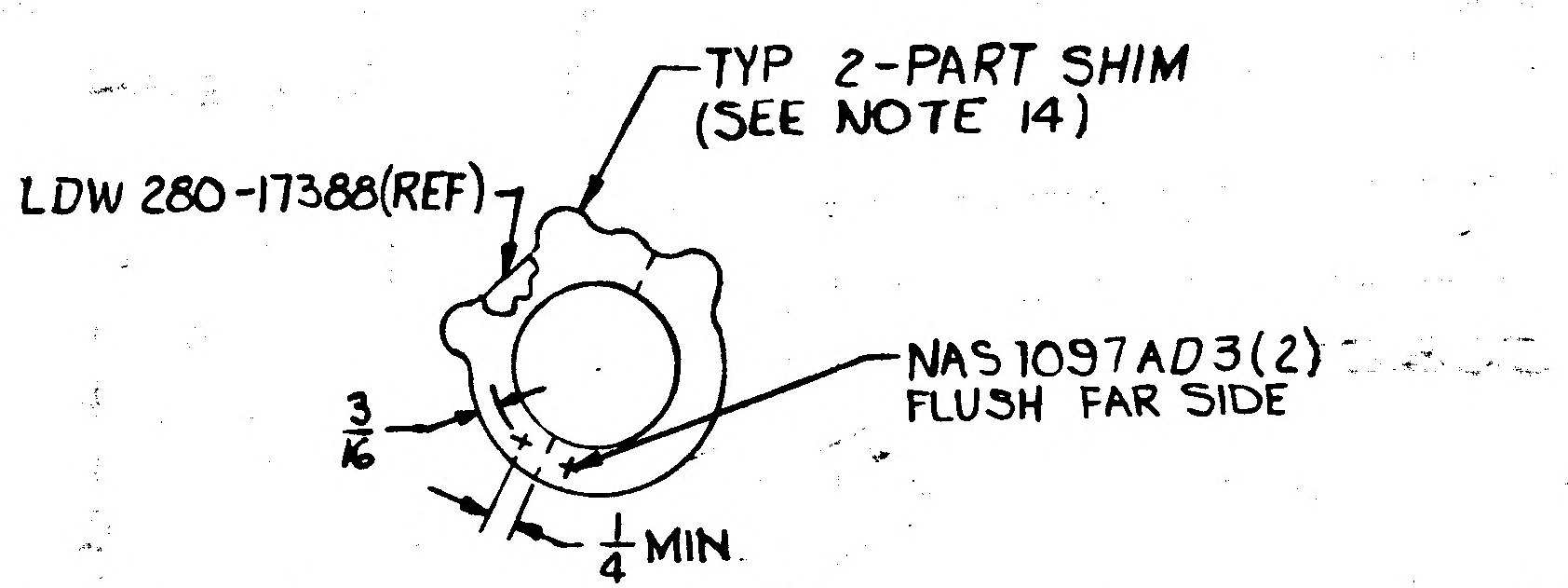
LDW280-23674 (REF)
GB511K-08 (8)
GN512H-08 (8)
(SEE NOTES 15 & 17)
SHIM AS REQ'D (.250 MAX)
(SEE NOTE 14 & DETAIL 'M')

Ⓐ1 SECT K-K (ZONE 5A)



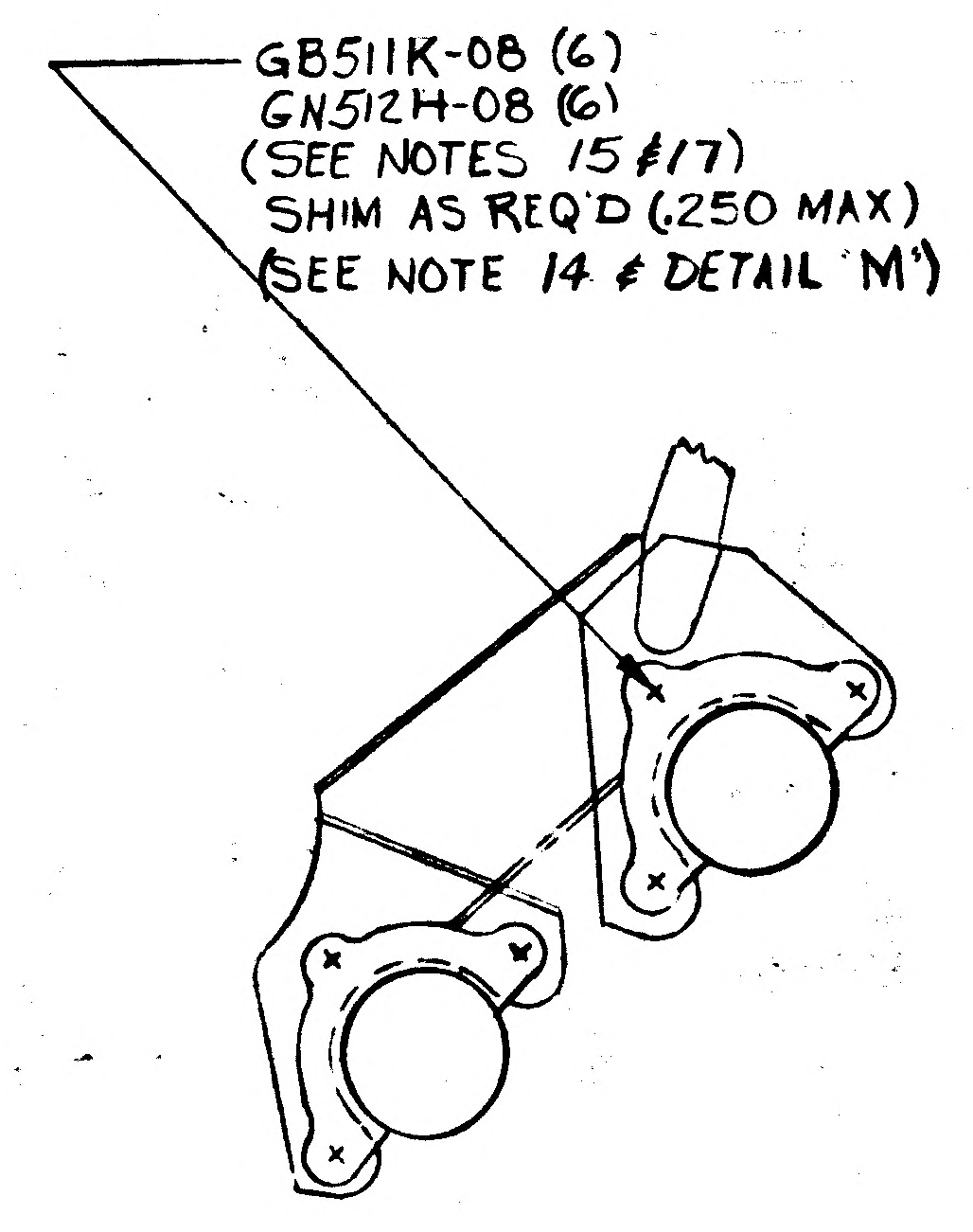
GB511K-08 (8)
GN512H-08 (8)
(SEE NOTE 17)

Ⓐ1 SECT G-G (ZONE 5C)
TYP 2 PLACES



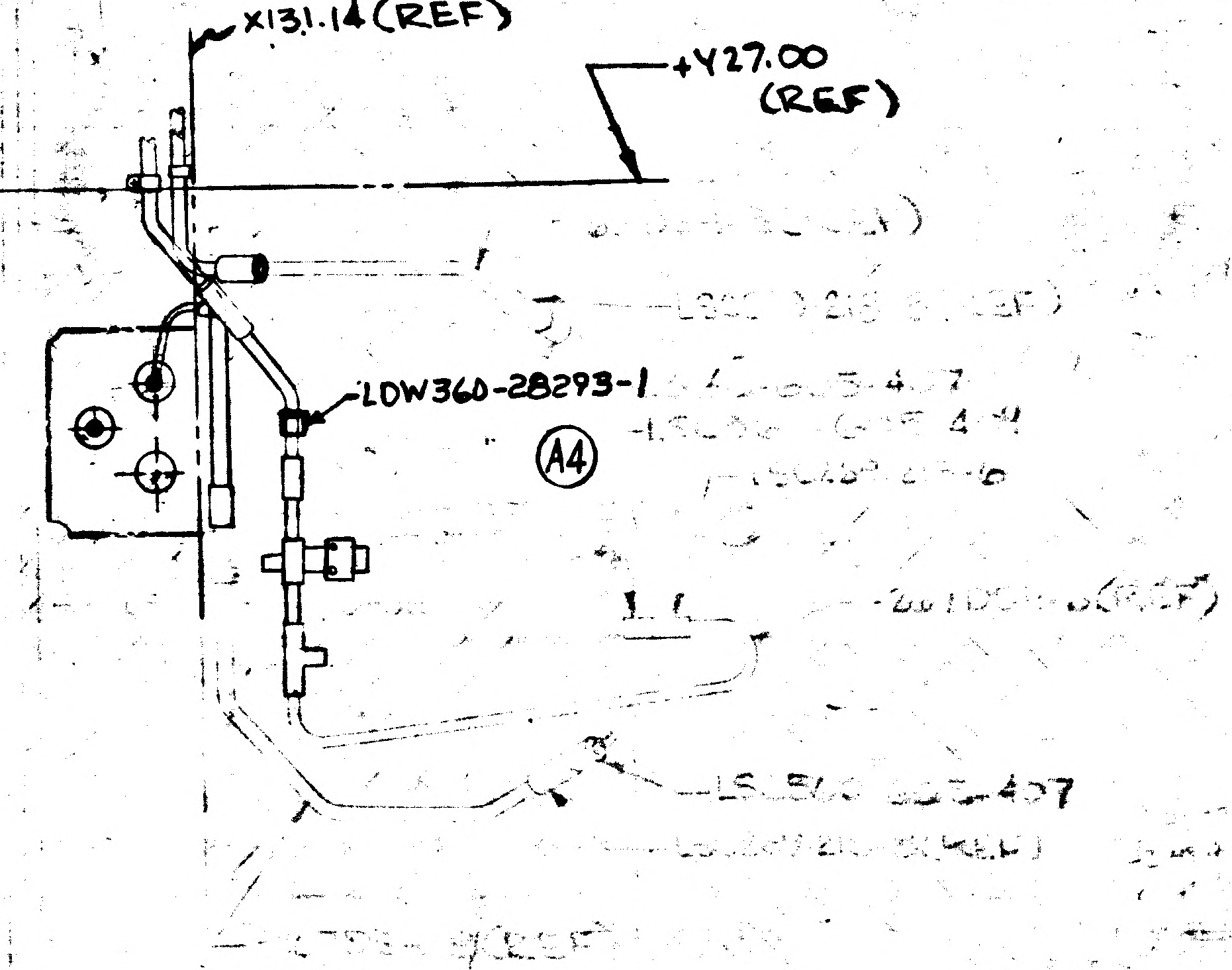
TYP 2-PART SHIM
(SEE NOTE 14)
LDW 280-17388 (REF)
NAS1097AD3 (2)
FLUSH FAR SIDE
3/16
1/4 MIN.

Ⓐ1 DETAIL "M"



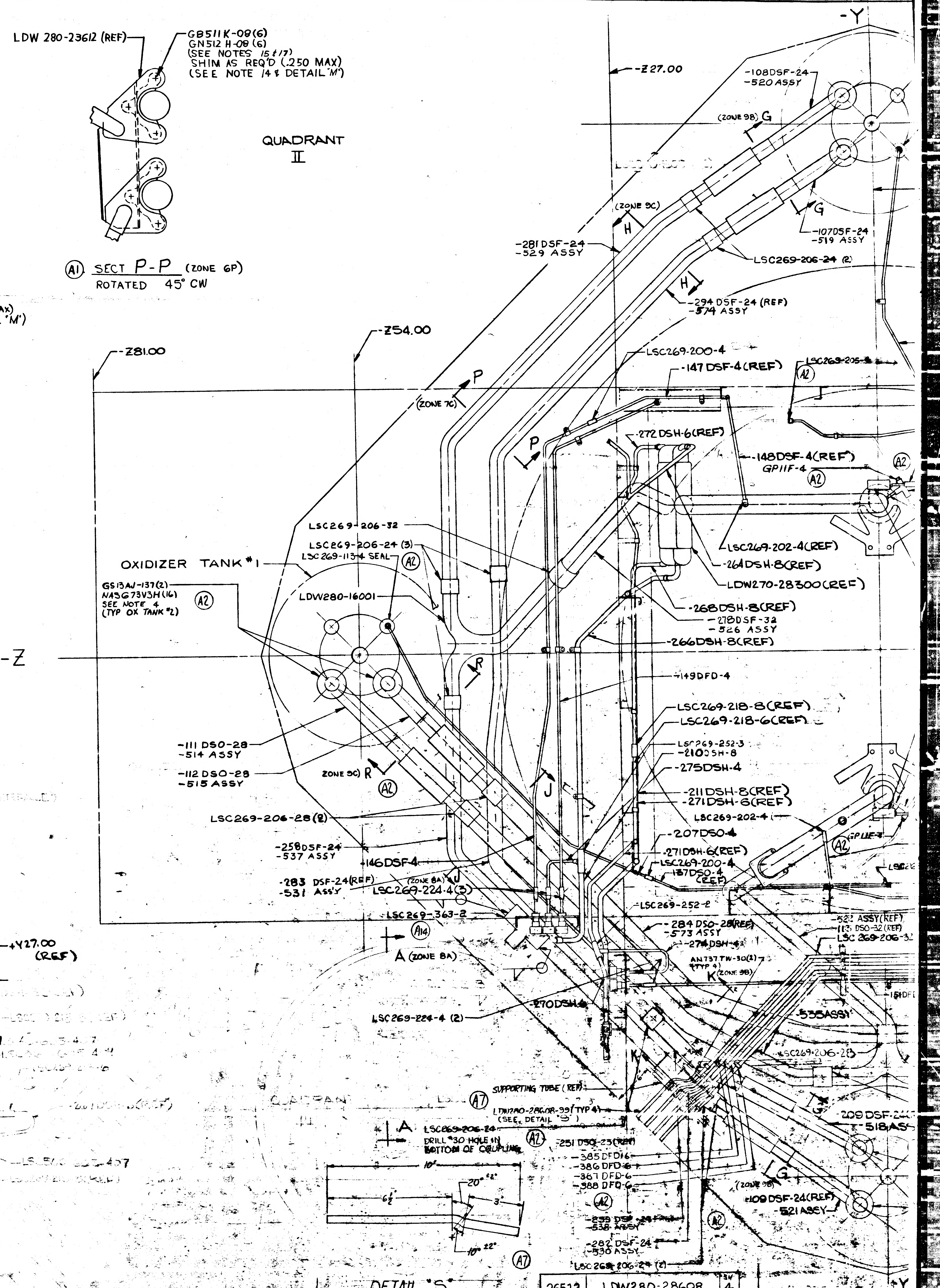
GB511K-08 (6)
GN512H-08 (6)
(SEE NOTES 15 & 17)
SHIM AS REQ'D (.250 MAX)
(SEE NOTE 14 & DETAIL 'M')

Ⓐ1 SECT N-N (ZONE 4A)
ROTATED 90° CW



X131.14 (REF)
+Y27.00 (REF)
LDW360-28293-1
Ⓐ4

VIEW A-A
(ZONE 6A)



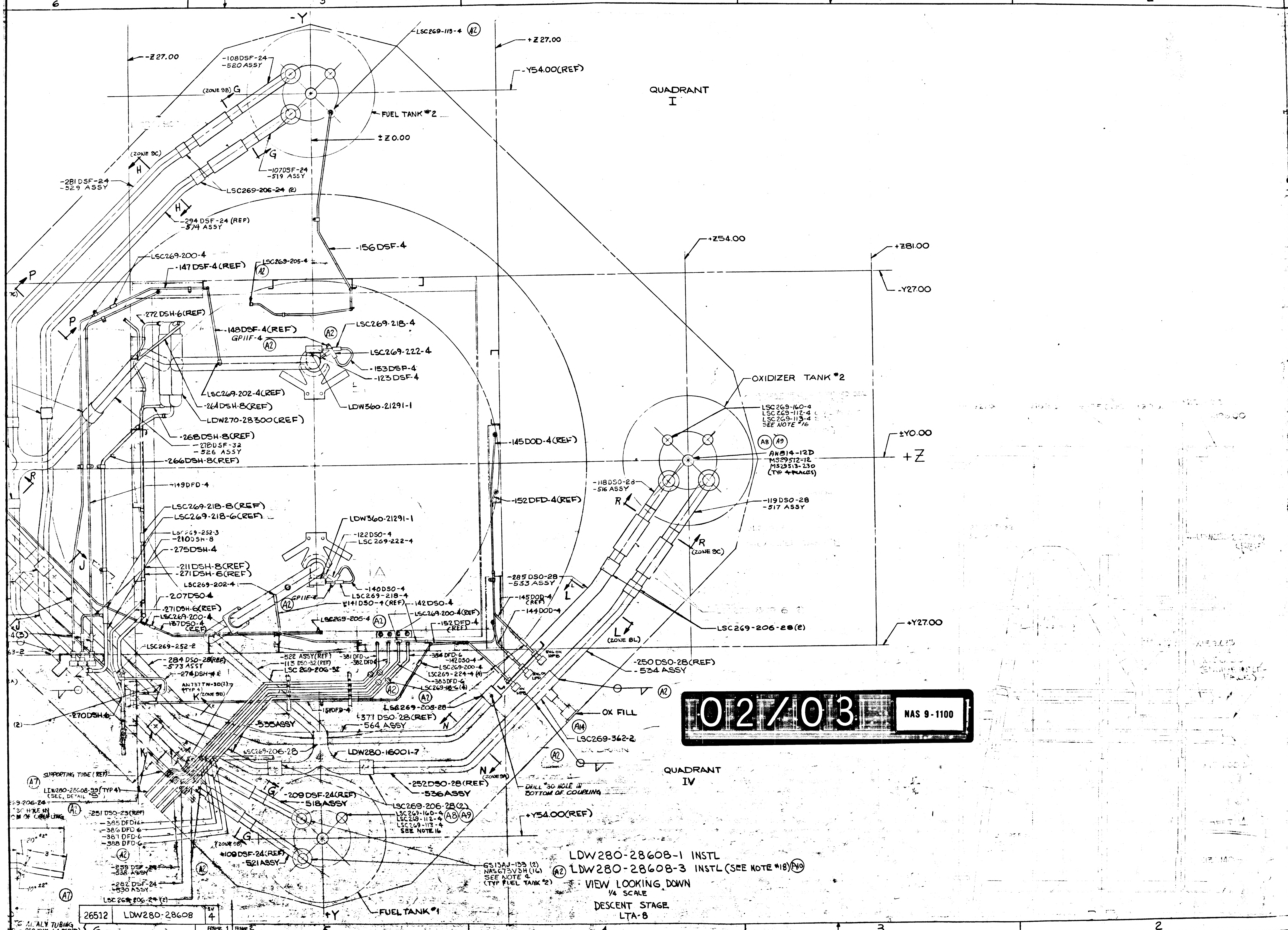
-Y
QUADRANT II
-Z27.00
-108DSF-24
-520 ASSY
(ZONE 9B) G
(ZONE 9C)
H
-281 DSF-24
-529 ASSY
-107DSF-24
-519 ASSY
LSC269-206-24 (2)
-294 DSF-24 (REF)
-574 ASSY
-Z54.00
-Z81.00
LSC269-200-4
-147 DSF-4 (REF)
LSC269-205
Ⓐ2
P
(ZONE 7C)
-272 DSH-6 (REF)
-148DSF-4 (REF)
GP11F-4
Ⓐ2
LSC269-206-32
LSC269-206-24 (3)
LSC269-1134 SEAL
Ⓐ2
LSC269-202-4 (REF)
-264DSH-8 (REF)
LDW270-28300 (REF)
OXIDIZER TANK #1
GS13AJ-137 (2)
NAS673V3H (16)
SEE NOTE 4
(TYP OX TANK #2)
Ⓐ2
LDW280-16001
-268DSH-8 (REF)
-278DSF-32
-526 ASSY
-266DSH-8 (REF)
-Z
R
-149DFD-4
LSC269-218-8 (REF)
LSC269-218-6 (REF)
-111 DSO-28
-514 ASSY
-112 DSO-28
-515 ASSY
ZONE 9C) R
Ⓐ2
LSC269-252-3
-210DSH-8
-275DSH-4
-211DSH-8 (REF)
-271DSH-6 (REF)
LSC269-202-4
J
LSC269-206-28 (2)
-207DSO-4
-258DSF-24
-537 ASSY
-146DSF-4
-271DSH-6 (REF)
LSC269-200-4
-137DSO-4 (REF)
-283 DSF-24 (REF)
-531 ASSY
(ZONE 8A) J
LSC269-224-4 (3)
LSC269-363-2
LSC269-252-2
Ⓐ14
-284 DSO-28 (REF)
-573 ASSY
-274DSH-4
-522 ASSY (REF)
-113 DSO-32 (REF)
LSC269-206-32
A (ZONE 8A)
AN737TW-30 (2)
(TYP 4)
K (ZONE 9B)
-270DSH-4
LSC269-224-4 (2)
-535ASSY
LSC269-206-28
SUPPORTING TUBE (REF)
Ⓐ7
LDW280-28608-99 (TYP 4)
(SEE DETAIL "S")
A LSC269-206-24
DRILL #30 HOLE IN
BOTTOM OF COUPLING
Ⓐ2
-251 DSO-23 (REF)
-385 DFD-6
-386 DFD-6
-387 DFD-6
-388 DFD-6
-209 DSF-24
-518ASSY
(ZONE 9B) G
-109DSF-24 (REF)
-521ASSY
Ⓐ2
-259 DSF-24
-536 ASSY
-282 DSF-24
-530 ASSY
LSC269-206-24 (2)
10°
6 1/2
20° ±2°
3"
10° ±2°
Ⓐ7
+Y

DETAIL "S"
MATL 6061-T6 AL. ALY. TUBING
3/8 O.D. × .028 THK (4 REQ'D)

01703 NAS 9-1100

2/2

26512	LDW280-28608	SH 4


6
5
4
3
2
1
-Y
+Y
QUADRANT I
QUADRANT IV
-Z27.00
+Z27.00
-Y54.00(REF)
±Z0.00
+Z54.00
+Z81.00
-Y27.00
±Y0.00
+Z
+Y27.00
+Y54.00(REF)
FUEL TANK #2
FUEL TANK #1
OXIDIZER TANK #2
LSC269-113-4 (A2)
-108DSF-24 -520 ASSY
-107DSF-24 -519 ASSY
-281DSF-24 -529 ASSY
LSC269-206-24 (2)
-294DSF-24 (REF) -574 ASSY
-156DSF-4
LSC269-200-4
-147DSF-4(REF)
LSC269-205-4
-272DSH-6(REF)
-148DSF-4(REF)
GP11F-4
LSC269-218-4
LSC269-222-4
-153DSF-4
-123DSF-4
LSC269-202-4(REF)
-264DSH-8(REF)
LDW270-28300(REF)
LDW360-21291-1
-268DSH-8(REF)
-278DSF-32 -526 ASSY
-266DSH-8(REF)
-145DOD-4(REF)
-149DFD-4
LSC269-218-8(REF)
LSC269-218-6(REF)
-152DFD-4(REF)
LSC269-252-3
-210DSH-8
-275DSH-4
-211DSH-8(REF)
-271DSH-6(REF)
LSC269-202-4
-207DSO-4
-271DSH-6(REF)
LSC269-200-4
-137DSO-4 (REF)
-122DSO-4
LSC 269-222-4
-140DSO-4
LSC269-218-4
-141DSO-4 (REF)
-142DSO-4
LSC269-200-4
-152DFD-4 (REF)
LSC269-205-4
-285DSO-28 -533 ASSY
-145DOD-4 (REF)
-144DOD-4
LSC269-160-4
LSC269-112-4
LSC269-113-4
SEE NOTE #16
AN814-12D
MS29512-12
MS29513-230
(TYP 4 PLACES)
-118DSO-28 -516 ASSY
-119DSO-28 -517 ASSY
LSC269-206-28(2)
-250DSO-28(REF) -534 ASSY
LSC269-252-2
-284DSO-28(REF) -573 ASSY
-274DSH-4
-522 ASSY(REF)
-113DSO-32(REF)
LSC269-206-32
-381DFD-4
-382DFD-6
-384DFD-6
-142DSO-4
LSC269-200-4
LSC269-224-4 (4)
-383DFD-6
LSC269-18-6 (4)
AN737TW-30(2) (TYP 4)
-270DSH-6
-151DFD-4
LSC269-208-28
-371DSO-28(REF)
-535ASSY
-564 ASSY
OX FILL
LSC269-362-2
LSC269-206-28
LDW280-16001-7
SUPPORTING TUBE (REF)
LDW280-28608-39 (TYP 4) (SEE DETAIL 3)
-252DSO-28(REF)
-536ASSY
-209DSF-24(REF)
-518ASSY
LSC269-206-28(2)
LSC269-160-4
LSC269-112-4
LSC269-113-4
SEE NOTE 16
DRILL #30 HOLE IN BOTTOM OF COUPLING
-251DSO-23(REF)
-385DFD-6
-386DFD-6
-387DFD-6
-388DFD-6
-109DSF-24(REF)
-521ASSY
-259DSF-24
-536 ASSY
-282DSF-24
-530 ASSY
LSC269-206-24 (2)
GS13AJ-133 (2)
NAS673V3H (16)
SEE NOTE 4
(TYP FUEL TANK #2)
(ZONE 9B)
(ZONE 9C)
(ZONE 8L)
(ZONE 9A)
G
H
P
R
J
K
L
N
A2
A7
A8
A9
A14
LDW280-28608-1 INSTL
LDW280-28608-3 INSTL (SEE NOTE #18) A10
VIEW LOOKING DOWN
1/4 SCALE
DESCENT STAGE
LTA-8
FRAME 1
FRAME 2

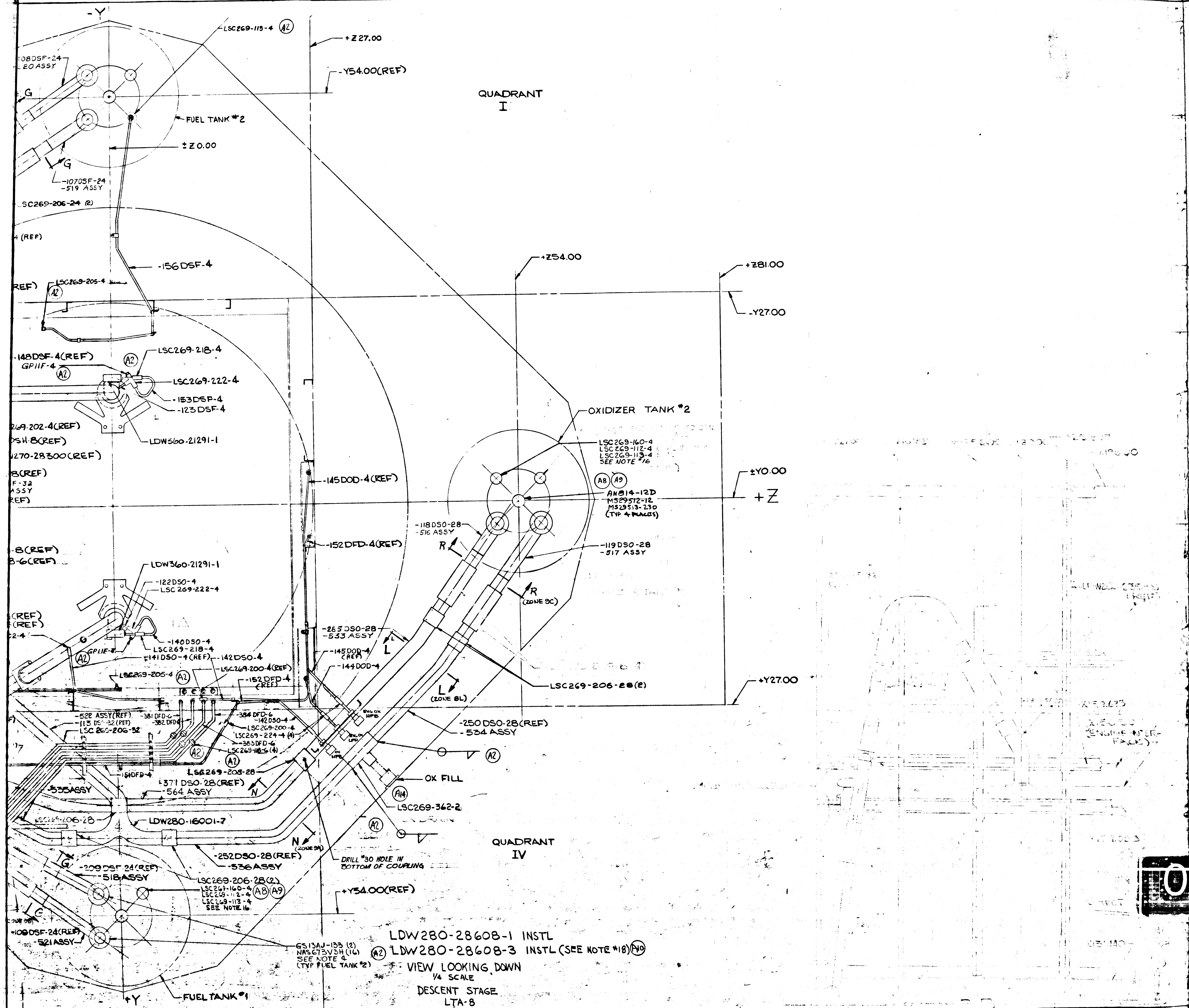
02/03

NAS 9-1100

26512	LDW280-28608	SH 4

GRUMMAN AIRCRAF

SIZE	CODE IDENT NO.	
J	26512	
LEM		
MODEL OR END ITEM	SCALE 1/4	


5
4
3
2
1
-Y
LSC269-113-4 (A2)
+Z27.00
-Y54.00(REF)
-108DSF-24
-520 ASSY
G
FUEL TANK #2
±Z0.00
G
-107DSF-24
-519 ASSY
LSC269-206-24 (2)
(REF)
-156DSF-4
(REF)
LSC269-205-4
(A2)
QUADRANT
I
+Z54.00
+Z81.00
-Y27.00
-148DSF-4(REF)
GP11F-4
(A2)
(A2)
LSC269-218-4
LSC269-222-4
-153DSF-4
-123DSF-4
269-202-4(REF)
DSH-8(REF)
270-28300(REF)
8(REF)
F-32
ASSY
(REF)
LDW360-21291-1
OXIDIZER TANK #2
LSC269-160-4
LSC269-112-4
LSC269-113-4
SEE NOTE #16
(A8) (A9)
AN814-12D
MS29512-12
MS29513-230
(TYP 4 PLACES)
±Y0.00
+Z
-145DOD-4(REF)
-118DSO-28
-516 ASSY
R
-119DSO-28
-517 ASSY
-152DFD-4(REF)
-8(REF)
-6(REF)
LDW360-21291-1
-122DSO-4
LSC269-222-4
R
(ZONE 9C)
(REF)
(REF)
2-4
-140DSO-4
LSC269-218-4
GP11F-4
(A2)
-141DSO-4(REF)
-142DSO-4
-265DSO-28
-533 ASSY
-145DOD-4 (REF)
-144DOD-4
L
L
LSC269-205-4
(A2)
LSC269-200-4(REF)
-152DFD-4 (REF)
LSC269-206-28(2)
L
(ZONE 8L)
+Y27.00
-522 ASSY(REF)
-113 DSO-32 (REF)
LSC269-206-32
-381 DFD-6
-382 DFD-6
-384 DFD-6
-142DSO-4
LSC269-200-4
LSC269-224-4 (4)
-383DFD-6
LSC269-118-6 (4)
(A2)
(A2)
ENG OX HPB
ENG OX LPD
OX HPB
-250DSO-28(REF)
-534 ASSY
(A2)
LSC269-208-28
-151DFD-4
-371 DSO-28(REF)
-564 ASSY
N
-535 ASSY
OX FILL
(A14)
LSC269-362-2
LSC269-206-28
LDW280-16001-7
(A2)
N
(ZONE 9A)
-252DSO-28(REF)
-536 ASSY
DRILL #30 HOLE IN BOTTOM OF COUPLING
QUADRANT
IV
G
-209DSF-24(REF)
-518 ASSY
LSC269-206-28(2)
LSC269-160-4
LSC269-112-4
LSC269-113-4
SEE NOTE 16
(A8) (A9)
+Y54.00(REF)
(ZONE 9B)
G
-109DSF-24(REF)
-521 ASSY
GS13AJ-133 (2)
NAS673V3H (16)
SEE NOTE 4
(TYP FUEL TANK #2)
+Y
FUEL TANK #1
FRAME 2

LDW280-28608-1 INSTL
(A2) LDW280-28608-3 INSTL (SEE NOTE #18) (A10)
VIEW LOOKING DOWN
1/4 SCALE
DESCENT STAGE
LTA-8

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200√ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL ƒ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 90

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 96) = 24.0 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6.0 SQ. FT.

PRINT TRIM LINE

C

B

A

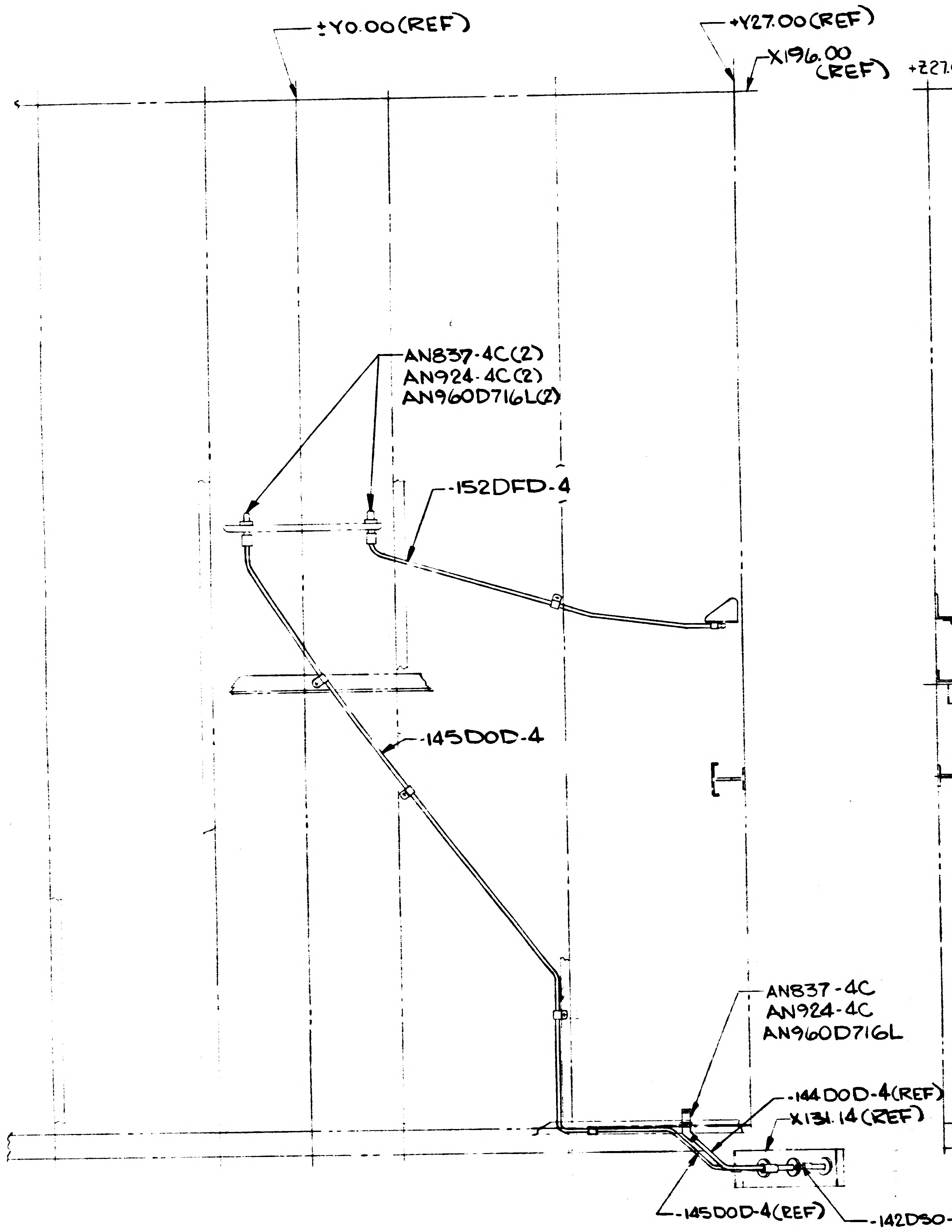
LDW280-28608 A

LDW280-28608 A

03/03 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LEM MODEL OR END ITEM	SIZE J	CODE IDENT NO. 26512	LDW280-28608	A
	SCALE 1/4		SHEET 4	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AN924-4C(2)
AN960D716L(2)
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-145DOD-4
AN837-4C
AN924-4C
AN960D716L
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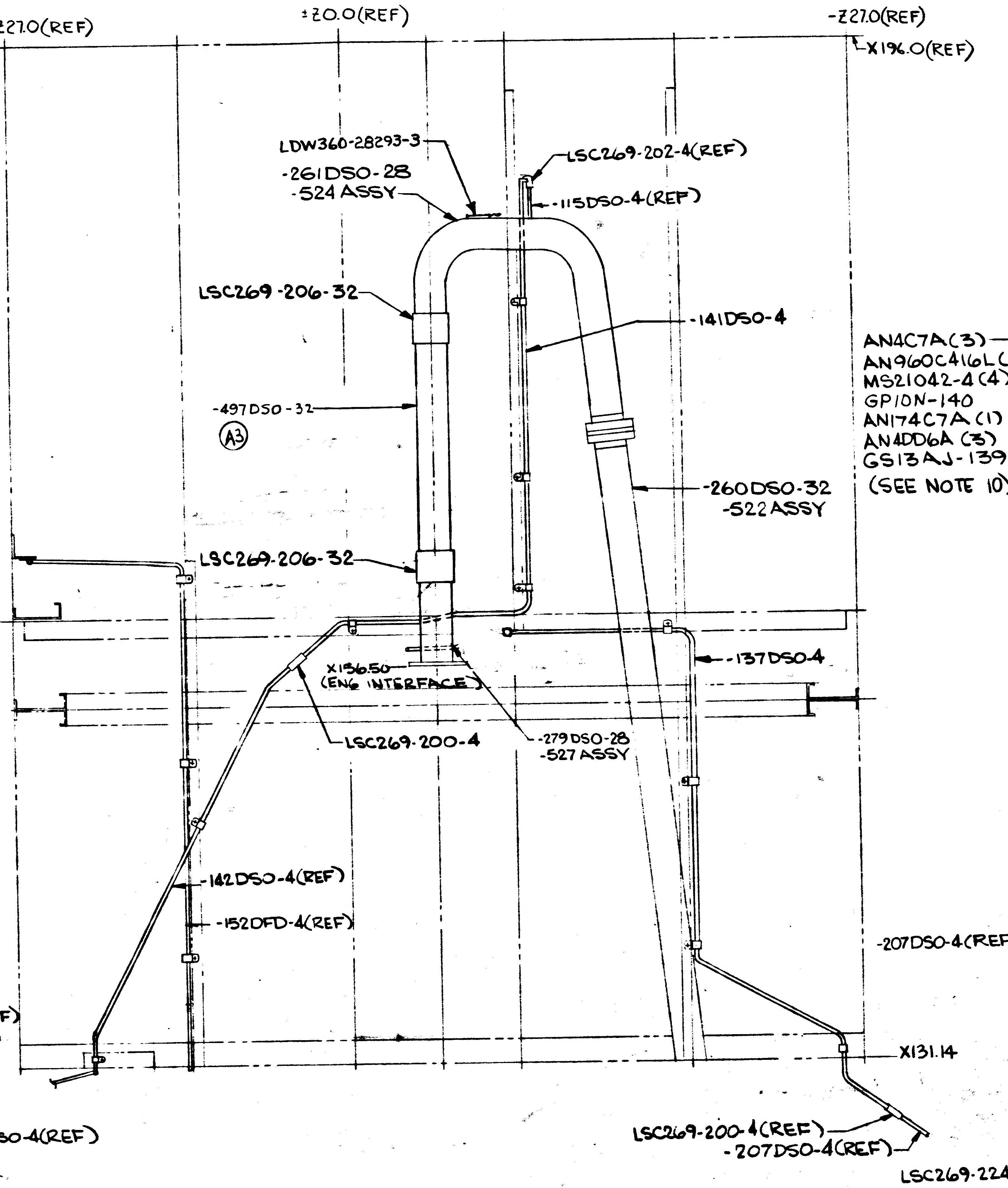
VIEW OF +Z27.00 WALL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-497DSO-32
A3
-260DSO-32
-522ASSY
LSC269-206-32
-137DSO-4
X156.50 (ENG INTERFACE)
LSC269-200-4
-279DSO-28
-527ASSY
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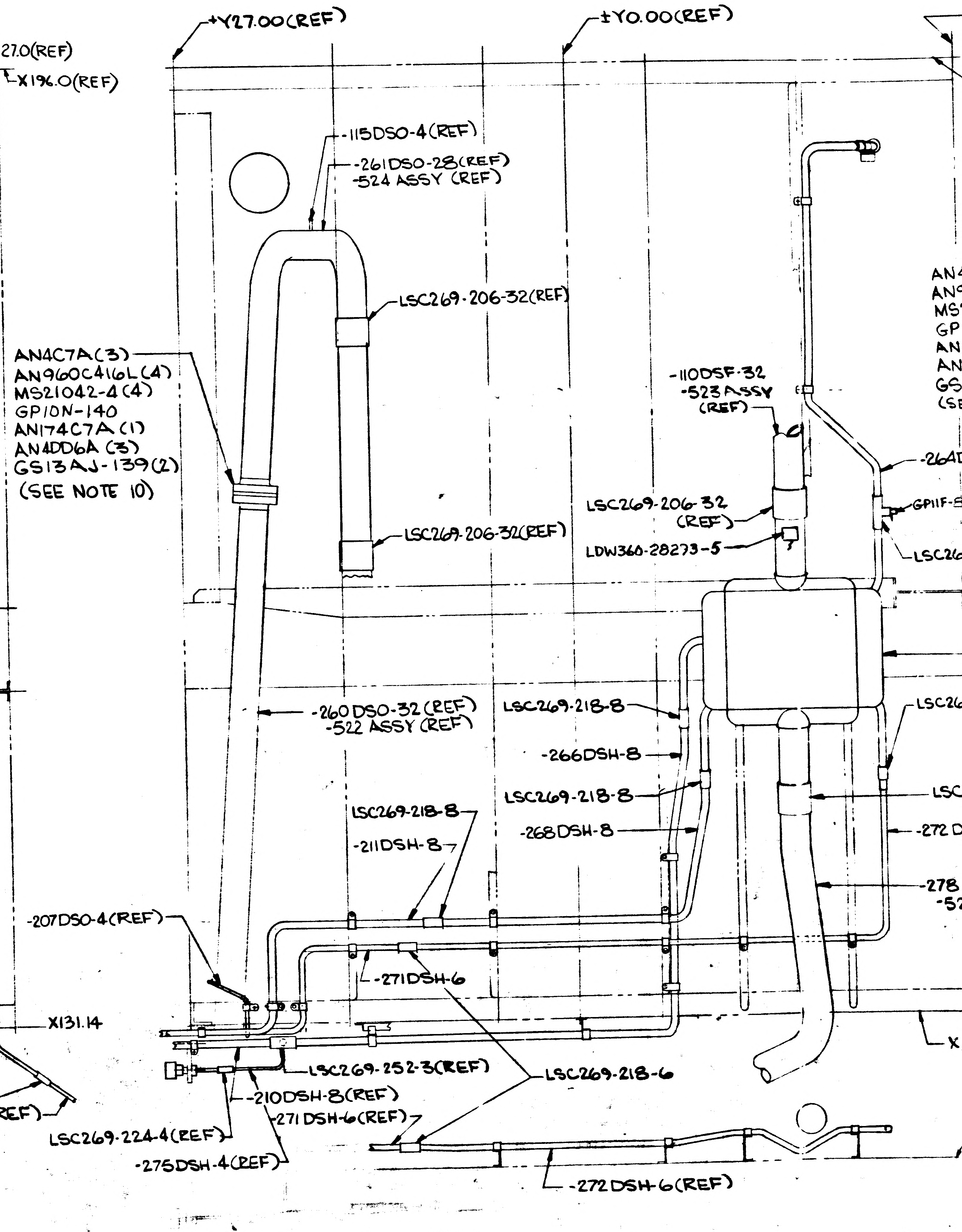
VIEW OF +Y27.00 WALL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AN960C416L(4)
MS21042-4(4)
GP10N-140
AN174C7A(1)
AN4DD6A(3)
GS13AJ-139(2)
(SEE NOTE 10)
-110DSF-32
-523ASSY
(REF)
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(REF)
LDW360-28273-5
LSC269-206-32(REF)
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-266DSH-8
LSC269-218-8
-268DSH-8
LSC269-218-8
-211DSH-8
-207DSO-4(REF)
-271DSH-6
LSC269-252-3(REF)
LSC269-218-6
-210DSH-8(REF)
-271DSH-6(REF)
LSC269-224-4(REF)
-275DSH-4(REF)
-272DSH-6(REF)
GP11F-5
-272 D
-278
X

LDW280-28608-1 INSTL
LDW280-28608-3 INSTL (SEE NOTE #18) A10
VIEW OF -Z27.00 WALL

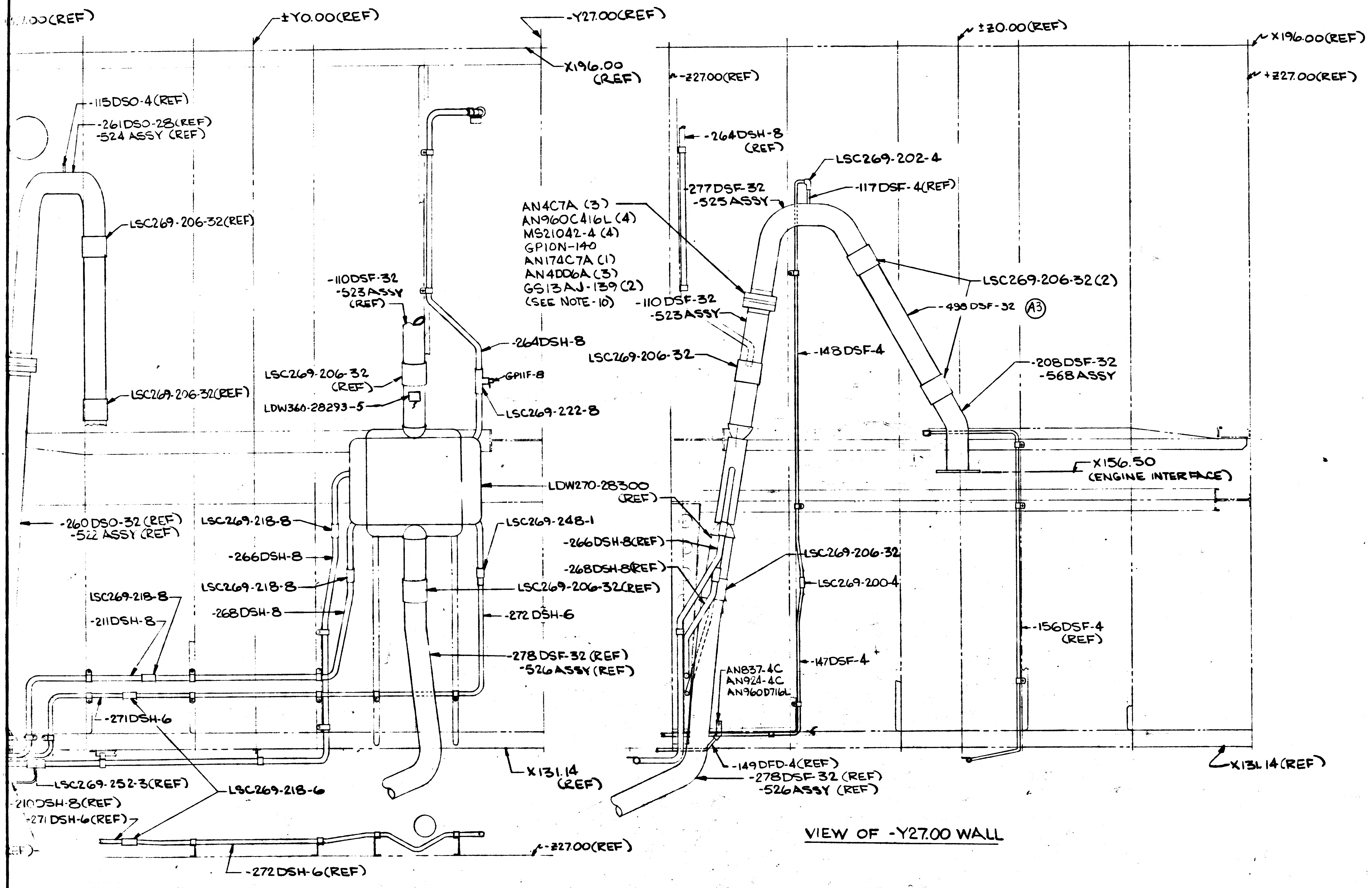
01/02 NAS 9-1100

CODE IDENT NO. 26512	
LDW280-28608	SH 5

FRAME 1 | FRAME 2

17 16 15 14

2/2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(REF)
LSC269-206-32
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LDW360-28293-5
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GP11F-8
LSC269-222-8
LDW270-28300
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-522 ASSY (REF)
LSC269-218-8
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LSC269-218-8
-268DSH-8
LSC269-218-8
-211DSH-8
LSC269-248-1
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-272 DSH-6
-278 DSF-32 (REF)
-526 ASSY (REF)
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AN960C416L (4)
MS21042-4 (4)
GP10N-140
AN174C7A (1)
AN4DD6A (3)
GS13AJ-139 (2)
(SEE NOTE-10)
-110DSF-32
-523ASSY
LSC269-206-32
-264DSH-8 (REF)
-277DSF-32
-525ASSY
LSC269-202-4
-117DSF-4(REF)
±Z0.00(REF)
X196.00(REF)
+Z27.00(REF)
LSC269-206-32 (2)
-498 DSF-32 (A3)
-148DSF-4
-208DSF-32
-568ASSY
X156.50
(ENGINE INTERFACE)
-266DSH-8(REF)
-268DSH-8(REF)
LSC269-206-32
LSC269-200-4
-156DSF-4
(REF)
-147DSF-4
AN837-4C
AN924-4C
AN960D716L
-149DFD-4(REF)
-278DSF-32 (REF)
-526ASSY (REF)
X131.14 (REF)

VIEW OF -Y27.00 WALL

LDW280-28608-1 INSTL
LDW280-28608-3 INSTL (SEE NOTE #18) (A10)
VIEW OF -Z27.00 WALL

ENGINE COMP. LTA-8

02/02

NAS 9-1100

CODE IDENT NO. 26512	SH
LDW280-28608	5

FRAME 1 | FRAME 2

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

- PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.
- FILLET AND INSIDE CORNER RADII TOLERANCES
  - .016R TO .062R ± .010
  - .063R TO .250R ± .015
  - OVER .250R ± .030
- DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.
- EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.
- DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.
- MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.
- DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING
- HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.
- ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES
- 125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10
- 200 √ FOR ALL DRILLED HOLES
- REMOVE ALL BURRS. BREAK ALL EDGES .015-.031
- INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS
- SYMBOL √ DENOTES SURFACE TO BE MACHINED
- UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32
- LENGTHS OF AN, NAS & MS ALLOY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.
- TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 28 X 82

PRINTING INFO ONLY
FULL SIZE SHEET AREA (30 X 84) = 17.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 4.37 SQ. FT.

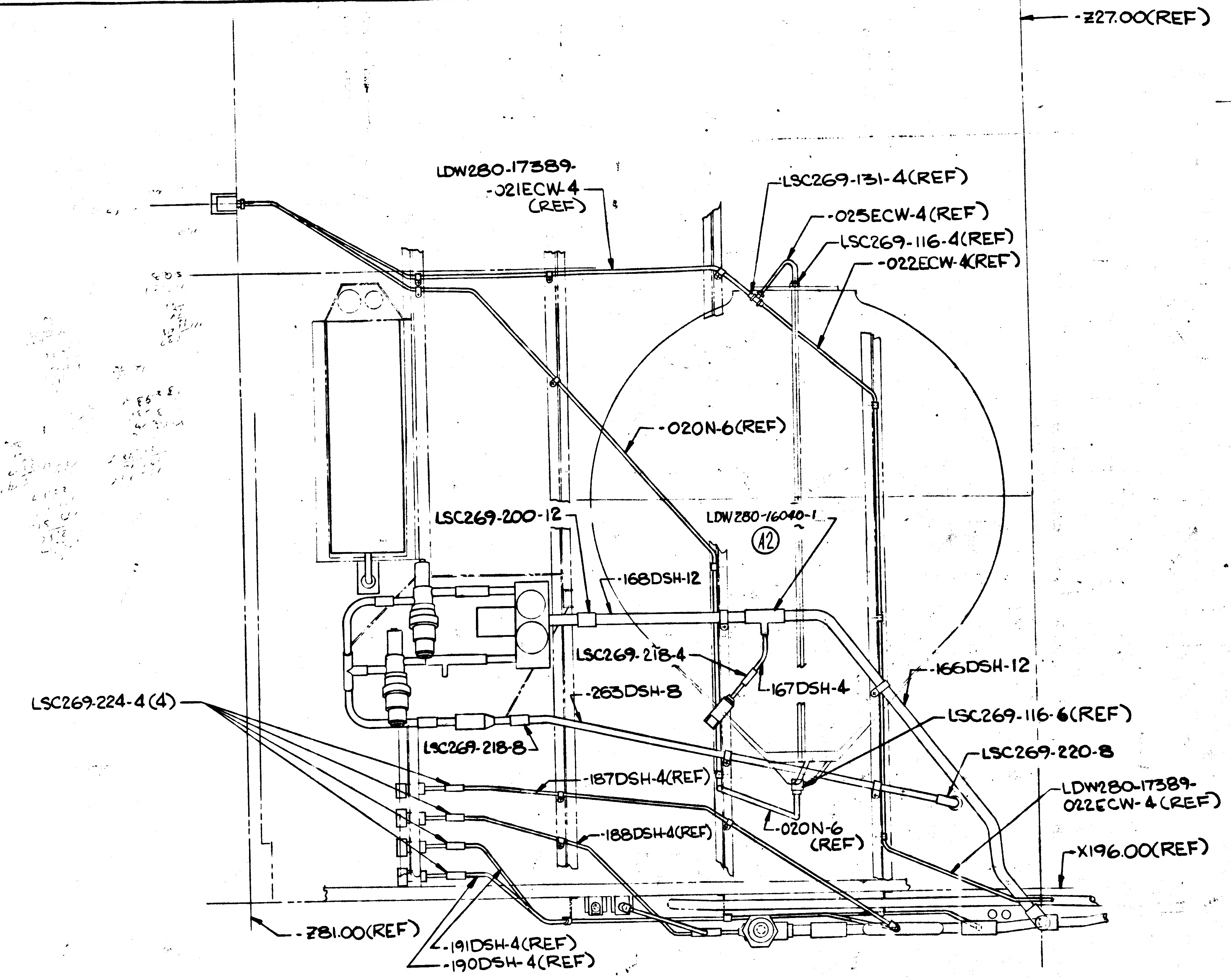
PRINT TRIM LINE

LDW280-28608 A

LDW280-28608 A

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
SIZE H	CODE IDENT NO. 26512	LDW280-28608	A
LEM MODEL OR END ITEM	SCALE 1/4		SHEET 5

01/04 **NAS 9-1100**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A2
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LSC269-218-4
-167DSH-4
-166DSH-12
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LSC269-220-8
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-020N-6
(REF)
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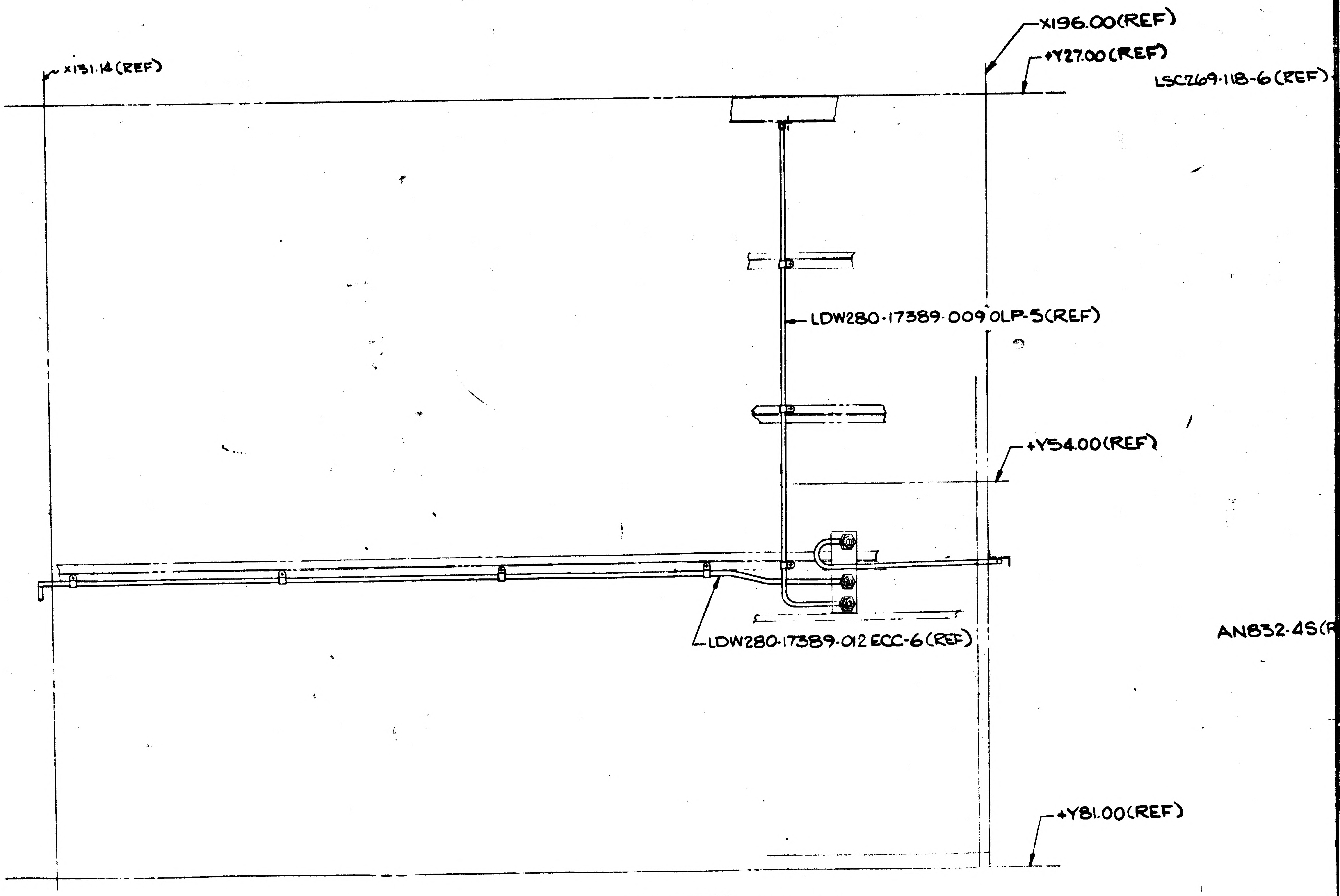
-190DSH-4(REF)

VIEW E-E
(ZONE 23D)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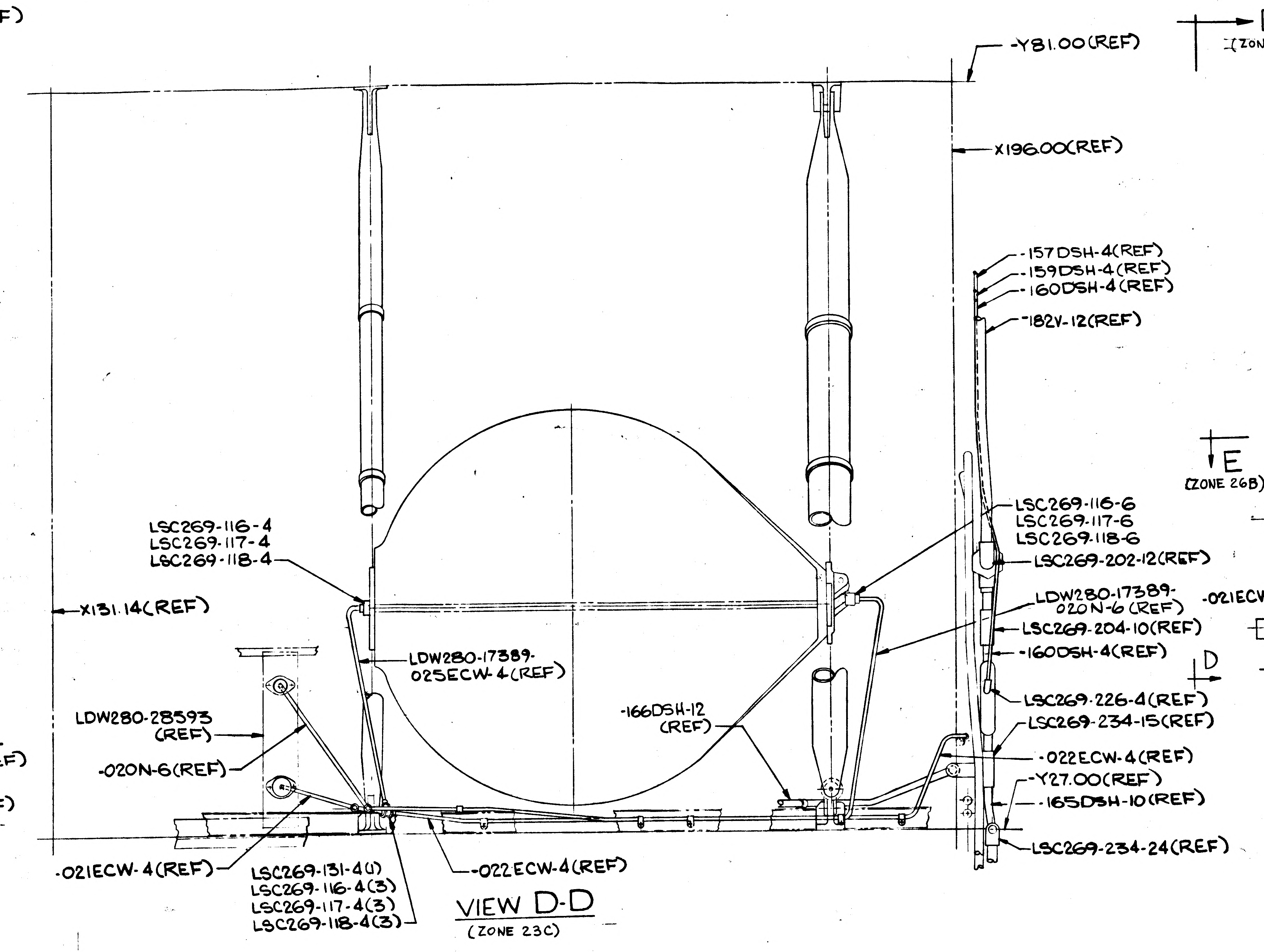
AN832-4S(R

3/3

VIEW F-F (ZONE 22A)

25 24 23 22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LSC269-226-4(REF)
LSC269-234-15(REF)
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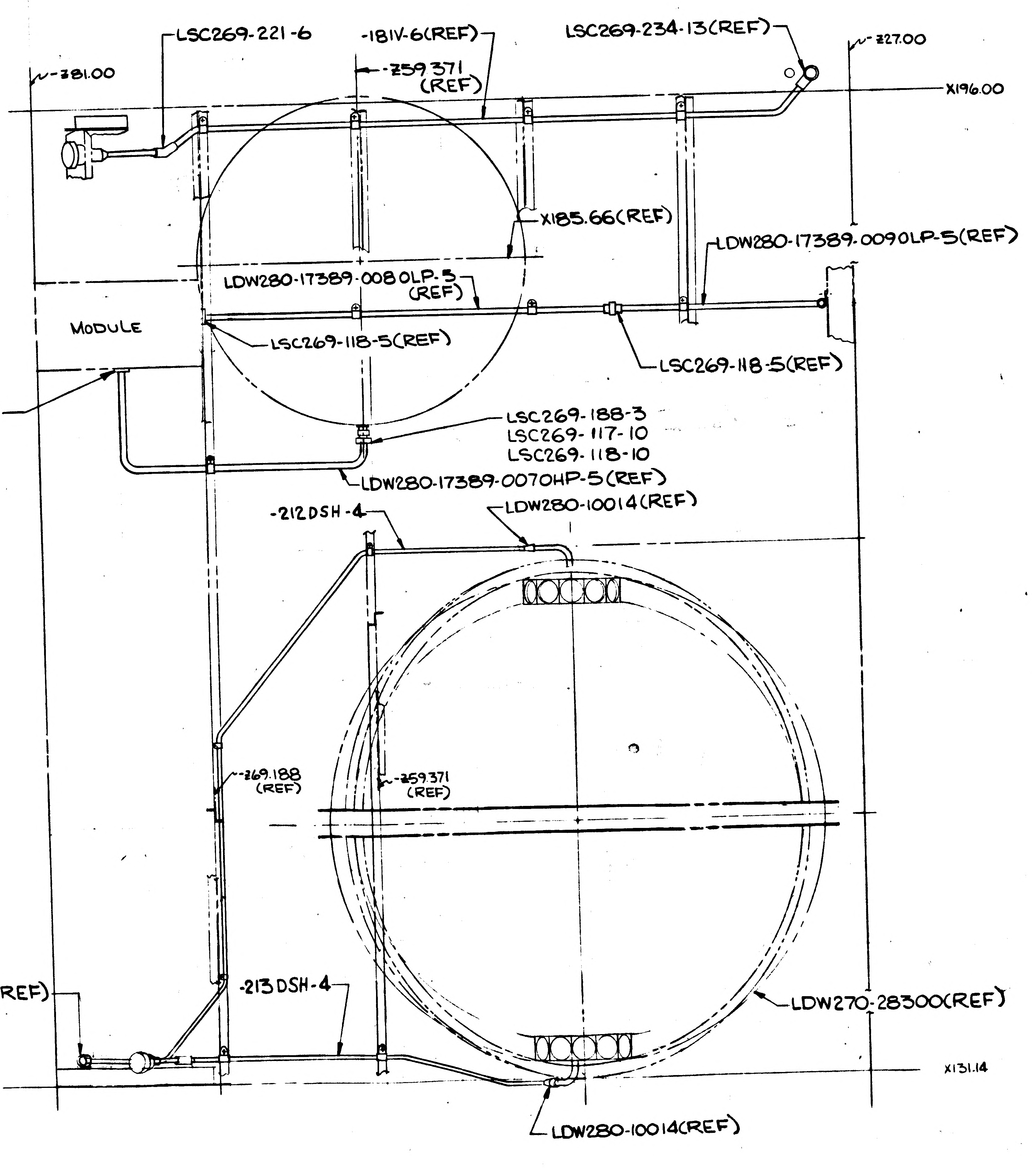
VIEW D-D
(ZONE 23C)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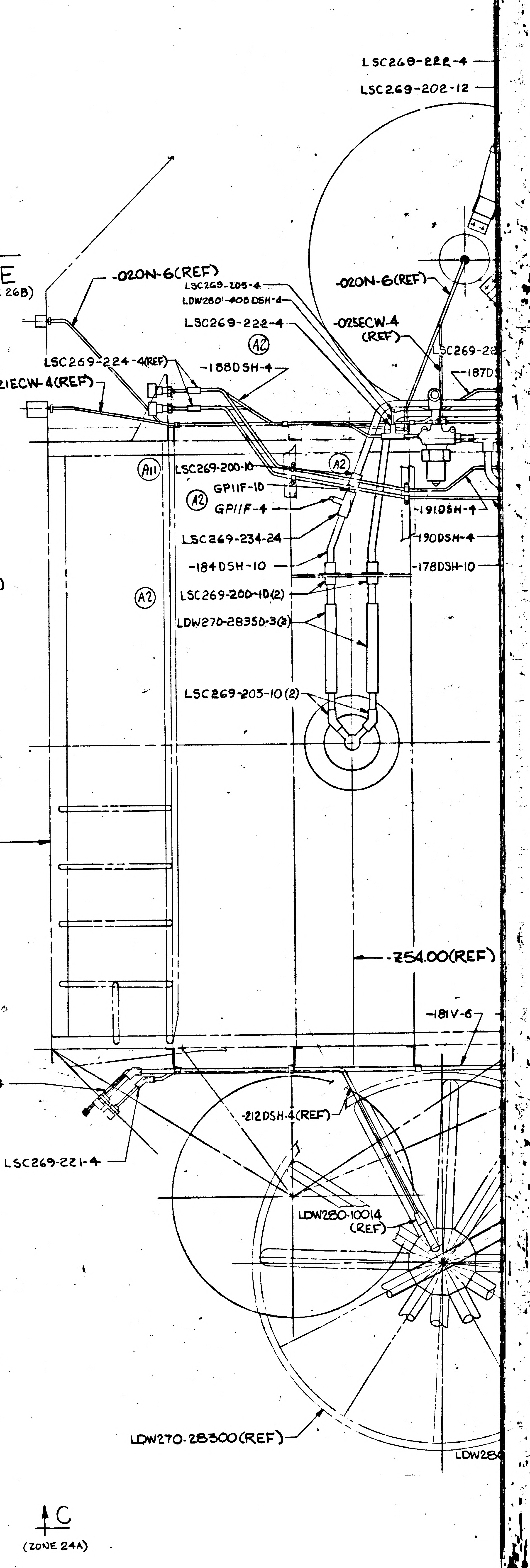
VIEW C-C
(ZONE 23A)

26512	LDW280-28608	SH 6

FRAME 1 FRAME 2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ECW-4 (REF)
LSC269-224-4(REF)
-188DSH-4
-021ECW-4(REF)
-187D
D
A11
LSC269-200-10
A2
GP11F-10
GP11F-4
A2
-191DSH-4
-190DSH-4
-178DSH-10
LSC269-234-24
-184DSH-10
A2
LSC269-200-10(2)
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LDW28
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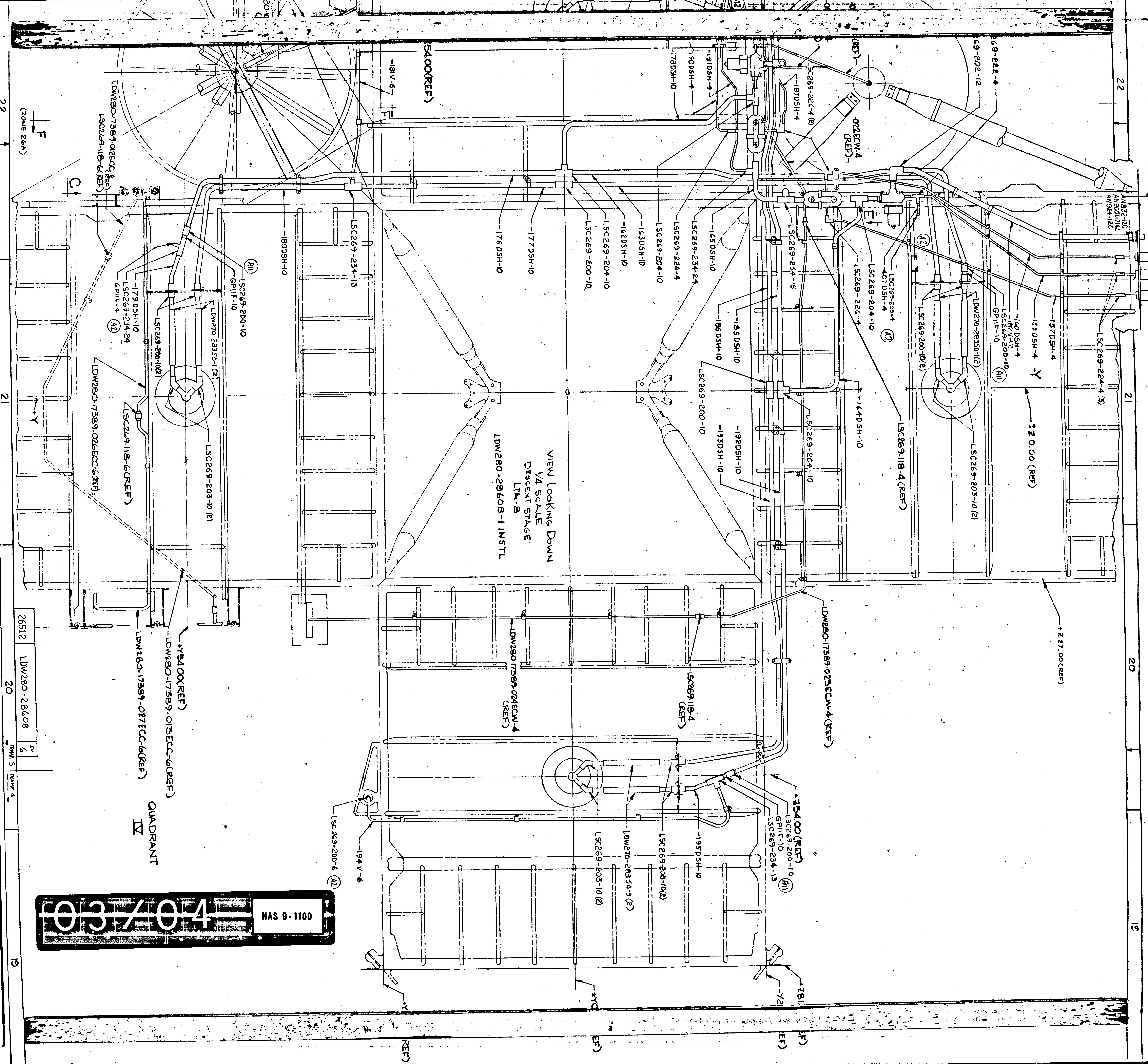
-118-
C (ZONE 24A)

02404 NAS 9-1100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1/4 SCALE
DESCENT STAGE
LTA-8
LDW280-28608-1 INSTL
QUADRANT IV
26512
LDW280-28608
SH 6
FRAME 3
FRAME 4
22
21
20
19
F (ZONE 26A)
C
E
-Y
+Y
+Z 27.00 (REF)
+Z 20.00 (REF)
+Z 27.00 (REF)
-Z 27.00 (REF)
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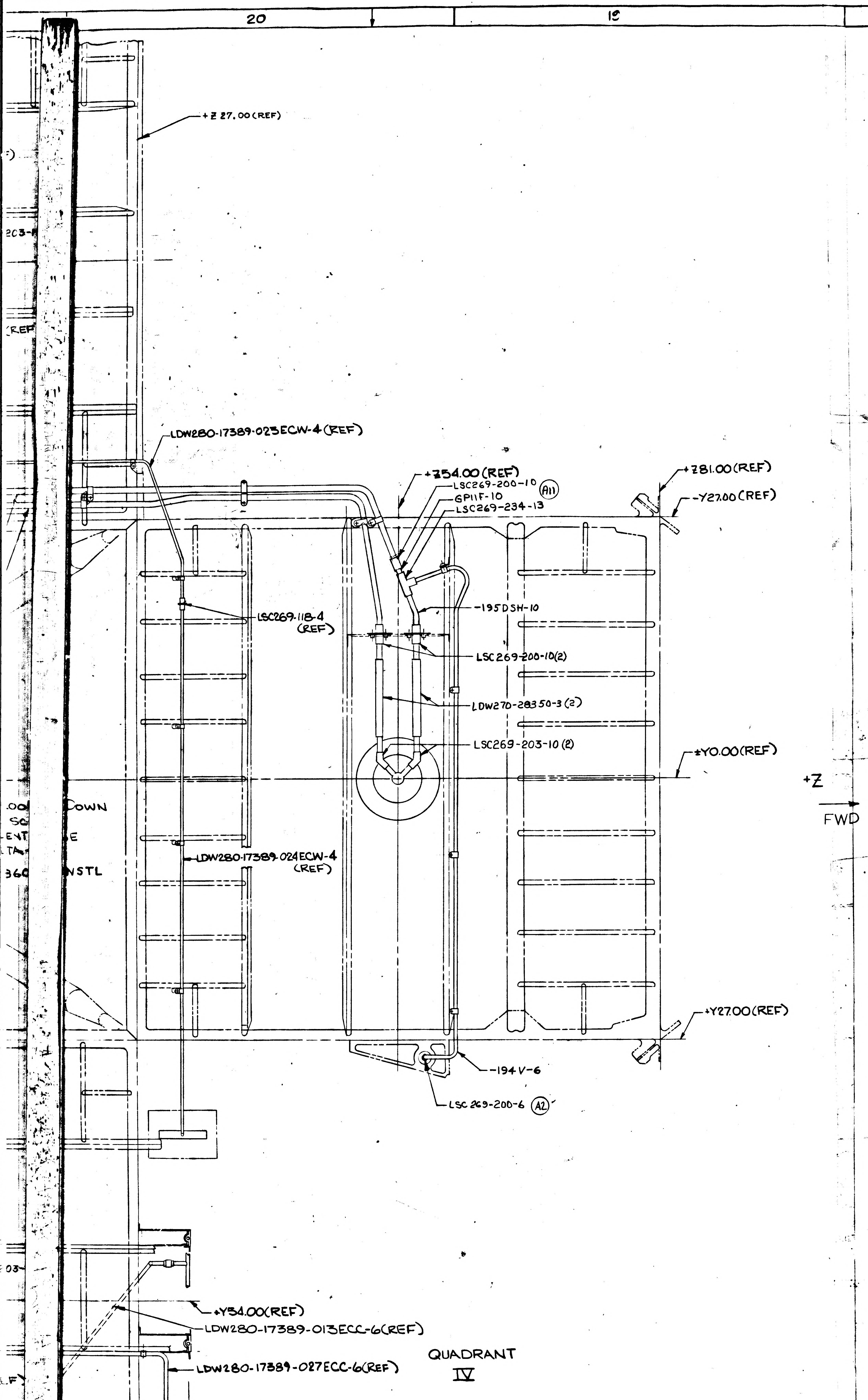
AN832-12C
AN924-12C
A11
A2

03/04

NAS 9-1100

20 | 19 | 18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FWD
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LDW280-17389-027ECC-6(REF)
QUADRANT
IV

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 40 X 110

PRINTING INFO ONLY

FULL SIZE SHEET AREA (42 X120)= 35.0 SQ. FT.

1/2 SIZE SHEET AREA (1/4 OF FULL)= 8.75 SQ. FT.

PRINT TRIM LINE

C

B

A

04/04

NAS 9-1100

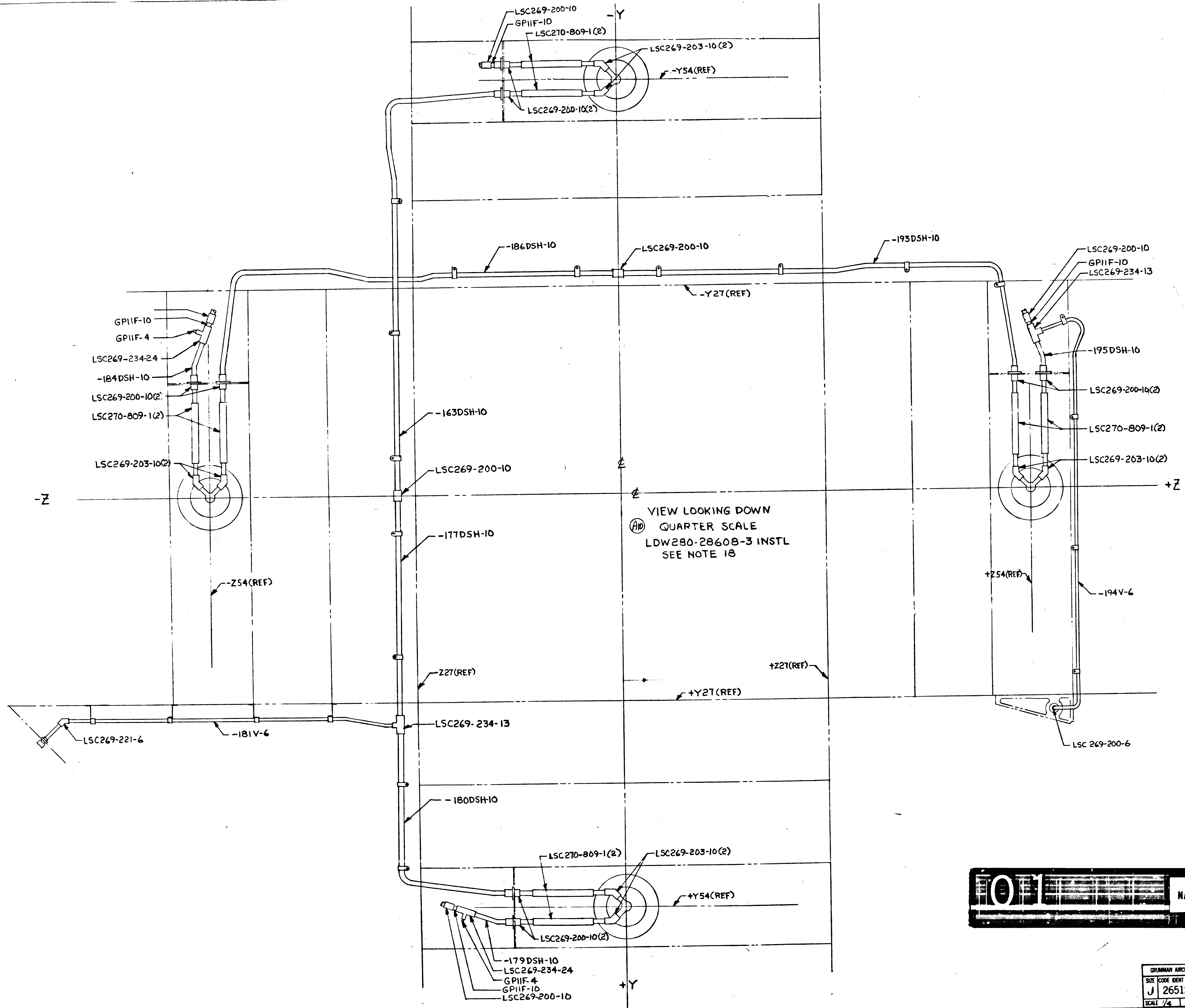
LDW 280-28608 A

LDW 280-28608 A

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE K	CODE IDENT NO. 26512	LDW280-28608	A Ⓐ
LEM				
MODEL OR END ITEM	SCALE 1/4		SHEET 6.00	

26512	LDW280-28608	SH 6

20 | FRAME 3 | FRAME 4 | 19 | 18


32
31
30
29
C
B
A
-Y
+Y
-Z
+Z
LSC269-200-10
GP11F-10
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LSC269-203-10(2)
-Y54(REF)
LSC269-200-10(2)
-186DSH-10
LSC269-200-10
-193DSH-10
LSC269-200-10
GP11F-10
LSC269-234-13
-Y27(REF)
GP11F-10
GP11F-4
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LSC270-809-1(2)
LSC269-203-10(2)
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LSC269-200-10(2)
LSC270-809-1(2)
LSC269-203-10(2)
-163DSH-10
LSC269-200-10
-177DSH-10
℄
℄
VIEW LOOKING DOWN
(A10) QUARTER SCALE
LDW280-28608-3 INSTL
SEE NOTE 18
-Z54(REF)
+Z54(REF)
-194V-6
Z27(REF)
+Z27(REF)
+Y27(REF)
LSC269-234-13
LSC269-221-6
-181V-6
LSC 269-200-6
-180DSH-10
LSC270-809-1(2)
LSC269-203-10(2)
+Y54(REF)
LSC269-200-10(2)
-179DSH-10
LSC269-234-24
GP11F-4
GP11F-10
LSC269-200-10
01
NAS 9-1100

DWG SIZE 34 X 44
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 52) = 13 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 3.2 SQ FT
PRINT TRIM LINE

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
J	26512	LDW280-28608	A
SCALE 1/4		SHEET 7.00	

LDW280-28608 A

LDW280-28608 A

NOTE :-

1. SUBSTITUTION OF NAS1132V AND NAS1133V SCREWS FOR GB511J-08 AND GB511J-3 BOLTS IS PERMISSIBLE.

2. DRILL #11 (.190-.196) HOLES IN STRUCTURE WHERE REQUIRED TO ADD GC12 H CLAMPS AND HARDWARE.

3. ENGINE OVERBOARD DRAIN LINES SHALL BE INSTALLED WITH A DOWNWARD PITCH AND SHALL BE FREE OF ENTRAPMENTS.

4. TORQUE TANK BOLTS NAS673V3H TO 32-35 INCH POUNDS. LUBRICATE BOLT THREADS WITH DUPONT PR-240AC BEFORE INSTALLING. SAFETY WIRE PER MS33540.

5. TUBING SHALL BE CLAMPED AS SHOWN ON F/D, HARDWARE CALLOUTS WILL BE ADDED AT A LATER DATE.

6 COMMERCIAL PARTS, SEE SPECIFICATION CONTROL DRAWING BEFORE ORDERING.

7. BONDING SHALL BE IN ACCORDANCE WITH LSP-390-001.

8 ADD DUPONT PR240AC LUBRICANT ON ALL THREADED FITTINGS.

9. GAMAH CONN. - PER LSP14-17402, AND BRAZED CONNECTIONS PER LSP14-6303

10. PROCEDURE FOR INSTALLNG ORIFICE PLATES IN DESCENT STAGE PROPELLANT LINES
   a. LOOSEN SUPPORT CLAMP BETWEEN ORIFICE AND ENGINE
   b. REMOVE THE FOUR 1/4" RETAINING BOLTS SECURING THE ORIFICE PLATE AND TWO ORIFICE FLANGES (THREE (3) AN4C7A BOLTS AND ONE (1) AN174C7A BOLT).
   c. ALTERNATELY ROTATE THE THREE (3) SPREADER BOLTS (AN4DD6A) UNTIL THE TWO ORIFICE FLANGES ARE SEPARATED APPROX 1/8".
      NOTE: IF IT IS DEEMED NECESSARY TO REPLACE THE TWO TEFLON "O"-RING SEALS IN THE ORIFICE FLANGES, INCREASE THE FLANGE SEPARATION TO PERMIT SEAL REMOVAL AND REPLACEMENT.
   d. GRASP THE ORIFICE PLATE TAB AND LIFT UP APPROX 1/16" TO FREE THE PLATE FROM THE INDEX PIN INSTALLED IN LDW270M10008-1 FLANGE ASSY AND REMOVE ORIFICE PLATE.
   e. INSTALL NEW ORIFICE PLATE BY REVERSING PROCEDURE ABOVE. AFTER ALINING ORIFICE PLATE WITH INDEXING PIN, INSTALL THE CLOSE TOLERANCE AN174C7A BOLT BEFORE INSTALLING THE THREE (3) AN4C7A RETAINING BOLTS. TORQUE ALL FOUR (4) RETAINING BOLTS TO 70-80 INCH POUNDS.

11. TUBE NUMBERS ARE DASH NUMBERS OF DWG LDW280-17388.

12. SHIM AS REQD PER MIL-S-22499A, COMP.-1, TYPE-1, CLASS-2.

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-28608	
SCALE		SHEET 3	

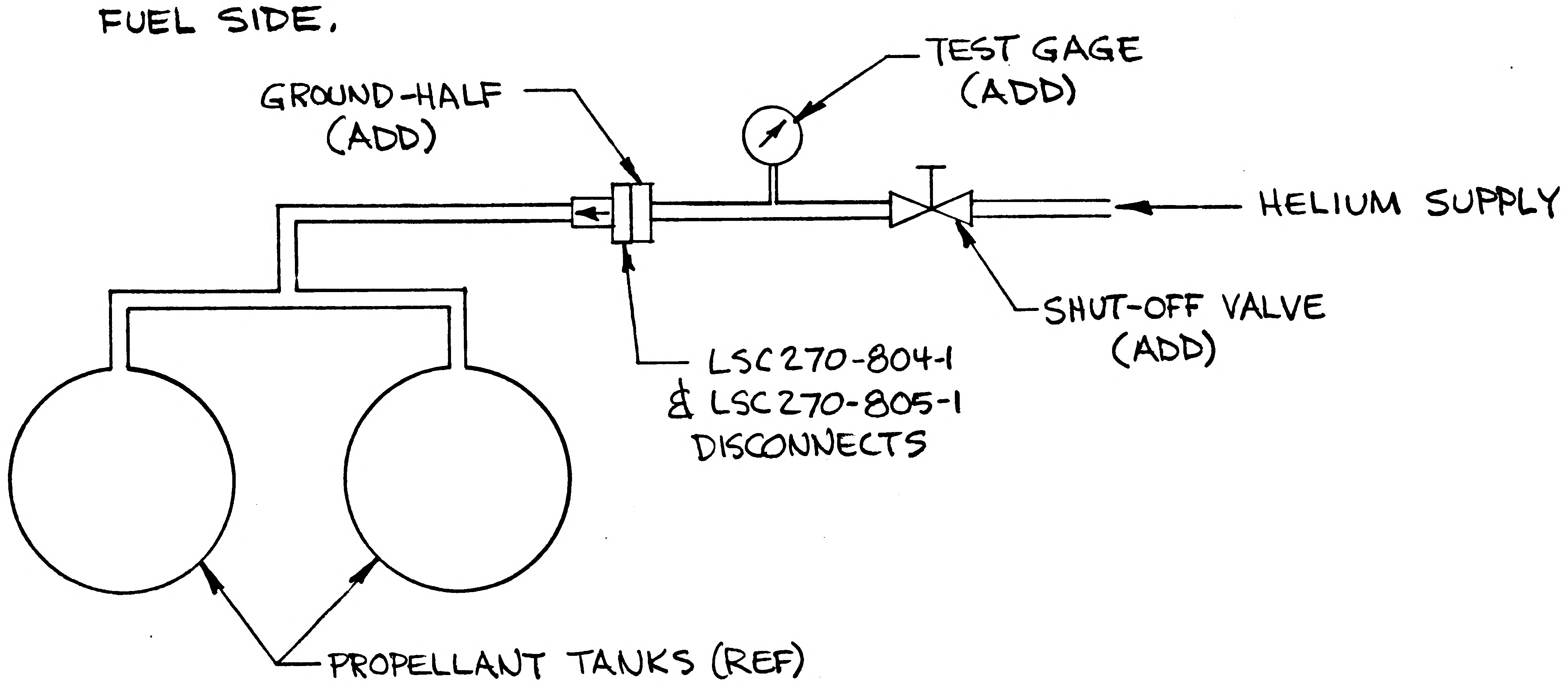
ENG 73.1 6-64

01

NAS 9-1100

NOTES (CONTINUED)

13. CONDUCT A 50 PSIG GASEOUS LEAK CHECK TO VERIFY INTEGRITY OF PROPULSION SYSTEM AS FOLLOWS:
   a) INSTALL A 0-100 PSI GAGE AND SHUT-OFF VALVE UPSTREAM OF THE LSC 270-805-1 OXIDIZER FILL VENT DISCONNECT COUPLING AND CONNECT TO A HELIUM SUPPLY SOURCE. (SEE SKETCH OF TEST SET-UP BELOW)
   b) OPEN SUPPLY VALVE UNTIL PRESSURE IN OXIDIZER SIDE OF SYSTEM READS 50 PSI. CLOSE SHUT-OFF VALVE AND MONITOR GAGE TO ASSURE THERE IS NO PRESSURE DECAY FOR A PERIOD OF 30 MINUTES.
   c) AFTER SUCCESSFUL COMPLETION OF THE PRESSURE DECAY TEST ON SYSTEM OXIDIZER SIDE, CONNECT GAGE AND SHUT-OFF VALVE UPSTREAM OF THE LSC 270-804-1 FUEL FILL VENT DISCONNECT COUPLING AND REPEAT STEPS a) & b) ABOVE ON THE PROPULSION SYSTEM FUEL SIDE.


TEST GAGE (ADD)
GROUND-HALF (ADD)
HELIUM SUPPLY
SHUT-OFF VALVE (ADD)
LSC 270-804-1 & LSC 270-805-1 DISCONNECTS
PROPELLANT TANKS (REF)

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-28608	
SCALE		SHEET 3.01	

ENG 72.1 6-64

01 NAS 9-1100

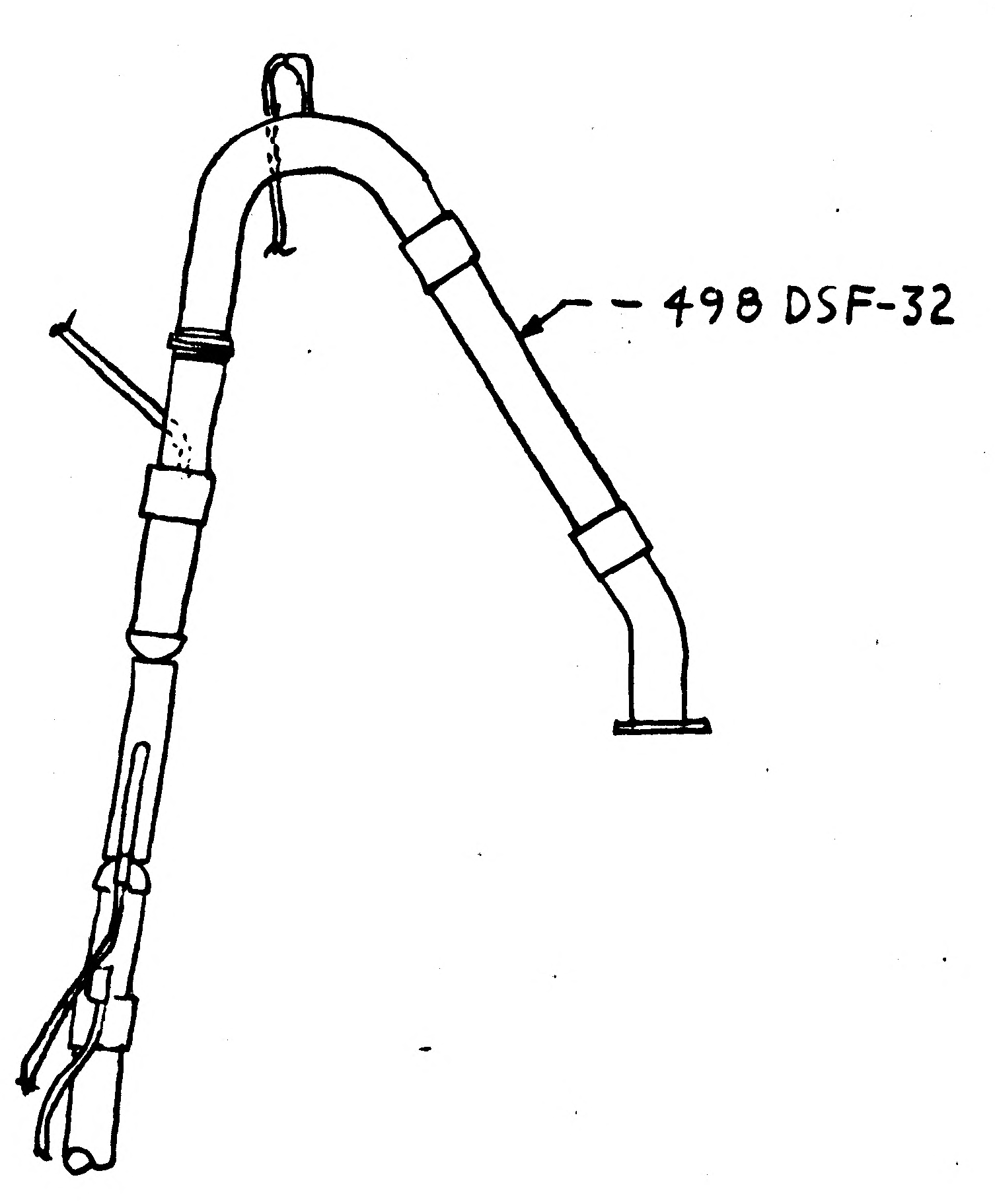
ENG 32.2 REV 3-65

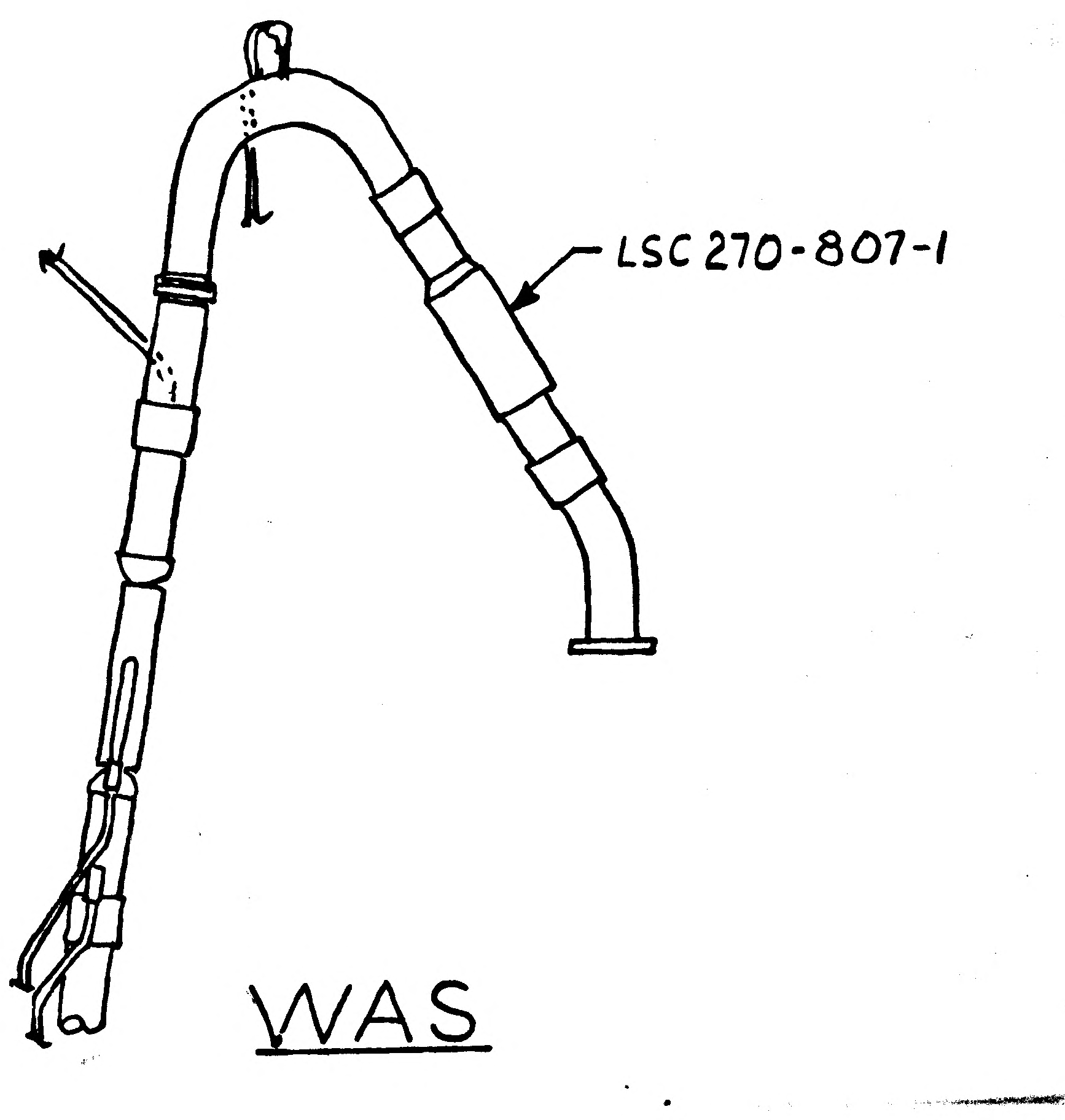
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28608 | EO NO. A3
CONTROL INFO NO. LDW280A-3425

FOR -1 INSTL IN BILL OF MATERIAL AND FIELD OF DRAWING
DELETE (1) LSC270-807-1 FILTER
(1) LSC270-808-1 FILTER
ADD (1) LDW280-17388-497 DSO-32 TUBE
(1) LDW280-17388-498 DSF-32 TUBE

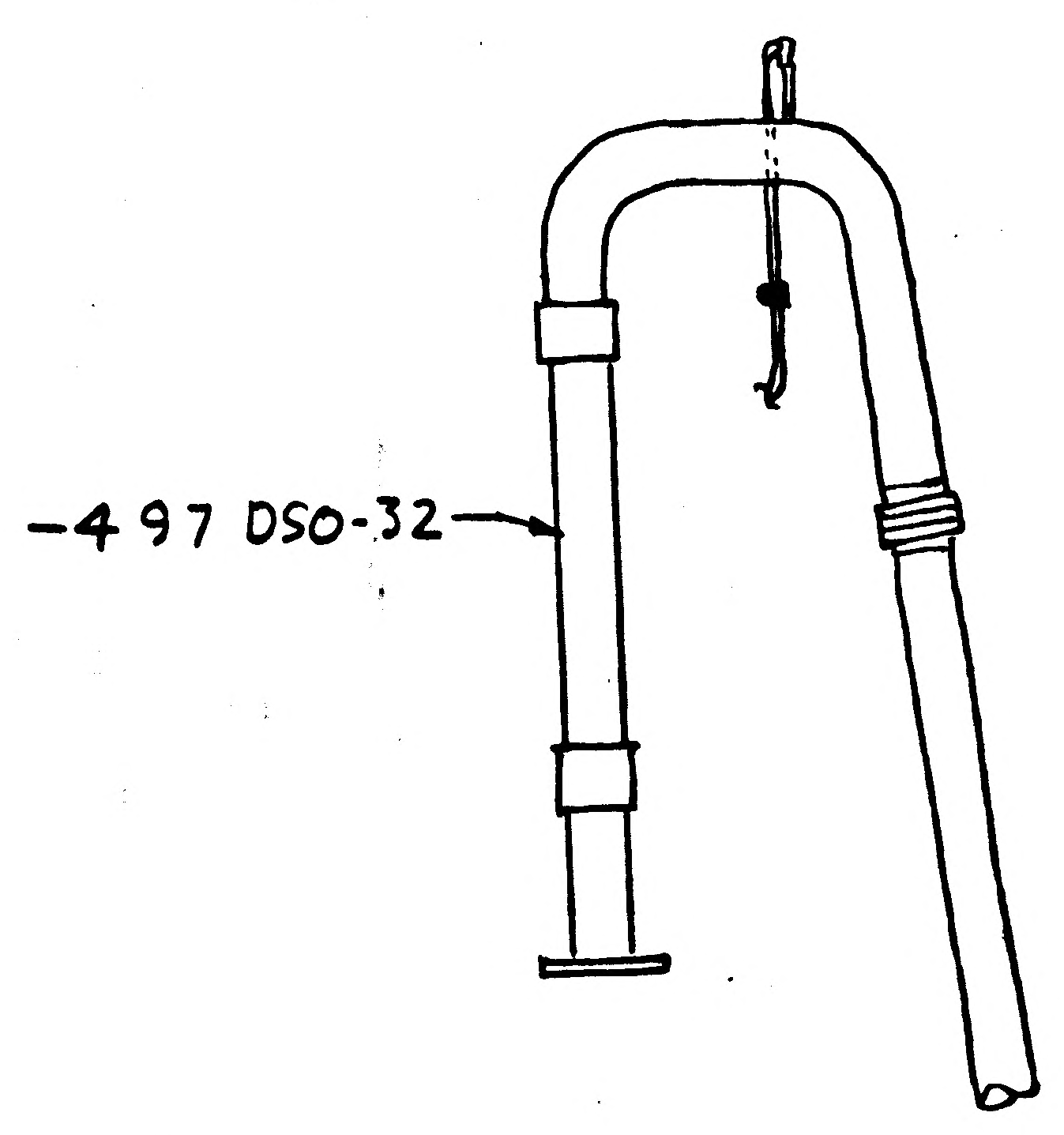
REVISE DETAILS AS SHOWN BELOW

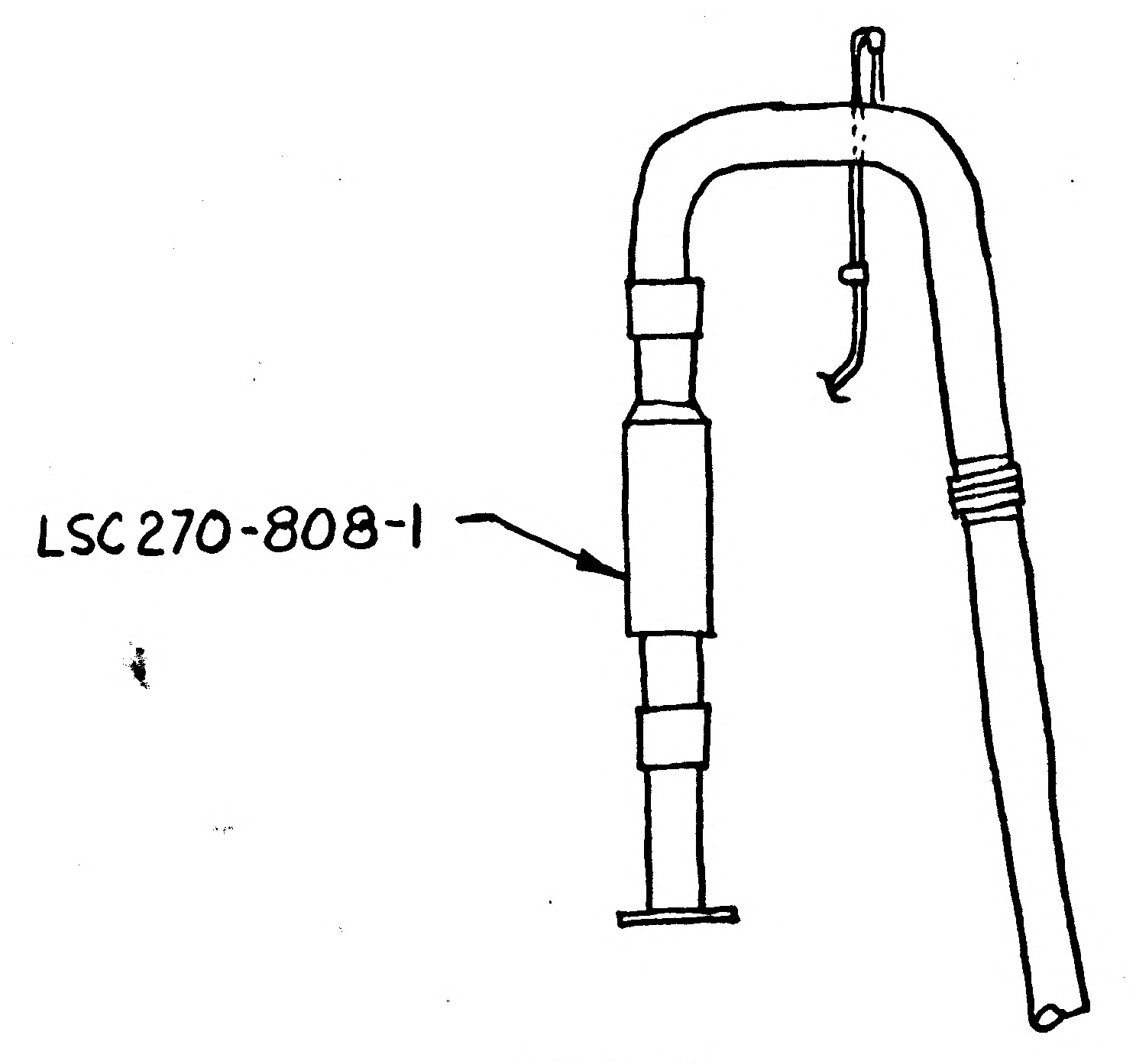




WAS

VIEW OF -Y27.00 WALL
ZONE B3





WAS

VIEW OF +Y27.00 WALL
ZONE B5

REVISE VIEW OF -Z27.00 WALL TO AGREE

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☒ CL I ENGRG CHG ☐

REASON FOR EO: FUEL & OXIDIZER FILTERS NO LONGER REQUIRED ON LTA-8

DESCRIPTION OF EO: ON -1 INSTL IN F/D & B/M DELETED LSC270-807-1 & LSC270-808-1 ADDED LDW280-17388-497 DSO-32 & LDW280-17388-498 DSF-32

GAEC EO RELEASE: VE 11/22

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	JW	—	—	—			RMC		
DATE	11/15/66				11/14/66		11-17-66	11-21-66	
3	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY: C
DRAWING TITLE: LINES INSTL. PROPULSION & PRESSURIZATION SYSTEM D/S
DRAWING NO.: LDW280-28608
EO NO.: A3

ISSUED BY HUGH RYAN X7033 SECTION VDI (EQUIP LINES) GROUP NO. 332 PL 35

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28608 | EO NO. A4
CONTROL INFO NO. LDW280A-3696

ON -1 INSTL IN B/M & F/D

DELETE (1) LDW280-17388-265 DSH-8 TUBE
(1) LDW280-17388-267 DSH-8 TUBE
(1) LDW280-17388-269 DSH-6 TUBE
(1) LDW280-17388-273 DSH-4 TUBE
(1) LSC 360-605-409 TRANSDUCER
(3) LSC 360-605-407
(2) LSC 269-218-8 UNION
(1) LSC 269-224-4 UNION

DESCRIPTION OF EO
ON -1 INSTL IN B/M & F/D DELETED (1) LDW280-17388-265 DSH-8 TUBE, (1) LDW280-17388-267 DSH-8 TUBE, (1) LDW280-17388-269 DSH-6 TUBE, (1) LDW280-17388-273 DSH-4 TUBE, (1) LSC 360-605-409 TRANSDUCER, (3) LSC 360-605-407, (2) LSC 269-218-8 UNION, (1) LSC 269-224-4 UNION

5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☒	CL I ENGRG CHG	☐	LAV-255-421

REASON FOR EO
HELIUM TANK NOT TO BE INSTALLED ON LTA-8

DESCRIPTION OF EO
SEE ABOVE

GAEC EO RELEASE
KE 12/1

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY		—	—	—			RMC	
DATE	11/21				11/23/66		11-29-66	11-29-66
2								

PRIORITY C
DRAWING TITLE LINES INSTL PROPULSION & PRESSURIZATION SYSTEM D/S
DRAWING NO. LDW280-28608
EO NO. A4

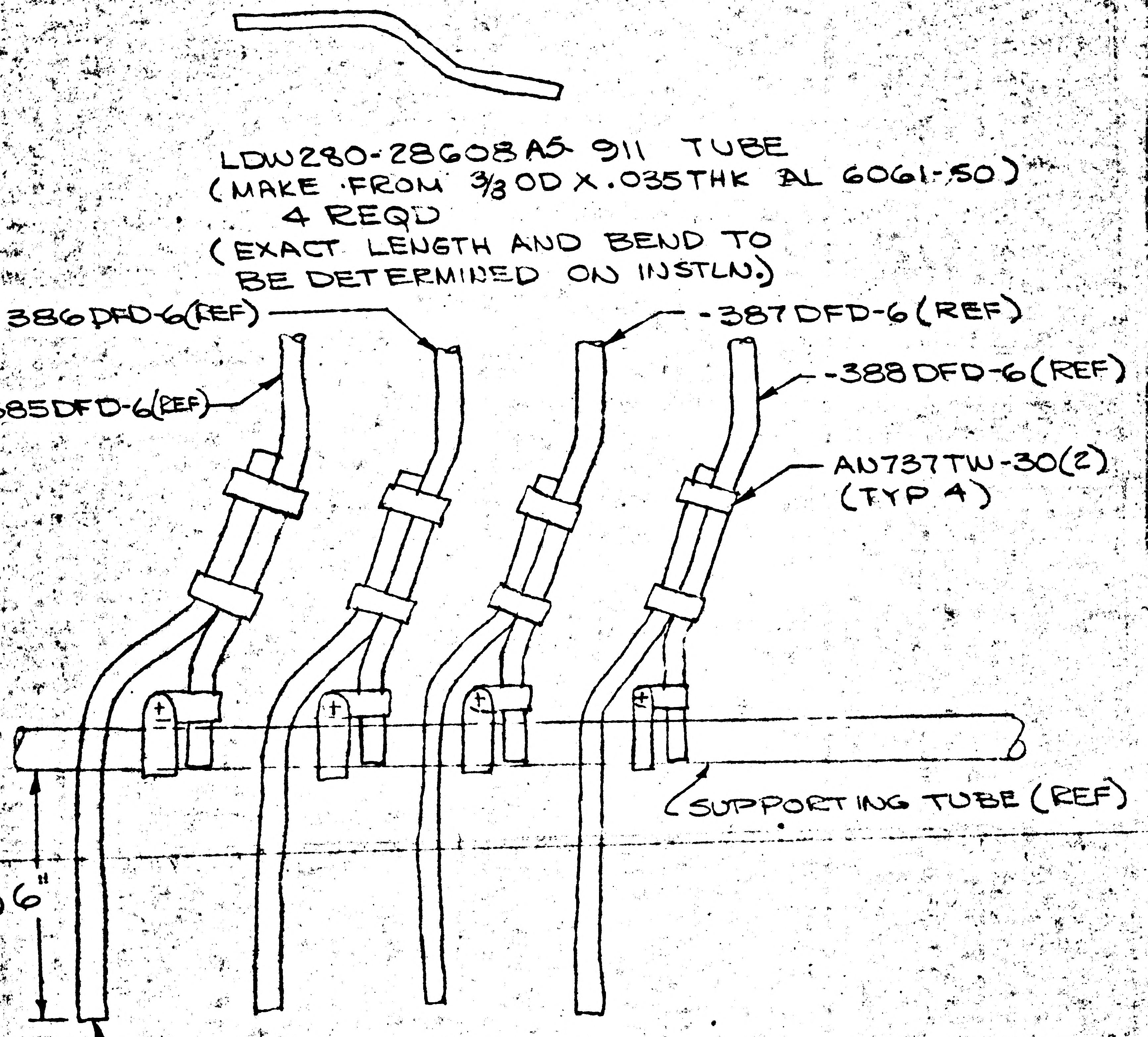
ISSUED BY HUGH RYAN X7033 SECTION VDI (EQUIP LINES) GROUP NO. 332 PL 35

01 NAS 9-1100

B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LDW280-28608 EO NO. A-5
CONTROL INFO NO. LM-5-15205



LDW280-28608A5-911 TUBE
(MAKE FROM 3/8 OD X .035 THK AL 6061-50)
4 REQD
(EXACT LENGTH AND BEND TO BE DETERMINED ON INSTLN.)
-386 DFD-6 (REF)
-385 DFD-6 (REF)
-387 DFD-6 (REF)
-388 DFD-6 (REF)
AN737TW-30(2)
(TYP 4)
SUPPORTING TUBE (REF)
(TYP4) 6"
LDW280-28608A5-911
(TYP 4)

LDW280-28608A5-901 ASSY

RELEASED BY LIAISON

THIS IS AN ORIGINAL E.O.

DETAIL SPEC REQ — CL II ENGRG CHG — CL I ENGRG CHG

REASON FOR EO: TO AVOID INTERFERENCE WITH SHIELD & MAINTAIN THERM RESPONSE

DESCRIPTION OF EO: ADDED EO TO RECORD BLOCK

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ☐ RECORD EO *

DISPOSITION OF PARTS: REWORK ☐ SCRAP ☐

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JaP			~	—	EWS		NEO
DATE	7/6/67			~	—	5/27/67	5/26	5-27-67
	VDI							

PRIORITY: C5

DRAWING TITLE: LINES. INSTALLATION - PROP - PRESS. SYSTEM - DESCENT STAGE

DRAWING NO. LDW280-28608 EO NO. A5

BY LIAISON (H BABCOCK) X6216 SECTION VDI GROUP NO. 332 PL 35

01 NAS 9-1100

B

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28608
EO NO. A6
CONTROL INFO NO. LM-5-15209

CANCEL EO A5

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐		5

REASON FOR EO: RECORD E.O. DOES NOT APPLY TO DWG.

DESCRIPTION OF EO: CANCELLED E.O. A5

GAEC EO RELEASE: C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY				~		CH	DAME
✓		NOT REQD.		DATE	7/6/67			~	5-27-67	5-27-67	5-31-67	5-27-67
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: LINES INSTL. PROP. PRESS. SYS. D/S.
DRAWING NO.: LDW280-28608
EO NO.: A6

ISSUED BY LIAISON J. JARVIS
SECTION V.D.I.
GROUP NO. 280 PL 25

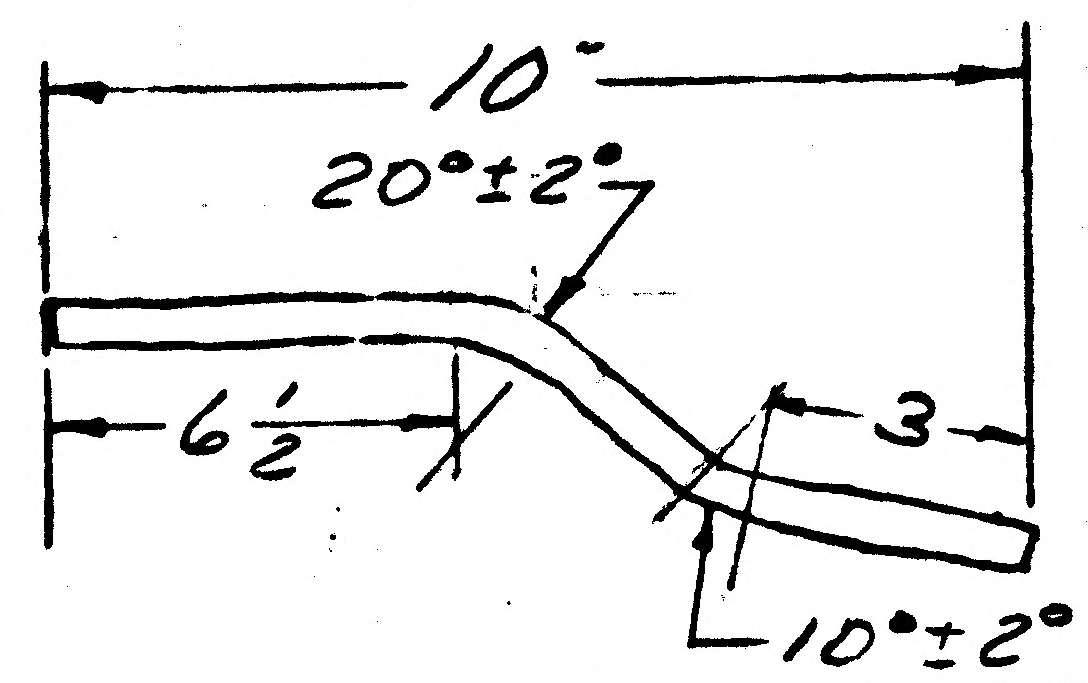
01

NAS 9-1100

B
ENG 32.2 REV 3-65

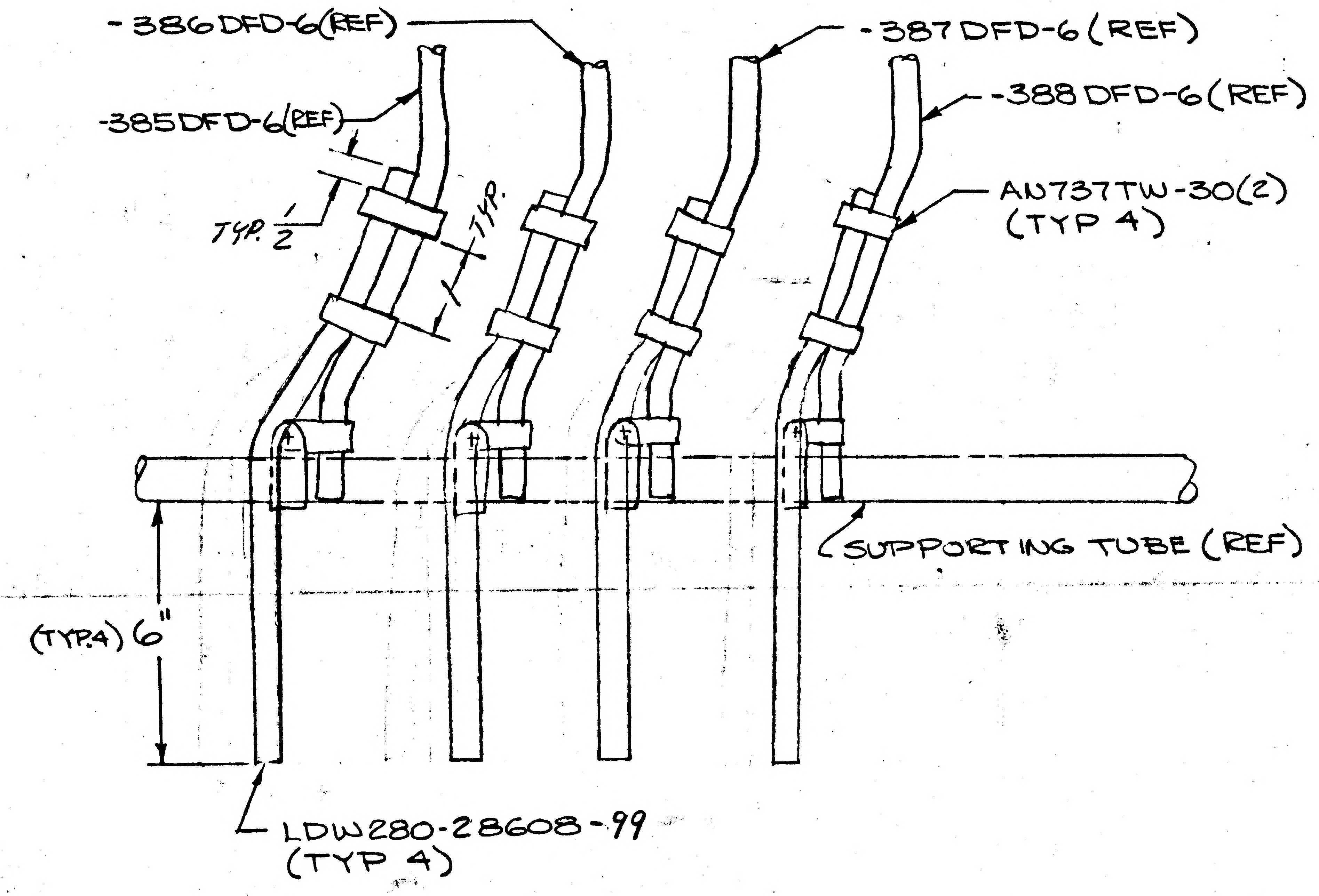
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-28608		EO NO. A7
CONTROL INFO NO. LM-5-15210		



10"
20°±2°
6 1/2
3
10°±2°

LDW280-28608-99 TUBE
(MAKE FROM 3/8 OD X .028 THK AL 6061-T6,
4 REQD)



-386DFD-6(REF)
-385DFD-6(REF)
-387DFD-6(REF)
-388DFD-6(REF)
AN737TW-30(2)
(TYP 4)
TYP. 1/2
TYP. 1
SUPPORTING TUBE (REF)
(TYP.4) 6"
LDW280-28608-99
(TYP 4)

LDW280-28603-1 INSTL.

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG										
REASON FOR EO: TO AVOID INTERFERENCE WITH SHIELD & MAINTAIN THERMAL RESPONSE					DESCRIPTION OF EO: ON -1 INSTL. ADDED -99 (4) & AN737TW-30(8)								GAEC EO RELEASE 5 C: JA	
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY						
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	7/6/67			5-27-67	5-27-67	5-31-67 DAM	5-27-67
LM		LTA-8(18)		✓		NOT REQD.		/	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
				PRIORITY: C.	DRAWING TITLE: LINES INSTALLATION - PROP - PRESS SYSTEM - DESCENT STAGE					DRAWING NO.: LDW280-28608			EO NO.: A7	

ISSUED BY LIAISON (H. BABCOCK) X6216 SECTION VDI GROUP NO. 332 PL 35

01
NAS 9-1100

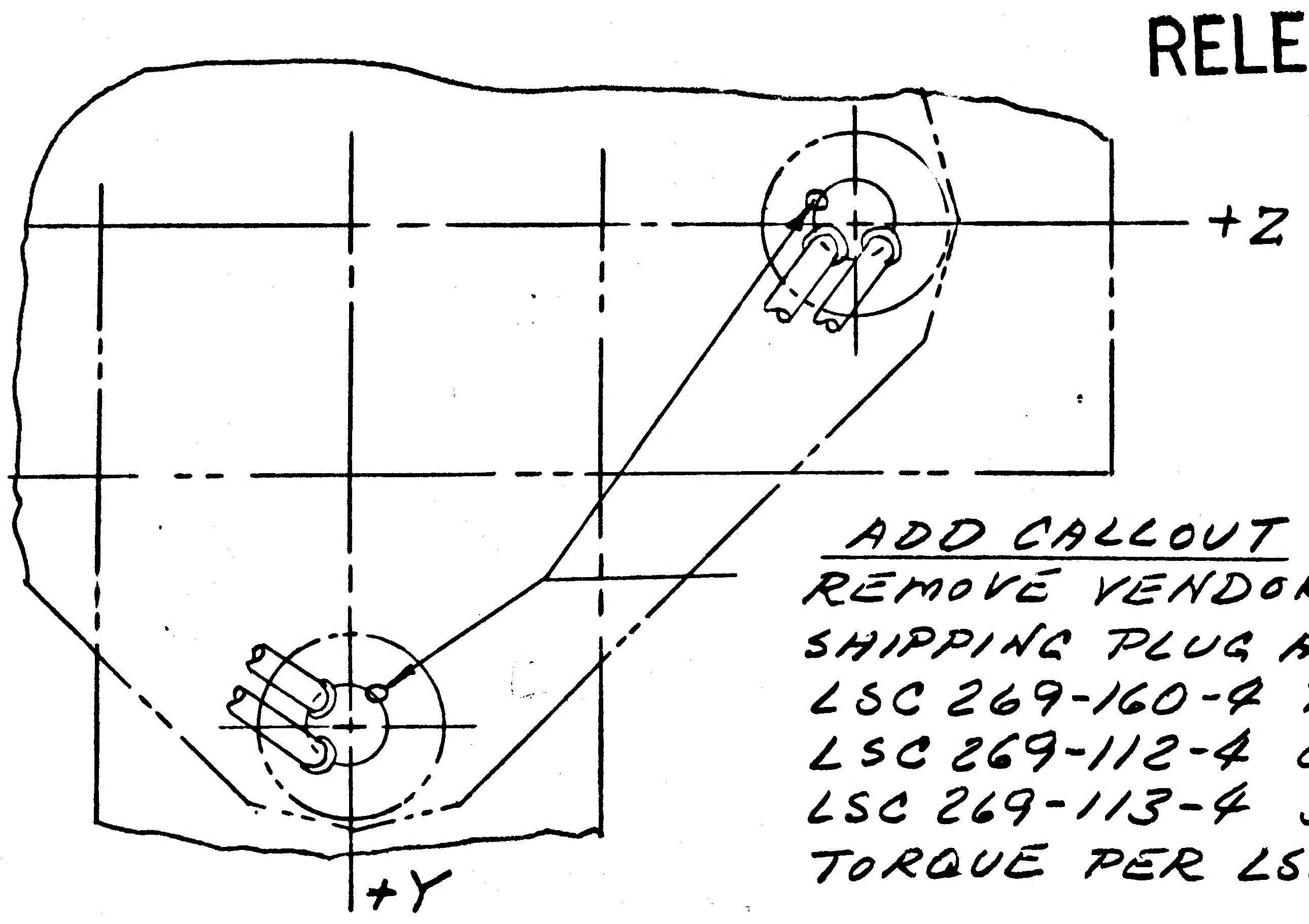
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28608 | EO NO. A8
CONTROL INFO NO. LM-5-15739

IN B/M & FLD.: REVISE INSTRUMENTATION PRESSURE PORT IN +Y & +Z TANK LOWER COVER AS FOLLOWS:

RELEASED BY LIAISON



ADD CALLOUT
REMOVE VENDOR SUPPLIED SEAL & SHIPPING PLUG AND ADD
LSC 269-160-4 PLUG (2)
LSC 269-112-4 COUPLING NUT (2)
LSC 269-113-4 SEAL (2)
TORQUE PER LSP14-17402

DESCRIPTION OF E.O. CONTINUED

FIELD OF EO

REMOVED VENDOR SUPPLIED COVER LEVEL SENSOR SHIPPING PORT, REMOVE 6843333-145 "O" RING, REPLACED "O" RING WITH MS29513-145 4 PLACES AND REINSTALLED ON TANK.

REMOVED 6847194 SNAP TITE Q.D AND 6843332-12 SEAL & REPLACED WITH MS 29512-12 SEAL & AN814-12D PLUG 4 PLACES.

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☑ | CL I ENGRG CHG ☐

REASON FOR EO: ENGRG. ERROR - TEMPORARY SHIPPING PLUG SHOULD HAVE BEEN REPLACED.

DESCRIPTION OF EO: IN FLD. & B/M
REMOVED VENDOR SUPPLIED SHIPPING PLUG & SEAL FROM INSTR. PRESS. PORT IN +Y & +Z TANK COVER & REPLACED WITH LSC 269-160-4 (2) LSC 269-112-4 (2) & LSC 269-113-4 (2) TORQUE PER LSP 14-17402 - CONTINUED

GAEC EO RELEASE: VK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG ☑ | RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☑ | SCRAP ☐

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	Jap			—	DV	CH		
DATE	8/2/67			—	7/26	7-26-67	8/2/67	7-26-67

PRIORITY: C
DRAWING TITLE: LINES INSTL. D/S-PROP. & PRESS SYSTEM
DRAWING NO. LDW280-28608 | EO NO. A8

5

ED BY J. JARVIS SECTION PROPULSION GROUP NO. 345 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28608 *
EO NO. A9
CONTROL INFO NO. LM-5-15761

THIS IS A REVISION OF E.O. A8.

MS 29513-145(4) S/B MS 29513-230 (4).

ADD NOTE✱: TORQUE TO 70-75 IN# 8 BOLTS HOLDING COVER-LEVEL SENSOR SHIPPING PORT.

RELEASED BY LIAISO

✱ USE NEXT AVAILABLE NO.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

5

REASON FOR EO: ENGRG. ERROR-TEMPORARY SHIPPING PLUG SHOULD HAVE BEEN REPLACED.

DESCRIPTION OF EO: REF. E.O. A8
MS 29513-230(4) WAS MS 29513-145(4)
ADDED TORQUE NOTE

GAEC EO RELEASE: ✓ C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ✓ SCRAP ☐

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JJ			—	DV	DV	JLB	JJ
DATE	8/3/67			—	7/28	7/28	8/3/67	7/28/67

PRIORITY: C
DRAWING TITLE: LINES INSTL. D/S-PROP. & PRESS SYSTEM
DRAWING NO. LDW280-28608
EO NO. A9

ISSUED BY LIAISON J. JARVIS SECTION PROPULSION GROUP NO. 345 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28608 | EO NO. B1
CONTROL INFO NO. LDW280B3920

DELETE -3 INSTL & DELETE NOTE 18

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1021-33	PKG 8 (5)

REASON FOR EO: INSTL CAN'T BE ACCOMPLISHED DUE TO MANAGEMENT DECISION. "VEHICLE NOT TO BE DE-MATED".

DESCRIPTION OF EO: DELETED -3 INSTL & NOTE 18

GAEC EO RELEASE: JK 6/?/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 126	LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓ -3

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CUST~~
DATE	6/14/68			6/13/68			6/14/68	6-17-68
	VD1							

PRIORITY: C

DRAWING TITLE: LINES INSTL PROP & PRESSURIZATION SYSTEM D/S

DRAWING NO. LDW280-28608

EO NO. B1

ISSUED BY 6/20/68 P. J. MARTELLO X1153

SECTION VD1 (EQUIP LINES)

GROUP NO. 332

PL 25

01 NAS 9-1100

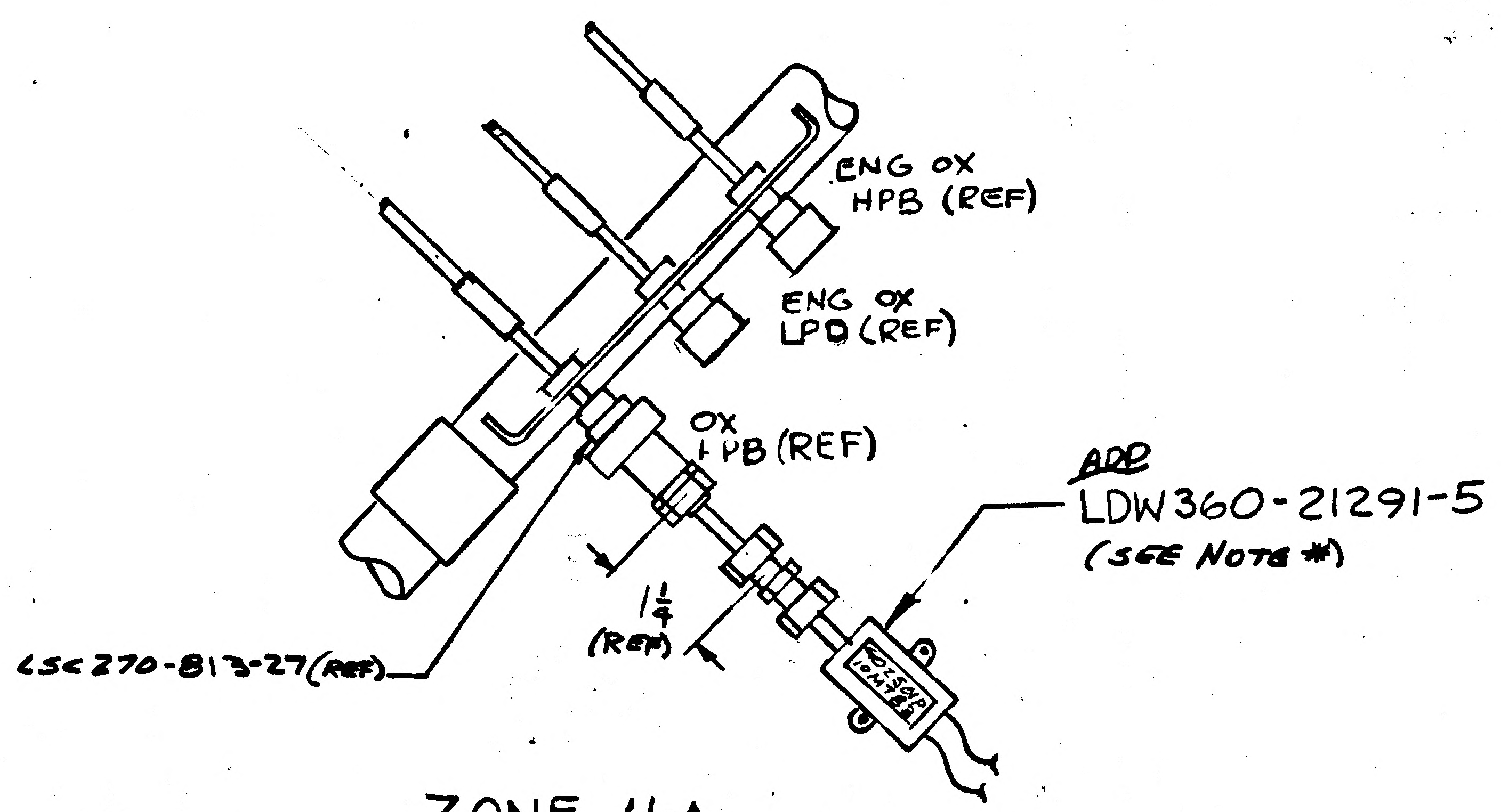
ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

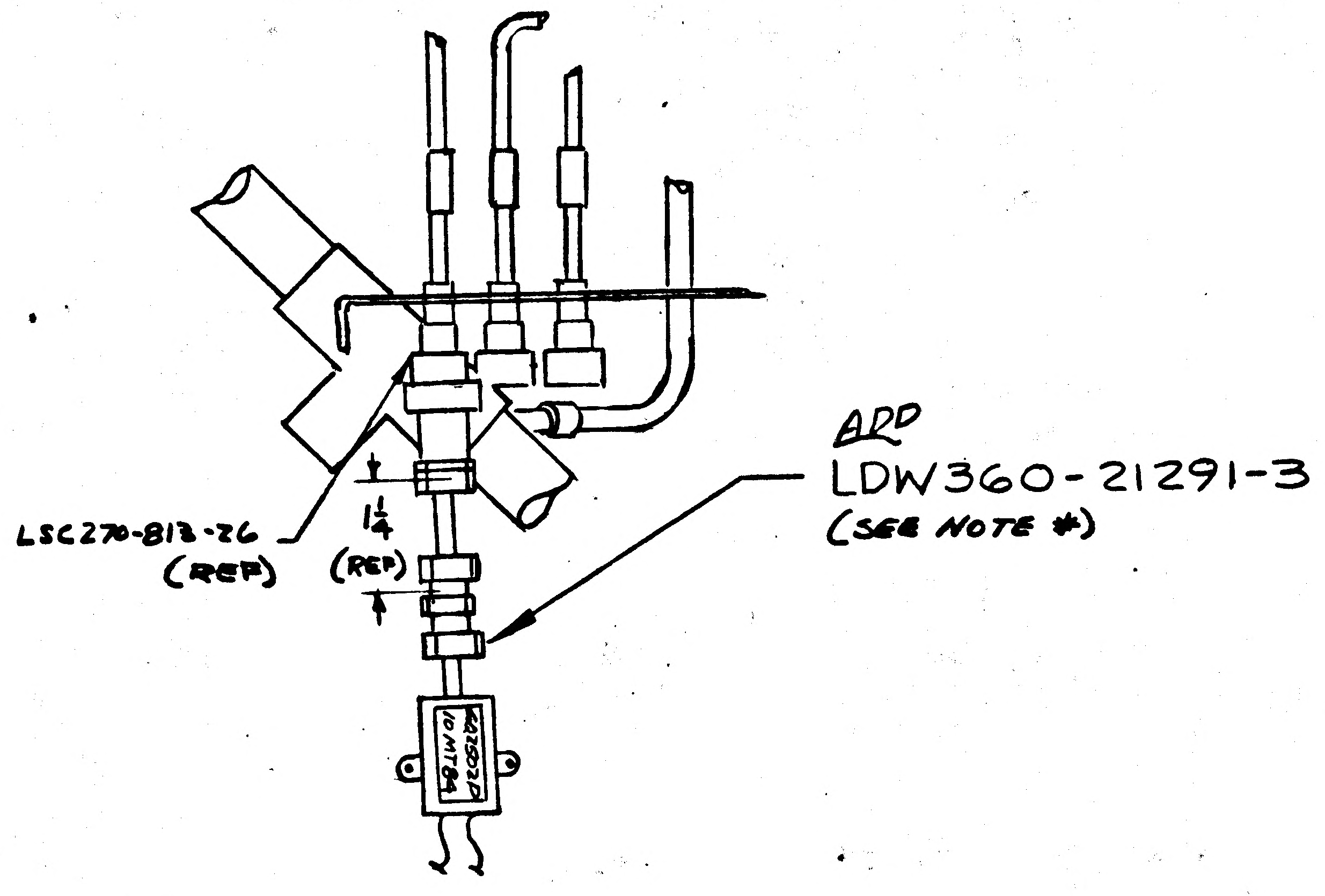
DWG. NO. LDW280-28608 | EO NO. B2
CONTROL INFO NO. LM52 - 2242

IN B/M & F/D, SHT4 FOR -1 & -3 INST'LS - ADD LDW 360-21291-3 & -5 TRANSDUCER INST'LS.

IN NOTES ADD - NOTE *. WHEN INSTALLING LDW360-21291-3 & -5 TRANSDUCER INST'L. REMOVE DUST CAPS FROM BOTH FLIGHT & GROUND HALF QUICK DISCONNECT AND STOW CAPS SECURELY TO LDW 360-21291-3 & -5 USING MS20995C32 STAINLESS WIRE PER MS 33540.


ENG OX HPB (REF)
ENG OX LPB (REF)
OX LPB (REF)
ADD
LDW360-21291-5
(SEE NOTE *)
1¼ (REF)
LSC270-813-27 (REF)

ZONE 4-A
QUAD IV


ADD
LDW360-21291-3
(SEE NOTE *)
1¼ (REF)
LSC270-813-26 (REF)

ZONE 6-A
QUAD III

* USE NEXT AVAIL NOTE NO.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 20318	(5)

REASON FOR EO: REQ'D FOR INST'L OF PRESSURE TRANSDUCERS

DESCRIPTION OF EO: FOR -1 & -3 INSTLS - ADDED LDW360-21291-3 & -5 TRANSDUCER INSTLS

GAEC EO RELEASE: 1C H.F. 7/2/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18)	

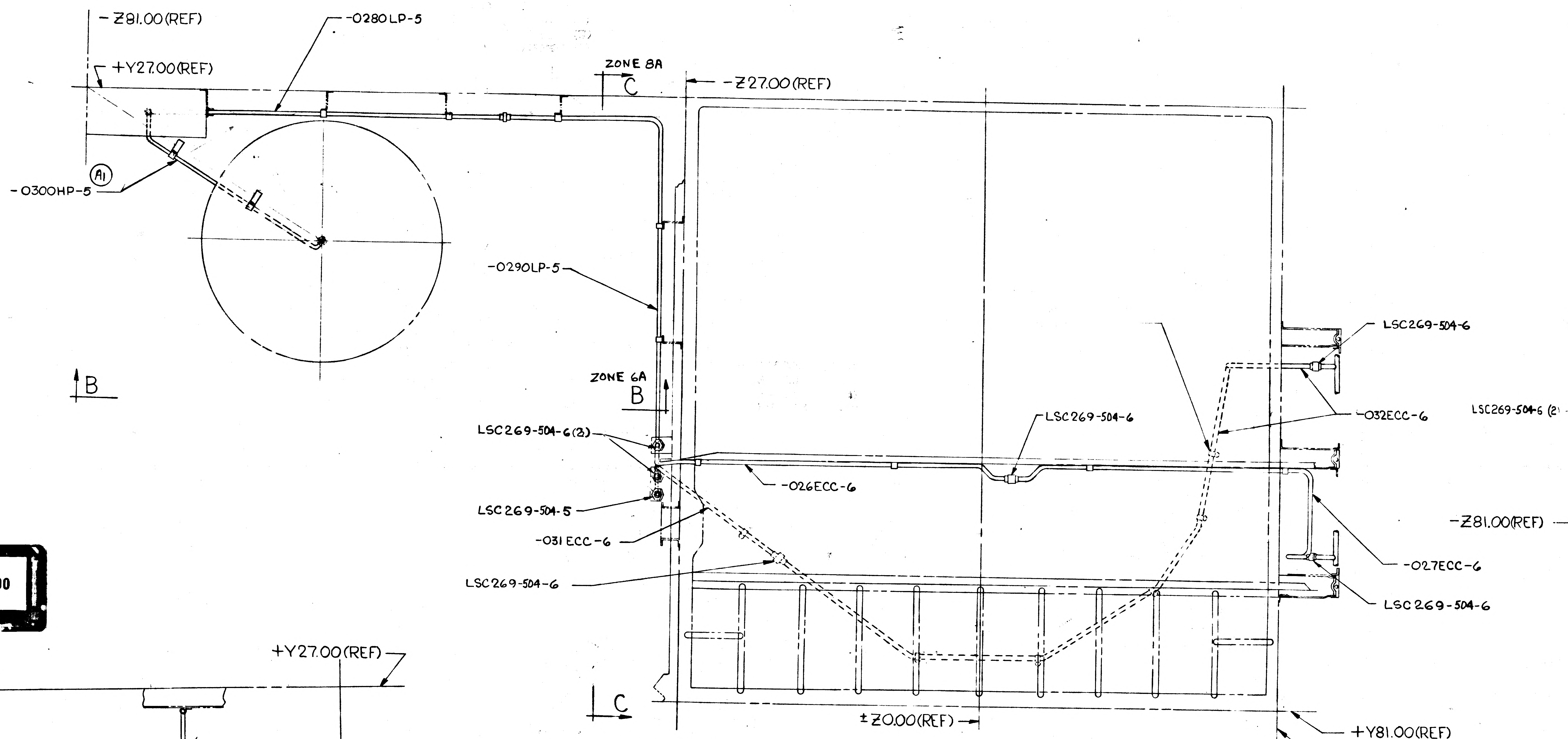
DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

	MSC C&G ENGR	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	MSC DES INTEG	PROJ ENGRG
APPROVED BY					RW		
DATE	6/20/68	6/20/68			6-21-68	6-20-68	6-21-68

PRIORITY: C
DRAWING TITLE: LINE INSTL- PPOPULSION & PRESSURIZATION SYSTEM DESCENT STAGE
DRAWING NO.: LDW280-28608
EO NO.: B2

ISSUED BY N. GRAUL x4606 6-20-68 SECTION MSC PROJ ENG'G GROUP NO. 827 PL 52

01
NAS 9-1100



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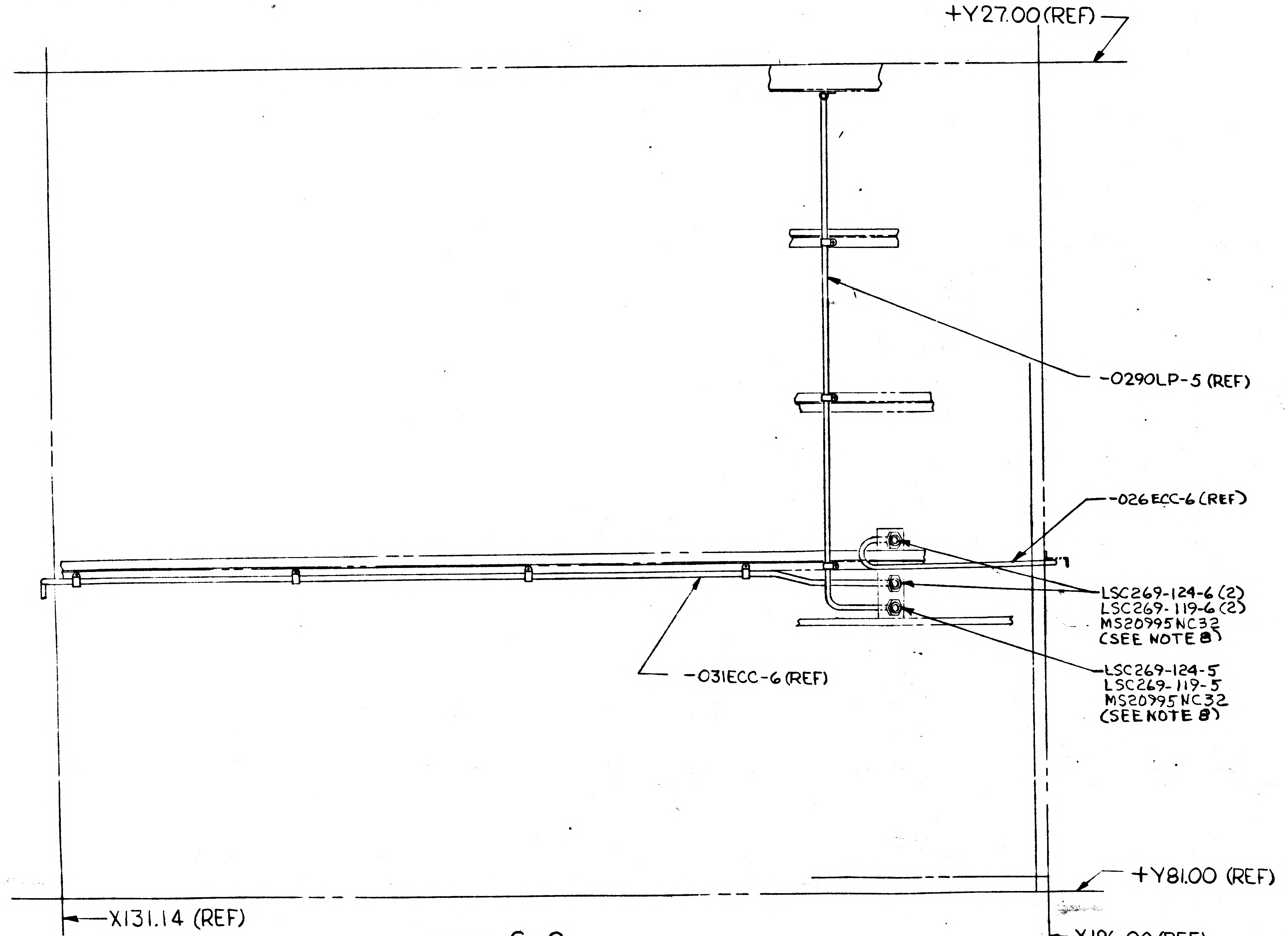
-0280LP-5
+Y27.00 (REF)
ZONE 8A
C
-Z27.00 (REF)
A1
-0300HP-5
-0290LP-5
LSC269-504-6
-032ECC-6
LSC269-504-6 (2)
ZONE 6A
B
LSC269-504-6
LSC269-504-6 (2)
-026ECC-6
LSC269-504-5
-031ECC-6
-Z81.00 (REF)
-027ECC-6
LSC269-504-6
LSC269-504-6
C
±Z0.00 (REF)
+Y81.00 (REF)
+Z27.00 (REF)

PLAN VIEW
1/4 SCALE
LDW280-28609-1 INSTL
-3 INSTL

01/03 NAS 9-1100



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LSC269-119-6 (2)
MS20995NC32
(SEE NOTE 8)
LSC269-124-5
LSC269-119-5
MS20995NC32
(SEE NOTE 8)
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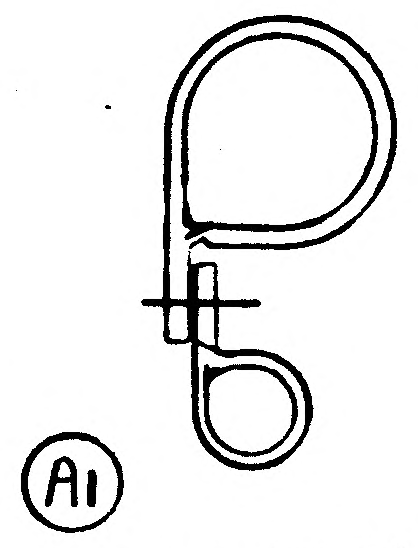
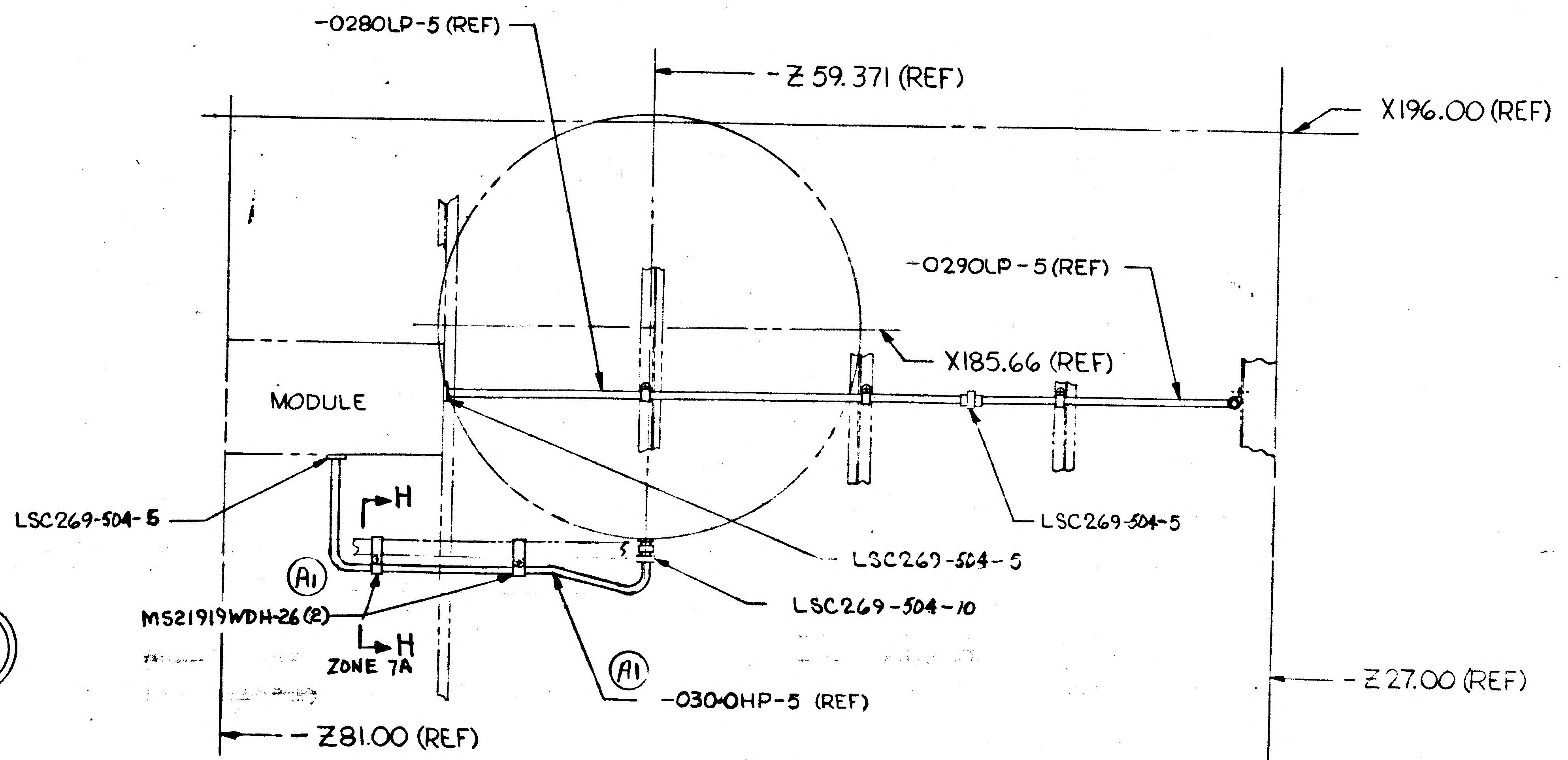
+Y81.00 (REF)
X131.14 (REF)
X196.00 (REF)

VIEW C-C
ZONE 7C



SECT H-H
SCALE: NONE
ZONE 6A



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X196.00 (REF)
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MODULE
LSC269-504-5
LSC269-504-5
H
A1
MS21919WDH-26 (2)
H
ZONE 7A
LSC269-504-5
LSC269-504-10
A1
-030-0HP-5 (REF)
-Z27.00 (REF)
Z81.00 (REF)

VIEW B-B
ZONE 7C

CODE IDENT NO 26512

LDW280-28609

SHEET 4

2/3

PLAN VIEW
1/4 SCALE

VIEW A-A
ZONE 4C

VIEW D-D
ZONE 2A

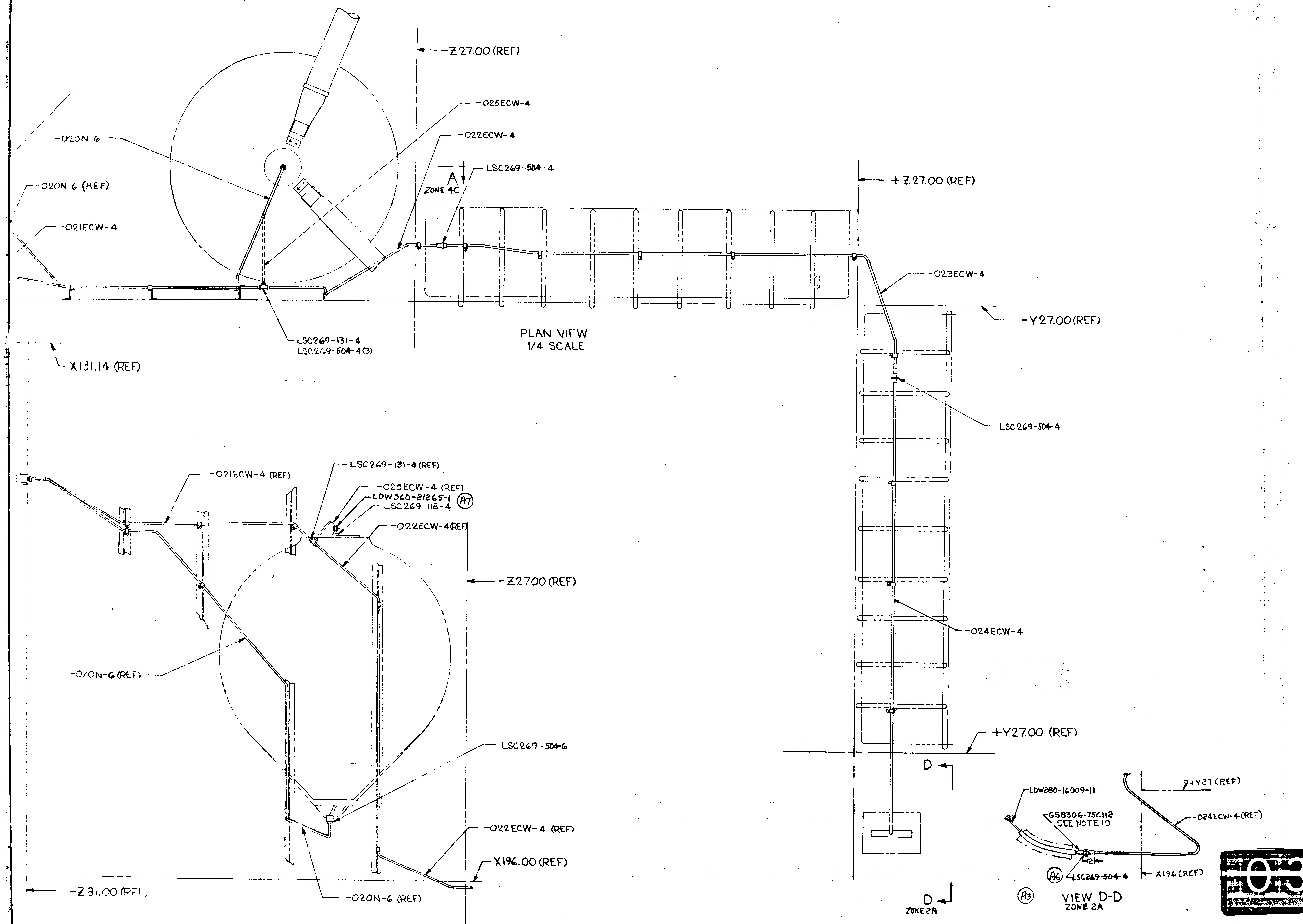
-Z27.00 (REF)
-025ECW-4
-022ECW-4
-020N-6
LSC269-504-4
A
ZONE 4C
+Z27.00 (REF)
LSC269-504-6
-020N-6 (REF)
-021ECW-4
LSC269-504-6 (2)
-032ECC-6
-023ECW-4
-Z81.00(REF)
-Y27.00(REF)
LSC269-131-4
LSC269-504-4 (3)
-027ECC-6
LSC269-504-6
X131.14 (REF)
LSC269-504-4
+Y81.00(REF)
+Z 27.00(REF)
-021ECW-4 (REF)
LSC269-131-4 (REF)
-025ECW-4 (REF)
LDW360-21265-1
A7
LSC269-118-4
-022ECW-4(REF)
-Z27.00 (REF)
-024ECW-4
X196.00 (REF)
-020N-6 (REF)
-5 (REF)
66 (REF)
+Y27.00 (REF)
LSC269-504-6
D
LSC269-504-5
LDW280-16009-11
+Y27 (REF)
GS830G-75C112
SEE NOTE 10
-024ECW-4 (RE
-Z27.00 (REF)
-022ECW-4 (REF)
X196.00 (REF)
12
A6
LSC269-504-4
X196 (REF)
-Z81.00 (REF)
-020N-6 (REF)
D
ZONE 2A
A3
5
4
3
2
1

02703 NAS 9-1100

CODE IDENT NO. 26512
LDW280-28609 SHEET 4

CODE IDENT NO. 26512
LDW280-28609 SHEET 4

LEM
MODEL OR END ITEM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-025ECW-4
-022ECW-4
-020N-6
-020N-6 (REF)
-021ECW-4
A
ZONE 4C
LSC269-504-4
+Z27.00 (REF)
-023ECW-4
-Y27.00 (REF)
LSC269-131-4
LSC269-504-4 (3)
X131.14 (REF)
LSC269-504-4
-024ECW-4
+Y27.00 (REF)
D
D
ZONE 2A
-021ECW-4 (REF)
LSC269-131-4 (REF)
-025ECW-4 (REF)
LDW360-21265-1
A7
LSC269-118-4
-022ECW-4 (REF)
-Z27.00 (REF)
-020N-6 (REF)
LSC269-504-6
-022ECW-4 (REF)
X196.00 (REF)
-Z31.00 (REF)
-020N-6 (REF)
LDW280-16009-11
GS830G-75C112
SEE NOTE 10
+Y27 (REF)
-024ECW-4 (REF)
.12
A6
LSC269-504-4
X196 (REF)
A3

PLAN VIEW
1/4 SCALE

VIEW A-A
ZONE 4C

VIEW D-D
ZONE 2A

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 97

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 99)= 24.75 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 6.187 SQ. FT.

PRINT TRIM LINE

LDW280-28609A

LDW280-28609A

03/03

NAS 9-1100

CODE IDENT NO. 26512
LDW280-28609
SHEET 4

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-28609	A
LEM MODEL OR END ITEM	SCALE 1/4		SHEET 4.00	

LDW280-28609 B

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM-111	LDW280-28508	LTA8(18)	1
PART NO. LDW280-28609-7		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28508	LTA8(18)	1 EA
PART NO. LDW280-28609-1 6-3		GAEC SCH NO. 501	

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	2.01	3.00	4.00	5.00	2.02	
REV	B	B	B	B	B	A	B	B	
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	U	GRUMMAN REL INFO B	
LAST DASH NO. USED	-7	PRIM NO. 320	JK(001) MP-16 B-6/14/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
~ ~ ~

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	✓
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS9-1100
LINE ITEM #5
DOCUMENTATION TYPE II

DRAWN BY	J. Farrell 16 AUG66		
LAYOUT BY			
CHECKED BY			
GR LEADER	J. Wolf 7/13		
VDI			
STRUCTURE	9/6/66	PROJ ENGR	R.M. Carbee (E) 9-6
STRUCTURE	9/6	REL GROUP	Bott. 9-16-66
WEIGHTS	7-13		

® GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

LINES INSTALLATION
ENVIRONMENTAL CONTROL SYSTEM
DESCENT STAGE

SIZE	CODE IDENT NO.		
B	26512	LDW280-28609	B
SCALE NONE		SHEET 1.00 OF 8	

ENG 27.1 12-65

"B" CDR 5-31-68 & 3-15-68

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
									SHEET 1 OF 7 WAS SHEET 1 OF 4, ADDED SHEETS 1.10 2.01 & 5, LAST SECT LTR USED 'H' WAS 'C' AND LAST DASH NO. USED -5 WAS -3		NOT	REQD			
A	1	4 2	7A 8C				✓	EO A1	ON-1 INSTL REMOVED LDW280-17389-007-0HP-5, ADDED LDW280-17389-030-0HP-5, MS21919WDH-26 (2), MS21042L08 (2) AND SECT H-H	LTA8(18)	✓		J. Bohun 3-18-68		
	2	2					✓	EO A2	(REF EO A1) LDW280-17389-030-0HP-5 WAS LDW280-17389-007-0HP-5 ON-3 WAS ON-1						
	3	4 3	2A				✓	EO A3	FOR-1 INSTL IN F/D & B/M ADDED (1) LDW280-16009-11 FLEX HOSE, AND (1) GS830G-75C112 SLEEVE. ADDED VIEW D-D & NOTE 10						
	4	5	13B	LFM#111			✓	LCD1021-5 OK	CREATED -5 INSTL					3/21/68	3-21-68
	5	3		LFM#111 LFM#117				LCD1021-5&22 OK	REMOVED NOTE 5, ADDED NOTES 8, 9, 10 & 11						
	6	4, 2	2A						(REF EO A3) IN FIELD & B/M ADDED LSC 269-504-4 (DWG ERROR CORRECTION) D.J. DDC ONLY. BH						
	7	4, 2.01	4B		✓			Ⓡ	ON-1 INSTL, IN FIELD & B/M ADDED LDW360-21265-1 D.J.		NOT	REQD			
									SHEET 1 OF 8 WAS 1 OF 7. ADDED SHEET 2.02 LAST SECT LTR USED "J" WAS "H" LAST DASH NUMBER -7 WAS -5						
B	1	5, 1.00 2.00, 2.01	13B	LFM#111		✓		E.O. B1 LCD1621-5	CANCELLED -5 INSTL	LTA8(18)		✓	J. Bohun 6-3-68		
	2	5, 1.00 2.00, 2.01	13B	LFM#111		✓		LCD1021-5 OK Ⓡ	CREATED -7 INSTL & ADDED NOTE 13 D.J. JDC		✓				

CHG APPROVED											
LTR	GROUP LDR	VDI		STRUCTURES	STRUCTURES	THERMO				PROJECT	RELEASE
A	3/19/68	3/20/68		3/21/68	3/21						
B	6/5/68	6/6/68		6/7/68		6-6-68					

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28609	B
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

A				SEE	NOTE	9		MS21042L08	E	NUT	STD PART						
A				SEE	NOTE	9		AN960D8L	E	WASHER	STD PART						
A				SEE	NOTE	9		GC500J	E	CLAMP	GRUMMAN STD						
A				SEE	NOTE	9		GB511J	E	BOLT	GRUMMAN STD						
A						1		GS830G-75C112	E	SLEEVE	GRUMMAN STD						
A					2			MS21919WDH-26	E	CLAMP	STD PART						
N						1		LDW280-16009-11	E	FLEX HOSE	SEE DWG						2A
N						1		LSC269-131-4	E	TEE	SEE NOTE 6						
A				7				GS830G-75C6	E	SLEEVE	GRUMMAN STD						
N				24		8		LSC269-504-4	E	SEAL	SEE NOTE 6						
					3			LSC269-504-5	E	SEAL	SEE NOTE 6						
				17		9		LSC269-504-6	E	SEAL	SEE NOTE 6						
					1			LSC269-504-10	E	SEAL	SEE NOTE 6						
								LDW280-17389									
					1			-030-0HP-5	E	TUBE	SEE DWG						8C
						1		-020N-6	E								5C
						1		-026ECC-6									13A 7B
						1		-027ECC-6									5B
						1		-032ECC-6									6B
						1		-031ECC-6									13A 7B
						1		-021ECW-4									5C
						1		-022ECW-4									4C
						1		-023ECW-4									2B
						1		-024ECW-4									2A
						1		-025ECW-4									4C
					1			-0280LP-5									8C
					1			-0290LP-5		TUBE	SEE DWG						7C
N								LDW280-17389									
								LDW280-28609-7	E	LINES INSTL	SEE NOTE 13						
								LDW280-28609-3	E	LINES INSTL.							
				1				LDW280-28609-1	E	LINES INSTL.							
				-7	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
QTY PER ASSEMBLY																	

CL = CLEANLINESS LEVEL

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW 280-28609	B
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

-7	-3	-1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		1	LDW360-21265-1	E		XDUCER INSTL	SEE DWG						
	1		LSC269-119-5			NUT	SEE NOTE 6						
		2	LSC267-117-6			NUT							
	1		LSC269-124-5			UNION							
		2	LSC269-124-6			UNION	SEE NOTE 6						
			LDW280-17389										
1			-141 ECC-6			TUBE	SEE DWG						
1			-140 ECC-4										
1			-139 ECC-4										
1			-138 ECC-4										
1			-137 ECC-4										
1			-136 ECC-6										
1			-135 ECC-6										
1			-134 ECC-6										
1			-133 ECC-6										
1			-132 ECC-6										
1			-131 ECC-6										
1			-130 ECC-6										
1			-129 ECC-6										
1			-128 ECC-6										
1			-127 ECC-4										
1			-126 ECC-4										
1			-125 ECC-4										
1			-124 ECC-4										
1			-123 ECC-4										
1			-122 ECC-4										
1			-121 ECC-4										
1			-120 ECC-4	E		TUBE	SEE DWG						
			LDW280-17389										

QTY PER ASSEMBLY

[illegible]

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28609	B

SCALE NONE SHEET 2.0

ENG 77.2 5-64

01

NAS 9-1100

-7	-3	-1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1			LDW330M10023-5			ORIFICE (SEE NOTE 12)	SEE DWG						
A/R			GT835K	E		TAPE LACING	GRUMMAN STD						
A/R			NAS43DD3			SPACER	STD PART						
A/R	A/R	A/R	MS20995NC32			LOCKWIRE	STD PART						
4			LSC269-173-1			TEE							
2			LSC269-131-4			TEE							
2			LSC269-131-6	E		TEE	SEE NOTE 6						

QTY PER ASSEMBLY

CLEANLINESS LEVEL

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28609	B

SCALE NONE SHEET 2.02

ENG 77.2 5-64

01

NAS 9-1100

NOTES:

1. TUBE NUMBERS ARE DASH NUMBERS OF LDW280-17389.
2. TUBE ASSEMBLIES & FITTINGS TO BE CLEANED TO LEVEL "N" OF LSP-14-0011 PRIOR TO INSTL OXYGEN SYSTEM TO BE MAINTAINED TO LEVEL "N" OTHER SYSTEMS TO LEVEL "E".
3. ALL GAMAH JOINT CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH LSP14-17402.
4. SUBSTITUTION OF NAS1132V OR AN525-8 FOR GB511J-08 BOLTS IS PERMISSABLE.
5. ~~SUBSTITUTION OF AN742D4, AN742D5 AND AN742D6 FOR GC500D4T, GC500-D5T AND GC500D6T CLAMPS IS PERMISSABLE.~~

6. SEE SPEC. CONTROL DRAWING BEFORE ORDERING.
7. ADD DUPONT PR240AC LUBRICANT ON ALL THREADED FITTINGS.
8- SAFETY WIRE PER MS33540
9- SELECTION AND INSTALLATION OF LINE CLAMPS AND ATTACHING HARDWARE IN ACCORDANCE WITH LPC280-21, EXCEPT AS NOTED
10- SLEEVE TO BE INSTALLED AFTER TORQUING OF NUT AND PRESSURE TESTING OF SYSTEM. LOCATE SLEEVE AS SHOWN AND SHRINK IN PLACE PER LSP-14-13319.
11- LSC269-118 SERIES GAMAH SEALS ARE REPLACEABLE AND INTERCHANGEABLE WITH LSC269-504 SERIES GAMAH SEALS.
12- LDW330M10023 ORIFICE SIZE TO BE DETERMINED ON INSTL.
13- -7 INSTL SHALL BE MADE FROM -1 INSTL BY ADDING THE FOLLOWING:-
    LINES LDW280-17389-120ECC-4 THRU-127ECC-4, -128ECC-6 THRU-136ECC-6, -137 ECC-4 THRU-140ECC-4 & -141ECC-6
    LSC269-131-6(2), LSC269-173-1 (4) LSC269-131-4(2) LSC269-504-6(17) LSC269-504-4(24)
    GS830G-75C6(7) GT835K(AS REQD) GC500J-D4T(8) GC500J-D6T (16)
    LDW330M10023-5 & NAS43DD3-64 (8).
    NAS43DD3 SPACER LENGTH TO BE DETERMINED ON INSTL IN 8 PLACES AS CALLED OUT IN F/D.

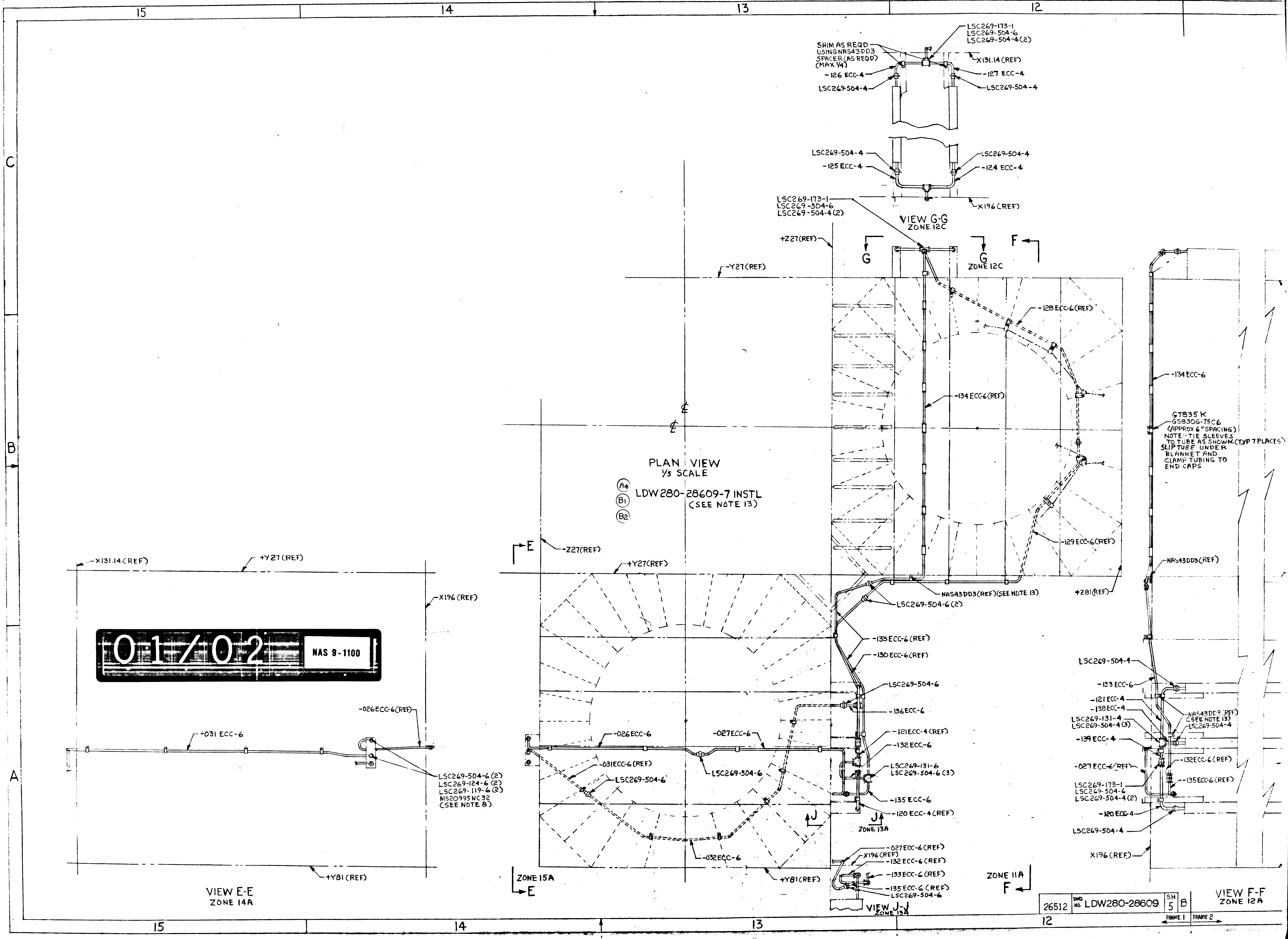
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-28609	B
SCALE		SHEET 3.00	

ENG 78.1 6-64

01

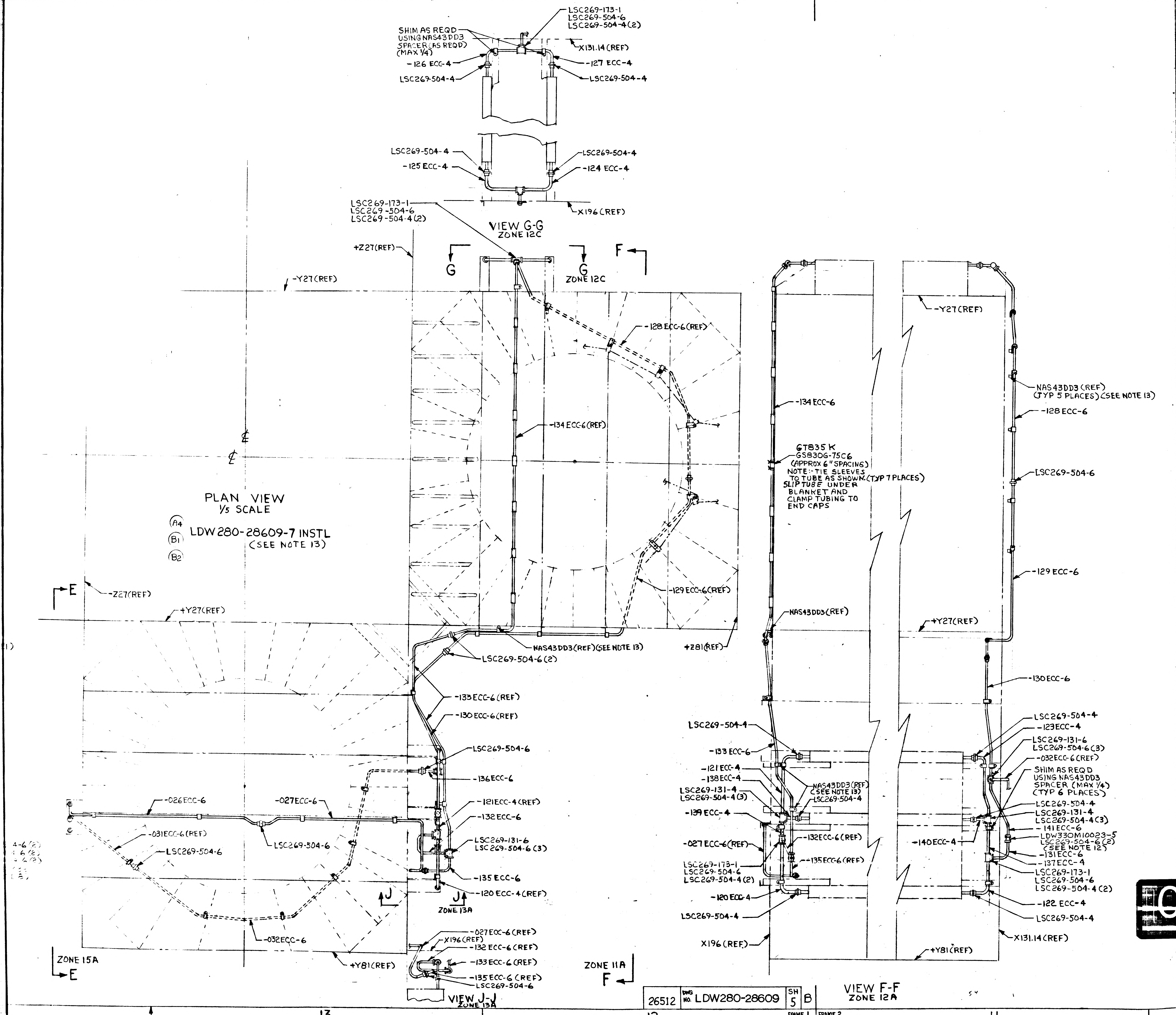
NAS 9-1100

LDW280-28609 SH 5


15
14
13
12
C
B
A
SHIM AS REQD
USING NAS43DD3
SPACER (AS REQD)
(MAX 1/4)
LSC269-173-1
LSC269-504-6
LSC269-504-4(2)
X131.14 (REF)
-126 ECC-4
-127 ECC-4
LSC269-504-4
LSC269-504-4
LSC269-504-4
LSC269-504-4
-125 ECC-4
-124 ECC-4
LSC269-173-1
LSC269-504-6
LSC269-504-4(2)
X196 (REF)
VIEW G-G
ZONE 12C
+Z27(REF)
G
G
ZONE 12C
F
-Y27(REF)
-128 ECC-6(REF)
-134 ECC6 (REF)
-134 ECC-6
GT835K
GS830G-75C6
(APPROX 6" SPACING)
NOTE:- TIE SLEEVES TO TUBE AS SHOWN. (TYP 7 PLACES)
SLIP TUBE UNDER BLANKET AND CLAMP TUBING TO END CAPS
℄
℄
PLAN VIEW
1/5 SCALE
A4
B1
B2
LDW280-28609-7 INSTL
(SEE NOTE 13)
-129 ECC-6(REF)
NAS43DD3(REF)
E
-Z27(REF)
+Y27(REF)
NAS43DD3(REF)(SEE NOTE 13)
+Z81(REF)
LSC269-504-6(2)
-X131.14 (REF)
+Y27 (REF)
-X196 (REF)
-133 ECC-6 (REF)
-130 ECC-6 (REF)
LSC269-504-6
-136 ECC-6
-121 ECC-4 (REF)
-132 ECC-6
LSC269-131-6
LSC269-504-6 (3)
-135 ECC-6
-120 ECC-4 (REF)
J
J
ZONE 13A
-026 ECC-6
-027 ECC-6
-031 ECC-6 (REF)
LSC269-504-6
LSC269-504-6
-032 ECC-6
-026 ECC-6(REF)
-031 ECC-6
LSC269-504-6 (2)
LSC269-124-6 (2)
LSC269-119-6 (2)
MS20995NC32
(SEE NOTE 8)
+Y81 (REF)
VIEW E-E
ZONE 14A
ZONE 15A
E
+Y81(REF)
-027 ECC-6 (REF)
X196 (REF)
-132 ECC-6 (REF)
-133 ECC-6 (REF)
-135 ECC-6 (REF)
LSC269-504-6
VIEW J-J
ZONE 13A
ZONE 11A
F
LSC269-504-4
-133 ECC-6
-121 ECC-4
-138 ECC-4
LSC269-131-4
LSC269-504-4 (3)
-139 ECC-4
NAS43DD3 (REF)
(SEE NOTE 13)
LSC269-504-4
-027 ECC-6 (REF)
-132 ECC-6 (REF)
-135 ECC-6 (REF)
LSC269-173-1
LSC269-504-6
LSC269-504-4 (2)
-120 ECC-4
LSC269-504-4
X196 (REF)
VIEW F-F
ZONE 12A
15
14
13
12
FRAME 1
FRAME 2

01/02 NAS 9-1100

26512	DWG NO. LDW280-28609	SH 5	B


13
12
11
SHIM AS REQD
USING NAS43DD3
SPACER (AS REQD)
(MAX 1/4)
LSC269-173-1
LSC269-504-6
LSC269-504-4(2)
X131.14 (REF)
-126 ECC-4
-127 ECC-4
LSC269-504-4
LSC269-504-4
LSC269-504-4
LSC269-504-4
-125 ECC-4
-124 ECC-4
X196 (REF)
LSC269-173-1
LSC269-504-6
LSC269-504-4(2)
VIEW G-G
ZONE 12C
+Z27(REF)
G
G
ZONE 12C
F
-Y27(REF)
-128 ECC-6 (REF)
-134 ECC-6 (REF)
PLAN VIEW
1/5 SCALE
A4
B1
B2
LDW280-28609-7 INSTL
(SEE NOTE 13)
E
-Z27(REF)
+Y27(REF)
-129 ECC-6(REF)
NAS43DD3(REF)(SEE NOTE 13)
+Z81(REF)
LSC269-504-6(2)
-133 ECC-6 (REF)
-130 ECC-6(REF)
LSC269-504-6
-136ECC-6
-026ECC-6
-027ECC-6
-121ECC-4 (REF)
-132 ECC-6
-031ECC-6(REF)
LSC269-504-6
LSC269-504-6
LSC269-131-6
LSC269-504-6 (3)
-135 ECC-6
-120 ECC-4 (REF)
J
J
ZONE 13A
-032ECC-6
+Y81(REF)
ZONE 15A
E
-027 ECC-6 (REF)
X196 (REF)
-132 ECC-6 (REF)
-133 ECC-6 (REF)
-135 ECC-6 (REF)
LSC269-504-6
VIEW J-J
ZONE 13A
ZONE 11A
F
-Y27(REF)
-134 ECC-6
GT835 K
GS8306-75C6
(APPROX 6" SPACING)
NOTE:- TIE SLEEVES
TO TUBE AS SHOWN. (TYP 7 PLACES)
SLIP TUBE UNDER
BLANKET AND
CLAMP TUBING TO
END CAPS
NAS43DD3 (REF)
(TYP 5 PLACES) (SEE NOTE 13)
-128 ECC-6
LSC269-504-6
-129 ECC-6
NAS43DD3(REF)
+Y27(REF)
-130 ECC-6
LSC269-504-4
-133 ECC-6
-121 ECC-4
-138 ECC-4
LSC269-131-4
LSC269-504-4 (3)
NAS43DD3(REF)
(SEE NOTE 13)
LSC269-504-4
-139 ECC-4
-027 ECC-6(REF)
-132ECC-6 (REF)
-135ECC-6 (REF)
LSC269-173-1
LSC269-504-6
LSC269-504-4(2)
-120 ECC-4
LSC269-504-4
X196 (REF)
-140 ECC-4
LSC269-504-4
-123ECC-4
LSC269-131-6
LSC269-504-6 (3)
-032ECC-6 (REF)
SHIM AS REQD
USING NAS43DD3
SPACER (MAX 1/4)
(TYP 6 PLACES)
LSC269-504-4
LSC269-131-4
LSC269-504-4 (3)
-141 ECC-6
LDW330M10023-5
LSC269-504-6 (2)
(SEE NOTE 12)
-131 ECC-6
-137ECC-4
LSC269-173-1
LSC269-504-6
LSC269-504-4 (2)
-122 ECC-4
LSC269-504-4
X131.14 (REF)
+Y81(REF)
VIEW F-F
ZONE 12A
FRAME 1
FRAME 2
13
12
11

26512 | DWG NO. LDW280-28609 | SH 5 | B

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ☒
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP THDS.
BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003 MIN.
TO .0005 MAX. MIN. THICKNESS TO
BE .0002 ON THREADED AREAS.
NO ALLOWANCE FOR PLATING IN
HOLES

125 √ SURFACE ROUGHNESS
INCLUDING REAMED HOLES
PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE
TO BE MACHINED

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY
RIVETS SHORTER THAN 1 INCH ARE
NOT SPECIFIED.

TOLERANCE ON LOFTED
DELINEATIONS IS

DWG SIZE 34 X 76

PRINTING INFO ONLY
FULL SIZE SHEET AREA (34 X 78)- 19.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)- 4.9 SQ. FT.

PRINT TRIM LINE

LDW280-28609 B

LDW280-28609 B

02/02

NAS 9-1100

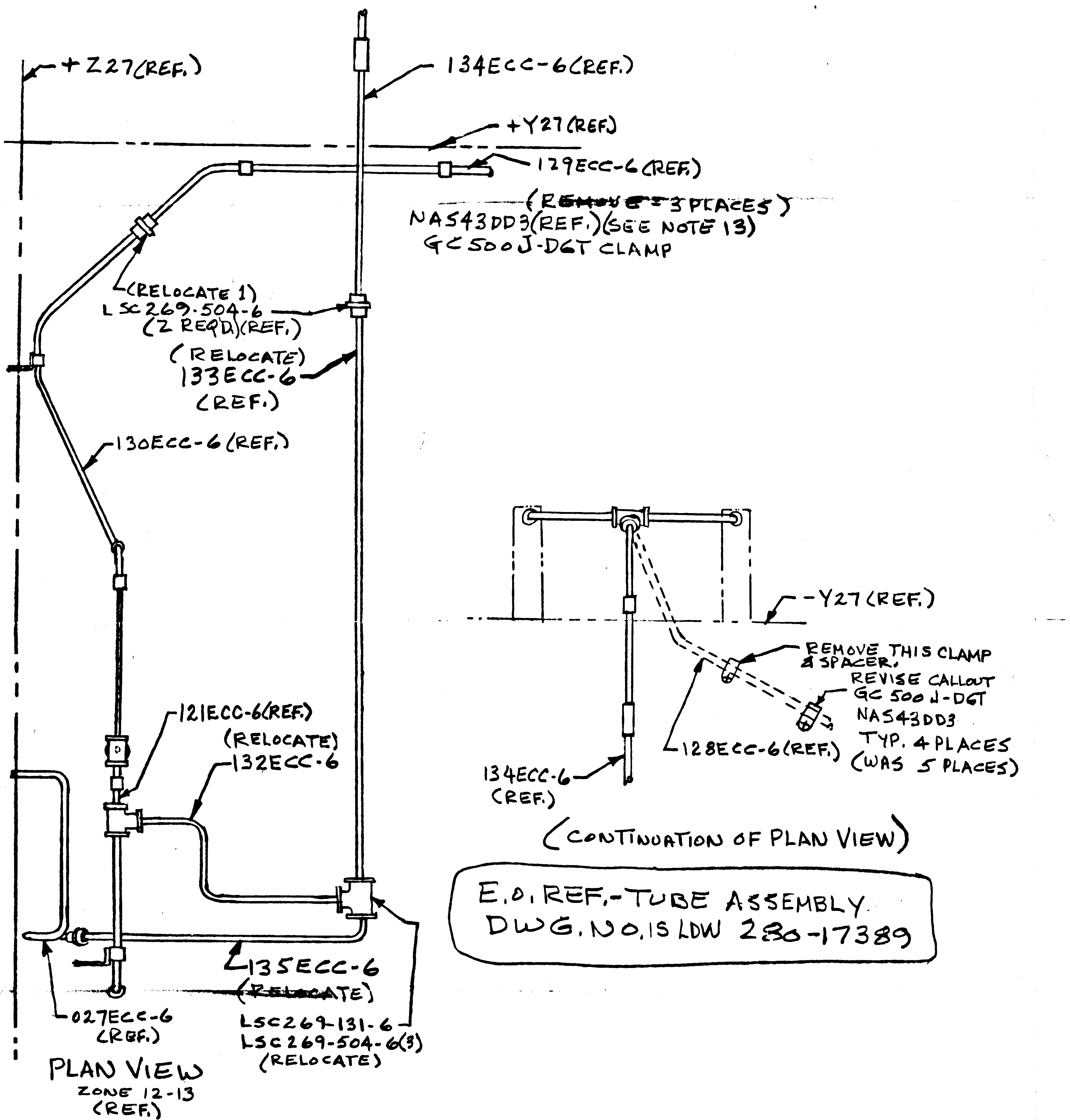
	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-28609	B
LFM-111 MODEL OR END ITEM	SCALE 1:5		SHEET 5.00	

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28609		EO NO. C1
CONTROL INFO NO. LM 52-2239		

ON -7
IN F/D: VIEW J-J ZONE 13A REVISE TUBE ROUTING AS SHOWN BELOW.
(NOTE: EXISTING HOLES IN STRUCTURE, MAY REMAIN AS IS.)
IN NOTE 13 REVISE QUANTITY NAS43DD3-64 SPACER(4), WAS(8)
IN B/M: GC500J-D6T CLAMP(12 REQ) WAS (16 REQ.)



+Z27(REF.)
134ECC-6(REF.)
+Y27(REF.)
129ECC-6(REF.)
(~~REMOVE~~ 3 PLACES)
NAS43DD3(REF.)(SEE NOTE 13)
GC500J-D6T CLAMP
(RELOCATE 1)
LSC269-504-6
(2 REQD)(REF.)
(RELOCATE)
133ECC-6
(REF.)
130ECC-6(REF.)
121ECC-6(REF.)
(RELOCATE)
132ECC-6
135ECC-6
(~~RELOCATE~~)
LSC269-131-6
LSC269-504-6(3)
(RELOCATE)
027ECC-6
(REF.)
PLAN VIEW
ZONE 12-13
(REF.)
-Y27(REF.)
REMOVE THIS CLAMP & SPACER.
REVISE CALLOUT
GC500J-D6T
NAS43DD3
TYP. 4 PLACES
(WAS 5 PLACES)
128ECC-6(REF.)
134ECC-6
(REF.)
(CONTINUATION OF PLAN VIEW)

E.O. REF.-TUBE ASSEMBLY
DWG. NO. IS LDW 280-17389

INTERFACE NOT AFFECTED - NO LDD CHNG. REQ'D.

FAB. AT MSC.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1021-5D

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO ELIMINATE INTERFERANCE WITH THERMAL BLANKET INSTALLATION,	ON -7 IN F/D: REVISE TUBE ROUTING OF 134ECC-6, 133ECC-6, 132ECC-6 AND 135ECC-6 TUBE ASSYS. IN NOTE 13, NAS43DD3-64 SPACER(4 REQ)(WAS 8 REQ.) IN B/M: GC500J-D6T CLAMP (12 REQ.)(WAS 16 REQ.)	(52)

MODEL	PROCURING ACTIVITY NO. (EFFECTIVITY E/I)	GAEC UNIT NO. (EFFECTIVITY S/N)	SUB CONTR UNIT NO.
LM	LFM-111	LTA 8 (18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY							
✓		✓		DATE	7-22-68	8/5/68					7-22-68 · 8/5/68
				5	MSC CG ENG'R	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	DESIGN INTEG.	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ECS LINES INSTALLATION DESCENT STAGE	LDW280-28609	C1

ISSUED BY G. HAYDUK x 4606 SECTION PROJ. ENGR'G. GROUP NO. 827 PL 52

01
NAS 9-1100

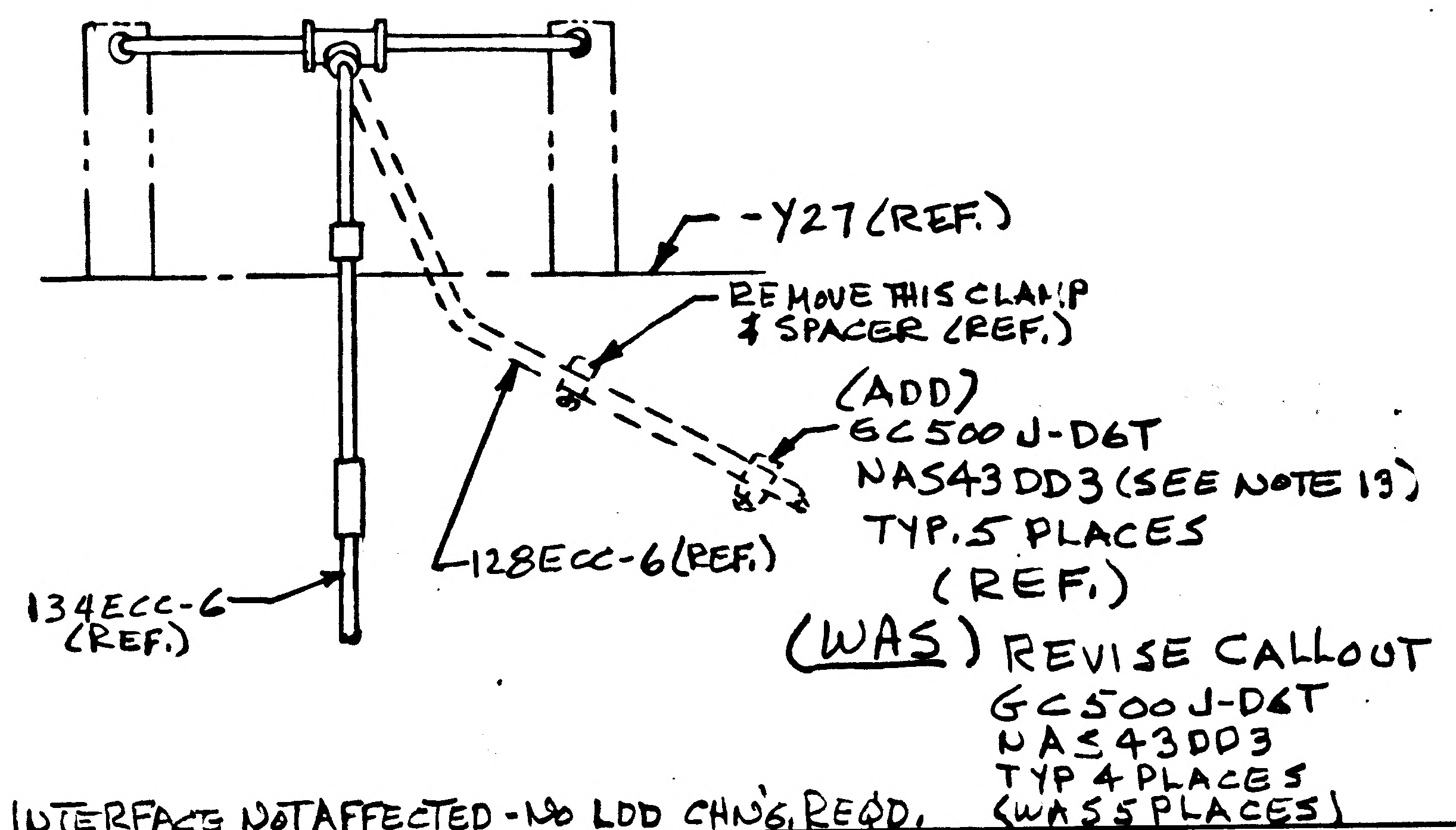
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW 280-28609	EO NO. C2
CONTROL INFO NO. LM 52-2341	

ON-7 THIS IS A REVISION TO E.O. C1
-IN F/D OF E.O. REVISE CALLOUT AS SHOWN BELOW.

LFM



-Y27 (REF.)
REMOVE THIS CLAMP & SPACER (REF.)
(ADD)
GC500J-D6T
NAS43DD3 (SEE NOTE 19)
TYP. 5 PLACES
(REF.)
128ECC-6 (REF.)
134ECC-6 (REF.)
(WAS) REVISE CALLOUT
GC500J-D6T
NAS43DD3
TYP 4 PLACES
(WAS 5 PLACES)

PARTS FAB. AT MSC INTERFACE NOT AFFECTED - NO LDD CHNG. REQD.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1021-5D

(52)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO CLARIFY DWG.	ON-7 THIS IS A REVISION TO E.O. C1 REVISED CALLOUT	C VC 8/12/68

MODEL	~~PROCURING ACTIVITY NO.~~ E/1	EFFECTIVITY ~~GAEC UNIT NO.~~ S/N	SUB CONTR UNIT NO.
LM	LFM-111	LTA 8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY									
✓		✓		DATE	7-30-68	8/10/68						7-30-68	7/30/68
REVISE DWG	RECORD EO	REWORK	SCRAP	5	MSC Cog ENG'R	~~SUPPORT~~ VDT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	MSC DES INTER		PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	LINES INST'L. ECS DESCENT STAGE	LDW280-28609	C2

ISSUED BY G. HAYDUK X4606 SECTION MSC PROJ. ENG'R'G. GROUP NO. 827 PL 52

01 NAS 9-1100

01 NAS 9-1100

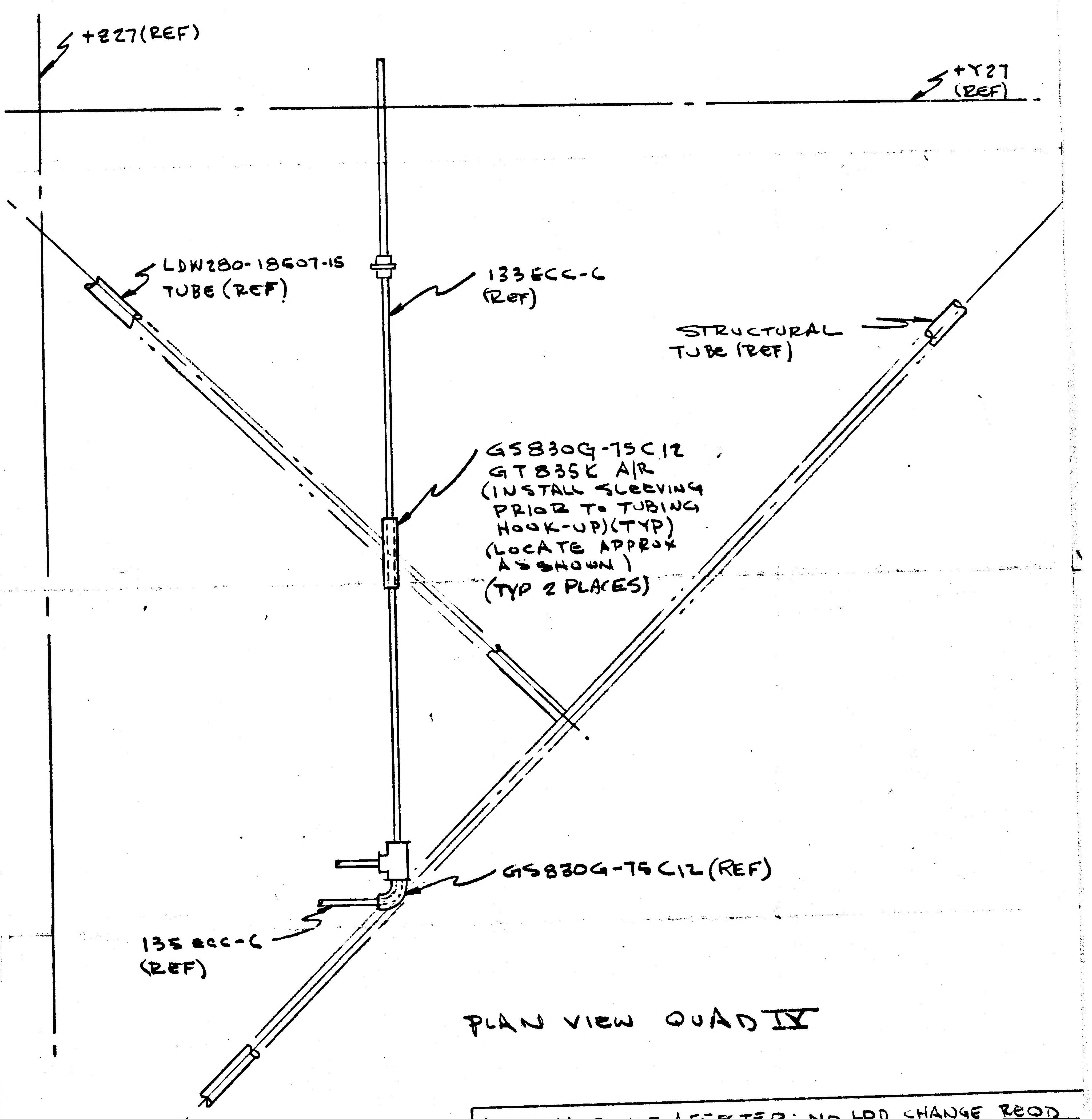
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-28609		EO NO. C3
CONTROL INFO NO. LM52-2356		

SH5, ZONE 12A;

IN F/D & B/M ON -7 ASSY
ADD: SLEEVES & LACING
AS SHOWN



+Z27 (REF)
+Y27 (REF)
LDW280-18607-15 TUBE (REF)
133ECC-6 (REF)
STRUCTURAL TUBE (REF)
GS830G-75C12 GT835K A/R (INSTALL SLEEVING PRIOR TO TUBING HOOK-UP) (TYP) (LOCATE APPROX AS SHOWN) (TYP 2 PLACES)
GS830G-75C12 (REF)
135ECC-6 (REF)

PLAN VIEW QUAD IV

FAB ATM'SC				INTERFACE NOT AFFECTED: NO LDD CHANGE REQD	
DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG ✓	LCD 1021-5D (52)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PREVENT CHAFING OF LINES OVER VEHICLE STRUCTURE	IN F/D & B/M ON -7 ASSY ADDED: GS830G-75C12 SLEEVE (2) GT835K LACING A/R	JK 8/9/68

MODEL	EFFECTIVITY END ITEM	SERIAL NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LM	LFM-111	LTA 8 (18)		✓		✓	

	MSC CO2 ENG	SUPPORT VDE	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	DESIGN INTEG	PROJ ENGRG	GOVT
APPROVED BY	DS	Jef		—	—			
DATE	8-5-68	8/14/68		—	—	8-5-68	8-5-68	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	LINES INSTALLATION ECS - DESCENT STAGE	LDW280-28609	C3

ISSUED BY A. FAZIO x 4606 SECTION PROJ ENG-MSC GROUP NO. 821 PL 52

LDW280-28635 B

LDW420-2370	LDW420-2386	SER#1	2

PART NO. LDW280-28635-9

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LDW420-2370	LDW420-2386	SER#1	1

PART NO. LDW280-28635-7 GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA-8(18)	1

PART NO. LDW280-28635-5 GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51553	LM-1(31)	1
LM	LDW280-51509	LM-1(31)	1

PART NO. LDW280-28635-3 GAEC SCH NO. 50

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV	B		B		B				
SHEET		1.10							
REV		B							
SHEET									
REV									

LAST SECT LTR USED A-A

LAST DASH NO. USED -9

GRUMMAN REL INFO 3/29/69 REV

PRIM NO.	VE(001)		
207	ME-1	B-3/31/69	R.S J.Y

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100 | LINE ITEM I | DOCUMENTATION TYPE II

DRAWN BY	O'MARA 3-19-66	RELIABILITY	
LAYOUT BY	FISCHLER		
CHECKED BY	3-22-66		
GR LEADER	3/31/66		
VEH DES INT	3/3/66		
STRUCTURES	EB for	PROJ ENGR	4-6-66
STRUCTURES	HILDERMAN 4/2	REL GROUP	Bott 4-7-66
WEIGHTS	[illegible]		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BLAST DEFLECTOR INSTL
DESCENT STAGE~ENG COMP~UPPER

SIZE	CODE IDENT NO.		
B	26512	LDW280-28635	B
SCALE	NONE	SHEET 1.00 OF 4	

G 77.1 12-65

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1,3,& 1.10						EO·A1	1 1/8 WAS 3/8 4-PLACES, 47 27/32 WAS 48 29/32 2-PLACES 17/64 WAS 3/8 4-PLACES, 47 1/4 WAS 48 23/32 2 PLACES, CHANGED 67 HOLES TO 65 HOLES EQUALLY SPACED	NOT REQ'D.	NOT	REQ'D.	V. SIBILLA 8-5-66		
	2	1,1.10,2&3						EO·A2	REMOVED -1 & ADDED -3 INSTL	LTA-8(13) LEM-1(31)		-1 RL			
B	1	1.00,1.10, 2.00&3.00	4A 7A						INC EO B1	LTA-8			RODGERS 3-21-69 E.C.G.		
	2	2.00&3.00	3C,7A						INC EO B2	LM-1					
	3	1.10&3.00	4A						INC EO B3	LTA-8 & LM-1					
	4	1.10							INC EO B4						
	5	2.00& 3.00	3C,3B 5A,B,C						INC EO B5						
	6	2.00,3.00	4B						INC EO B6	LM-1					
	7	1.00,2.00 &3.00	5A 4B						INC EO B7	LDW420-2370 SERIAL #1					
	8	1.00							INC EO B8	NOT REQD		H.D.	BISCALDI [illegible]-18-68		3-31-69

®

CHG APPROVED LTR	GROUP LDR	VEH.DES.INT.	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY					
B											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28635	B

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY			-9	-7	-5	-3	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						240		GS551C-06-479	E	SCREW	GRUMMAN STD						
✓			257	257	145	17		GS551C-06-399	E	SCREW							
✓					95			GS551C-06-359	E	SCREW							
✓					17			GS551C-06-319	E	SCREW							
✓					145	145		GN512E-06-359	E	NUT-BLIND							
✓					95	95		GN512E-06319	E	NUT-BLIND							
					17	17		GN512E-06-279	E	NUT-BLIND							
✓			257	257				GN512C-632-2	E	SCREW							
✓						95		AN960-C6	E	WASHER	GRUMMAN STD						
✓			1	1		1		LDW360-51260-7	E	TRANSDUCER	SEE DWG						4A
✓			257	257	257	257		LDW280-V17638-1	E	WASHER	SEE DWG						5C
✓						1		LDW280-17732-17	E	SHIM	SEE DWG						3C
✓					1	1		LDW280-17732-15	E	SHIM	SEE DWG						3C
✓					2	2		LDW280-17732-13	E	SHIM	SEE DWG						4A
✓					1			LDW280-17725-13	E	BLAST DEFLECTOR	SEE DWG						4B
✓			1					LDW280-17725-7	E	BLAST DEFLECTOR	SEE DWG						4B
✓				1		1		LDW280-17725-1	E	BLAST DEFLECTOR	SEE DWG						4B
✓					1			LDW280-17732-11	E	SHIM	SEE DWG						3C
								LDW280-28635-9	E	BLAST DEFLECTOR INSTL		SEE NOTE #1			NONE	NONE	
								-7	E	BLAST DEFLECTOR INSTL					NONE	NONE	
								-5	E	BLAST DEFLECTOR INSTL					NONE	NONE	
								LDW280-28635-3	E	BLAST DEFLECTOR INSTL					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28635	B

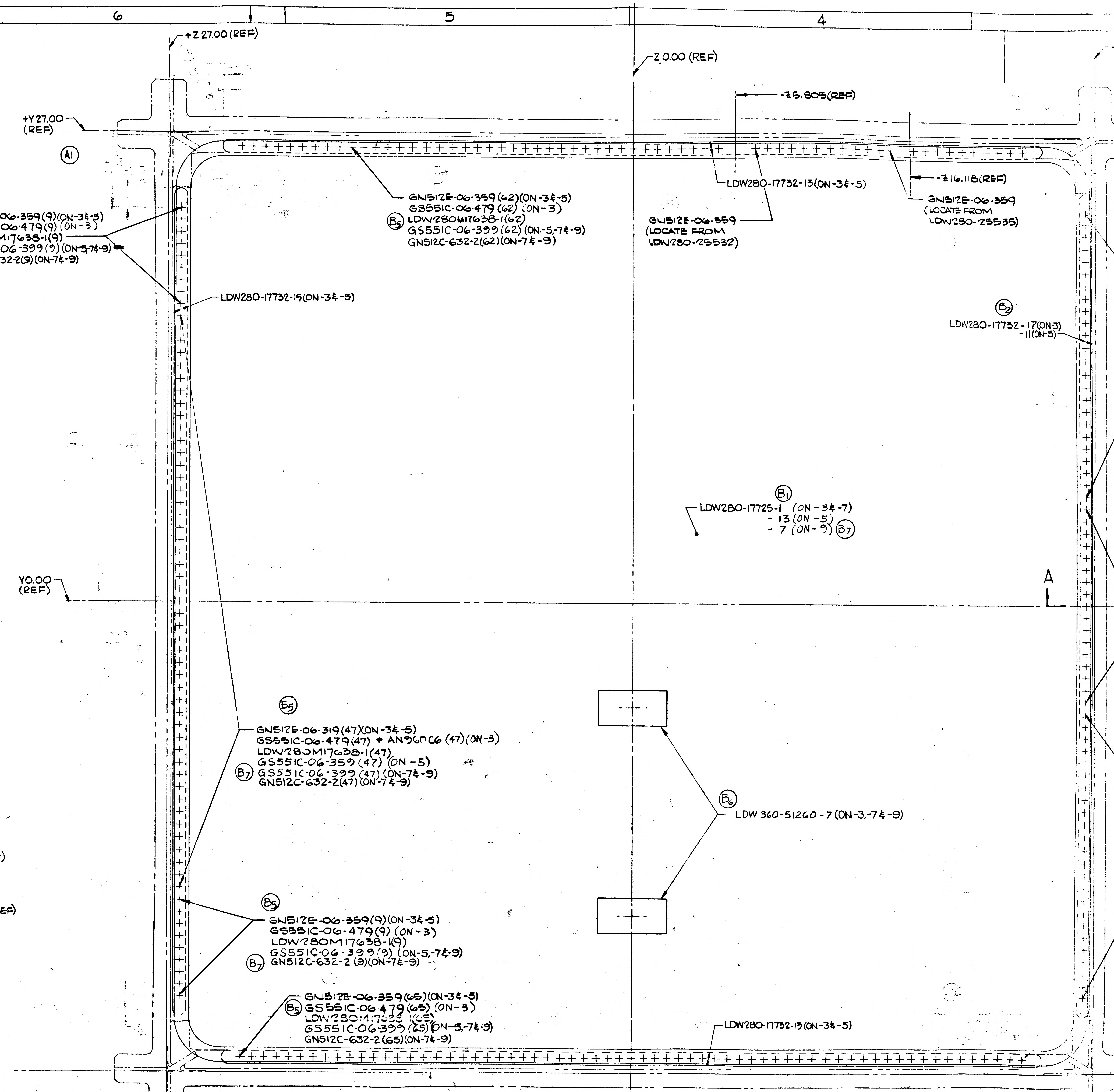
SCALE NONE

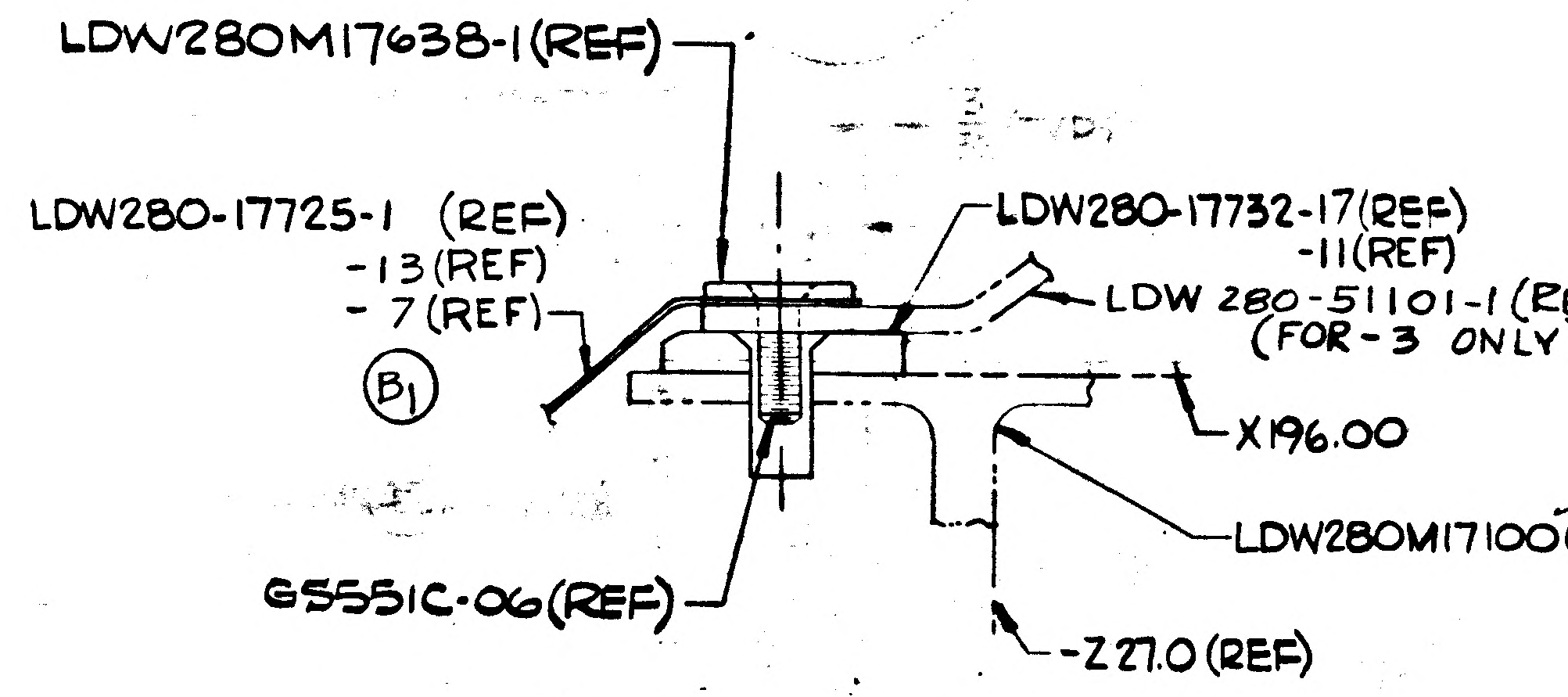
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


+Z 27.00 (REF)
Z 0.00 (REF)
+Y 27.00 (REF)
A1
-Z 5.805 (REF)
-Z 16.118 (REF)
B5 GN512E-06-359(9)(ON-3 & -5)
GS551C-06-479(9) (ON-3)
LDW280M17638-1(9)
B7 GS551C-06-399(9)(ON-5,-7&-9)
GN512C-632-2(9)(ON-7&-9)
GN512E-06-359(62)(ON-3&-5)
GS551C-06-479(62) (ON-3)
B5 LDW280M17638-1(62)
GS551C-06-399(62)(ON-5,-7&-9)
GN512C-632-2(62)(ON-7&-9)
LDW280-17732-13(ON-3&-5)
GN512E-06-359 (LOCATE FROM LDW280-25532)
GN512E-06-359 (LOCATE FROM LDW280-25535)
LDW280-17732-15(ON-3&-5)
B2
LDW280-17732-17(ON-3)
-11(ON-5)
B1
LDW280-17725-1 (ON-3&-7)
-13 (ON-5)
-7 (ON-9) B7
Y 0.00 (REF)
A
B5
GN512E-06-319(47)(ON-3&-5)
GS551C-06-479(47) + AN960C6 (47)(ON-3)
LDW280M17638-1(47)
GS551C-06-359 (47) (ON-5)
B7 GS551C-06-399 (47) (ON-7&-9)
GN512C-632-2(47) (ON-7&-9)
B6
LDW 360-51260-7 (ON-3,-7&-9)
B5
GN512E-06-359(9)(ON-3&-5)
GS551C-06-479(9) (ON-3)
LDW280M17638-1(9)
GS551C-06-399(9) (ON-5,-7&-9)
B7 GN512C-632-2 (9)(ON-7&-9)
GN512E-06-359(65)(ON-3&-5)
B5 GS551C-06 479(65) (ON-3)
LDW280M17638-1(65)
GS551C-06-399(65)(ON-5,-7&-9)
GN512C-632-2(65)(ON-7&-9)
LDW280-17732-13(ON-3&-5)


LDW280M17638-1(REF)
LDW280-17725-1 (REF)
-13 (REF)
-7 (REF)
B1
LDW280-17732-17(REF)
-11(REF)
LDW 280-51101-1 (REF) (FOR-3 ONLY)
X196.00
LDW280M17100(REF)
GS551C-06(REF)
-Z 27.0 (REF)

B5 SECT. A-A (ZONE 3-B)
(TYPSECT FOR FASTENERS)
SCALE: 2 X SIZE

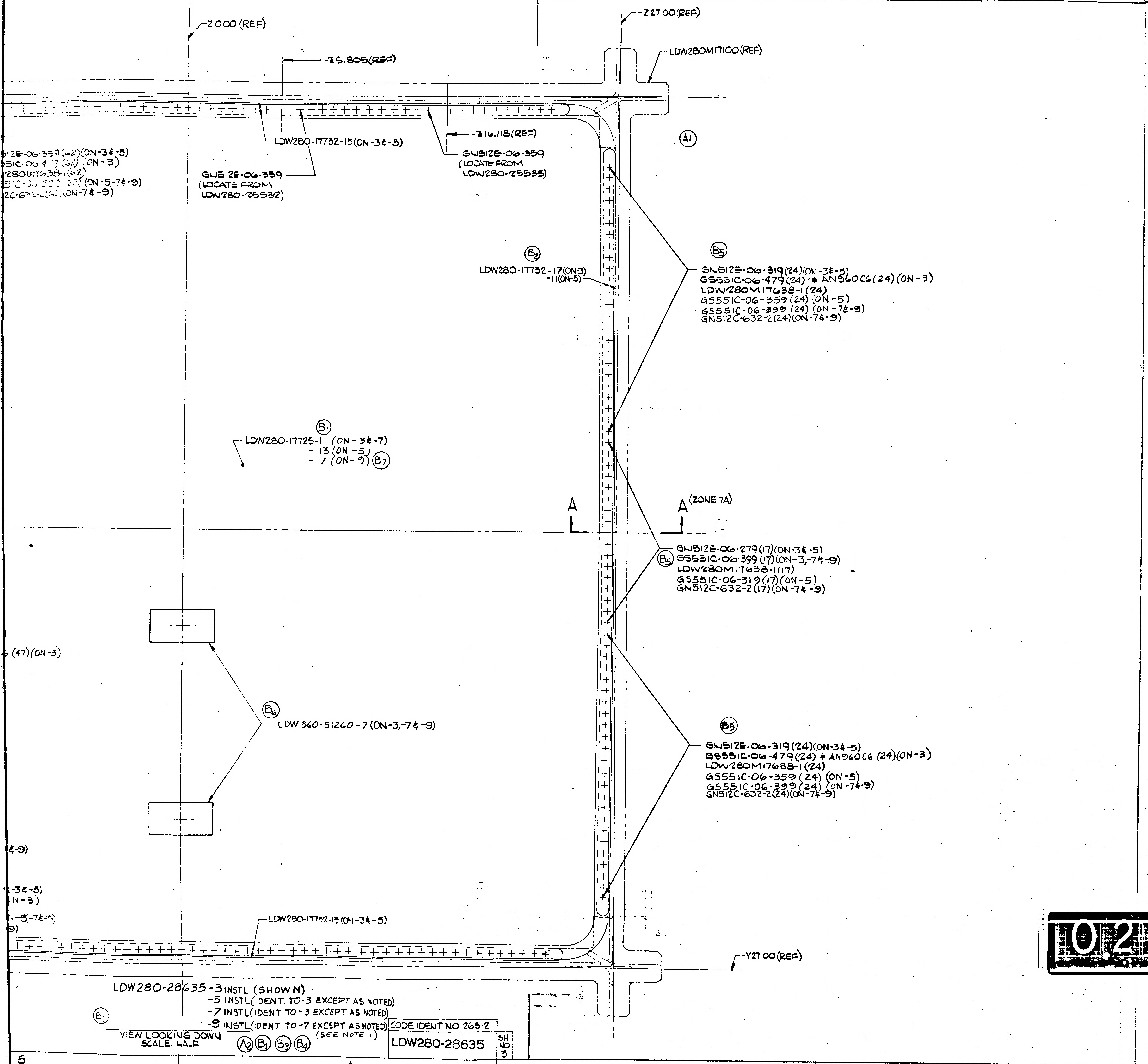
01/02 NAS 9-1100

LDW280-28635-3 INSTL (SHOWN)
-5 INSTL (IDENT. TO-3 EXCEPT AS NOTED)
-7 INSTL (IDENT TO-3 EXCEPT AS NOTED)
-9 INSTL (IDENT TO-7 EXCEPT AS NOTED)
(SEE NOTE 1)

B7
VIEW LOOKING DOWN
SCALE: HALF
A2 B1 B3 B4

CODE IDENT NO 26512	SH NO
LDW280-28635	3

2/2


Z0.00 (REF)
Z27.00 (REF)
-Z5.805(REF)
-Z16.118(REF)
LDW280M17100(REF)
A1
LDW280-17732-13(ON-3&-5)
GN512E-06-359
(LOCATE FROM
LDW280-25532)
GN512E-06-359
(LOCATE FROM
LDW280-25535)
12E-06-359(62)(ON-3&-5)
51C-06-479(62)(ON-3)
280M17638-1(62)
51C-06-399(62)(ON-5,-7&-9)
2C-632-2(62)(ON-7&-9)
B2
LDW280-17732-17(ON-3)
-11(ON-5)
B5
GN512E-06-319(24)(ON-3&-5)
GS551C-06-479(24) & AN960C6(24)(ON-3)
LDW280M17638-1(24)
GS551C-06-359(24)(ON-5)
GS551C-06-399(24)(ON-7&-9)
GN512C-632-2(24)(ON-7&-9)
B1
LDW280-17725-1 (ON-3&-7)
-13 (ON-5)
-7 (ON-9) B7
A
A (ZONE 7A)
B5
GN512E-06-279(17)(ON-3&-5)
GS551C-06-399(17)(ON-3,-7&-9)
LDW280M17638-1(17)
GS551C-06-319(17)(ON-5)
GN512C-632-2(17)(ON-7&-9)
(47)(ON-3)
B6
LDW 360-51260-7 (ON-3,-7&-9)
B5
GN512E-06-319(24)(ON-3&-5)
GS551C-06-479(24) & AN960C6(24)(ON-3)
LDW280M17638-1(24)
GS551C-06-359(24)(ON-5)
GS551C-06-399(24)(ON-7&-9)
GN512C-632-2(24)(ON-7&-9)
-9)
-3&-5)
N-3)
N-5,-7&-5)
9)
LDW280-17732-13(ON-3&-5)
Y27.00(REF)
5
4
3
2
1

LDW280-28635-3 INSTL (SHOWN)
-5 INSTL (IDENT. TO-3 EXCEPT AS NOTED)
-7 INSTL (IDENT TO-3 EXCEPT AS NOTED)
-9 INSTL (IDENT TO-7 EXCEPT AS NOTED)
(SEE NOTE 1)

B7

VIEW LOOKING DOWN
SCALE: HALF
A2 B1 B3 B4

CODE IDENT NO 26512
LDW280-28635
SH NO 3

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS 1½ FASTENER DIA FROM FASTENER CENTER LINE	✓
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 62

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 64) = 21.6 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 5.4 SQ. FT.
PRINT TRIM LINE

NOTES:
1. -9 INSTL TO BE USED FOR TEST PURPOSES PRIOR TO INSTL OF -7

C
B
A

LDW280-28635B
LDW280-28635B

02702
NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK
SIZE J
CODE IDENT NO. 26512
LDW280-28635 B
LEM
MODEL OR END ITEM
SCALE HALF & AS NOTED
SHEET 3.00

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28635
EO NO. B2
CONTROL INFO NO. LM5-11359

ON-3 INSTL

ADD LDW280-17732-17 WAS -11
PICKUP EXISTING FASTENERS

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		5

REASON FOR EO: TO FACILITATE INSTL OF BLAST DEFLECTOR FOR FASTENER EDGE DISTANCE

DESCRIPTION OF EO: ON-3 ADDED LDW280-17732-17 WAS -11

GAEC EO RELEASE: LE

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	WT			—	NM	LH	RMC	
DATE	12/10/66			—	12/10/66	12-11	12-15-66	12-11-6

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SUPT INST D/S - ENG COMP - BLAST DEFLECT	LDW280-28635	B2

ISSUED BY RAGAS x6454 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

B

ENG 32.2 REV 3-65

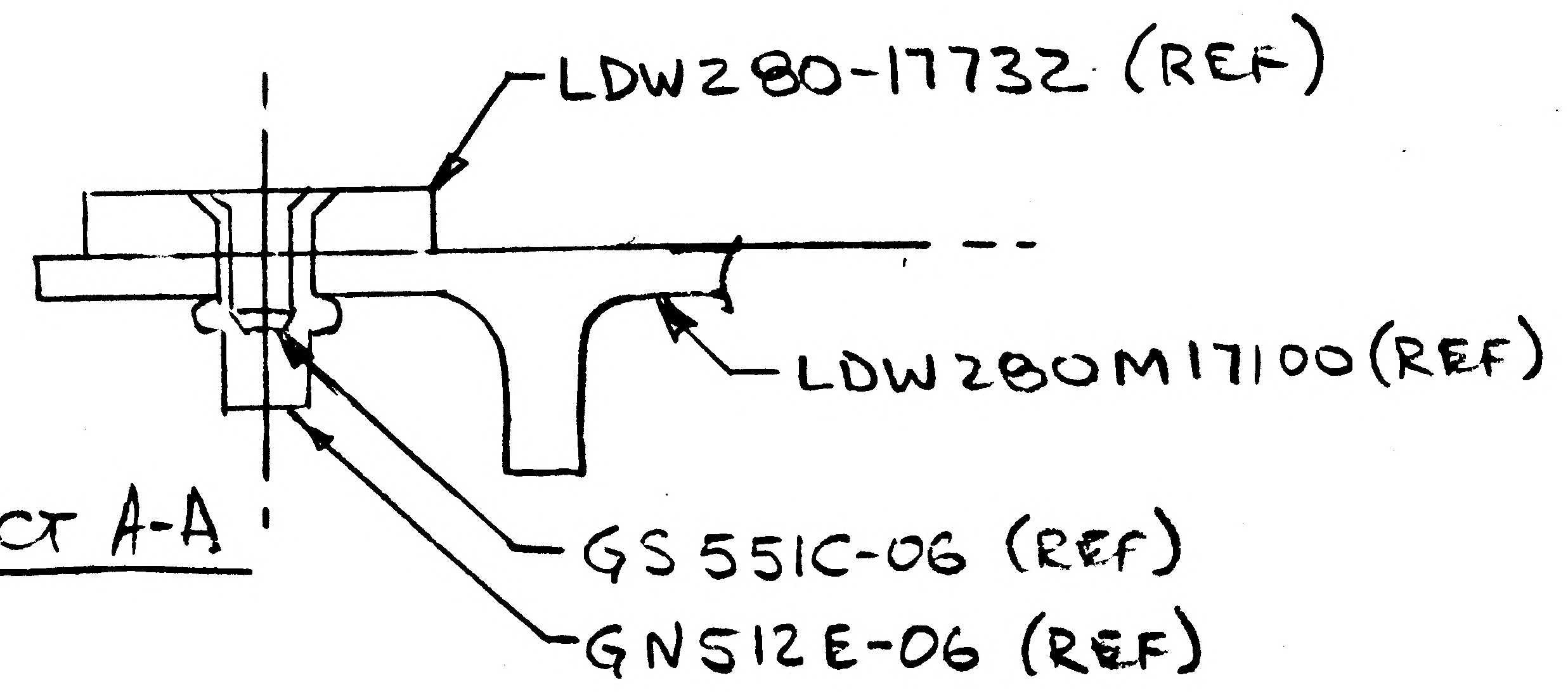
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28635		EO NO. B3
CONTROL INFO NO. LDW280A6120		

REMOVE -5 INSTL AND REPLACE WITH -3 INSTL.
-3 INSTL NOW EFFECTIVE FOR LTA-8 (18) AND LM-1 (31),
WAS LM-1 (31) ONLY.

ON -3 INSTL: REMOVE LDW280-17725-1 BLAST DEFL. ASSY & LDW280M17638-1 WASHER (257). GS551C-06-359 (145), GS551C-06-319 (95), AND GS551C-06-279 (17) REPLACES GS551-06-399 (145), GS551C-06-359 (95) & GS551C-06-319 (17).

IN FIELD OF DWG REVISE SECT A-A AS SHOWN



SECT A-A

REF INFO:

IN B/M REMOVE LDW280-17638-1 (257) WEB. (NOTE: THIS SHOULD HAVE READ LDW280M17638-1 (257) WASHER.

ZONE 5C REMOVE LDW280-17638-1 (62) (NOTE: THIS SHOULD HAVE READ LDW280M17638-1 (62).

DWG CORRECTIONS:
ZONE 5A GS551C-06-399 (65) WAS GN551C-06-399 (65)

ZONE 5C GN512E-06-359 (62) WAS GN512E-06-359 (60)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

DESCRIPTION OF EO LCD M-1244
REMOVED -5 INSTL & REPLACED WITH -3 INSTL, ON -3 INSTL REMOVED LDW280-17725-1 & LDW280M17638-1 (257), GS551C-06-359 (145), GS551C-06-319 (95), & GS551C-06-279 (17) WAS GS551-06-399 (145), GS551C-06-359 (95), & GS551C-06-319 (17). GS551C-06-399 (65) WAS GN512C-06-399 (65). GN512E-06-359 (62) WAS (60). ON-3 ADDED LTA-8 EFF.

2

REASON FOR EO
F.I.T.H. VENTING NOW THRU D/S & DWG CORR. -

GAEC EO RELEASE C
JK 4/5/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY									
DATE	3/30/67				3/27/67	3/31/67		4/3/67	9-5-67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLAST DEFLECTOR INSTL-DESCENT STAGE-ENG COMP-UPPER	LDW280-28635	B3

ISSUED BY MARZELLA \ STRAKOSCH SECTION VEHICLE DES. & INT. GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

FITH B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-28635	EO NO.	B4
CONTROL INFO NO.	LDW280A6828		

THIS E.O. CANCELS E.O. B3

(-5 ON LTA-8 & -3 ON LM-1 ARE NOW REINSTATED, REF E.O. B1)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD-1244	5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
FITH VENTING NOW BETWEEN STAGES	CANCELLED E.O. B3	(R) C JL 5-15-67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT REQD.	

	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT.
APPROVED BY								
DATE	5/9/67			5/9/67	5/?/67		5/12/67	5-13-67
5								

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLAST DEFLECTOR INSTL.	LDW280-28635	B4

ISSUED BY R.WINK/J.STRAKOSCH SECTION VEH.DES.INT. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

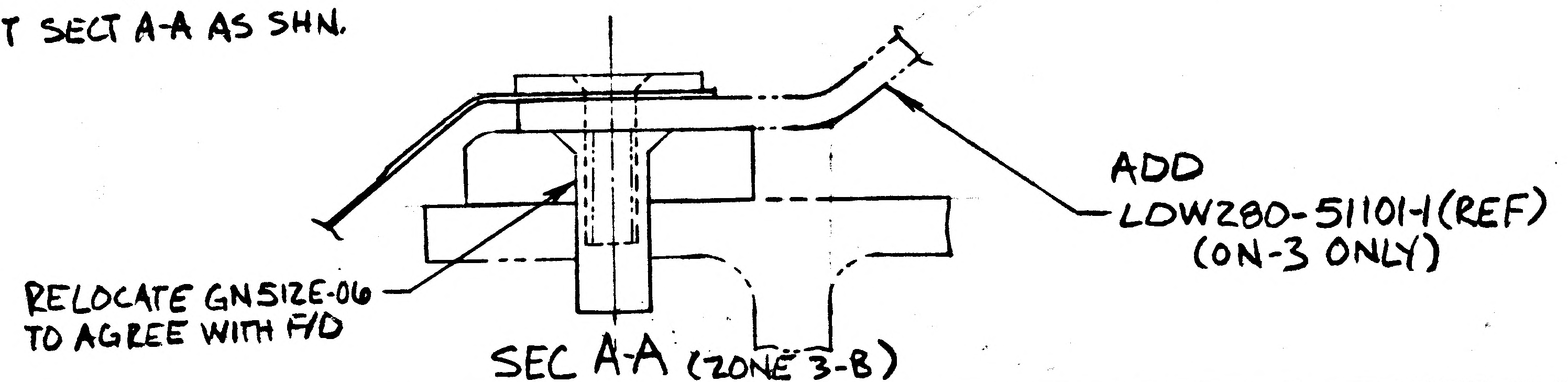
FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28635 | EO NO. B5
CONTROL INFO NO. LDW280A6763

DESCRIPTION OF E.O.

1. IN B/M CHANGE CALLOUT OF LDW280-17638-1 WEB TO LDW280M17638-1 WASHER
2. IN ZONE 5C CHANGE CALLOUT OF LDW280-17638-1 (62) TO LDW280M17638-1(62)
3. IN ZONE 5A CHANGE CALLOUT OF GN551C-06-399(65) TO GS551C-06-399(65)
4. IN ZONE 5C CHANGE QUANTITY OF GN512E-06-359 FROM (60) TO (62)
5. ON -3 ONLY , REPLACE GS551C-06-319(17) WITH -399(17), REPLACE GS551C-06-359(95) WITH -479(95) & AN960C6(95); REPLACE GS551C-06-399(145) WITH -479(145)
6. CORRECT SECT A-A AS SHN.



SEC A-A (ZONE 3-B)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD - 1244

REASON FOR EO: DRAWING CORRECTIONS & ADDED PROVISIONS FOR FITH BLANKETS.

DESCRIPTION OF EO: SAME AS ITEMS 1 THRU 5 ABOVE & CORRECTED SECT A-A.

Ⓡ GAEC EO RELEASE: 5 C — JL 5-15-67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY								
DATE	5/4/67			5/4/67	5/5/67		5/5/67	5-13-67
5	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLAST DEFLECTOR INSTL.	LDW280-28635	B5

ISSUED BY R.WINK / J. STRAKOSCH
SECTION VEH. DES. INT.
GROUP NO. 335 PL 25

01

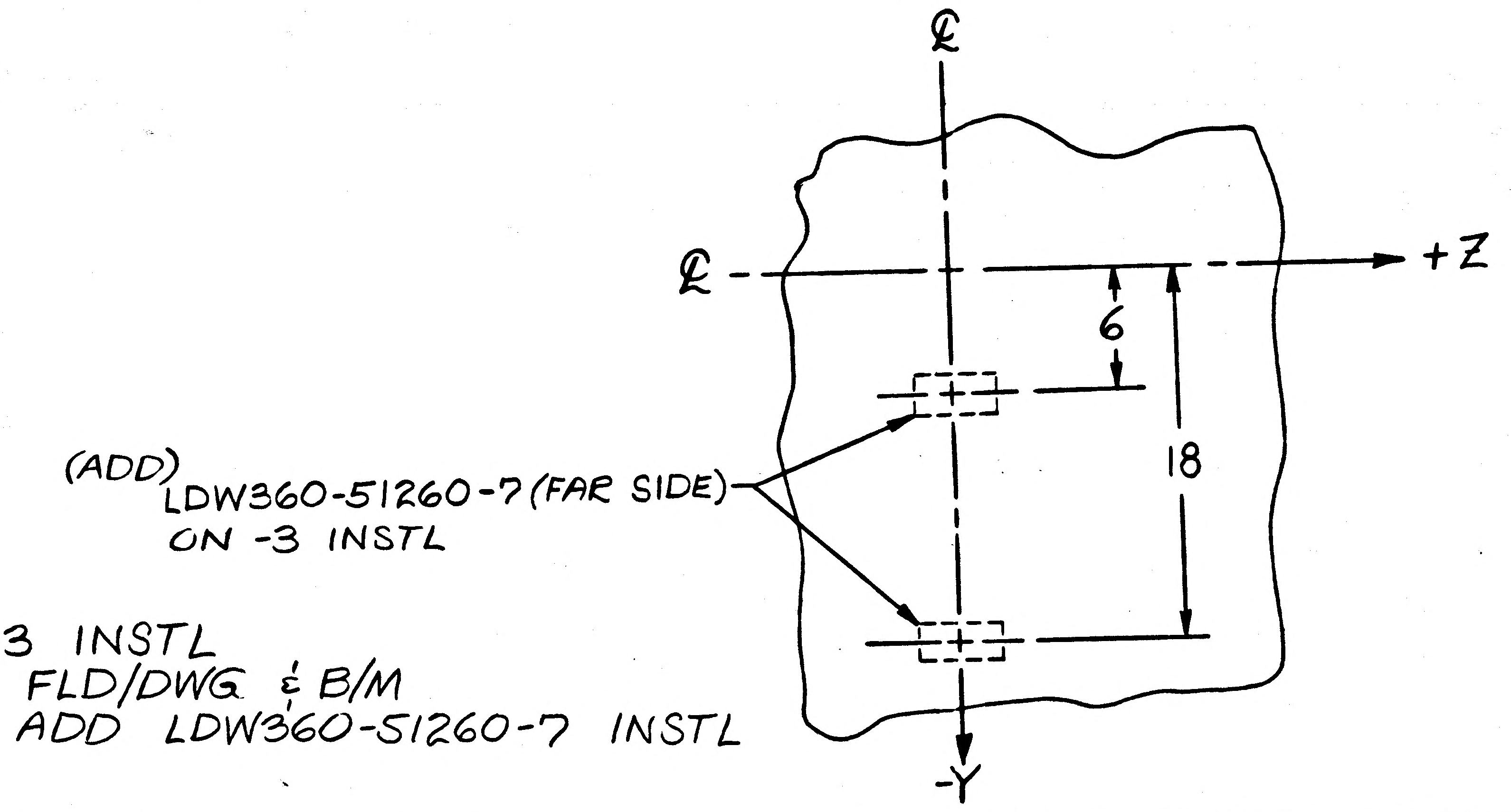
NAS 9-1100

QA

ENG 22.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO.	LDW280-28635
EO NO.	B6
CONTROL INFO NO.	LM-2-3592



FOR -3 INSTL
IN FLD/DWG & B/M
ADD LDW360-51260-7 INSTL

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐

2

REASON FOR EO: TRANSDUCER INSTALLATION OMITTED FROM DRAWING

DESCRIPTION OF EO: FOR -3, IN FLD & B/M, ADDED LDW360-51260-7.

GAEC EO RELEASE: C JK 02131

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	Jaf			~	PMS	Ctf	DAM (E)	Bott.
DATE	7/6/67			~	5/25/67	5/26/67	5-26-67	5-25-67
-1-	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DEFLECTOR INSTL ~ DESCENT STAGE ENGINE COMPARTMENT ~ UPPER	LDW280-28635	B6

ISSUED BY LIAISON J. MALONEY 5/24/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28635
EO NO. B7
CONTROL INFO NO. LDW280A 7642

ADD -7 INSTL IDENTICAL TO -3 EXCEPT:
1) GS551C-06-399(240) REPLACES GS551C-06-479(240)
2) GN512U-632-2 (257) REPLACES GN512E-06-279(17), GN512E-06-319(95) & GN512E-06-359(145)
3) -7 DOES NOT INCLUDE LDW280-17732-13, -15 & -17
4) -7 DOES NOT INCLUDE AN960C6(95)
N/A FOR -7 LDW420-2386 EFF EI LDW420-2370 SER. No. 1 (1 REQ.)

ADD -9 INSTL IDENTICAL TO -7 EXCEPT LDW280-17725-7 REPLACES LDW280-17725-1 (SEE NOTE BELOW)
N/A FOR -9 LDW420-2386 EFF E.I. LDW420-2370 SER. No. 1 (2 REQ.)

*NOTE -9 INSTL TO BE USED FOR TEST PURPOSES PRIOR TO THE INSTL OF -7

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD-1244 5/C

REASON FOR EO: TO PROVIDE FOR FITH SHIELD

DESCRIPTION OF EO: ADDED -7 & -9

GAEC EO RELEASE: JK 6/27/7

MODEL	EFFECTIVITY: END ITEM ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
	LDW420-2370	SER No 1	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY		SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~DEPT~~
DATE	6/22/67 VDI			6/21/67	6/23/67		6/26	6-27-67

PRIORITY: C
DRAWING TITLE: DEFLECTOR INSTL ~ D/S ENGINE COMPT ~ UPPER
DRAWING NO.: LDW280-28635
EO NO.: B7

ISSUED BY STEA/STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
ENG 32.1 REV 3-65

DWG. NO. LDW280-28635
EO NO. B8
CONTROL INFO NO. LDW280B1317

FOR -3
ADD N/A LDW280-51509 (1 REQD)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD1244 REF (5)

REASON FOR EO: TO AGREE WITH N/A REQUIREMENTS (CDR LIST)

DESCRIPTION OF EO: FOR -3 (ADDED) N/A LDW280-51509

GAEC EO RELEASE: JK 2/10/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD REWORK SCRAP

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	1/15/68			1-15-68	1-16-68		2/9/68	2-9-68
—	VDI							

PRIORITY: E

DRAWING TITLE: BLAST DEFLECTOR INSTL- D/S, ENGINE COMP-UPPER

DRAWING NO.: LDW280-28635

EO NO.: B8

ISSUED BY ROESSLER / THORJUSEN X1153 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28638 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA-8(18)	1
PART NO. LDW280-28638-5		GAEC SCH NO. 52	

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	2.01	3.00				
REV	B	B	B	B	B				
SHEET		1.11							
REV		B							
SHEET									
REV									

LAST SECT LTR USED	P	GRUMMAN REL INFO 'B	
		PRIM NO.	A (001)
LAST DASH NO. USED	-5	207	MP-1-8 12/7/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/16 ±.010 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100 | LINE ITEM * 1 | DOCUMENTATION TYPE II

DRAWN BY	FISCHLER 6/14/66	WEIGHTS	D.ROBESCH 7/11/66
LAYOUT BY	FISCHLER 6/14/66	RELIABILITY	
CHECKED BY		THERMO	AB 11/8/66
GR LEADER	J.STRAKOSCH 6/18/66		
VEH DES INT	W. BISCHOFF 6/23/66		
STRUCTURE	F.BUNCE 6/24/66	PROJ ENGR	PLUMKETT 7/13/66
STRUCTURE	R.HILDERMAN 6/24/66	REL GROUP	C.BOTTI 7/13/66
SYS TEST			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

COLD PLATE INSTALLATION
DESCENT STAGE ENGINE COMPARTMENT
UPPER SEPARATION SIMULATION

SIZE B | CODE IDENT NO. 26512 | LDW280-28638 B Ⓑ
SCALE NONE | SHEET 1.00 OF 6

277.1 12-65

SUPERSEDES LDW280-28638 "NO CHANGE 7/13/66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	[illegible] APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE - LAST REV. NO CHANGE SH 1 OF 4 WAS SH 1 OF 3 A. MONTEMAGNO 10-18-66						
A	1	1.00, 1.10 2.00 & 3.00						Ⓓ	REMOVED -1 INSTL & ADDED -3 INSTL	LTA-8	✓		MONTEMAGNO 10/18/66		11/8/66
									RETRACED NO CHG - SH. 3 - LAST REV A. F. LEGIDO 11-27-67						
B	1	2.00, 3.00	F3					EOB1	IN FLD & B/M ON -1 MS20819-8C(6) WAS MS20819-8(6)	LTA-8	✓		F. LEGIDO 11-27-67		
	2	2.00 3.00	F3					EOB2	IN FLD & B/M (FOR -1 INST) ADDED GA500E-6C8(2) "INSTALL PER" REMOVED AN818-8C(2) MS20819-8(2). FLARE TUBING PER MS 33584 -(2 PLACES)						
	3	3.00	F3					EOB3	REF EO B2: ADDED -Y 27.000 (REF) REMOVED -Y81.000 (REF) IN DESCRIPTION OF EO. REMOVED "INSTALL PER".						
	4	2.00 3.00	F3					EO B4	REF EO B1 & B2. -3 INSTL WAS -INSTL.						
	5	2.00 2.01 3.00					√	EO B5	IN F/D & B/M & MOD BLK: ADDED -5 REMOVED -3. ADDED -15, -17, -19, -21, -23, -25 & -27 & REMOVED -11 & 13 & LDW280-18044-11. ADDED LDW280-18044-13(3), -15(3), -17(2) & -19(2), AN742-D9(23), GB511J-08(19), MS2104L08(19), AN960D8L (19). ADDED NOTES 4 TO 8. REMOVED NOTES 1, 2 & 3. ADDED VIEW & SECT. H-H, J-J, K-K, L-L, M-M & N-N. REMOVED SECT. B-B, D-D, E-E, & C-C. ADDED SH. 2.01			-3 -11 -13			
	6	2.00, 2.01					√	EO B6	IN B/M FOR -15 THRU -27; ADDED: CLEANLINESS PER LSP-14-0011; LEVEL "D".						
	7						√	EO B7	REF EO B5: IN NOTES 4: REMOVED "& ENGR NOTIFIED." 6 - REVISED: "FOR CLAMP SUPT POINTS" WAS "FOR SUPT POINTS." IN B/M ADDED GT835C IN FLD & B/M ADDED MS20819-8(10) MS20819(10) (SEE NOTE 8. ADDED REF CALLOUT: AN818-8C(2) MS20819-8(2)					H.D.	WC

FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-28638	B Ⓑ
SCALE NONE		SHEET 1.10	

ENG 77.3 5-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
B	8	2.01 3.00	6F 7F				✓	EOB8	IN B/M & FLD ON -5 ADDED LDW280P18288-1(12), LDW280P18289-1(12), GB511J-08-13(12), AN960-8(24), 3/8 DIA. HOLE (4 HOLES) REMOVED GB511J-06-2(12). ADDED LPC-280-7 PROTRUSION WRAP. GT835M-8 TAPE AS REQD. ADDED SH. 1.11	LTA-8	✓		F. LEGIDO 11-27-67		
	9	2.00 2.01 3.00	5F				✓	EOB9	REV. TO ED B5: REMOVED AN815-8D. IN B/M & F/D ADDED GS570J-8C(10) & GU10A-8D(5). . REV TO EO B2 - IN F/D & B/M REMOVED GA500E-6C8(2). ADDED NOTES 9 & 10. ADDED -29 MAKE FROM GA500E-6C8.						
	10	2.00 3.00	6F 7F				✓	EOB10 LCD-1338 B	REVISION OF EOB8: IN FLD & B/M ON-5 ADDED AN960-D8(24), AN960-D8(6), MS21043-08(12), REMOVED AN960-8(24), AN960-8(6), MS21043-06(12).				H.D.	MC	

CHG APPROVED

LTR	GROUP LDR	VDI	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
B						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28638	B

SCALE NONE SHEET 1.11

ENG 77.16 3-66

01 NAS 9-1100

CL						-5	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						20		MS21042L08	E	NUT	STD PART						
						12		MS21043-08	E	NUT	STD PART						
						10		MS20819-8-C		SLEEVE							
						24		AN960-D8		WASHER							
						8		AN960-6L		WASHER							
						8		AN526-632-R6		SCREW	STD PART						
						5		GB511J-08-2		BOLT	GRUMMAN STD						
						1		GB511J-08-5		BOLT	GRUMMAN STD						
						12		GB511J-08-13		BOLT	GRUMMAN STD						
						14		GB511J-08-3		BOLT	GRUMMAN STD						
						1		LDW938-10523-7		HEATER ASSY	SEE DWG						
						1		-5									
						1		-3									
						1		LDW938-10523-1		HEATER ASSY							
						1		LDW280-28639-1		COLD PLATE	SEE DWG						
D						1		LDW280-28638-17		TUBE	AL ALLOY TUBE	WW-T-700/4	5052	.049X1/2 OD(NOTE 1&2	NONE	NONE	
D						1		LDW280-28638-15		TUBE	AL ALLOY TUBE	WW-T-700/4	5052	.049X1/2 OD(NOTE 1&2	NONE	NONE	
								LDW280-28638-5	E	COLD PLATE INSTL					NONE	NONE	

QTY PER ASSEMBLY

CL=CLEANLINESS LEVEL PER LSP 14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28638	B

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01 NAS 9-1100

CL	-5	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	21	AN742-D9	E		CLAMP	STD PART						
	15	AN960-D8L	↕		WASHER	STD PART						
	AR	GT835C	↕		TAPE	GRUMMAN STD						
	10	GS570J-8C	↕		"O" RING	GRUMMAN STD						
	5	GU10A-8D	↕		SPL UNION	GRUMMAN STD						
	AR	LPC-280-7	↕		PROTRUSION WRAP	GRUMMAN STD						
	12	LDW280P18288-1	↕		SLEEVE	SEE DWG						
	12	LDW280P18289-1	↕		SPACER	SEE DWG						
	2	LDW280-18044-19	↕		CHANNEL	SEE DWG						
	2	LDW280-18044-17	↕		↕	↕						
	3	LDW280-18044-15	↕		↕	↕						
	3	LDW280-18044-13	↕		CHANNEL	SEE DWG						
	2	LDW280-28638-29	↕		ADAPTER	MAKE	FROM	GA500E-	6C8	NONE	NONE	
D	1	LDW280-28638-27	↕		TUBE	AL ALY TUPE	WW-T-700/14	5052	.049 x 1/2 OD (NOTE 1 & 2)	NONE	NONE	
↕	1	LDW290-28638-25	↕		↕	↕	↕	↕	↕	↕	↕	
↕	1	LDW280-28638-23	↕		↕	↕	↕	↕	↕	↕	↕	
↕	1	LDW280-28638-21	↕		↕	↕	↕	↕	↕	↕	↕	
D	1	LDW280-28638-19	E		TUBE	AL ALY TUBE	WW-T-700/14	5052	.049 x 1/2 OD (NOTE 1 & 2)	NONE	NONE	

QTY PER ASSEMBLY

CL = CLEANLINESS LEVEL PER LSP14-0011:

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28638	B

SCALE NONE

SHEET 2.01

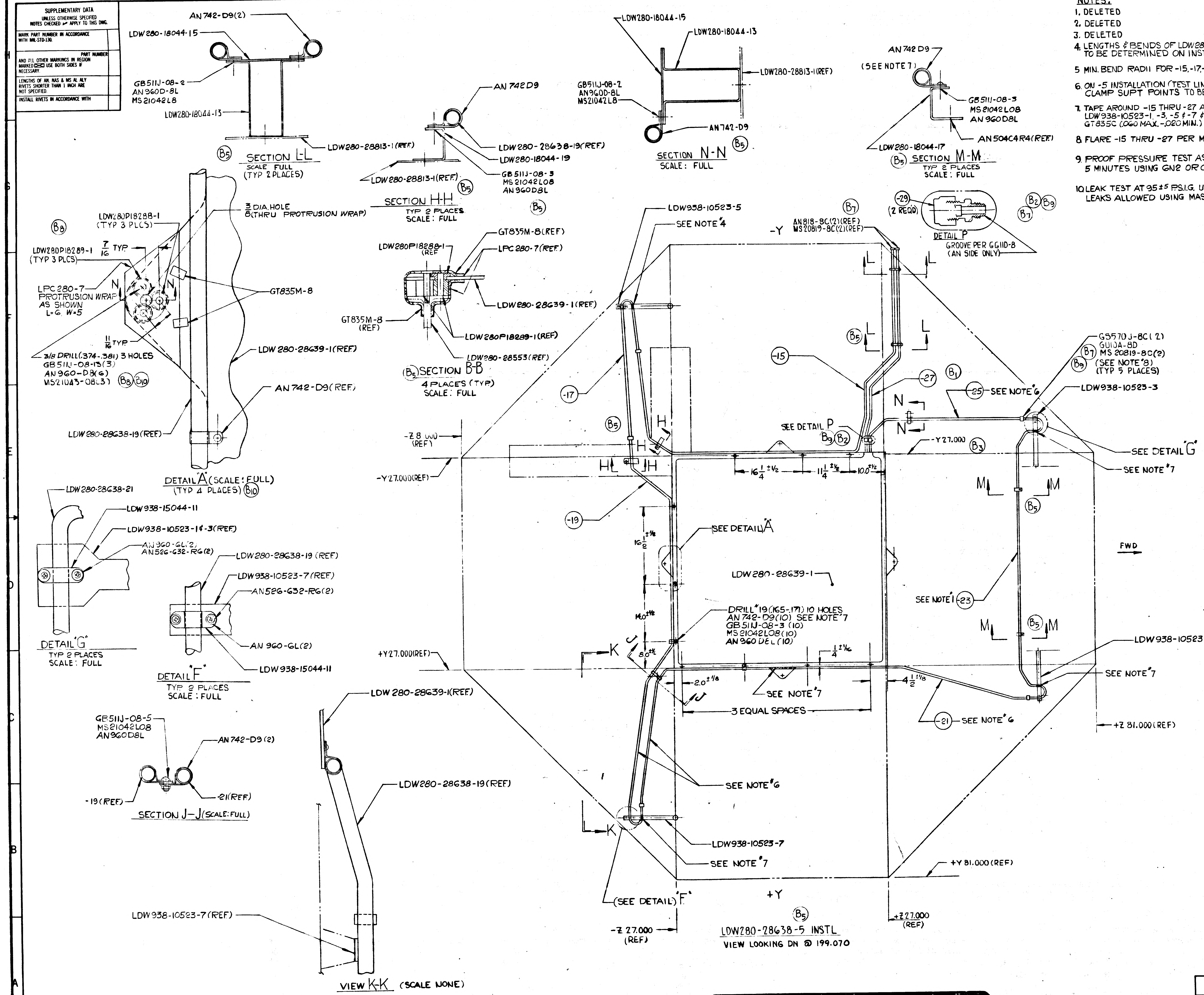
ENG 77.2 5-64

01

NAS 9-1100

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	


AN742-D9(2)
LDW280-18044-15
GB511J-08-2
AN960D-8L
MS21042L8
LDW280-18044-13
LDW280-28813-1(REF)
B5
SECTION L-L
SCALE FULL
(TYP 2 PLACES)
AN742D9
LDW280-28638-19(REF)
LDW280-18044-19
GB511J-08-3
MS21042L08
AN960D8L
LDW280-28813-1(REF)
SECTION H-H
TYP 2 PLACES
SCALE: FULL
B5
LDW280-18044-15
LDW280-18044-13
LDW280-28813-1(REF)
GB511J-08-2
AN960D-8L
MS21042L8
AN742-D9
SECTION N-N
SCALE: FULL
B5
AN742 D9
(SEE NOTE 7)
GB511J-08-3
MS21042L08
AN960D8L
AN504C4R4(REF)
LDW280-18044-17
B5 SECTION M-M
TYP 2 PLACES
SCALE: FULL
B8
LDW280P18288-1
(TYP 3 PLCS)
3/8 DIA. HOLE
8(THRU PROTRUSION WRAP)
LDW280P18289-1
(TYP 3 PLCS)
7/16 TYP
N
LPC280-7
PROTRUSION WRAP
AS SHOWN
L=6, W=5
GT835M-8
11/16 TYP
3/8 DRILL(.374-.381) 3 HOLES
GB511J-08-13(3)
AN960-D8(6)
MS21043-08L3
B8 B10
LDW280-28639-1(REF)
AN742-D9(REF)
LDW280-28638-19(REF)
DETAIL "A" (SCALE: FULL)
(TYP 4 PLACES) B10
GT835M-8(REF)
LDW280P18288-1 (REF)
LPC280-7(REF)
LDW280-28639-1(REF)
GT835M-8 (REF)
LDW280P18289-1(REF)
LDW280-28553(REF)
B5 SECTION B-B
4 PLACES (TYP)
SCALE: FULL
B5
-29
(2 REQD)
DETAIL P
GROOVE PER GG110-8
(AN SIDE ONLY)
B7
B2 B9
B7
LDW938-10523-5
SEE NOTE 4
-Y
AN818-8C(2)(REF)
MS20819-8C(2)(REF)
L
-15
-27
B1
-25
SEE NOTE 6
GS570J-8C(2)
GU10A-8D
B7 MS20819-8C(2)
B9 (SEE NOTE 8)
(TYP 5 PLACES)
LDW938-10523-3
SEE DETAIL "G"
SEE NOTE 7
-17
-Z8.000 (REF)
-Y27.000(REF)
H
SEE DETAIL P
B9 B2
N
-Y27.000
B3
16 1/4 ±1/2
11 1/4 ±1/2
10.0 ±1/2
M
-19
SEE DETAIL "A"
16 1/2 ±1/8
LDW280-28639-1
FWD
SEE NOTE 1
-23
DRILL #19(.165-.171) 10 HOLES
AN742-D9(10) SEE NOTE 7
GB511J-08-3 (10)
MS21042L08(10)
AN960DEL(10)
14.0 ±1/2
J
8.0 ±1/2
1/4 ±1/16
LDW938-10523-1
SEE NOTE 7
+Y27.000(REF)
K
2.0 ±1/8
SEE NOTE 7
4 1/2 ±1/8
3 EQUAL SPACES
-21
SEE NOTE 6
+Z81.000(REF)
SEE NOTE 6
LDW938-10523-7
SEE NOTE 7
+Y81.000(REF)
(SEE DETAIL "F")
+Y
B5
-Z27.000
(REF)
+Z27.000
(REF)
LDW280-28638-5 INSTL
VIEW LOOKING DN @ 199.070
LDW280-28638-21
LDW938-15044-11
LDW938-10523-1 & -3(REF)
AN960-6L(2)
AN526-632-R6(2)
DETAIL "G"
TYP 2 PLACES
SCALE: FULL
LDW280-28638-19 (REF)
LDW938-10523-7(REF)
AN526-632-R6(2)
AN960-6L(2)
LDW938-15044-11
DETAIL "F"
TYP 2 PLACES
SCALE: FULL
GB511J-08-5
MS21042L08
AN960D8L
AN742-D9(2)
-19(REF)
-21(REF)
SECTION J-J (SCALE: FULL)
LDW280-28639-1(REF)
LDW280-28638-19(REF)
LDW938-10523-7(REF)
VIEW K-K (SCALE NONE)

NOTES:

1. DELETED
2. DELETED
3. DELETED
4. LENGTHS & BENDS OF LDW280-28638-15, -17, -19, -21, -23, -25 & -27 TO BE DETERMINED ON INSTALLATION.
5. MIN. BEND RADII FOR -15, -17, -19, -21, -23, -25 & -27 IS 1½ IN.
6. ON -5 INSTALLATION (TEST LINES) IT IS ACCEPTABLE FOR CLAMP SUPT POINTS TO BE 45 IN. APART FOR -15 THRU -27 ASSYS.
7. TAPE AROUND -15 THRU -27 ASS'YS BETWEEN AN742-D9, LDW938-10523-1, -3, -5 & -7 & LDW280-28813-1 INSTL WITH GT835C (.060 MAX. -.020 MIN.)
8. FLARE -15 THRU -27 PER MS 33584
9. PROOF PRESSURE TEST ASS'Y AT 150 ±5 P.S.I.G FOR 5 MINUTES USING GN2 OR G.H.E
10. LEAK TEST AT 95 ±5 P.S.I.G. USING GHE. NO DETECTABLE LEAKS ALLOWED USING MASS SPECTROMETER

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
E	26512	LDW280-28638	3
SCALE 1/8 &	NOTED	SHEET 3.00	

2 SUPERSEDES LDW280-28638 REV A 10-18-66

DWG 73.4 REV 3-67

LDW280-28638 C

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA-8(18)	1
PART NO. LDW280-28638-5		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	2.01	3.00				
REV	C	B	C	C	C				
SHEET		1.11							
REV		C							
SHEET									
REV									

LAST SECT LTR USED	U	GRUMMAN REL INFO C	
LAST DASH NO. USED	-51	PRIM NO. 207	JK(001) ME-IC 4/26/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/16 ±.010 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM * 1
DOCUMENTATION TYPE II

DRAWN BY	FISCHLER 6/14/66	WEIGHTS	D.ROBESCH 7/11/66
LAYOUT BY	FISCHLER 6/14/66	RELIABILITY	
CHECKED BY		THERMO	AB 11/8/66
GR LEADER	J.STRAKOSCH 6/18/66		
VEH DES INT	W. BISCHOFF 6/23/66		
STRUCTURE	F.BUNCE 6/24/66	PROJ ENGR	PLUMKETT 7/13/66
STRUCTURE	R.HILDERMAN 6/24/66	REL GROUP	C.BOTTI 7/13/66
SYS TEST			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

COLD PLATE INSTALLATION
DESCENT STAGE ENGINE COMPARTMENT
UPPER SEPARATION SIMULATION

SIZE B
CODE IDENT NO. 26512
LDW280-28638 C
SCALE NONE
SHEET 1.00 OF 6

ENG 77.1 12-65

SUPERSEDES LDW280-28638 NOCHANGE 7/13/66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS: REWORK	DISPOSITION OF EXISTING PARTS: SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
B	8	2.01 3.00	6F 7F				✓	EOB8	IN B/M & FLD ON-5 ADDED LDW280P18288-1(12), LDW280P18289-1(12), GB511J-08-13(12), AN960-8(24), 3/8 DIA. HOLE (4 HOLES) REMOVED GB511J-06-2(12). ADDED LPC-280-7 PROTRUSION WRAP. GT835M-8 TAPE AS REQD. ADDED SH. 1.11	LTA-8	✓		F. LEGIDO 11-27-67		
	9	2.00 2.01 3.00	5F				✓	EOB9	REV. TO EO B5: REMOVED AN815-8D. IN B/M & F/D ADDED GS570J-8C(10) & GU10A-8D(5). , REV TO EO B2- IN F/D & B/M REMOVED GA500E-6C8(2). ADDED NOTES 9 & 10. ADDED -29 MAKE FROM GA500E-6C8.						
	10	2.00 3.00	6F 7F				✓	EOB10 LCD-1338 & Ⓟ	REVISION OF EOB8: IN FLD & B/M ON-5 ADDED AN960-D8(24), AN960-D8(6), MS21043-08(12), REMOVED AN960-8(24), AN960-8(6), MS21043-06(12).			H.D.		INC	
C	1	3.00	3F						INC EO C1	LTA-8			H. MURPHY 4-8-69		4-22-69
	2	2.01, 3.00	6A,F						INC EO C2						
	3	1.00, 2.00, 2.01, 3.00	2A,B 3F 6,7H						INC EO C3						
	4	1.11, 3.00	6H						INC EO C4						
	5	3.00							INC EO C5				L.D.		
	6	3.00		Ⓡ					INC EO C6	LTA-8		H.D.	E.C.G.		

CHG APPROVED

LTR	GROUP LDR	VDI	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY				
B										
C										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28638	C
SCALE NONE		SHEET 1.11	

ENG 77.16 3-66

01

NAS 9-1100

CL	QTY PER ASSEMBLY					-5	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						21		MS21042L8	E	NUT	STD PART						
						12		MS21043-08	E	NUT	STD PART						
						10		MS20819-8 D		SLEEVE							
						25		AN960-D8L		WASHER							
						8		AN960-6L		WASHER							
						8		AN526-632-R6		SCREW	STD PART						
						7		GB511J-08-2		BOLT	GRUMMAN STD						
						1		GB511J-08-5		BOLT	GRUMMAN STD						
						12		GB511J-08-13		BOLT	GRUMMAN STD						
						14		GB511J-08-3		BOLT	GRUMMAN STD						
						1		LDW938-10523-7		HEATER ASSY	SEE DWG						
						1		-5									
						1		-3									
						1		LDW938-10523-1		HEATER ASSY							
						1		LDW280-28639-1		COLD PLATE	SEE DWG						
D						1		LDW280-28638-17		TUBE	AL ALLOY TUBE	WW-T-700/4	5052	.049X1/2 OD(NOTE 1&2	NONE	NONE	
D						1		LDW280-28638-15		TUBE	AL ALLOY TUBE	WW-T-700/4	5052	.049X1/2 OD(NOTE 1&2	NONE	NONE	
								LDW280-28638-5	E	COLD PLATE INSTL					NONE	NONE	

CL=CLEANLINESS LEVEL PER LSP 14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28638	C

SCALE NONE SHEET 2.00

ENG 77.2 7-66

01

NAS 9-1100

CL	QTY PER ASSEMBLY -5	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	21	AN742-D9	E		CLAMP	STD PART						
	16	AN960-D8L			WASHER	STD PART						
	AR	GT835C			TAPE	GRUMMAN STD						
	10	GS570J-8C			"O" RING	GRUMMAN STD						
	5	GU10A-8D			SPL UNION	GRUMMAN STD						
	AR	LPC-280-7			PROTRUSION WRAP	GRUMMAN STD						
	12	LDW280P18288-1			SLEEVE	SEE DWG						
	12	LDW280P18289-1			SPACER	SEE DWG						
	1	LDW280-18044-25			PLATE	SEE DWG						
	1	LDW280-18044-23			PLATE							
	1	LDW280-18044-21			CHANNEL							
	2	LDW280-18044-19										
	2	LDW280-18044-17										
	1	LDW280-18044-15										
	1	LDW280-18044-13			CHANNEL	SEE DWG						
	4	LDW280-28638-51			ADAPTER	CORROSION RES.STL	QQ-S-763 CL.IV		3/16 DIA. × 1 1/4	NONE	NONE	
	2	LDW280-28638-29			ADAPTER	MAKE	FROM	GA500E-	6C8	NONE	NONE	
D	1	LDW280-28638-27			TUBE	AL ALY TUBE	WW-T-700/14	5052	.049 x 1/2 OD (NOTE 1&2)	NONE	NONE	
	1	LDW280-28638-25										
	1	LDW280-28638-23										
	1	LDW280-28638-21										
D	1	LDW280-28638-19	E		TUBE	AL ALY TUBE	WW-T-700/14	5052	.049 x 1/2 OD (NOTE 1&2)	NONE	NONE	

CL = CLEANLINESS LEVEL PER LSP14-0011:

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-28638 | C

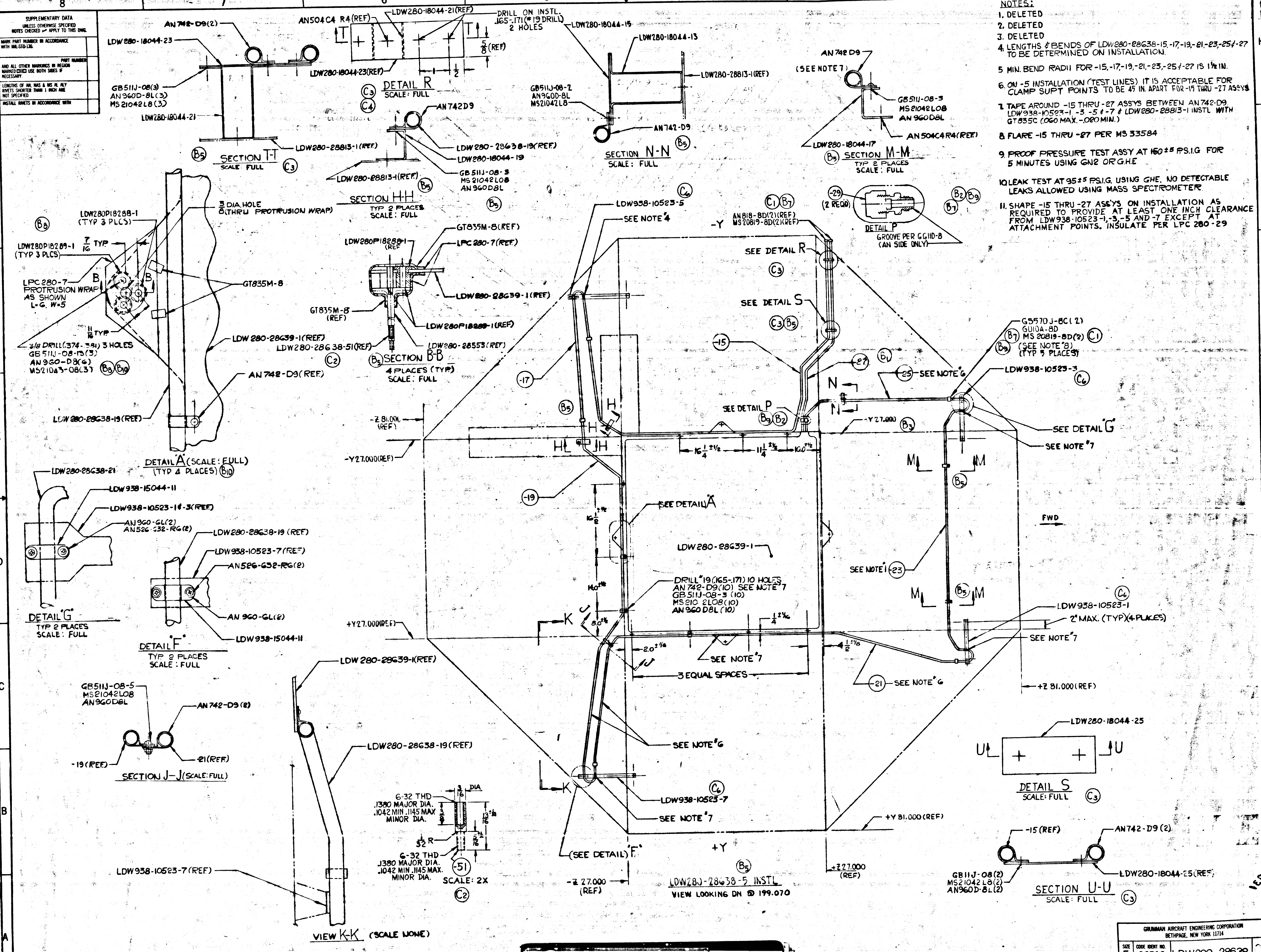
SCALE NONE | SHEET 2.01

ENG 77.2 5-64

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	


AN742-D9(2)
LDW280-18044-23
GB511J-08(3)
AN960D-8L(3)
MS21042L8(3)
LDW280-18044-21
SECTION T-T
SCALE: FULL
AN504C4 R4(REF)
LDW280-18044-21(REF)
DRILL ON INSTL. .165-.171(#19 DRILL) 2 HOLES
LDW280-18044-23(REF)
DETAIL R
SCALE: FULL
AN742D9
LDW280-28813-1(REF)
LDW280-28638-19(REF)
LDW280-18044-19
GB511J-08-3
MS21042L08
AN960D8L
SECTION H-H
TYP 2 PLACES
SCALE: FULL
LDW280-18044-15
LDW280-18044-13
LDW280-28813-1(REF)
GB511J-08-2
AN960D-8L
MS21042L8
AN742-D9
SECTION N-N
SCALE: FULL
AN742 D9
(SEE NOTE 7)
GB511J-08-3
MS21042L08
AN960D8L
AN504C4R4(REF)
LDW280-18044-17
SECTION M-M
TYP 2 PLACES
SCALE: FULL
(-29)
(2 REQD)
DETAIL P
GROOVE PER GG110-8 (AN SIDE ONLY)
LDW280P18288-1 (TYP 3 PLCS)
3 DIA. HOLE (THRU PROTRUSION WRAP)
LDW280P18289-1 (TYP 3 PLCS)
7/16 TYP
LPC280-7 PROTRUSION WRAP AS SHOWN L-G, W=5
GT835M-8
11/16 TYP
3/8 DRILL (.374-.381) 3 HOLES
GB511J-08-13(3)
AN960-D8(6)
MS21043-08(3)
LDW280-28639-1(REF)
AN742-D9(REF)
LDW280-28638-19(REF)
DETAIL A (SCALE: FULL) (TYP 4 PLACES)
GT835M-8(REF)
LDW280P18288-1 (REF)
LPC280-7(REF)
LDW280-28639-1(REF)
GT835M-8 (REF)
LDW280P18289-1(REF)
LDW280-28638-51(REF)
LDW280-28553(REF)
SECTION B-B
4 PLACES (TYP)
SCALE: FULL
LDW938-10523-5
SEE NOTE 4
AN818-8D(2)(REF)
MS20819-8D(2)(REF)
-Y
SEE DETAIL R
SEE DETAIL S
-15
-17
-27
GS570J-8C(2)
GG110A-8D
MS20819-8D(2)
(SEE NOTE 8)
(TYP 5 PLACES)
-25 SEE NOTE 6
LDW938-10523-3
SEE DETAIL P
SEE DETAIL G
SEE NOTE 7
-Z 81.000 (REF)
-Y27.000(REF)
-Y27.000
16 1/4
11 1/4
10.0
-19
SEE DETAIL A
LDW280-28639-1
SEE NOTE 4 -23
FWD
DRILL #19 (.165-.171) 10 HOLES
AN742-D9(10) SEE NOTE 7
GB511J-08-3 (10)
MS21042L08(10)
AN960D8L (10)
LDW938-10523-1
2" MAX. (TYP)(4 PLACES)
SEE NOTE 7
+Y27.000(REF)
3 EQUAL SPACES
SEE NOTE 7
-21 SEE NOTE 6
+Z 81.000(REF)
SEE NOTE 6
LDW938-10523-7
SEE NOTE 7
+Y 81.000 (REF)
(SEE DETAIL) F
+Y
-Z 27.000 (REF)
+Z 27.000 (REF)
LDW280-28638-5 INSTL
VIEW LOOKING DN @ 199.070
LDW280-28638-21
LDW938-15044-11
LDW938-10523-1 & -3 (REF)
AN960-GL(2)
AN526-632-R6(2)
DETAIL G
TYP 2 PLACES
SCALE: FULL
LDW280-28638-19 (REF)
LDW938-10523-7 (REF)
AN526-632-R6(2)
AN960-GL(2)
LDW938-15044-11
DETAIL F
TYP 2 PLACES
SCALE: FULL
GB511J-08-5
MS21042L08
AN960D8L
AN742-D9(2)
-19(REF)
-21(REF)
SECTION J-J (SCALE: FULL)
LDW280-28639-1(REF)
LDW280-28638-19(REF)
LDW938-10523-7(REF)
VIEW K-K (SCALE NONE)
6-32 THD .1380 MAJOR DIA. .1042 MIN .1145 MAX MINOR DIA.
3/16 DIA
1/32 R
(-51)
SCALE: 2X
LDW280-18044-25
DETAIL S
SCALE: FULL
-15(REF)
AN742-D9(2)
GB11J-08(2)
MS21042L8(2)
AN960D-8L(2)
LDW280-18044-25(REF)
SECTION U-U
SCALE: FULL

NOTES:

1. DELETED
2. DELETED
3. DELETED
4. LENGTHS & BENDS OF LDW280-28638-15, -17, -19, -21, -23, -25 & -27 TO BE DETERMINED ON INSTALLATION.
5. MIN. BEND RADII FOR -15, -17, -19, -21, -23, -25 & -27 IS 1½ IN.
6. ON -5 INSTALLATION (TEST LINES) IT IS ACCEPTABLE FOR CLAMP SUPT POINTS TO BE 45 IN. APART FOR -15 THRU -27 ASS'YS
7. TAPE AROUND -15 THRU -27 ASS'YS BETWEEN AN742-D9, LDW938-10523-1, -3, -5 & -7 & LDW280-28813-1 INSTL WITH GT835C (.060 MAX. -.020 MIN.)
8. FLARE -15 THRU -27 PER MS 33584
9. PROOF PRESSURE TEST ASSY AT 160 ± 5 P.S.I.G FOR 5 MINUTES USING GN2 OR G.H.E
10. LEAK TEST AT 95 ± 5 P.S.I.G. USING GHE. NO DETECTABLE LEAKS ALLOWED USING MASS SPECTROMETER.
11. SHAPE -15 THRU -27 ASS'YS ON INSTALLATION AS REQUIRED TO PROVIDE AT LEAST ONE INCH CLEARANCE FROM LDW938-10523-1, -3, -5 AND -7 EXCEPT AT ATTACHMENT POINTS. INSULATE PER LPC 280-29

011 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.	
E	26512	LDW280-28638
SCALE 1/8 & NOTED		SHEET

2 SUPERSEDES LDW280-2863

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LDW280-28638
EO NO. B1
CONTROL INFO NO. LM-5-11055

IN FLD & B/M ON -1
MS 20819-8C(6) (WAS) MS 20819-8 (6)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: TO ELIMINATE DISSIMILAR METAL CORROSION.

DESCRIPTION OF EO: IN FLD & B/M ON -1 MS 20819-8C(6) WAS MS20819-8(6)

GAEC EO RELEASE: FR

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	WT			~	mjm	CH	RWC	JRP
DATE	11/8/66			~	11-8-66	11-10-66	11-14-66	11/10/66
/	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	[illegible]

PRIORITY: C

DRAWING TITLE: COLD PLATE INSTL - D.S. - ENG COMP-UPPER-SEPARATION SIMULATOR

DRAWING NO.: LDW280-28638

EO NO.: B1

ISSUED BY E.J. COMSKEY SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

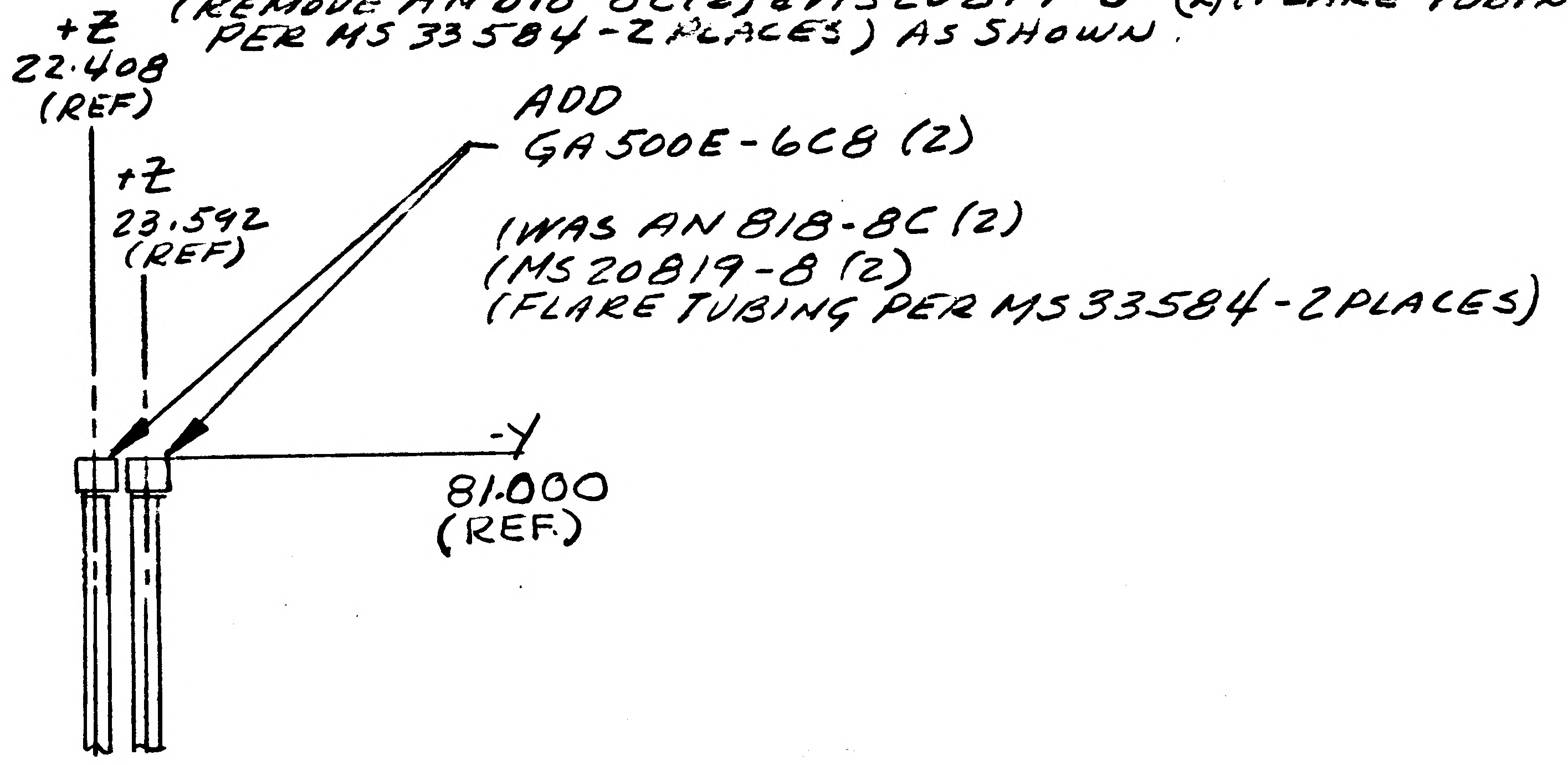
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

*

DWG. NO. LDW280-28638		EO NO. 82	
CONTROL INFO NO. LM-5- 9705			

IN B1M (FOR-1 INSTAL.) ADD GA 500E-6C8 (2) & REMOVE AN 818-8C (2) & MS 20819-8 (2)
IN F10 (FOR-1 INSTAL) ADD GA500E-6C8 (2)
(REMOVE AN 818-8C (2) & MS 20819-8 (2) (FLARE TUBING PER MS 33584-2 PLACES) AS SHOWN.



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DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
FACILITATE MFG	IN F10 & B1M (FOR-1 INST) ADDED GA500E-6C8 (2) INSTALL PER REMOVED AN818-8C (2) MS20819-8 (2) FLARE TUBING PER MS 33584-2 PLACES)	✓ VE

MODEL	EFFECTIVITY		
	~~PROCURING ACTIVITY~~ NO.	GAEC UNIT NO.	~~SUB CONTR UNIT~~ NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓		✓		APPROVED BY	JAS				DV	DV	RMC	JRF
				DATE	12/15				11/11	11/11	11-14-66	11/12/66
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C5	COLD PLATE INST. DS ENG COMP.-UPPER-SEPERATION SIMULATOR	LDW280-28638	82

ISSUED BY LIAISON J.B. BECKER/X6452 SECTION VDI/STRAKOSCH GROUP NO. 280 PL 35

01 NAS 9-1100

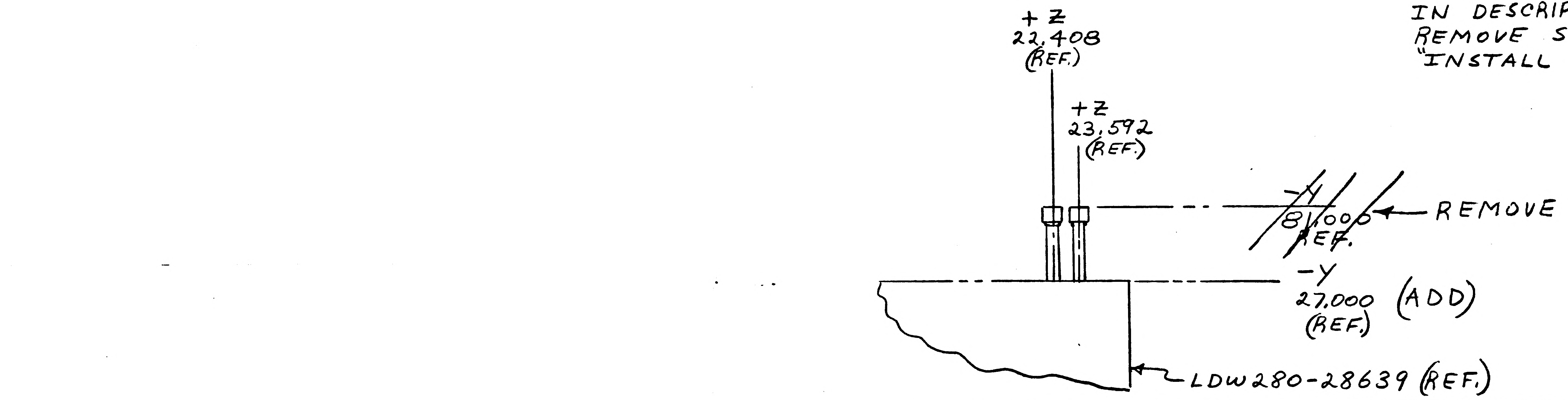
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-28638	EO NO. B3
CONTROL INFO NO. LM-5-9707	

THIS IS A REVISION OF EO B2

IN "DESCRIPTION OF EO" REMOVE STATEMENT "INSTALL PER."



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DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
FACILITATE MFG.	REF. EO B2 ADDED -Y 27,000 (REF.) REMOVED -Y81,000 (REF.) IN DESCRIPTION OF E.O. REMOVED "INSTALL PER."	✓

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JAS				DV	CH	RMR (E)	KP
✓		✓		DATE	12/15				11/12	11-12-66	11-14-66	11/12/66
REVISE DWG	RECORD EO	REWORK	SCRAP	/	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COLD PLATE INST. D.S. ENG. COMP.-UPPER SEPARATION SIMULATOR	LDW280-28638	B3

ISSUED BY LIAISON HEDGES-6452 SECTION VDI GROUP NO. 335 PL. 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28638
EO NO. B4
CONTROL INFO NO. LM-5-9816

THIS IS A REVISION OF E.O. B1 & B2

ON E.O. B1 & B2 -1 INSTL. S/B -3 INSTL.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

5

REASON FOR EO: -1 WAS REMOVED ON "A" CHG. DWG.
R.T.E. 05131-188

DESCRIPTION OF EO: REF. E.O. B1 & B2
-3 INSTL. WAS -1 INSTL.

GAEC EO RELEASE: ✓ C
FR

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	NRS				—	JH	RMC (WP)	JRP
DATE	12/20				—	12-3-66	12-7-66	12/3/66
6	U01	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COLD PLATE INSTL. D/S-ENG. COMP-UPPER	LDW280-28638	B4

ISSUED BY LIAISON J. JARVIS x6952 SECTION V.D.I. GROUP NO. 280 PL 35

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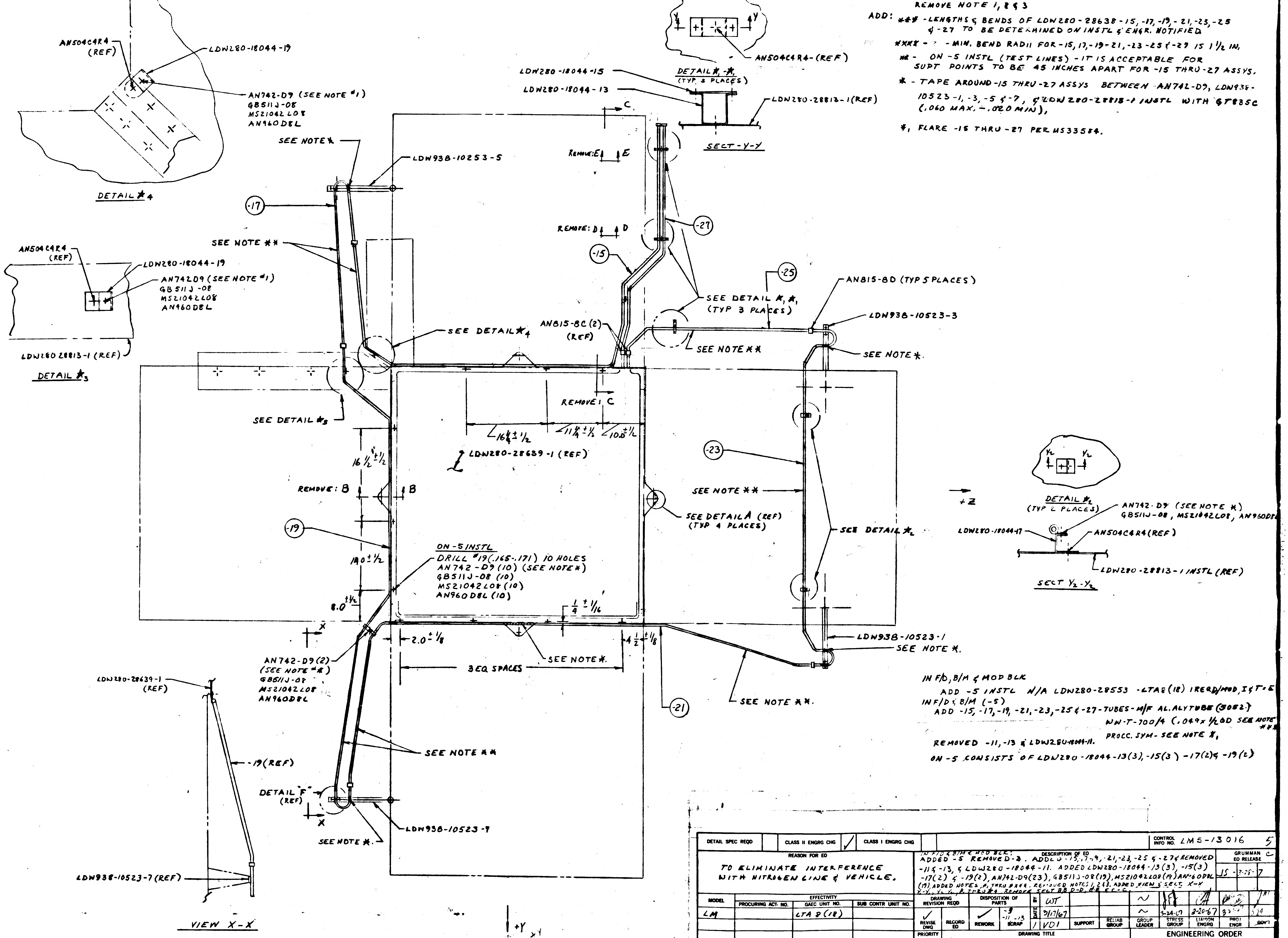
NAS 9-1100


AN504C4R4 (REF)
LDW280-18044-19
AN742-D9 (SEE NOTE #1)
GB511J-08
MS21042L08
AN960D8L
DETAIL #4
SEE NOTE *
LDW938-10253-5
-17
SEE NOTE **
AN504C4R4 (REF)
LDW280-18044-19
AN742D9 (SEE NOTE #1)
GB511J-08
MS21042L08
AN960D8L
LDW280 28813-1 (REF)
DETAIL #3
SEE DETAIL #4
SEE DETAIL #3
LDW280-18044-15
LDW280-18044-13
DETAIL #, #, (TYP 3 PLACES)
AN504C4R4-(REF)
LDW280-28813-1(REF)
SECT-Y-Y
REMOVE: E E
REMOVE: D D
-27
-15
SEE DETAIL #, #, (TYP 3 PLACES)
-25
AN815-8D (TYP 5 PLACES)
AN815-8C (2) (REF)
SEE NOTE **
LDW938-10523-3
SEE NOTE *
REMOVE: C C
16 3/4 ±1/2
11 1/4 ±1/2
10.0 ±1/2
LDW280-28639-1 (REF)
16 1/2 ±1/2
REMOVE: B B
-23
SEE NOTE **
SEE DETAIL A (REF) (TYP 4 PLACES)
SEE DETAIL #2
-19
14.0 ±1/2
8.0 ±1/2
ON-5 INSTL
DRILL #19 (.165-.171) 10 HOLES
AN742-D9 (10) (SEE NOTE #)
GB511J-08 (10)
MS21042L08 (10)
AN960D8L (10)
1/4 ±1/16
LDW938-10523-1
SEE NOTE *.
X
2.0 ±1/8
SEE NOTE *.
4 1/2 ±1/8
3 EQ SPACES
AN742-D9 (2) (SEE NOTE #)
GB511J-08
MS21042L08
AN960D8L
-21
SEE NOTE **.
SEE NOTE **
DETAIL "F" (REF)
X
SEE NOTE *.
LDW938-10523-7
LDW280-28639-1 (REF)
-19 (REF)
LDW938-10523-7 (REF)
VIEW X-X
+Z
DETAIL #2 (TYP 6 PLACES)
AN742-D9 (SEE NOTE #)
GB511J-08, MS21042L08, AN960D8L
LDW280-18044-17
AN504C4R4 (REF)
LDW280-28813-1 INSTL (REF)
SECT Y2-Y2
+Y

NOTES:

REMOVE NOTE 1, 2 & 3

ADD: *** - LENGTHS & BENDS OF LDW280-28638-15, -17, -19, -21, -23, -25 & -27 TO BE DETERMINED ON INSTL & ENGR. NOTIFIED

*XXX - MIN. BEND RADII FOR -15, 17, -19-21, -23-25 & -27 IS 1 1/2 IN.

** - ON -5 INSTL (TEST LINES) - IT IS ACCEPTABLE FOR SUPT POINTS TO BE 45 INCHES APART FOR -15 THRU -27 ASSYS.

* - TAPE AROUND -15 THRU -27 ASSYS BETWEEN AN742-D9, LDW938-10523-1, -3, -5 & -7, & LDW280-28813-1 INSTL WITH GT835C (.060 MAX, -.020 MIN),

*, FLARE -15 THRU -27 PER MS33584.

IN F/D, B/M & MOD BLK

ADD -5 INSTL N/A LDW280-28553 -LTA8(18) 1 REQD/MOD, I & T • E

IN F/D & B/M (-5)

ADD -15, -17, -19, -21, -23, -25 & -27 - TUBES - M/F AL. ALY TUBE (5052) WW-T-700/4 (.049 x 1/2 OD SEE NOTE ***) PROCC. SYM - SEE NOTE *,

REMOVED -11, -13 & LDW280-18044-11.

ON -5 CONSISTS OF LDW280-18044-13(3), -15(3) -17(2) & -19(2)

ADD:
LDW280-28638 - 5 INSTL (IDENT TO -3 EXCEPT AS SHN)
VIEW LOOKING DN @ 199.070

X-X, Y1-Y1, Y2-Y2, #1, #2, #3 & #4 - USE NEXT AVAIL. LETTERS.
*1, *, **, *XX, *XXX - USE NEXT AVAIL NO'S

DETAIL SPEC REQD		CLASS II ENGRG CHG	✓	CLASS I ENGRG CHG		CONTROL INFO NO. LM5-13016 5

REASON FOR EO	DESCRIPTION OF EO	GRUMMAN EO RELEASE
TO ELIMINATE INTERFERENCE WITH NITROGEN LINE & VEHICLE.	IN F/D & B/M & MOD BLK: ADDED -5 REMOVED -3. ADDED -15, -17, -19, -21, -23, -25 & -27 & REMOVED -11 & -13, & LDW280-18044-11. ADDED LDW280-18044-13(3), -15(3) -17(2) & -19(2), AN742-D9(23), GB511J-08(19), MS21042L08(19) AN960D8L (19) ADDED NOTES #, THRU #XXX. REMOVED NOTES 1, 2 & 3. ADDED VIEW & SECT. X-X Y1-Y1, Y2-Y2, #1 THRU #4 REMOVE SECT B-B, D-D, E-E, & C-C.	C JS 3-28-67

MODEL	EFFECTIVITY PROCURING ACT. NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LTA 8 (18)	

DRAWING REVISION REQD: REVISE DWG	DRAWING REVISION REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP	BY / DATE		SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	GOV'T
✓		✓	-3 -11 -13	WT 3/17/67 1 VD1				~	3-24-67	3-20-67	3-2	3/24

PRIORITY	DRAWING TITLE	ENGINEERING ORDER DRAWING NO.	EO NO.
C	COLD PLATE INSTL D/S-ENG COMP. UPPER SEPARATION SIMULATION	LDW280-28638	B5

X6510

ISSUED BY DON RAGAS SECTION VD1 GROUP NO. 335 PL 5

CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 32.3 REV 3-65

NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280 -28638		EO NO. B6
CONTROL INFO NO. LM5-13056		

IN B/M: FOR -15 THRU -27: USE CLEANLINESS PER LSP-14-0011; LEVEL "D".

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO ADD CLEANLINESS REQMTS	IN B/M FOR -15 THRU 27; ADDED: CLEANLINESS PER LSP-14-0011; LEVEL "D".	C JS 3-28-7 -

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	WT				—	CH		
DATE	3/23/67				—	3-23	3-28-67	3-24-67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SUPT INSTL D/S ENG COMP-NIT. COLD PLATE	LDW280-28638	B6

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

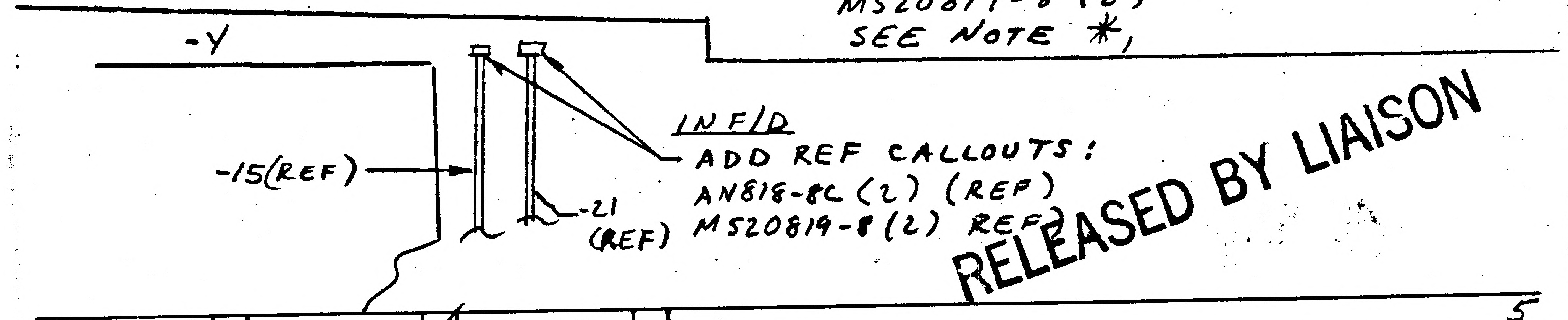
DWG. NO. LDW280-28638
EO NO. B7
CONTROL INFO NO. LM5-13039

THIS IS A REV OF EO B5

IN NOTES
*** - REMOVE : & ENGR NOTIFIED
** - REVISE TO READ: "FOR CLAMP SUPT POINTS" (WAS) FOR SUPT POINTS.

IN B/M : ADD GT835C - TAPE - AS REQD

IN F/D & B/M - REVISE CALLOUT AN 815-8D
ADD : AN818-8C (2)
MS20819-8 (2) (TYP 5 PLACES)
SEE NOTE *,



IN F/D
ADD REF CALLOUTS :
AN818-8C (2) (REF)
MS20819-8 (2) REF)

RELEASED BY LIAISON

5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: TO CLAIRIFY EO B5 & TO ADD MISSING HARDWARE

DESCRIPTION OF EO: REF EO B5
IN NOTES: *** REMOVED: "& ENGR NOTIFIED"
**- REVISED: "FOR CLAMP SUPT POINTS" WAS FOR SUPT POINTS
IN B/M ADDED GT835C, IN F/D & BM ADDED MS20819-8(10)
MS20819-8(10) (SEE NOTE *,) ADDED REF CALLOUT: AN818-8C(2) MS20819-8(2).

GAEC EO RELEASE: C
JS 3-28-7
—

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP /

APPROVED BY	lOT			~	JFY	CH	RMG	
DATE	3/21/67			~	3-24-67	3-22-67	3-28-67	3-24-67
	VOI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: COLD PLATE INSTL D/S ENG. COMP. VR SEP. SIM.
DRAWING NO.: LDW280-28638
EO NO.: B7

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

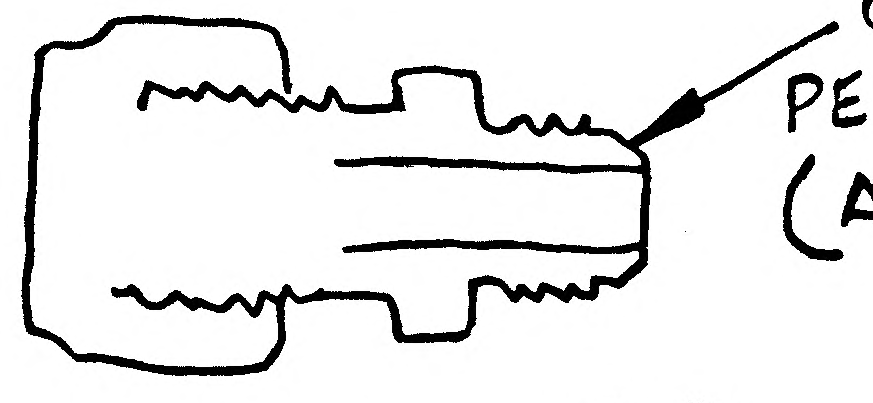
*

DWG. NO. LDW280-28638		EO NO. B9	
CONTROL INFO NO.	LM52-0540		

THIS IS A REV. TO E.O. B5

ON -5,
IN B/M & F/D: ADD GS570J-8C, "O" RING, QTY 12.
ADD GU10A-8D SPL UNION 5 REQ'D (TYP 5 PLACES)
AND REMOVE AN815-8D (TYP 5 PLACES)
REMOVE, AN815-8C (2)
(REF)

THIS IS A REV. TO E.O. B2
IN F/D & B/M.
REMOVE: GA500E-6C8 (2)
ADD -29 (2 REQ'D) MAKE FROM GA500E-6C8



DETAIL -29
(MAKE FROM GA500E-6C8)

Add Notes * and **:
* Proof Pressure Test Ass'y at 150±5psig For 5 minutes using GN2 or GHE.

** Leak Test at 95±5psig Using GHE. No Detectable Leaks Allowed Using Mass Spectrometer

*
**} Next Available Notes.

(52)

NEXT ASSY LDW280-28553

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	INTERFACE NOT AFFECTED LDD CHANGE NOT REQ'D

REASON FOR EO LCR 20166
INCREASE RELIABILITY

DESCRIPTION OF EO
-5, REV. TO E.O. B5
IN B/M & F/D ADDED GS13AJ-508 (12) & GU10A-8D (5) RMVD AN815-8D
REV TO EO B2 - IN F/D & B/M REMOVED GA500E-6C8 2
ADDED NOTES *, ** ADDED -29 (2) MAKE FROM GA500E-6C8

GAEC EO RELEASE
②
JK 10/3/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY					PRW		Elver	Botti
DATE	9-23	10/28/67			9-28-67		9-22-67	9-23-67
5	MSC og ENG	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COLD PLATE INSTALLATION D/S STAGE ENG. COMP. UPPER SEPAR. SIMUL.	LDW280-28638	B9

ISSUED BY R. TAYLOR / B. Schwager X 5947 SECTION MSC PROJ. ENGR GROUP NO. 827 PL 52

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28638
EO NO. B10
CONTROL INFO NO. LM 52-0560

THIS REVISES EO B8

IN FLD AND B/M ON -5 ADD AN960-D8(24), MS21043-08(12), AN960-D8(6)
REMOVE AN960-8(24), AN960-8(6), MS21043-06(12)

IN FIELD OF DRAWING
REMOVE MS21043-06(12)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

LCP- 1338 52

REASON FOR EO: THERMAL INSULATION REQ'D ON STANDOFF SUPPORTING INTERSTAGE SEPARATION PLATE

DESCRIPTION OF EO: REVISION OF EO B8
INFLD AND B/M ON -5 ADDED AN960-D8(24) AN960-D8(6), MS21043-08(12) REMOVED AN960-8(24), AN960-8(6), MS21043-06(12)

GAEC C EO RELEASE: JK 10/5/67

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

	MSC Cog Engr.	~~SUPPORT~~ UDI	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	RKW	JAP			RKW		F.U.T	Botti
DATE	10/5/67	10/28/67			10/5/67		10-5-67	10-7-67

PRIORITY: C
DRAWING TITLE: COLD PLATE INSTL. ~~DS~~. ENGINE COMPT. ~ UPPER SEP. SIML
DRAWING NO.: LDW280-28638
EO NO.: B10

ISSUED BY WHITSIT / VOIT SECTION PROJ. ENG. GROUP NO. 827 PL 52

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28638		EO NO. C1
CONTROL INFO NO. LM 52-0565		

THIS IS A REV. OF EO B7

IN F/D AND B/M - REVISE CALLOUT

ADD: AN818-8D(2)
MS20819-8D(2)

REMOVE: AN818-8C(2)
MS20819-8(2)

IN F/D - REVISE CALLOUT

S/B-27 (REF.) WAS -21 (REF)
AN818-8D(2) (REF.)
MS20819-8D(2) (REF.)

REMOVE: AN818-8C(2) (REF.)
MS20819-8 (2)(REF.)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD-1338

E2

REASON FOR EO: TO CLARIFY E.O.-85 & ADD MISSING HARDWARE

DESCRIPTION OF EO: REF. EO B-7 IN F/D & B/M ADDED: AN818-8D(2) MS20819-8D(2) AN818-8D(2) MS20819-8D(2)(REF.) S/B-27 WAS -21 AN818-8D(2) MS(REF) 20819-8 REMOVED: AN818-8C(2) MS20819-8(2)

R GAEC EO RELEASE: C JK 10/31

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	PKW	Jav			PKW		E. Whit	Bott
DATE	10/7/67	10/28/67			10/7/67		10-2	10-7-67
	MSC ENG. ENG.	SUPPORT VDT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~ESM~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COLD PLATE INST., D/S ENG. COMP. VP, SEP. SIM.	LDW280-28638	C1

ISSUED BY WHITSIT / VOIT SECTION PROJ. ENG. GROUP NO. 827 PL 52

01

NAS 9-1100

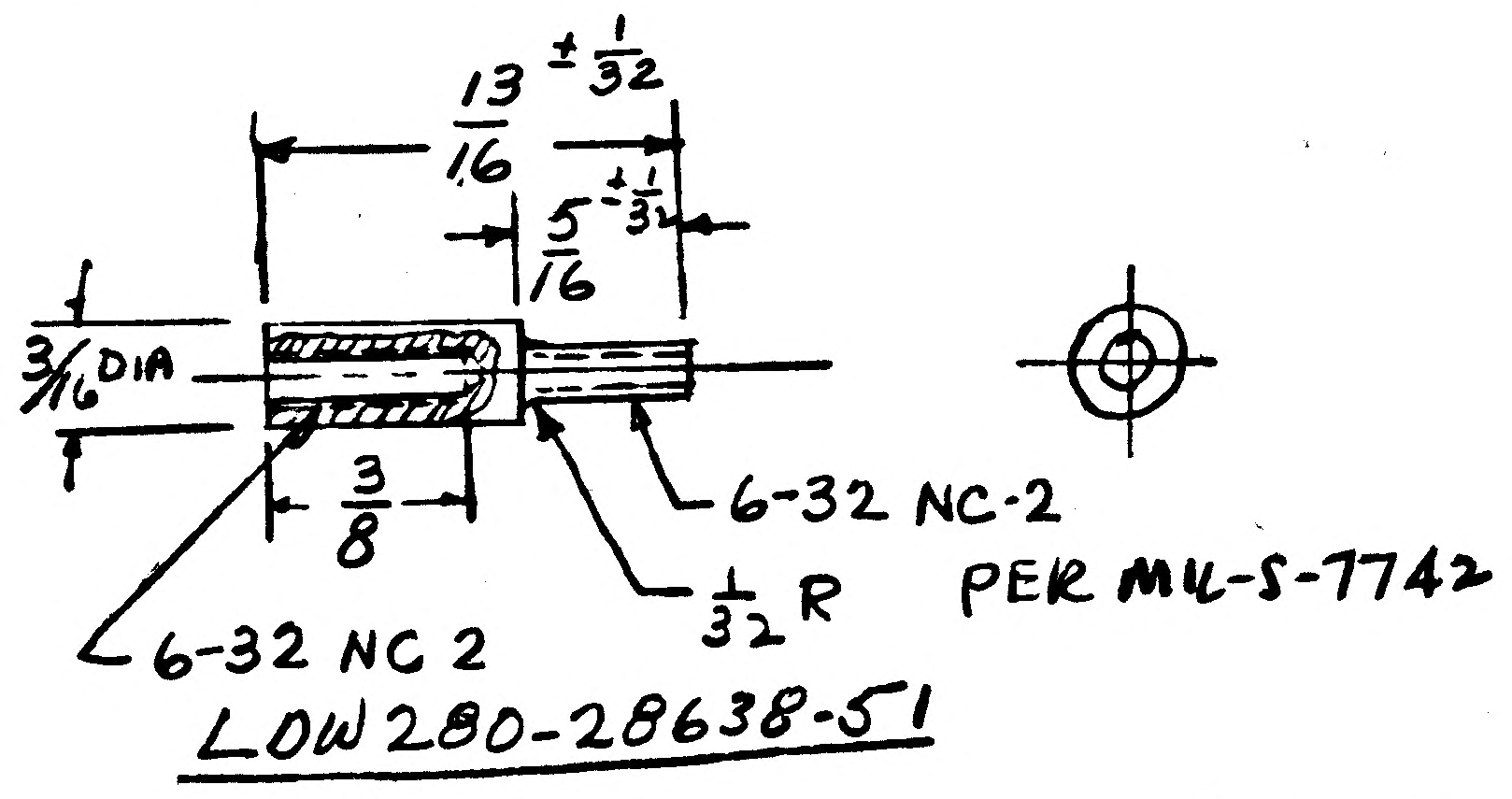
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

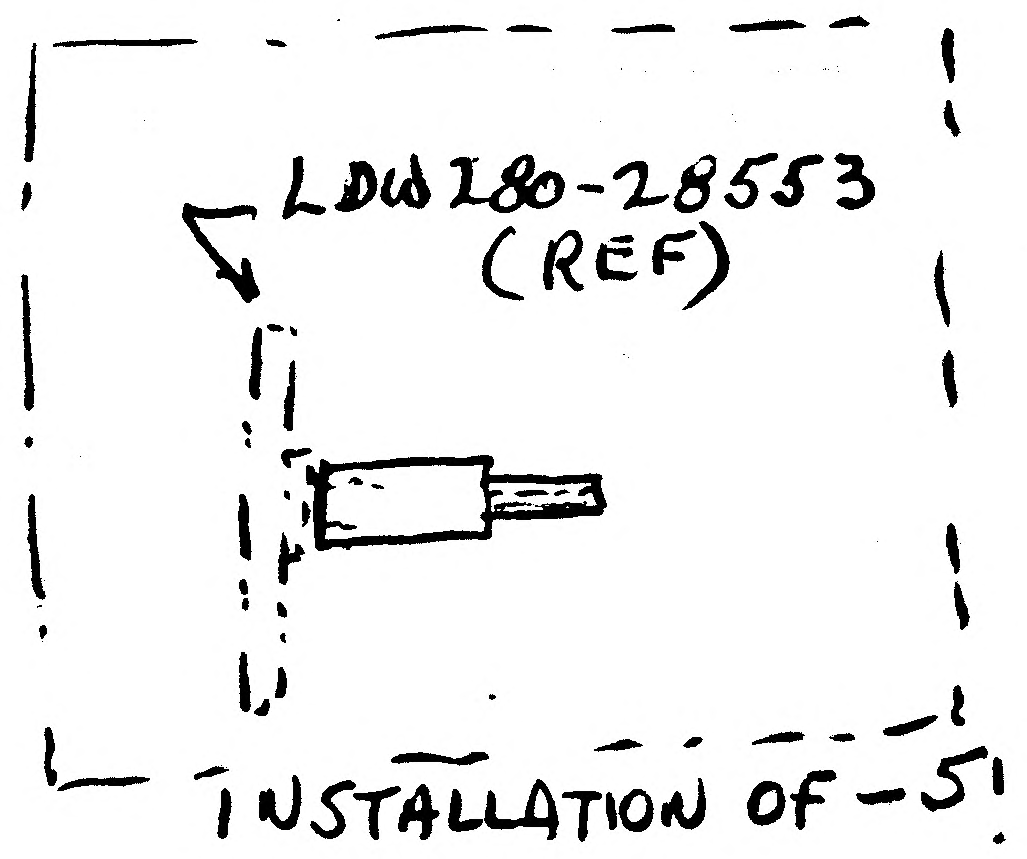
ENGINEERING ORDER

DWG. NO. LDW280-28638		EO NO. C2
CONTROL INFO NO. LM 52-0562		

FOR -5
IN B/M & F/D
ADD: LDW280-28638-51



LDW280-28638-51



MATERIAL: CORROSION RES. STL. QQ-S-763 CLASS IV
4 REQ'D.

6-32 TH'D } .1380 MAJOR DIA
.1042 MIN. .1145 MAX MINOR DIA

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 1338	52

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO MAKE STUD LENGTH COMPATIBLE WITH ASSEMBLY	FOR-5 ADDED LDW280-28638-51	Ⓑ C JK 10/5/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY		JaP			RPW			Both
DATE	10/5/67	10/28/67			10/7/67		10/5/67	10-7-67
	MSC C/O ENGR	~~SUPPORT~~ VDT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COLD PLATE INSTL D.S. ENGINE COMPT-UPPER SEPARATION SIML	LDW280-28638	C2

ISSUED BY H. CORKEY X5967 SECTION MSC OPER GROUP NO. 827 PL 52

01

NAS 9-1100

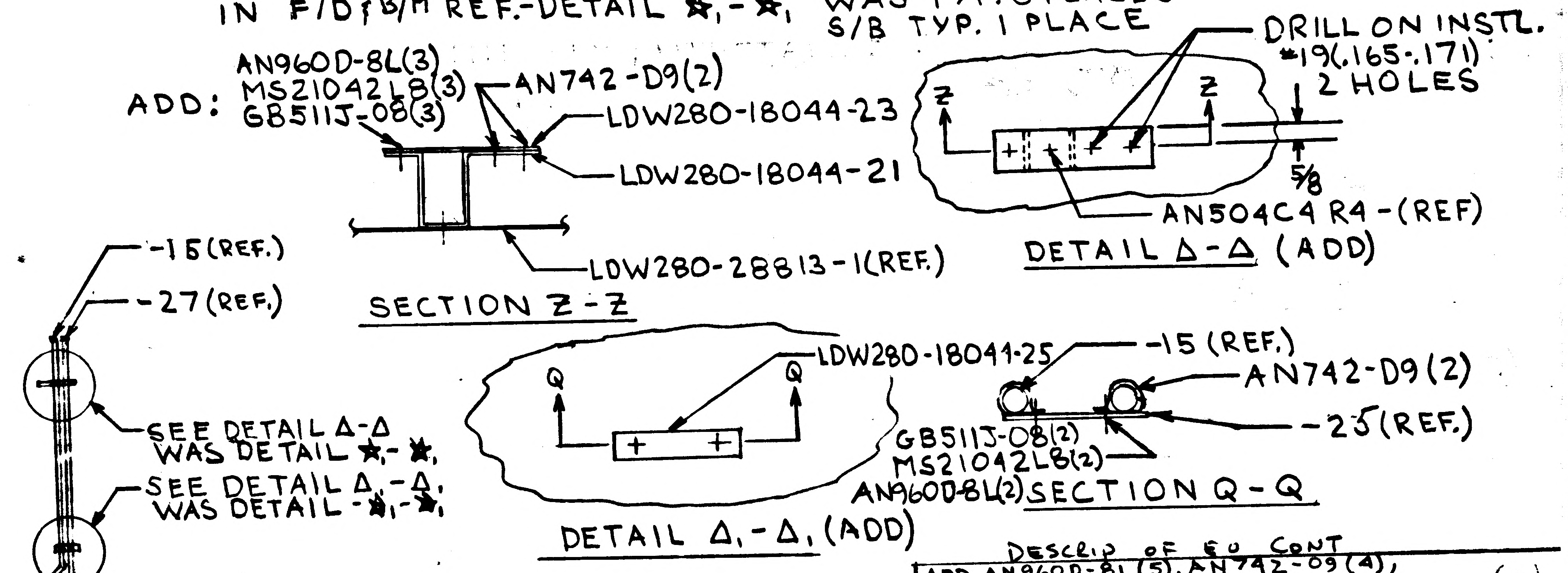
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-28638		EO NO. C 3
CONTROL INFO NO. LM52-0574		

ON-5 (REF. EOB5) REMOVE LDW280-18044-13 & -15 (2 EA.)
IN F/D & B/M REF.-DETAIL ★,-★, WAS TYP. 3 PLACES S/B TYP. 1 PLACE



ADD: AN960D-8L(3)
MS21042L8(3)
GB511J-08(3)
AN742-D9(2)
LDW280-18044-23
LDW280-18044-21
LDW280-28813-1(REF.)
SECTION Z-Z
DRILL ON INSTL. #19(.165-.171) 2 HOLES
Z
Z
5/8
AN504C4 R4-(REF)
DETAIL Δ-Δ (ADD)
-15 (REF.)
-27 (REF.)
SEE DETAIL Δ-Δ WAS DETAIL ★,-★,
SEE DETAIL Δ,-Δ, WAS DETAIL ★,-★,
Q
Q
LDW280-18044-25
DETAIL Δ,-Δ, (ADD)
-15 (REF.)
AN742-D9(2)
-25 (REF.)
GB511J-08(2)
MS21042L8(2)
AN960D-8L(2)
SECTION Q-Q

DESCRIP OF EO CONT
ADD AN960D-8L(5), AN742-D9(4), MS21042L8(5) GB511J-08(5)
(52)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐ [redacted] LCD 20180

REASON FOR EO
A/S WHEN MATED TO D/S HITS LINES LCD 20180

DESCRIPTION OF EO
ON-5
REMOVED LDW280-18044-13 & -15 (2 EA) ADDED DETAILS Δ-Δ & Δ,-Δ, SECTIONS Q-Q, Z-Z, ADDED LDW280-18044-21, -23 & -25

GAEC EO RELEASE
JK 10/24/67

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	RKW	[illegible]			RKW		E. Voit	Bott
✓		✓		DATE	10/12/67	10/26/67			10/12/67		10-18-67	10-17-67
REVISE DWG	RECORD EO	REWORK	SCRAP		MSC 206 EN	SUPPORT [illegible]	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COLD PLT. INSTL. D/S ENG. COMP. UPPER SEP. SIMUL.	LDW280-28638	C3

ISSUED BY Whitsit / Voit SECTION PROJ. ENG. GROUP NO. 827 PL 52

01

NAS 9-1100

ENG 32.1 REV 3-65

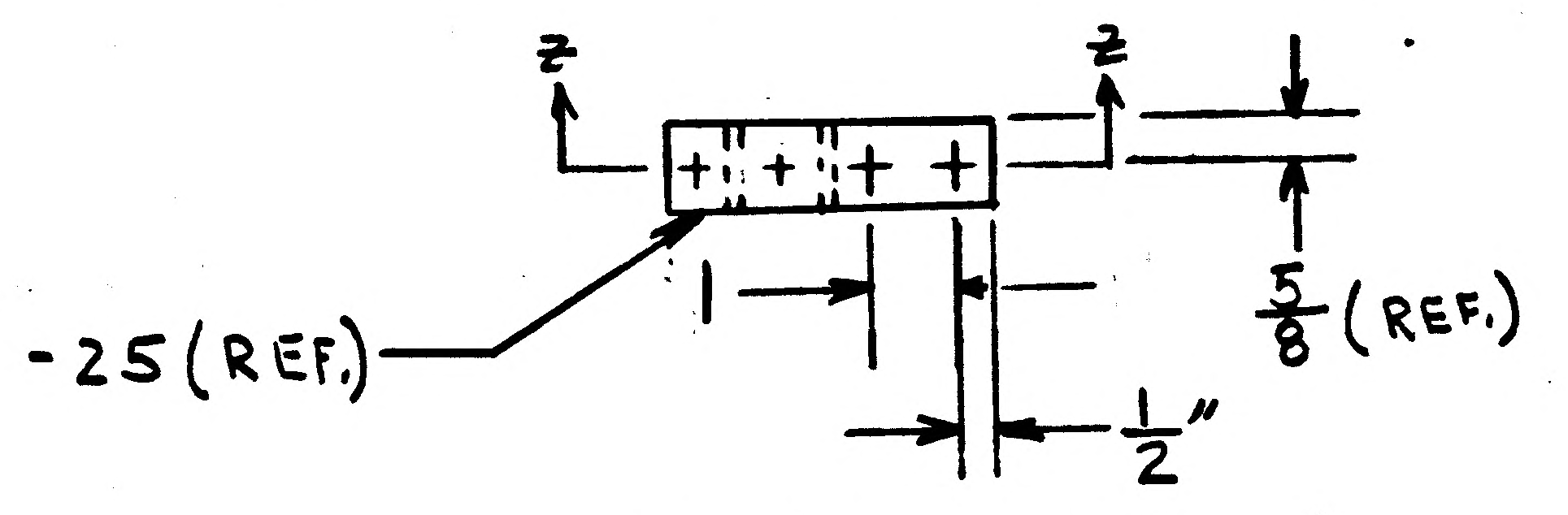
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28638
EO NO. C4
CONTROL INFO NO. LM52-0607

THIS IS A REVISION TO EO C-3 -

IN DESCRIPTION OF EO WAS AN742-09 S/B AN742-D9
ADDED DRILL #19 (2 HOLES)

ADD FOLLOWING DIMENSIONS:



DETAIL Δ-Δ (REF.)

DETAIL SPEC REQ		CL II ENGRG CHG	X	CL I ENGRG CHG		LCD 20180 52

REASON FOR EO: CORRECT EO LCD 20180

DESCRIPTION OF EO: REF EO C3 "IN FIELD" ADDED 1/2" & 1" DIMENSIONS, IN DESCRIPTION OF EO. AN 742-D9 WAS AN740-09 added DRILL #19 (2 HOLES)

GAEC C EO RELEASE: JK 11/13/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG ☒ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☒ SCRAP ☐

	MSC LOG. EN.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	PKW	Jal		—	PKW		E. Voit	Bott
DATE	10/3/67	11/4/67		—	10/31/67		10-31-67	11-1-67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COLD PLT. INSTL. D/S ENG. COMP. UPPER SEP. SIMUL.	LDW280-28638	C4

ISSUED BY WHITSIT/VOIT SECTION PROJ. ENG. GROUP NO. 827 PL 52

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28638		EO NO. C5
CONTROL INFO NO. LM 52-0815		

IN NOTES:

ADD NOTE *:

* SHAPE -15 THRU -27 ASSY'S ON INSTALLATION AS REQUIRED TO PROVIDE AT LEAST ONE INCH CLEARANCE FROM LDW 938-10523-1, -3, -5 AND -7 EXCEPT AT ATTACHMENT POINTS. INSULATE PER LPC 280-29.

* = NEXT SUCCESSIVE NOTE NO.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCR 20253. (62)

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
TO PROVIDE CLEARANCE FROM LN_2 LINES FOR INSULATING THERMAL SIMULATORS	IN NOTES: ADDED NOTE *.	1/17/68

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
				DATE	1/8/68	1/15/68		—			1-8-68	1-10-68
✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP		MSC COG ENGR	~~SUPPORT~~ VTL	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~COMP~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COLD PLATE INSTALLATION DESCENT STAGE ENGINE COMP. UPPER SEPARATION SIMULATOR	LDW 280-28638	C5

ISSUED BY E.MORRISON X5947 SECTION MSC PROJECT ENGR. GROUP NO. 870 PL 52

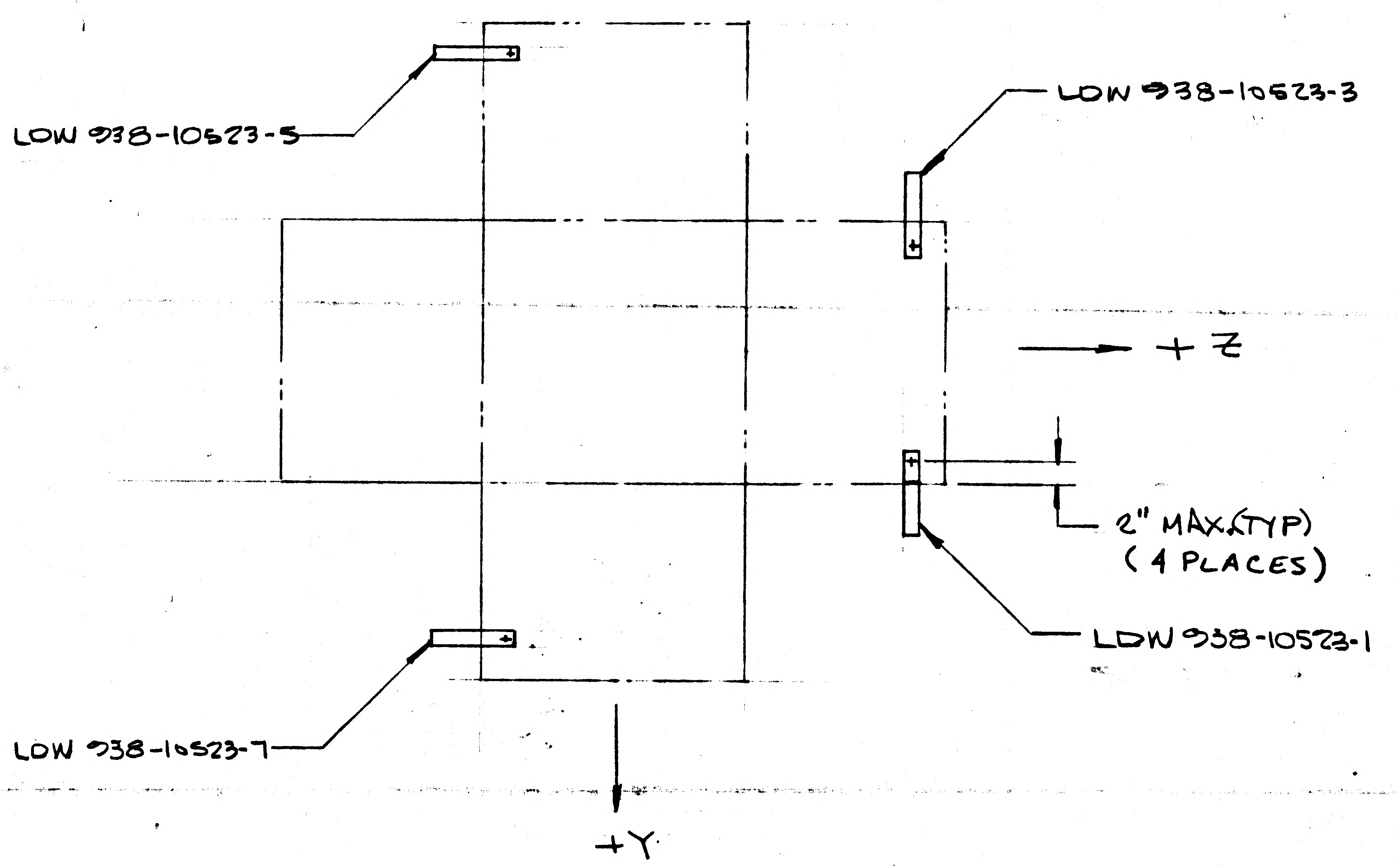
01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-28638		EO NO. C6
CONTROL INFO NO. LM 52-2376		

IN F/D: ON -5 INSTAL
TRIM LDW 938-10523-1, -3, -5, & -7
TO A 2" MAX. FROM ℄ OF EACH
INTERSTAGE PICK-UP POINT AS SHOWN.



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3278 (52)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
SEP. SIM. SPOONS NOT REQD	IN F/D, ON -5 INSTAL, TRIMMED LDW 938-10523-1, -3, -5 & -7	

MODEL	PROCURING ACTIVITY NO.	~~GAEC UNIT NO.~~	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY						D. RACAS		
DATE	8/9/68	8/9/68				8-10-68	8-9-68	
	MSC ENG	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	DESIGN INTEG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COLD PLATE INSTAL — D/S ENG COMP, UPPER SEPAR SIM	LDW 280-28638	C6

ISSUED BY A. FAZIO x 4606 SECTION PROJ ENG MSC GROUP NO. 827 PL 52

01
NAS 9-1100

LDW280-28639

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28638	LTA-8(U8)	1
PART NO. LDW280-28639 -1		GAEC SCH NO. 52	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	A	GRUMMAN REL INFO			
		PRIM NO.	KE(001)	6-16-6	
LAST DASH NO. USED	-1	207	MP		X

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100 | LINE ITEM I | DOCUMENTATION TYPE II

DRAWN BY		WEIGHTS	W. G. Mandras 6/20
LAYOUT BY	FISCHLER 6/9/66	RELIABILITY	—
CHECKED BY			
GRP LDR	6/10/66		
VDI	6/11		
STRUCTURE	M.S. 6/16/66	PROJ ENGR	Plunkett 30 Jun 66
STRUCTURE	Hilderman 6/16	REL GROUP	Botti 7-9-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

COLD PLATE ASSY (WELDED)
D.S.-ENG COMP-UPPER-
SEPARATION SIMULATOR

SIZE	CODE IDENT NO.	
B	26512	LDW280-28639

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY						-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						1	96517	702-1452-22/22304L	E	COLD PLATE							
							.	LDW280-28639-1	E	COLD PLATE					SEE NOTES 3,4,5		

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

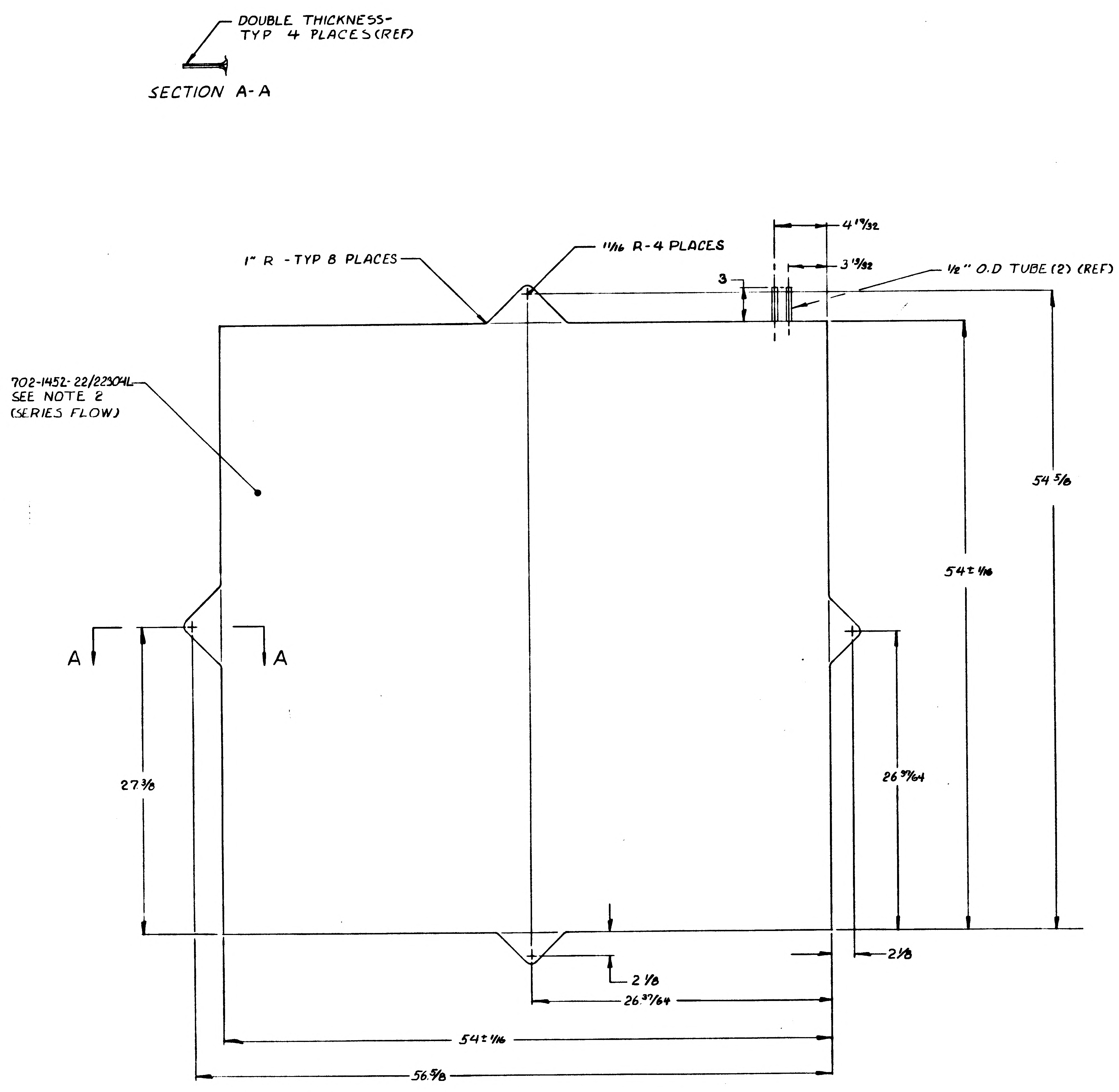
I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28639
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01
NAS 9-1100



NOTES:

1- LAYOUT RELEASE-TO BE REDRAWN ON PRODUCTION FORMAT
2- MAY BE PURCHASED FROM DEAN PRODUCTS INC, 1042 DEAN STREET, BROOKLYN, NEW YORK
3- APPLY 1 COAT OF EPOXY-POLYIMIDE PRIMER (MIL-P-23377) PER LSP-14-4305
4- APPLY BY SPRAY ONE CROSSCOAT OF COLOR #27038 BLACK EPOXY TOPCOAT OF FED-STD-595 PER MIL-C-2275A OR EQUIV(GAEC 1019). DRY FILM THICKNESS .002-.003
5- AIR DRY THE COATING FOR A MINIMUM OF 4 HOURS. THEN BAKE IN AN AIR CIRCULATING OVEN AT 150° F ± 10° F FOR 4 HOURS.
6- LDW280-28639-1 ASSY TO HAVE A MAX ACCEPTABLE LEAKAGE OF 1×10^{-9} STANDARD C.C. OF HELIUM PER SECOND.
7- LDW280-28639-1 TO HAVE A MINIMUM FLOW RATE OF 25 GALLONS PER HOUR OF LN_2 AT 50 P.S.I.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 ▽ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 ▽ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	✓
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LEM	SIZE D	CODE IDENT NO. 26512	LDW280-28639
MODEL OR END ITEM	SCALE 1/5 SIZE		SHEET 3.00

LDW280-28639

01 NAS 9-1100

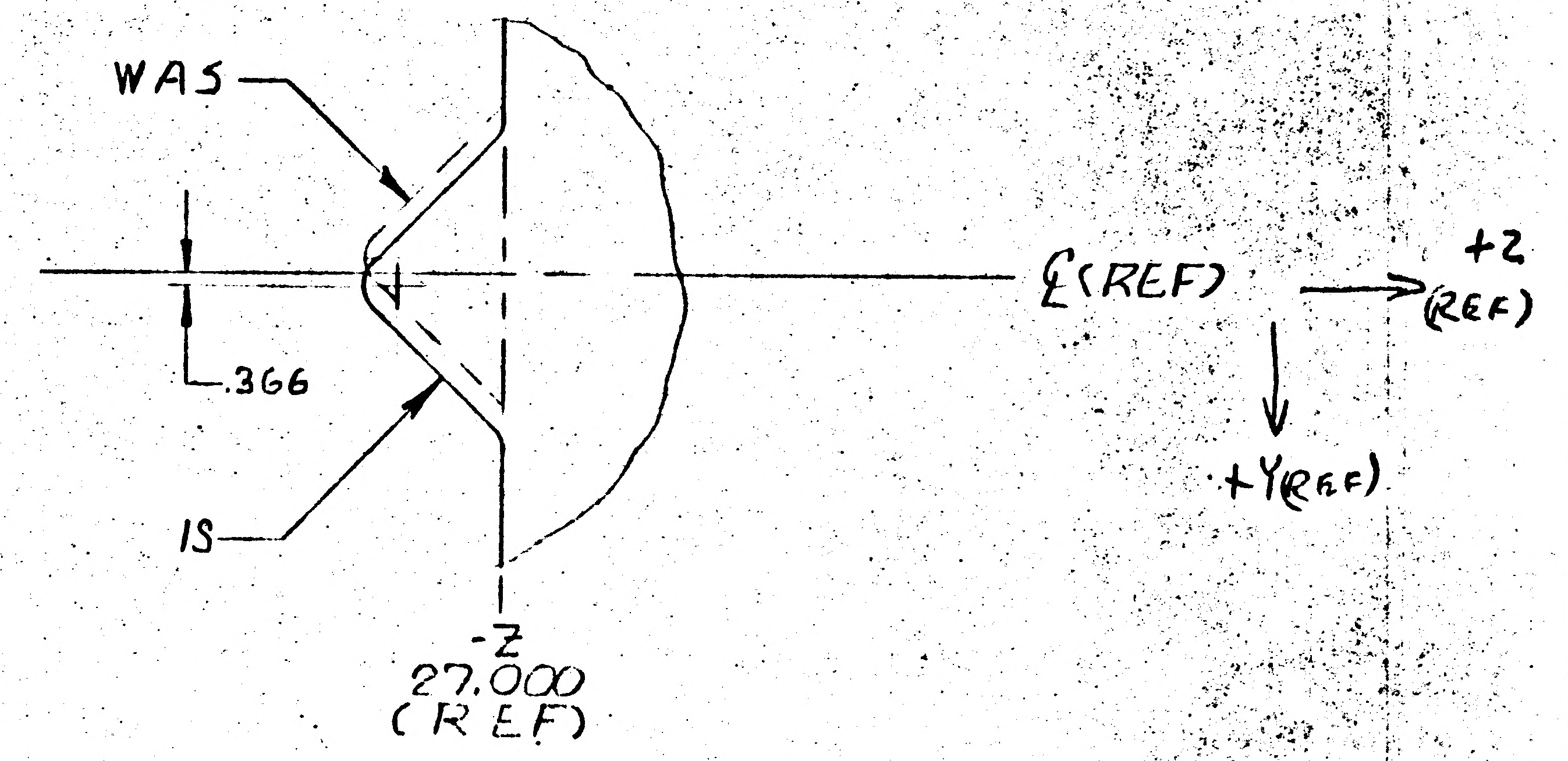
ENG 32.1 10-63

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28639
EO NO. A1
CONTROL INFO NO. LDW280-7924

IN FIELD & B/M REMOVE -1 & REPLACE WITH -3. -3 IDENTICAL TO -1 EXCEPT AS NOTED.



PARTS NOT MADE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: INSUFFICIENT RIVET EDGE DISTANCE

DESCRIPTION OF EO: REMOVED -1 FROM FIELD & B/M & REPLACE WITH -3. CHANGED TAB LOCATION.

GAEC EO RELEASE: [illegible]

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO
LEM		LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	REWORK	-1 SCRAP

			RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	[illegible]	[illegible]			[illegible]		[illegible]	[illegible]
DATE	6/20	[illegible]			[illegible]		22 Jun	6-17-66
	[illegible]	VDI						

PRIORITY: C

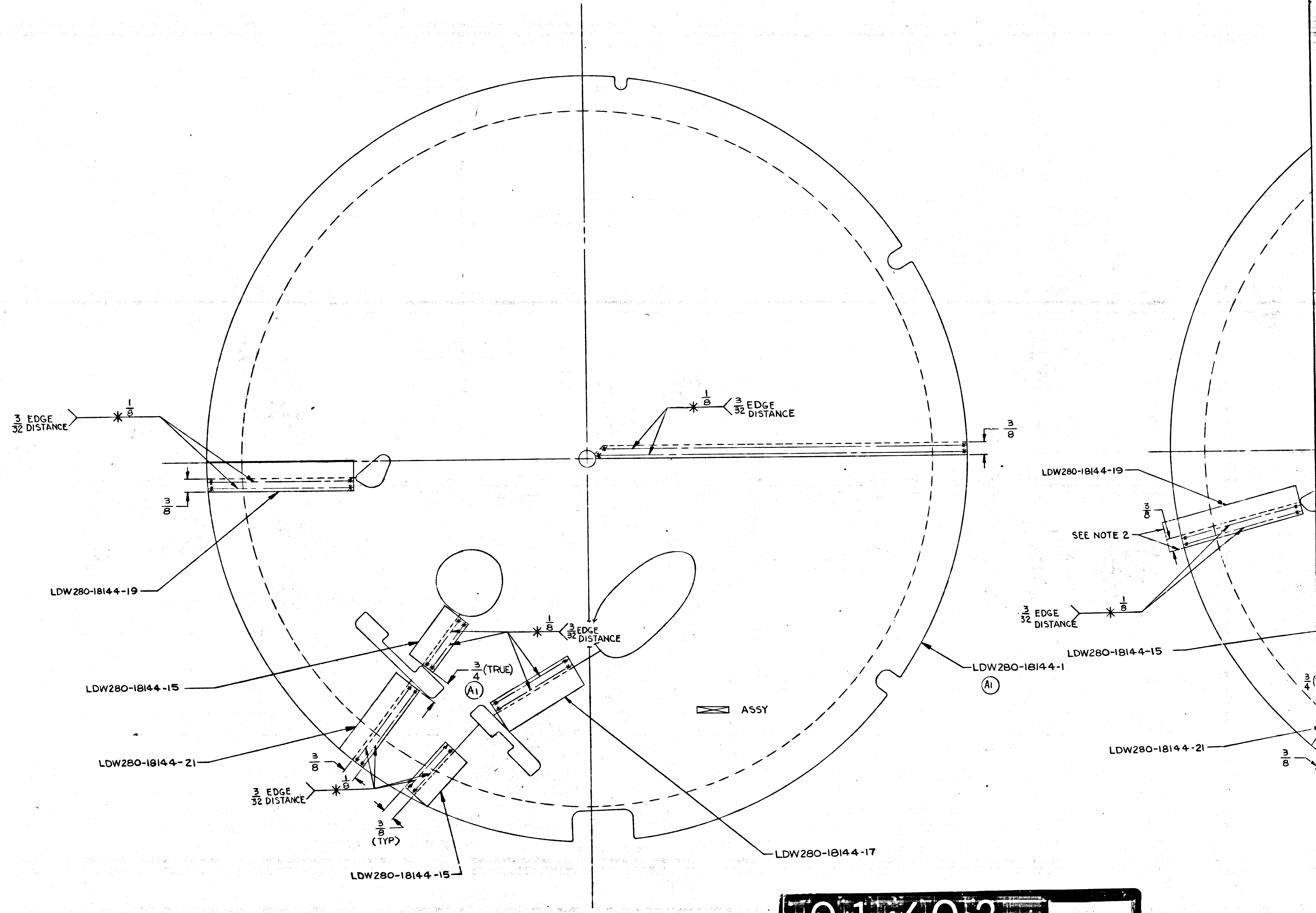
DRAWING TITLE: COLD PLATE ASSY (WELDED) - D.S. - ENG COMP - UPPER SEP SIM

DRAWING NO.: LDW280-28639

EO NO.: A1

ISSUED BY: BOB FISCHER X1153

GROUP: VEH DES INT



$\frac{3}{32}$ EDGE DISTANCE
$\frac{1}{8}$
$\frac{3}{8}$
LDW280-18144-19
$\frac{1}{8}$
$\frac{3}{32}$ EDGE DISTANCE
$\frac{3}{8}$
LDW280-18144-15
$\frac{3}{4}$ (TRUE)
A1
$\frac{1}{8}$
$\frac{3}{32}$ EDGE DISTANCE
LDW280-18144-21
$\frac{3}{8}$
$\frac{3}{32}$ EDGE DISTANCE
$\frac{1}{8}$
$\frac{3}{8}$ (TYP)
LDW280-18144-15
ASSY
LDW280-18144-1
A1
LDW280-18144-17
LDW280-18144-19
$\frac{3}{8}$
SEE NOTE 2
$\frac{3}{32}$ EDGE DISTANCE
$\frac{1}{8}$
LDW280-18144-15
$\frac{3}{4}$
LDW280-18144-21
$\frac{3}{8}$

LDW280-28643-1 ASSY

01/02 NAS 9-1100

LDW280-28643 SH 3

NOTES:

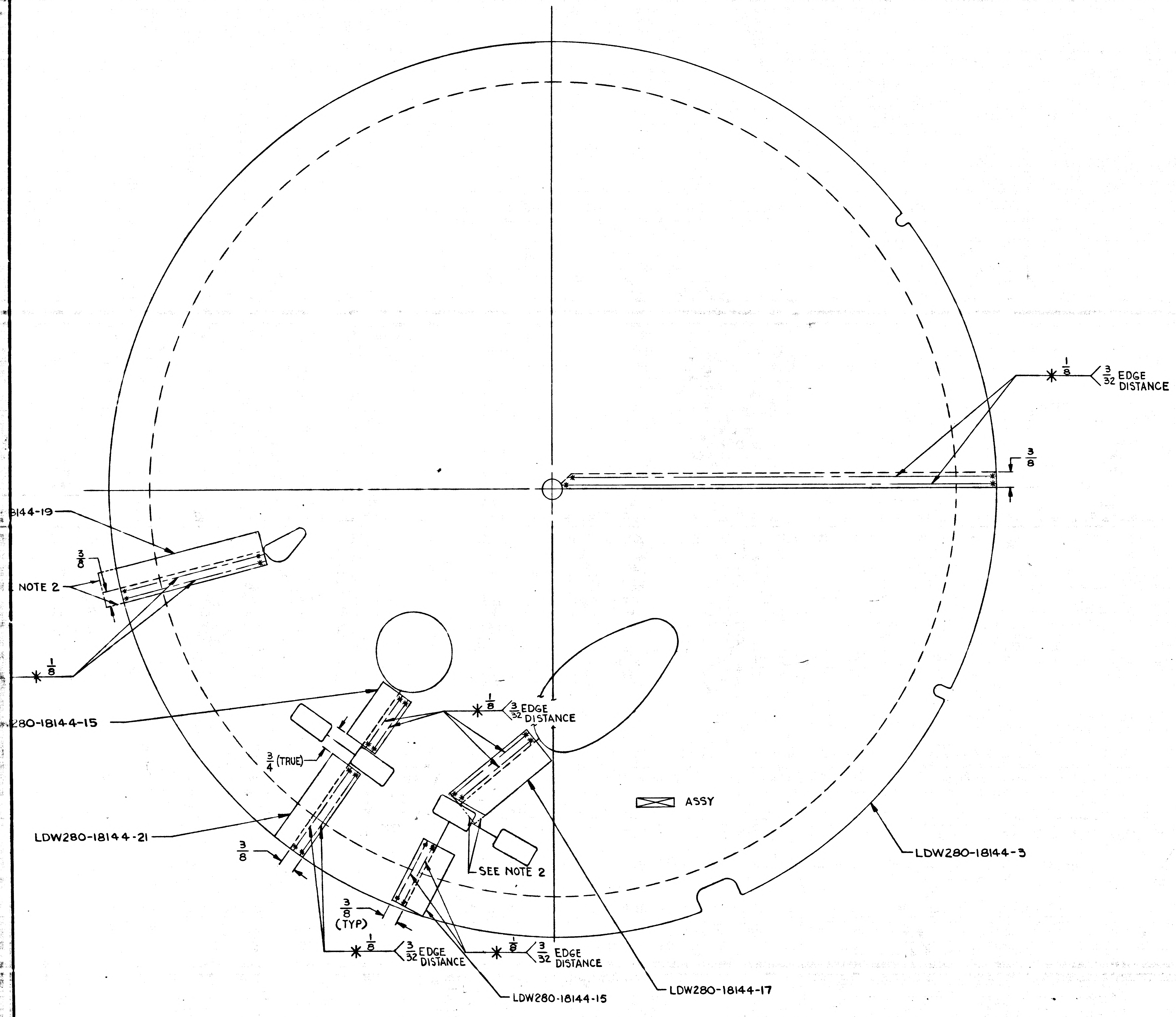
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. TRIM AFTER WELDING.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 90) = 22.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 5.625 SQ. FT.

PRINT TRIM LINE



18144-19
3/8
NOTE 2
1/8
280-18144-15
3/4 (TRUE)
LDW280-18144-21
3/8
3/8 (TYP)
1/8 3/32 EDGE DISTANCE
1/8 3/32 EDGE DISTANCE
1/8 3/32 EDGE DISTANCE
1/8 3/32 EDGE DISTANCE
3/8
SEE NOTE 2
LDW280-18144-15
LDW280-18144-17
☒ ASSY
LDW280-18144-3

LDW280-28643-5 ASSY

(A2) (A3)

02702

NAS 9-1100

LDW280-28643 A

W280-28643 SH 3

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
J	26512	LDW280-28643	A
MODEL OR END ITEM	SCALE 1/1		SHEET 3.00

2FR

LDW280-28643 C

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28835	LM-5 (35)	1
LM	LDW280-28835	LM-4 (34)	1
PART NO. LDW280-28643-9		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28835	LM-3 (33)	1
LM	LDW280-28835	LM-2 (32)	1
PART NO. LDW280-28643-5		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28835	LM-1 (31)	1
PART NO. LDW280-28643-1		GAEC SCH NO. 52	

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		1.10		2.00		3.00		4.00
REV	C		C		C		A		C
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	A	GRUMMAN REL INFO C	
LAST DASH NO. USED	-9	PRIM NO. 207	C-3/6/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/16 ±.020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.	NAS 9-1100	LINE ITEM	DOCUMENTATION TYPE II
DRAWN BY	ROESSLER 11-9-66	RELIABILITY	
LAYOUT BY	ROESSLER		
CHECKED BY	9-13-67		
GROUP LDR.	J. STRAKOSCH 11-10-66		
VEH DES INT	J. PUSATERI 11-11-66		
STRUCTURES	FEB 11/11	PROJ ENGR	R.M. CARBEE 11-12-66
STRUCTURES		REL GROUP	J. R. TAGALIAVIA
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSEMBLY
DESCENT STAGE-PROPELLANT TANK COVER-
METEOROID PROTECTION-AFT

SIZE	CODE IDENT NO.		
B	26512	LDW280-28643	C
SCALE	NONE	SHEET 1.00 OF 5	

ENG 77.1 12-65

SUPERSEDES LDW280-28643 N.C. 11-15-66 'C' CDR 3/8/68

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
									RETRACED NO CHANGE LAST REV N.C. J.GRIECO 8-15-67						
A	1			U		✓		LCD 2008	ON-1 RESTRICTED EFF LM-1(31) WAS LM-1(31), LM-2(32), & LM-3(33), 3/4 DIM WAS 3/8 (1 PLACE), REMOVED LDW280-18144-11 & -23 ADDED LDW280-18144-1	LM-1 LM-2 LM-3		✓	J. GRIECO 8-15-67		
	2			U		✓			IN F/D, B/M & MOD BLK REMOVED-3 & EFF LM-4 THRU LM-15	LM-4 THRU LM-15		✓			
	3			U		✓			IN F/D, B/M & MOD BLK ADDED-5 & EFF LM-2(32) & LM-3(33)	LM-2 & LM-3	NOT	REQD			
B	1	1.10 1.00 2.00 4.00		U		✓		LCD2008 ok	IN F/D, B/M & MOD BLK ADDED-7 & EFF LM-4(34) & LM-5(35) ADDED SH 4.00 & SECTION "A-A"	LM-4 & LM-5	NOT	REQD	J. BIANCHINO 2-12-68 JK		68
C	1	1.00, 1.00 2.00, 4.00				✓		LCD2008 ok	IN F/D, B/M & MOD BLK REMOVED-7 ASSY AND LDW280-18144-5, ADDED -9 ASSY & LDW280-18144-29 & -37, ADDED SHEAR CUT & SPOTWELD NOTATION ON-9 ASSY	LM-4 LM-5		✓	J. BIANCHINO 3-1-68	3/4/68	3-5-68

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
A	DR 9/14/67					
B	2/15/68	JAS 2/16/68	2/17/68	FEB 2/19		
C	3/4/68	JAS 3/4/68	3/4/68	FEB 3/4		

ENG 77.16 3-66

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28643	C
SCALE NONE			SHEET 1.10

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				-9	-5	-1											
				2	1	1		LDW280-18144-21	E	STRIP	SEE DWG				NONE	NONE	5A 7A
					1	1		-19									5B 8B
				1	1	1		-17									3A 6A
				1	2	2		-15		STRIP							4A 8B
					1			-3		SHIELD ASSY							3A
						1		LDW280-18144-1	E	SHIELD ASSY	SEE DWG				NONE	NONE	5B
				1				LDW280-18144-29	E	SHIELD	SEE DWG				NONE	NONE	SH4
				1				LDW280-18144-37	E	STRIP	SEE DWG						SH4
								LDW280-28643-9	E	SHIELD ASSY (WELDED)					FLW/SWT	76	SH4
								LDW280-28643-5	E	SHIELD ASSY (WELDED)					FLW/SWT	76	4A
								LDW280-28643-1	E	SHIELD ASSY (WELDED)					FLW/SWT	76	6A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	FOIL SPOTWELD	LSP-14-6102
						76	ALODINE	LSP-14-9010
						SWT	SEALING (SW)	LSP-14-14400

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

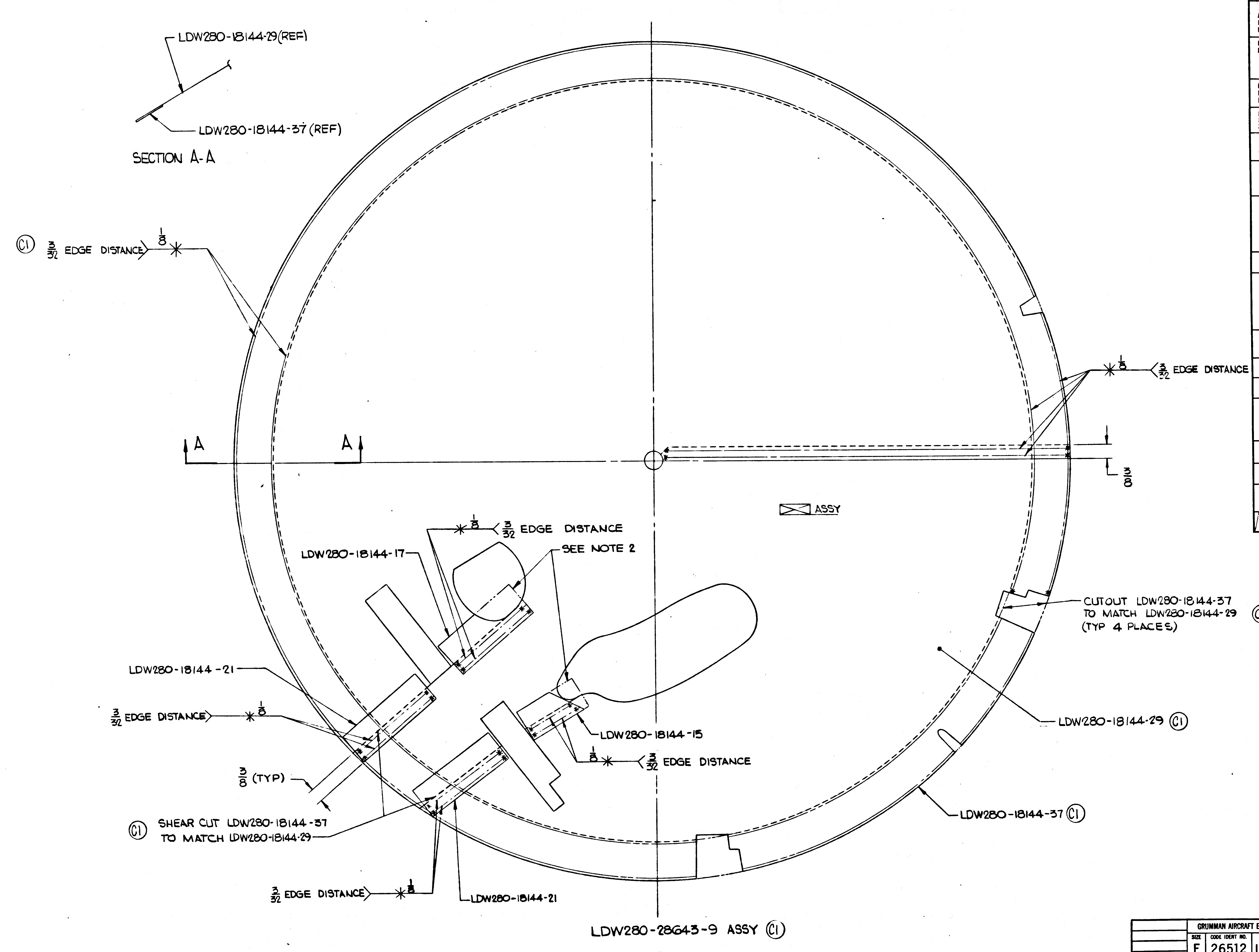
SIZE B
CODE IDENT NO. 26512
LDW280-28643
C ©

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



LDW280-18144-29 (REF)
LDW280-18144-37 (REF)
SECTION A-A
(C1) $\frac{3}{32}$ EDGE DISTANCE $\frac{1}{8}$
$\frac{1}{8}$ $\frac{3}{32}$ EDGE DISTANCE
A
A
.0813
ASSY
$\frac{1}{8}$ $\frac{3}{32}$ EDGE DISTANCE
LDW280-18144-17
SEE NOTE 2
CUTOUT LDW280-18144-37 TO MATCH LDW280-18144-29 (TYP 4 PLACES) (C1)
LDW280-18144-21
$\frac{3}{32}$ EDGE DISTANCE $\frac{1}{8}$
LDW280-18144-29 (C1)
LDW280-18144-15
$\frac{1}{8}$ $\frac{3}{32}$ EDGE DISTANCE
$\frac{3}{8}$ (TYP)
(C1) SHEAR CUT LDW280-18144-37 TO MATCH LDW280-18144-29
LDW280-18144-37 (C1)
$\frac{3}{32}$ EDGE DISTANCE $\frac{1}{8}$
LDW280-18144-21
LDW280-28643-9 ASSY (C1)

MANUFACTURING OPERATIONS:
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE F	CODE IDENT NO. 26512	LDW280-28643	C
LM MODEL OR END ITEM	SCALE FULL		SHEET 4.00

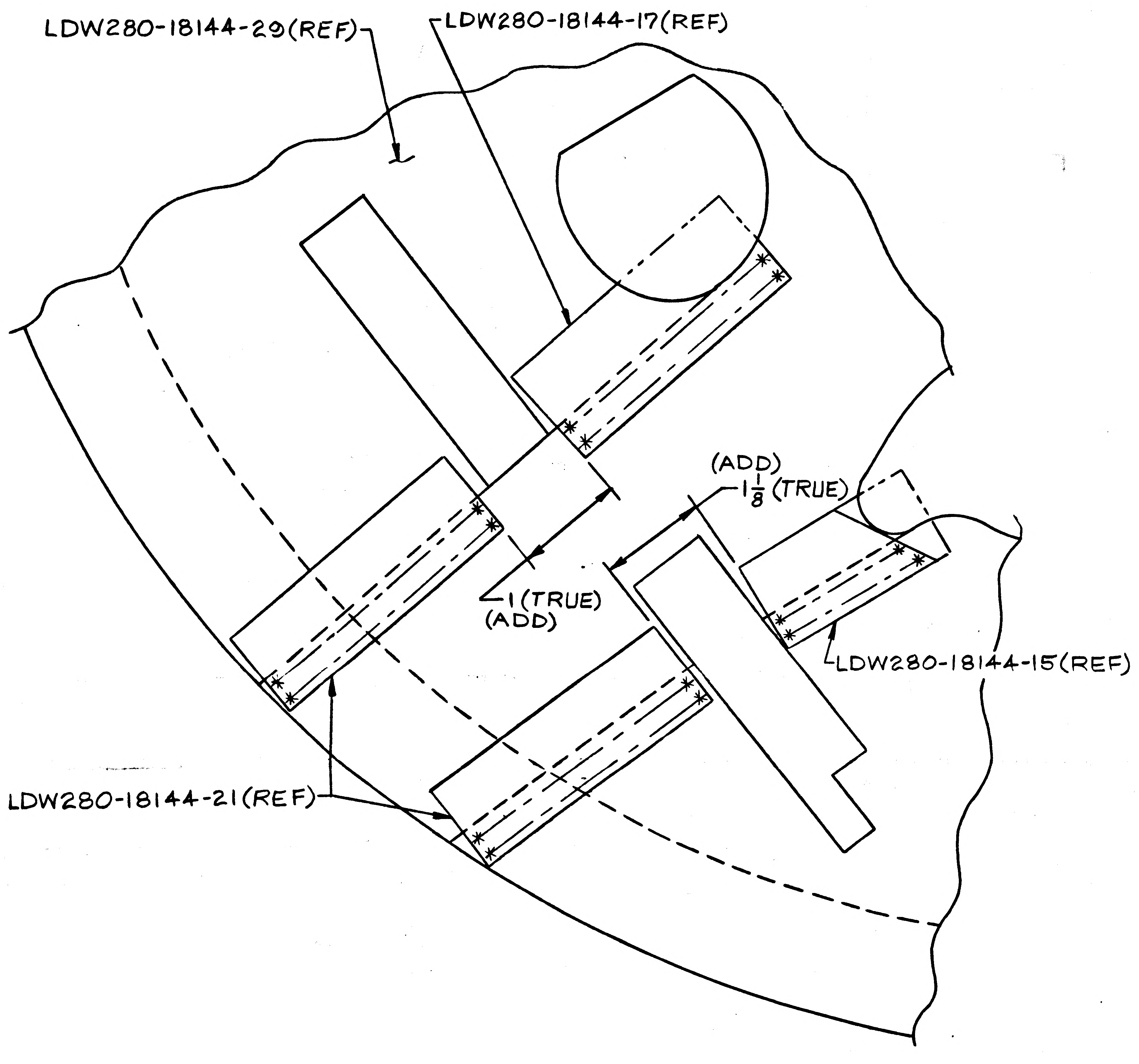
01 NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28643 | EO NO. D1
CONTROL INFO NO. LM-2-4682


LDW280-18144-29(REF)
LDW280-18144-17(REF)
(ADD)
$1\frac{1}{8}$(TRUE)
1(TRUE)
(ADD)
LDW280-18144-15(REF)
LDW280-18144-21(REF)

LDW280-28643-9 ASSY (WELDED)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2008	(2)

REASON FOR EO: (DRAWING CORRECTION ONLY) DIMENSIONS OMITTED FOR LOCATION OF STRIPS

DESCRIPTION OF EO: FOR -9 ASSY, IN FLD/DWG ADDED 1"(TRUE) & 1⅛(TRUE) DIMENSIONS.

(P) GAEC I C EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REWORK | REQD SCRAP

	APPROVED BY	DATE
	JMW	5/2/68
SUPPORT		
RELIAB. GROUP		
GROUP LEADER	—	—
STRESS GROUP		4/30/68
LIAISON ENGRG		4/29/68
PROJ ENGRG		5/2/68
		4-30-68

PRIORITY: E

DRAWING TITLE: SHIELD ASSY~D/S~PROPELLANT TANK COVER~METOROID PROTECTION~AFT

DRAWING NO.: LDW280-28643

EO NO.: D1

ISSUED BY LIAISON J. MALONEY 4/25/68 X3604 SECTION VEE DEE EYE GROUP NO. 335 PL 25

LDW280-28644 C

PART NO. LDW280-28644-5 & -17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO. 52	REQD PER MODULE OR END ITEM
LM	LDW280-52553	LM-2 (32)	1
LM	LDW280-51553	LM-1 (31)	1

PART NO LDW280-28644-3

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO. 52	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA-8 (18)	1

WORK PKG FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	2.01	3.00
REV	C	C	C	C	C

LAST SECT LTR USED F

LAST DASH NO. USED -17

GRUMMAN REL INFO C

PRIM NO. 207 A/C(001) ME-1C-4/23/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/4 ±.200 ±1/2

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	A. RICHER 8-1-66	RELIAB	
LAYOUT BY	AMITO 8-1-66	THERMO	AB 3/24/67
CHECKED BY			
GR LDR	J. STRAKOSCH 8/3/66		
VEH DES INT	J. PUSATERI 8/4/66		
STRUCT	W. HALICK 8/4/66	PROJ ENGR	RM CARBEE 8/1/66
STRUCT	R. HILDERMAN 8/5/66	REL GROUP	
WEIGHTS	D. ROBESCH 8/5/66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTL
DESCENT STAGE - FWD
INTERSTAGE THERMAL

SIZE B CODE IDENT NO. 26512 LDW280-28644 C

SCALE NONE SHEET 1.00 OF 5

ENG 77.1 12-65

SUPERSEDES LDW 280-28644 "A" 10-19-66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
								RETRACED	NO CHANGE LAST REVISION "A" P COMO 2-28-67						
B	1							EO B1	ADDED-15 AND-16 ASSY ON-5, ADDED LM-7 Ⓡ THRU LM-15 EFF.	LM-1 THRU -15,	✓		P COMO 2-28-67	[illegible]	[illegible]
C	1	1.00 2.00 3.00 2.01	7A 7B 10B 11A 11C 12C 14B						INC. EO C1.	LM-1(31) THRU LM-15(45)			D.STELLABOTTE 4-9-69		
	2	2.00 2.01 3.00	1B 10B 13C 14C						INC. EO C2.	LM-1(31) THRU LM-15(45)					
	3	2.00, 3.00	13C						INC. EO C3.	LM-1(31) THRU LM-15(45)					
	4	2.00 3.00	12D 13D 14D						INC. EO C4.	LM-1(31) THRU LM-15(45)					
	5	2.00 3.00							INC. EO C5.	LM-1(31) THRU LM-15(45)					
	6	2.00 3.00	13D						INC. EO C6.	LM-1(31) THRU LM-15(45)					4-22-69
	7	1.00		P					INC. EO C7.	LM-3(33) THRU LM-15(45)		H.D.	ES		[illegible]

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	Ⓡ STRUCT	STRUCT	WEIGHTS	RELIAB				
B		[illegible] 3/6/67	[illegible] FEB							
C										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28644	C
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

	-17	-16	-15	-13	-11	-9	-7	-5	-3	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	2									NAS43DD1-59,	E		SPACER	STD PART						
	2									GB51W-06-14	E		BOLT	GRUMMAN STD						
	4									GB51W-04-1	E		BOLT	GRUMMAN STD						
	2									LDW280P18284-13	E		BRACKET	SEE DWG						10C
									AR	GT835P-8	E		TAPE (POLYMIDE)	GRUMMAN STD						
				AR	AR	AR	AR	AR	AR	GW10H-3	↑		WASHER	GRUMMAN STD						
				AR	AR	AR	AR	AR	AR	GR11B-1			RETAINER	GRUMMAN STD						
								AR		LDW280P17590-11			TAPE	SEE DWG						
								4		NAS697C04L			NUT PLATE	STD PART						
		1								LDW280-18229-12			INSULATION	SEE DWG						12A
			1							LDW280-18229-11			↑	↑						12A
		1								LDW280-18228-12										13A
			1							LDW280-18228-11										13A
		1								LDW280P18227-12			↓	↓						12A
			1							LDW280P18227-11			INSULATION	SEE DWG						12A
								2		LDW280-18286-16			BRACKET	SEE DWG						11C
								2		LDW280-18286-15			BRACKET	SEE DWG						11C
				1						LDW280P17554-15			BLANKET ASSY	SEE DWG						7A
						1				↑ -9			↑	↑						7A
					1					↓ -7			↓	↓						6A
							1			LDW280P17554-5			BLANKET ASSY	SEE DWG						6A
										NAS1097AD3			RIVET	STD PART						
										LDW280-28644-17			SHIELD INSTL					NONE	NONE	7A
	1									LDW280-28644-16			BLANKET ASSY							
	1									↑ -15			↑							
								1		-13										
								1		-11										
									1	-9			↓							
									1	-7			BLANKET ASSY							
										↓ -5	↓		SHIELD INSTL					NONE	NONE	7A
										LDW280-28644-3	E		SHIELD INSTL					NONE	NONE	7A

QTY PER ASSEMBLY

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28644	C
SCALE NONE			SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

-17	-16	-15	-13	-11	-9	-7	-5	-3	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
2										MS21043-06	E	NUT	STD PART						
2										AN960D6	E	WASHER	STD PART						
										MS20470AD3	E	RIVET	STD PART						

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

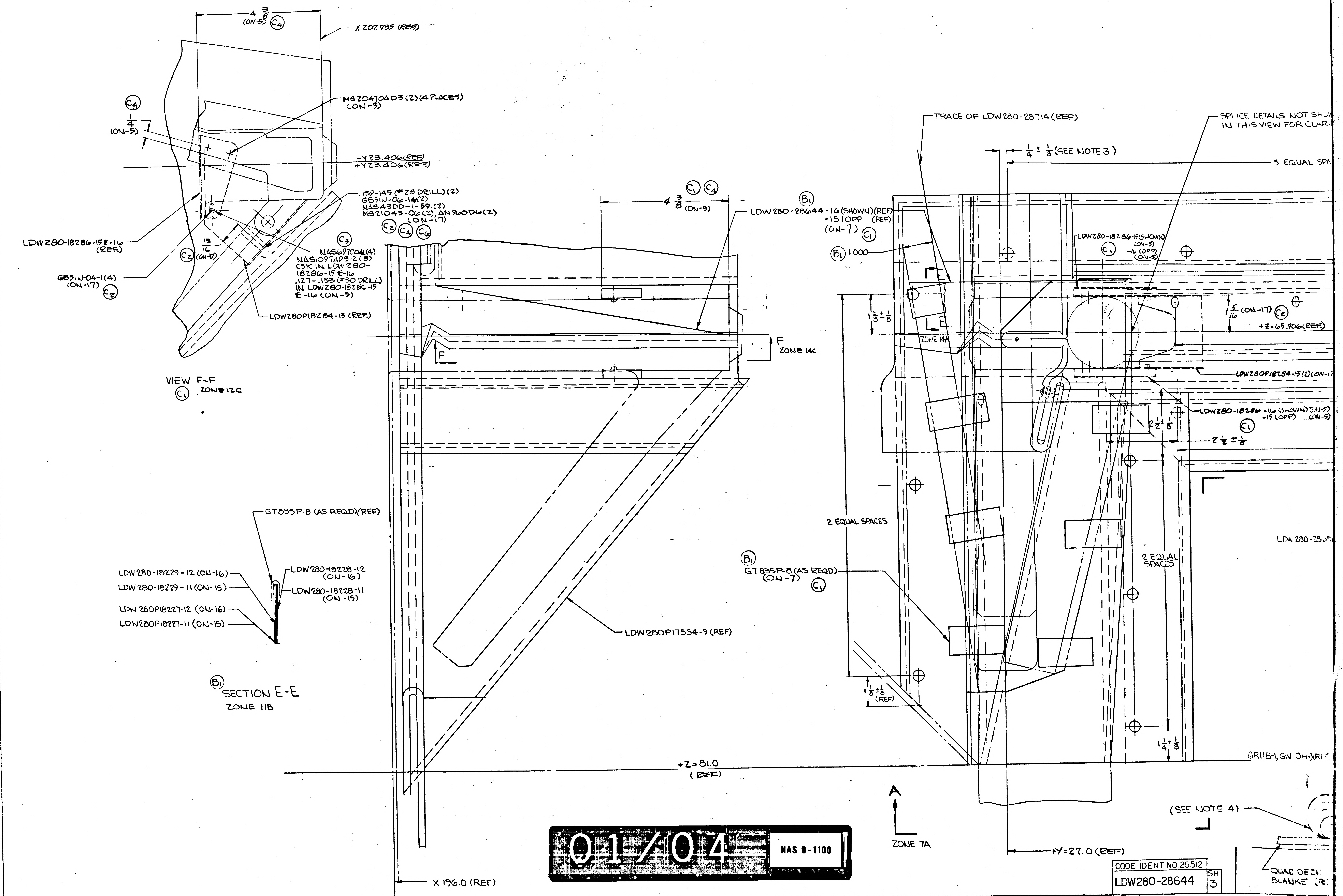
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28644	C
SCALE NONE		SHEET 2.01	

ENG 77.2 7-65

01

NAS 9-1100


14
13
12
11
10
D
C
B
A
4 3/8 (ON-5) (C4)
X 207.935 (REF)
MS20470AD3 (2) (4 PLACES) (ON-5)
(C4) 1/4 (ON-5)
-Y23.406 (REF)
+Y23.406 (REF)
.139-.145 (#28 DRILL) (2)
GB51N-06-14 (2)
NAS43DD-1-59 (2)
MS21043-06 (2), AN960D6 (2) (ON-17)
(C2) (C4) (C6)
LDW280-18286-15 & -16 (REF)
13/16 (ON-17)
(C2)
(C3)
NAS697C04L (4)
NAS1097AD3-2 (8) CSK IN LDW280-18286-15 & -16
.127-.133 (#30 DRILL) IN LDW280-18286-15 & -16 (ON-5)
GB51U-04-1 (4) (ON-17) (C2)
LDW280P18284-13 (REF)
(C1) (C4) 4 3/8 (ON-5)
LDW280-28644-16 (SHOWN) (REF) -15 (OPP (REF) (ON-7)
(B1) (C1)
(B1) 1.000
F
F ZONE 14C
TRACE OF LDW280-28714 (REF)
SPLICE DETAILS NOT SHO IN THIS VIEW FOR CLARI
1/4 ± 1/8 (SEE NOTE 3)
3 EQUAL SPA
LDW280-18286-15 (SHOWN) (ON-5) -16 (OPP) (ON-5) (C1)
E
E ZONE 11A
3/8 ± 1/8
1 5/16 (ON-17) (C2)
+Z=65.906 (REF)
LDW280P18284-13 (2) (ON-1
LDW280-18286-16 (SHOWN) (ON-5) -15 (OPP) (ON-5) (C1)
2 1/2 ± 1/8
2 1/2 ± 1/8
2 EQUAL SPACES
2 EQUAL SPACES
LDW 280-28
GT835P-8 (AS REQD)(REF)
LDW280-18229-12 (ON-16)
LDW280-18229-11 (ON-15)
LDW280P18227-12 (ON-16)
LDW280P18227-11 (ON-15)
LDW280-18228-12 (ON-16)
LDW280-18228-11 (ON-15)
(B1) GT835P-8 (AS REQD) (ON-7) (C1)
LDW280P17554-9 (REF)
1/8 ± 1/8 (REF)
1 1/4 ± 1/8
GR11B-1, GW OH-XR
+Z=81.0 (REF)
A
ZONE 7A
(SEE NOTE 4)
+Y=27.0 (REF)
X 196.0 (REF)
QUAD DE BLANKE

VIEW F-F (C1) ZONE 12C

(B1) SECTION E-E ZONE 11B

Q1/04 NAS 9-1100

CODE IDENT NO. 26512
LDW280-28644 SH 3

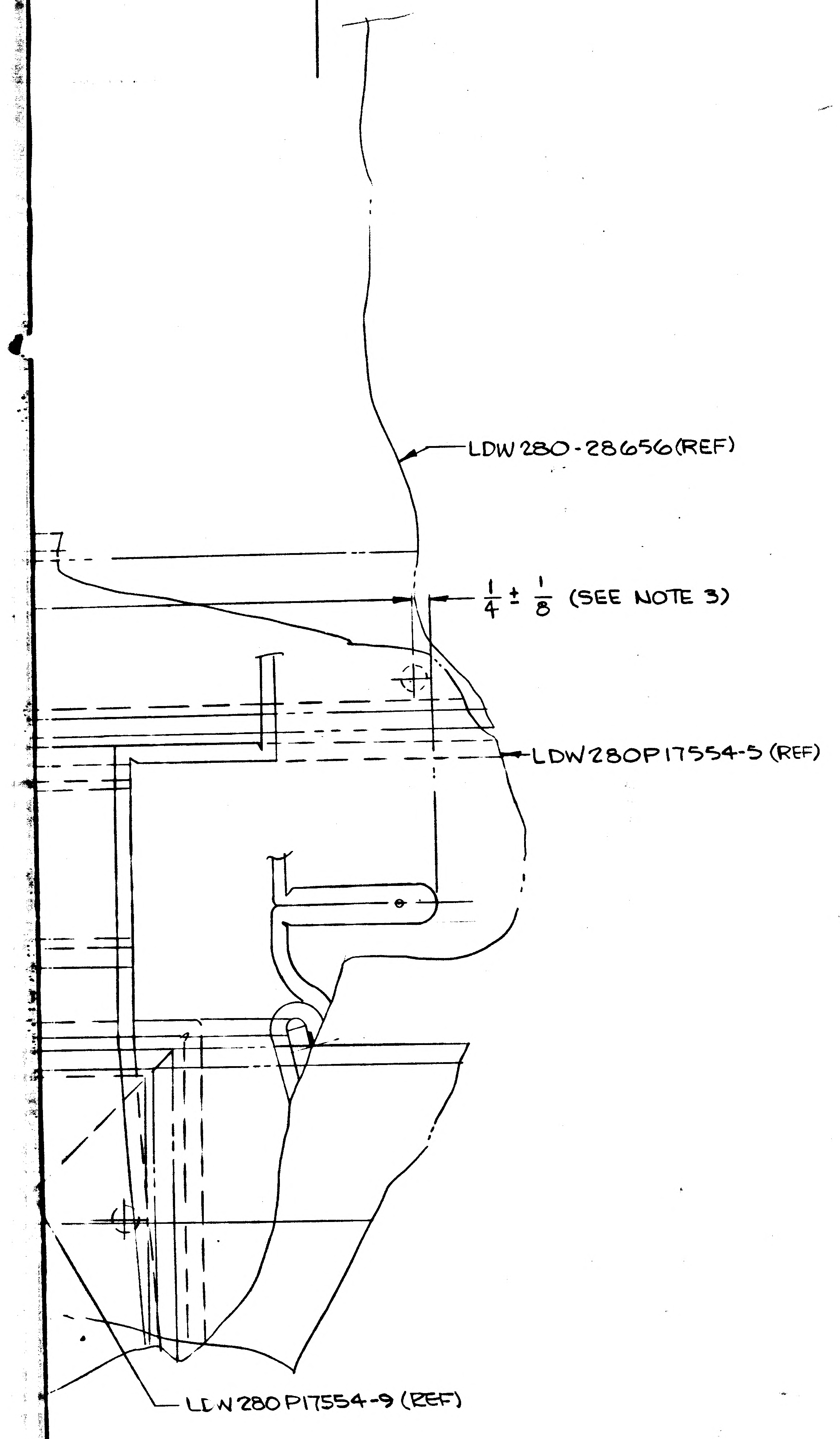
02704 NAS 9-1100

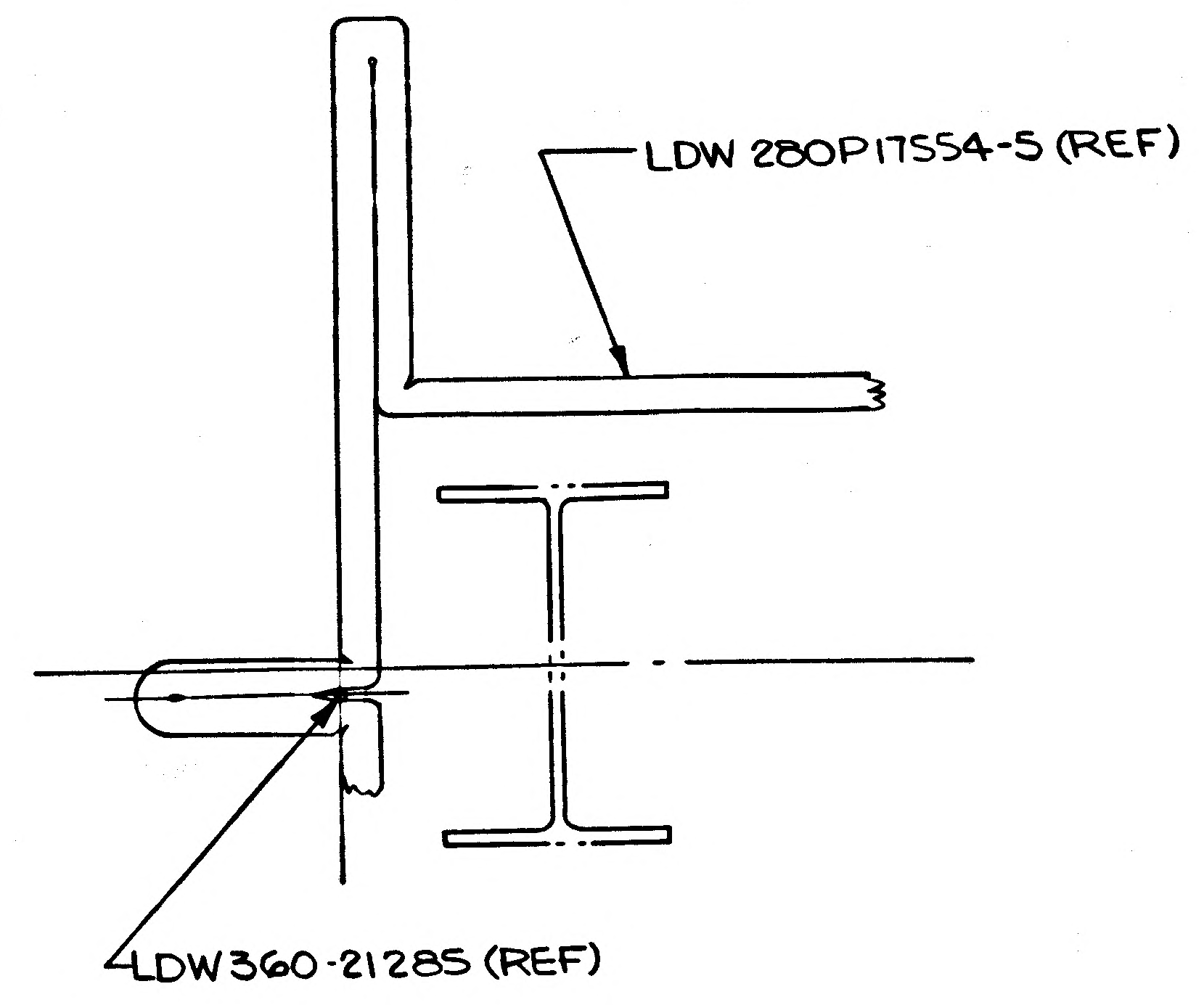
10
9
8
7
6
℄ SYMETRICAL EXCEPT AS NOTED
±Y=.000
LDW280P17964 (REF)
SPLICE DETAILS NOT SHOWN IN THIS VIEW FOR CLARITY
(SEE NOTE #8)
LDW 2
3 EQUAL SPACES
7 3/4 ± 1/8
9 1/4
5 1/4 ± 1/8
3 EQUAL SPACES
1/4 ± 1/8
1/2
1.00
2 1/2 R
2 3/16
1 5/16 (ON-17) C2
+Z=65.906 (REF)
1 1/8 ± 1/8
1 1/8 ± 1/8
5 EQUAL SPACES
(SEE NOTE #7)
LDW280P18284-13 (Z)(ON-17) C1 C2
LDW280-18286-16 (SHOWN) (ON-5) -15 (OPP) (ON-5)
C1
1/2 ± 1/8
2 1/2 ± 1/8
7 EQUAL SPACES
A
1 ± 1/8 (REF)
1 ± 1/8 (REF)
GR11B-1 GW10H-3 (REF)
TAPE (SEE NOTE #1) 4" TO 6" SPACING
SECTION C-C
PLAN VIEW
LDW280-28644-3 INSTL
-5 INSTL
-7 ASSY
-9 ASSY
-11 ASSY
-13 ASSY
-15 ASSY B1
-16 ASSY B1
-17 INSTL C1 C2
GR11B-1 GW10H-3 (REF)
LDW 280 P17554-9 (REF)
LDW230-28656 (REF)
EQUAL SPACES
7
B
ZONE 4B
B
(SEE NOTE 5)
C
C
(SEE NOTE 6)
ZONE 3A D
LDW 280-28607 (REF)
PATCH (REF)
1" TYP
5 DIA
4
℄ OF CABLE (REF)
GR11B-1, GW10H-3 (REF)
1 1/4 ± 1/8
15 1/8
LDW 280P17554-9
LDW 280P17554-15
LDW280P17554-5 -7
LDW280-28644-9 ASSY (ON-3) (REF)
-13 ASSY (ON-5) (REF)
(SEE NOTE 4)
X=196.0 (REF)
+Y=27.0 (REF)
+Y=23.406 (REF)
QUAD DECK BLANKET (REF)
℄ SPLICE (REF)
2 3/8 (THIS SIDE)
2 3/8 (OTHER SIDE)
GR11B-1 GW10H-3 SEE NOTE #1
(SEE NOTE #2) NEAR SIDE ONLY
D
±Y=0.00 (REF)
SECTION A-A ZONE 11A
VIEW LOOKING AFT
LDW 2

CODE IDENT NO 26512 | LDW280-28644 | SH 3

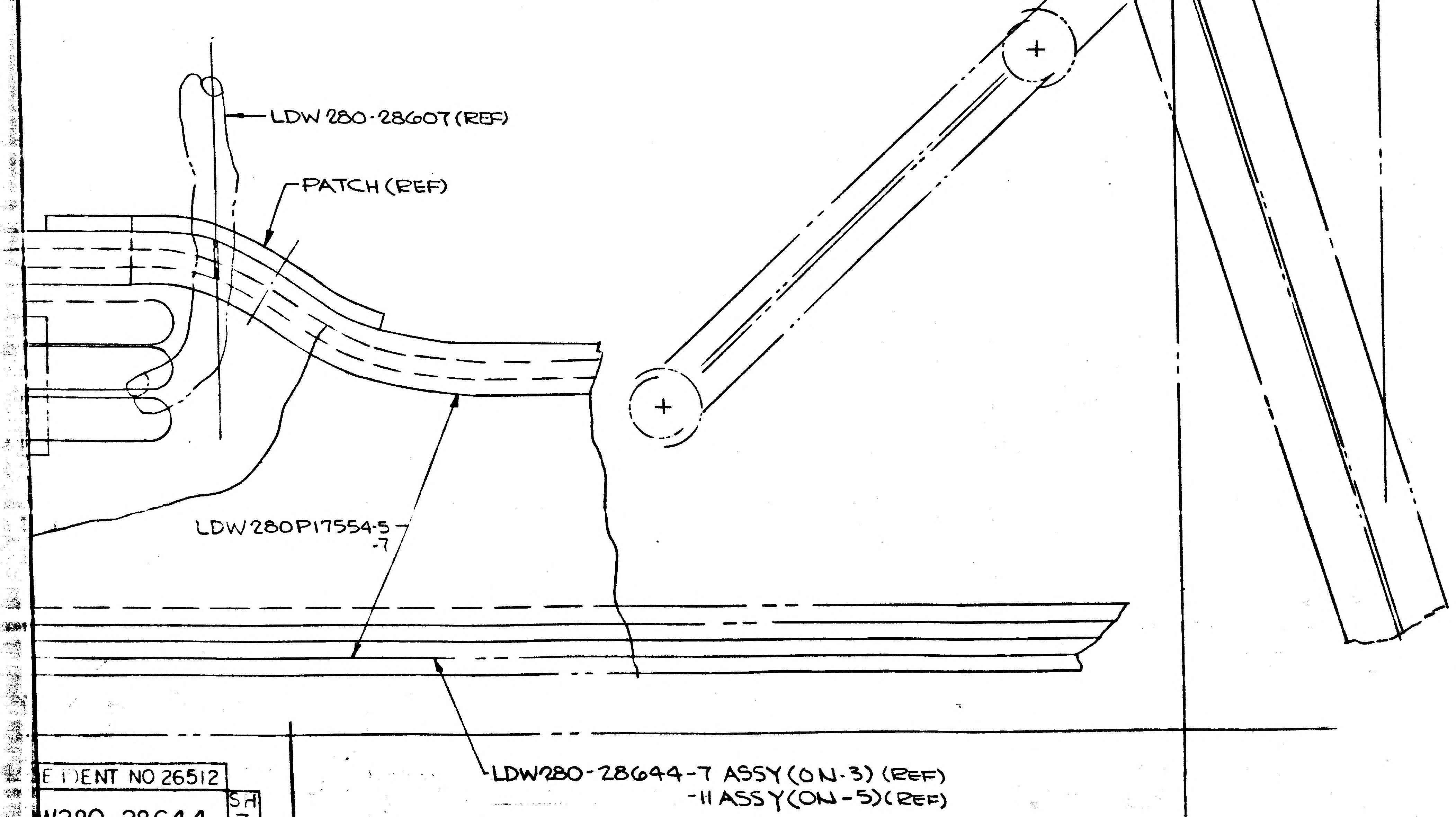
IDENT NO 26512 | 0-28644 | SH 3

NOTES:
1. FABRICATE ALL SEAMS PER LPC 280-3
2. CUTTING AND PATCHING PROCEDURE PER LPC 280-6
3. THIS DIM. LOCATES FIRST SET OF RETAINERS THRU +Z DECK & INTERSTAGE BLANKETS SEAM
4. TUCK IN SPLICE TO BE INCORPORATED INTO QUAD DECK AND INTERSTAGE SPLICE
5. TUCK BLANKETS TO STRUCTURE TO CLOSE ALL SPACES OR HOLES AND TAPE TO STRUCTURE
6. FORM SPLICE AND TUCK IN BOTH BLANKETS TO FORM THIS APPROX CONTOUR BEFORE APPLYING TAPE
7. DO NOT TAPE SPLICE TOGETHER IN THIS AREA
8. SLIT LDW 280 P17554-5 AND PATCH AS SHOWN PER LPC 280-6
9. NICKEL SHALL BE RANDOM WRINKLED BEFORE NEXT ASSY

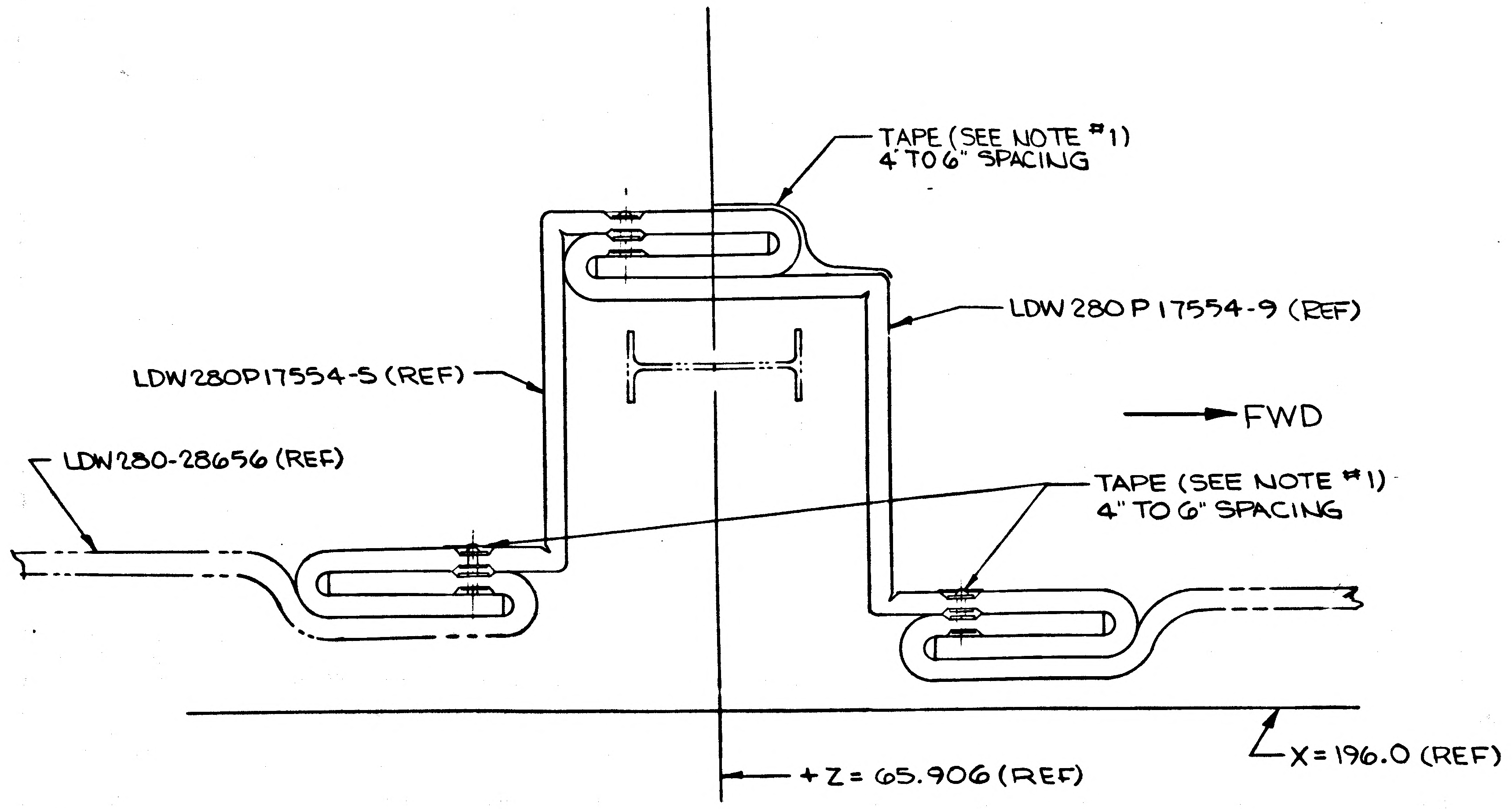

LDW 280-28656 (REF)
$\frac{1}{4} \pm \frac{1}{8}$ (SEE NOTE 3)
LDW 280 P17554-5 (REF)
LEN 280 P17554-9 (REF)


LDW 280P17554-5 (REF)
LDW 360-21285 (REF)

SECTION B-B
ZONE 10A


-Y = 27.0 (REF)
LDW 280-28607 (REF)
PATCH (REF)
LDW 280 P17554-5
-7
LDW 280-28644-7 ASSY (ON-3) (REF)
-11 ASSY (ON-5) (REF)

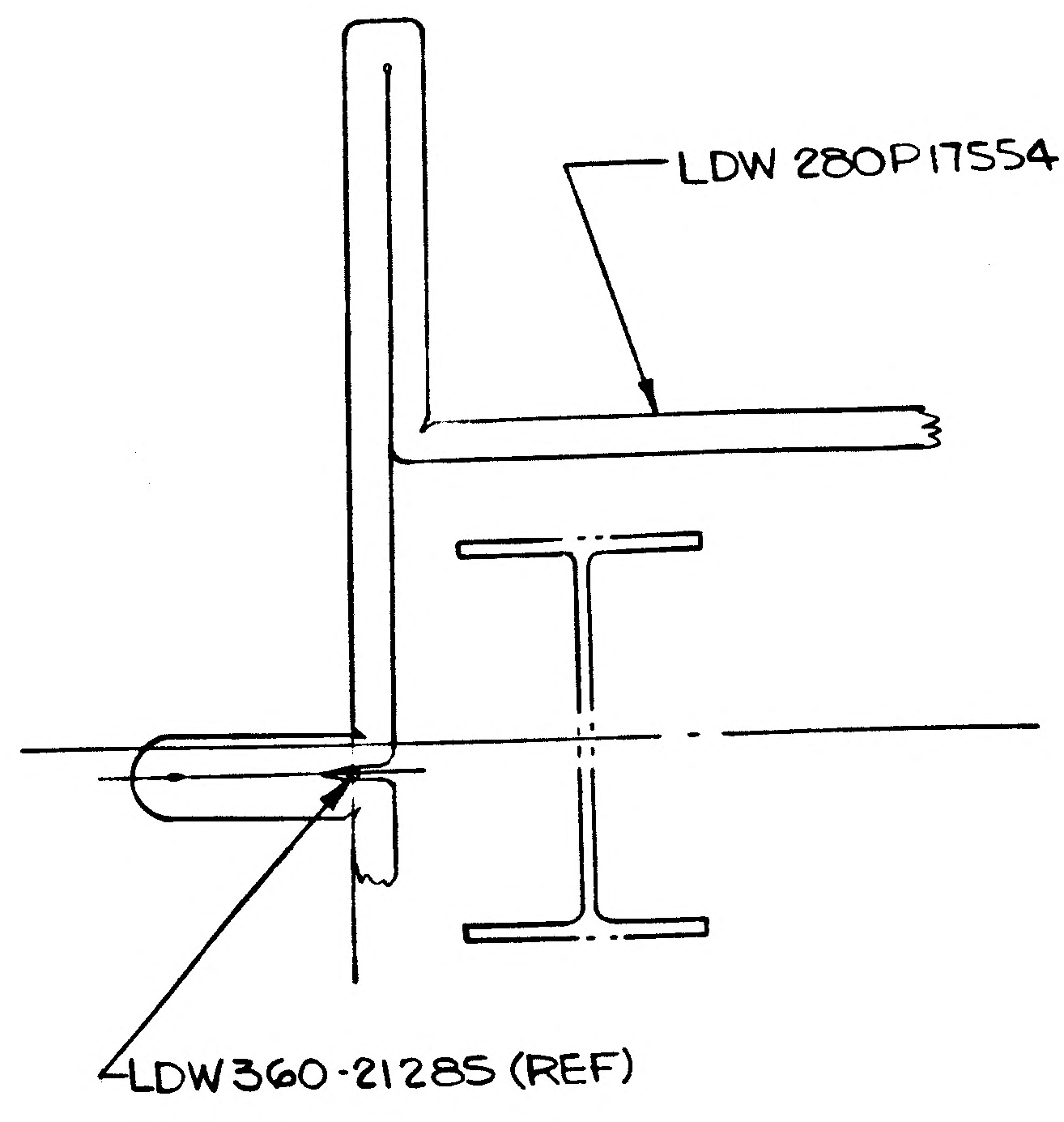
03/04 NAS 9-1100


TAPE (SEE NOTE #1)
4" TO 6" SPACING
LDW 280 P17554-9 (REF)
LDW 280 P17554-5 (REF)
FWD
LDW 280-28656 (REF)
TAPE (SEE NOTE #1)
4" TO 6" SPACING
+Z = 65.906 (REF)
X = 196.0 (REF)

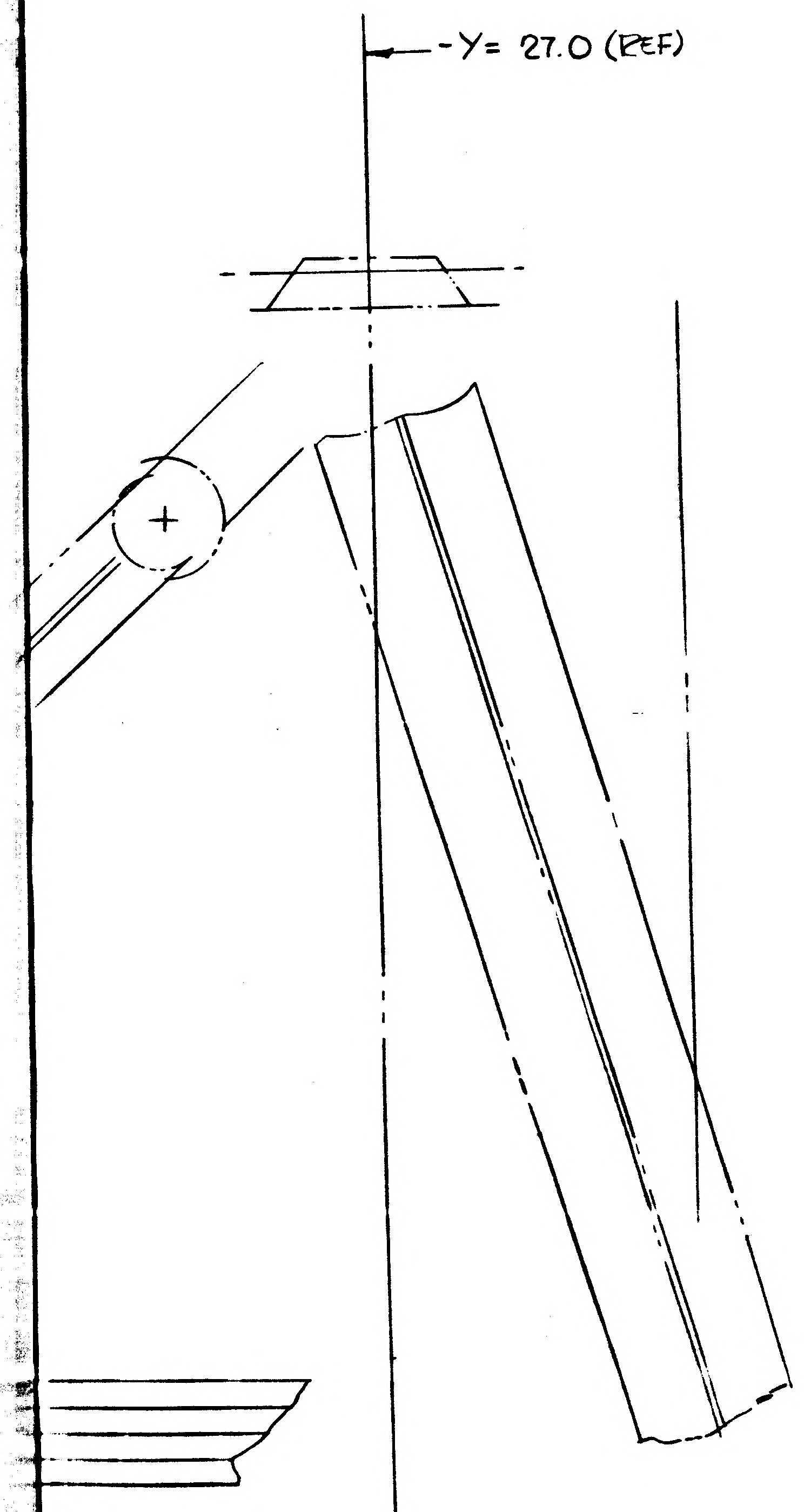
SECTION D-D
ZONE 8A

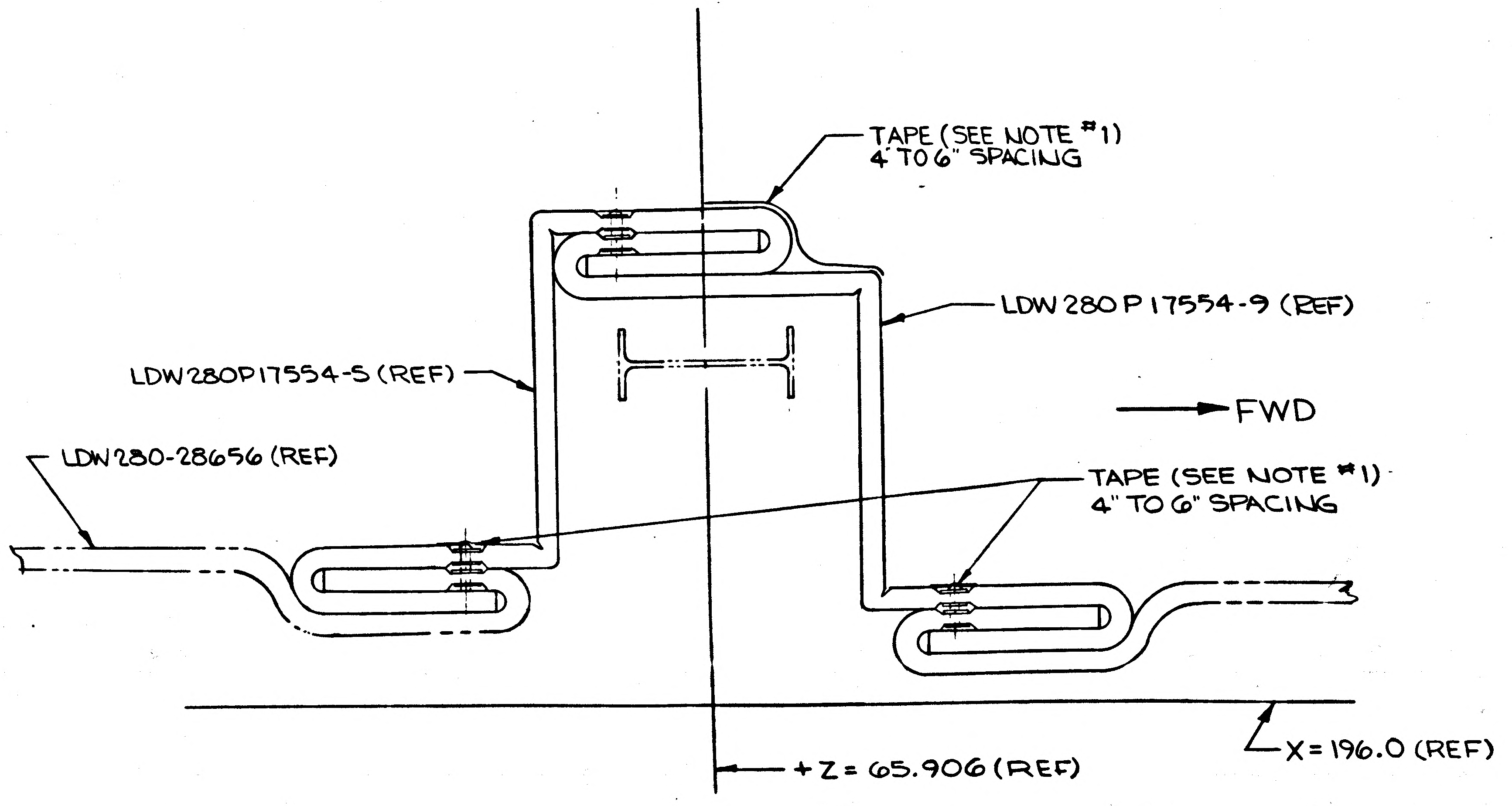
E IDENT NO 26512
W280-28644
SH 3

NOTES:
1. FABRICATE ALL SEAMS PER LPC 280-3
2. CUTTING AND PATCHING PROCEDURE PER LPC 280-6
3. THIS DIM. LOCATES FIRST SET OF RETAINERS THRU +Z DECK & INTERSTAGE BLANKETS SEAM
4. TUCK IN SPLICE TO BE INCORPORATED INTO QUAD DECK AND INTERSTAGE SPLICE
5. TUCK BLANKETS TO STRUCTURE TO CLOSE ALL SPACES OR HOLES AND TAPE TO STRUCTURE
6. FORM SPLICE AND TUCK IN BOTH BLANKETS TO FORM THIS APPROX CONTOUR BEFORE APPLYING TAPE
7. DO NOT TAPE SPLICE TOGETHER IN THIS AREA
8. SLIT LDW 280 P17554-5 AND PATCH AS SHOWN PER LPC 280-6
9. NICKEL SHALL BE RANDOM WRINKLED BEFORE NEXT ASSY



SECTION B-B
ZONE 10A





SECTION D-D
ZONE 8A

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
$\overset{125}{\sqrt{}}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
$\overset{200}{\sqrt{}}$ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 144

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 152) = 38.1 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 9.2 SQ. FT.

PRINT TRIM LINE

LDW280 28644 C

LDW280-28644 C

04/04

NAS 9-1100

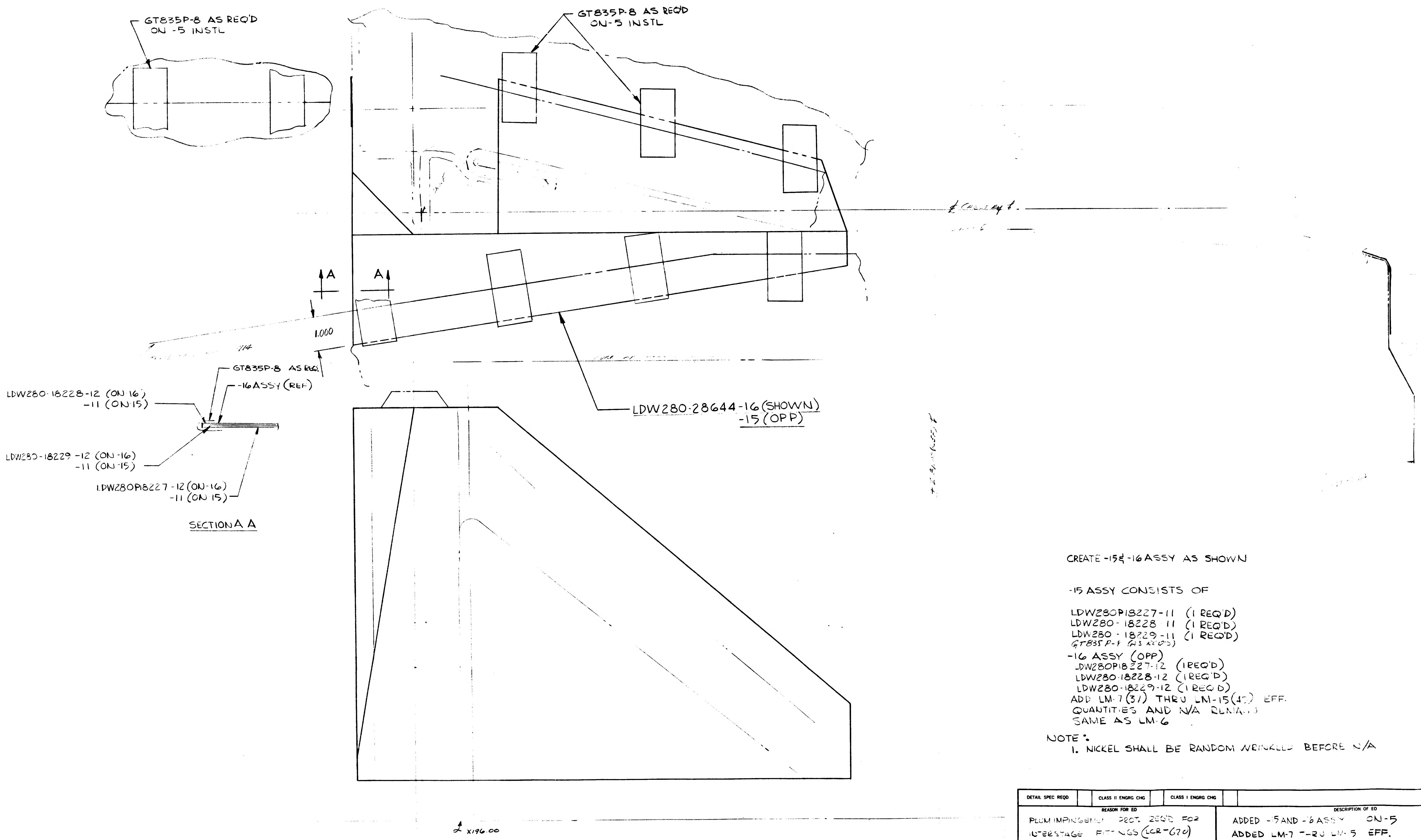
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-28644	C
	SCALE FULL		SHEET 3.00	

③

3 FRAMES

4 FR


GT835P-8 AS REQ'D
ON -5 INSTL
GT835P-8 AS REQ'D
ON-5 INSTL
A
A
1.000
.114
GT835P-8 AS REQ.
-16 ASSY (REF)
LDW280-18228-12 (ON 16)
-11 (ON 15)
LDW280-18229 -12 (ON -16)
-11 (ON -15)
LDW280P18227 -12 (ON-16)
-11 (ON 15)
SECTION A A
LDW280-28644-16 (SHOWN)
-15 (OPP)
℄ X196.00

CREATE -15 & -16 ASSY AS SHOWN

-15 ASSY CONSISTS OF

LDW280P18227-11 (1 REQ'D)
LDW280-18228 11 (1 REQ'D)
LDW280-18229-11 (1 REQ'D)
GT835P-8 (AS REQ'D)
-16 ASSY (OPP)
LDW280P18227-12 (1 REQ'D)
LDW280-18228-12 (1 REQ'D)
LDW280-18229-12 (1 REQ'D)
ADD LM-7 (37) THRU LM-15 (45) EFF.
QUANTITIES AND N/A REMAIN
SAME AS LM-6

NOTE:
1. NICKEL SHALL BE RANDOM WRINKLED BEFORE N/A

01 NAS 9-1100

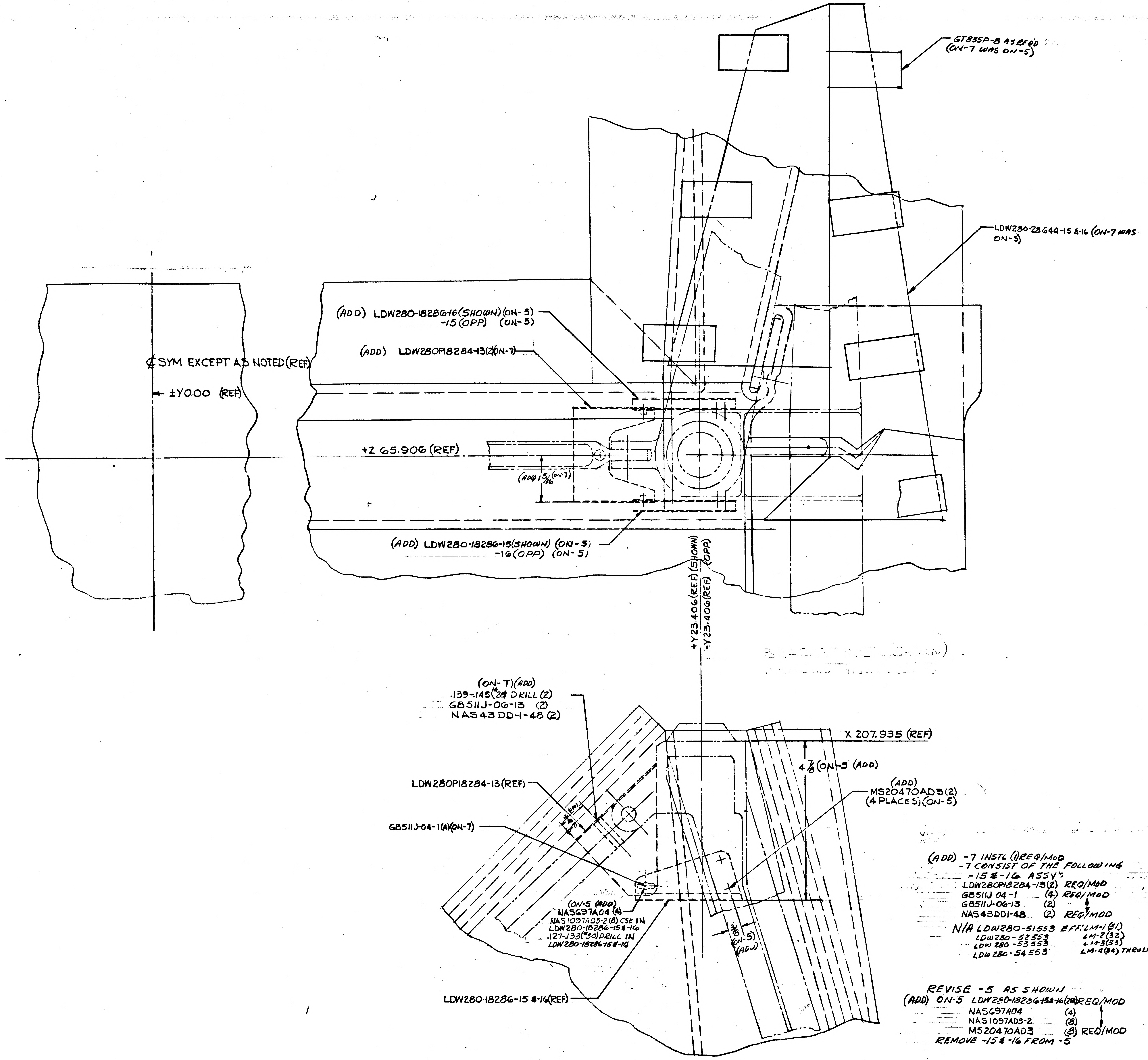
DETAIL SPEC REQD		CLASS II ENGRG CHG		CLASS I ENGRG CHG		CONTROL NO.
REASON FOR EO			DESCRIPTION OF EO			GRUMMAN EO RELEASE
PLUM IMPINGEMENT PROT. REQ'D FOR INTERSTAGE FITTINGS (LCR-670)			ADDED -15 AND -16 ASSY ON -5 ADDED LM-7 THRU LM-15 EFF.			

MODEL	EFFECTIVITY PROCURING ACT. NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-7 (37) THRU	
LM		LM-15 (45)	

DRAWING REVISION REQD: ✓ REVISE DWG; RECORD EO
DISPOSITION OF PARTS: ✓ REWORK; SCRAP
BY / DATE
~~SUPPORT~~ THERMO
RELIAB GROUP
GROUP LEADER
STRESS GROUP
LIAISON ENGRG
PROJ ENGR
GOV'T

PRIORITY: C
DRAWING TITLE: SHIELD INSTL D/S FWD INTERSTAGE THERMAL
ENGINEERING ORDER
DRAWING NO.: LDW280-28644
EO NO.: 31

ISSUED BY V.GREY/J.STRAKOSCH SECTION VEHICLE DESIGN GROUP NO. 335 PL 35
CODE IDENT NO. 26512
GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.
ENG 32.3 REV 3-68


GT835P-8 AS REQD (ON-7 WAS ON-5)
LDW280-28644-15 & -16 (ON-7 WAS ON-5)
(ADD) LDW280-18286-16 (SHOWN) (ON-5) -15 (OPP) (ON-5)
(ADD) LDW280P18284-13(2)(ON-7)
℄ SYM EXCEPT AS NOTED (REF)
±Y0.00 (REF)
+Z 65.906 (REF)
(ADD) 1 5/16 (ON-7)
(ADD) LDW280-18286-15 (SHOWN) (ON-5) -16 (OPP) (ON-5)
+Y23.406 (REF) (SHOWN)
-Y23.406 (REF) (OPP)
(ON-7)(ADD) .139-.145 (#28) DRILL (2) GB511J-06-13 (2) NAS43DD-1-48 (2)
X 207.935 (REF)
4 7/8 (ON-5) (ADD)
LDW280P18284-13 (REF)
(ADD) MS20470AD3 (2) (4 PLACES) (ON-5)
GB511J-04-1(4)(ON-7)
(ON-5 (ADD) NAS697A04 (4)
NAS1097AD3-2 (8) CSK IN LDW280-18286-15 & -16
.127-.133 (#30) DRILL IN LDW280-18286-15 & -16
3/8 (ON-5) (ADD)
LDW280-18286-15 & -16 (REF)

FULL SIZE SHEET AREA (36-36) 9 SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) 2.2 SQ. FT.

(ADD) -7 INSTL (1) REQ/MOD
-7 CONSIST OF THE FOLLOWING
-15 & -16 ASSY'S
LDW280P18284-13 (2) REQ/MOD
GB511J-04-1 (4) REQ/MOD
GB511J-06-13 (2)
NAS43DD1-48 (2) REQ/MOD

N/A LDW280-51553 EFF: LM-1 (31)
LDW280-52553 LM-2 (32)
LDW280-53553 LM-3 (33)
LDW280-54553 LM-4 (34) THRU LM-15 (45)

REVISE -5 AS SHOWN
(ADD) ON-5 LDW280-18286-15 & -16 (2EA) REQ/MOD
NAS697A04 (4)
NAS1097AD3-2 (8)
MS20470AD3 (8) REQ/MOD
REMOVE -15 & -16 FROM -5

* REWORK -5 INSTL.

5

DETAIL SPEC REQD	CLASS II ENGRG CHG ✓	CLASS I ENGRG CHG	LCD-1173
CONTROL INFO NO. DW280A 6157			
REASON FOR EO	TO PROVIDE PROTECTION FOR EXPLOSIVE BOLT MECHANISM LCR 1173		
DESCRIPTION OF EO	ADDED -7 INSTL ON-5 ADDED LDW280-18286-15 & -16 (2EA), NAS697A04 (4) NAS1097AD3-2 (8) MS20470AD3 (8) REMOVED -15 & -16 FROM -5		
GRUMMAN EO RELEASE	C	JK	5/11/67

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31) THRU LM-15 (45)	

DRAWING REVISION REQD		DISPOSITION OF PARTS									
REVISE DWG	RECORD EO	REWORK	SCRAP	BY / DATE		SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR
✓		*		5/9/67	5 VD1			5/9/67	5/9/67		5/10/67

DEPT	5/11/67
PRIORITY	C
DRAWING TITLE	SHIELD INSTL D/S FWD INTERSTAGE THERMAL
ENGINEERING ORDER DRAWING NO.	LDW280-28644
EO NO.	C1
CODE IDENT NO.	26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ISSUED BY R. Clark / J. Strakosch SECTION VD1 GROUP NO. 335 PL 25

GAEC 38.3 REV 3-65

01 NAS 9-1100

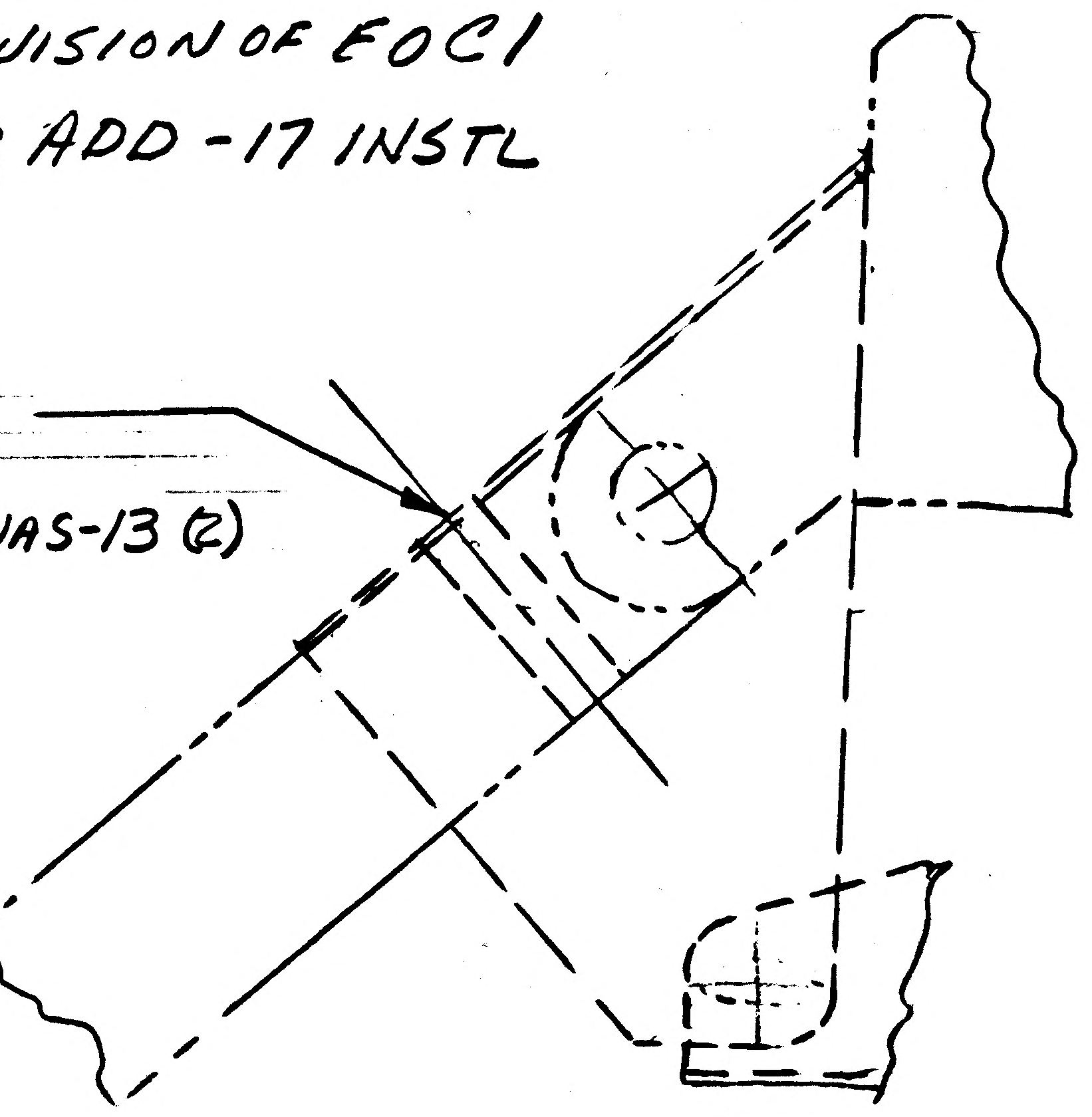
ENG 32.1 REV 3-65

AB

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28644
EO NO. C2
CONTROL INFO NO. LDW280A 6945

THIS EO. IS A REVISION OF EO C1
ADD -7 INSTL S/B ADD -17 INSTL



DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 1173 5

REASON FOR EO: TO PROVIDE PROTECTION FOR EXPLOSIVE BOLT MECHANISM LCD 1173

DESCRIPTION OF EO: REF EO C1 -7 INSTL S/B -17 INSTL GB511J-06-16(2) WAS-13 ADDED MS21043-06(2) & AN960D6(2)

Ⓡ GAEC EO RELEASE C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JEP			JHS	WJW		JAM	JEP
✓		✓		DATE	5/23/67			5/22/67	5/24/67		5/25/67	5/27/67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL D/S-FWD INTERSTAGE THERMAL	LDW280-28644	C2

ISSUED BY R. CLARK / J STRAKOSCH SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28644	EO NO. C3
CONTROL INFO NO. LDW280A 7457	

THIS EO EO IS A REVISION OF EO C1
ON-5 ~ NAS697C04L WAS NAS697A04

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 1173	5

REASON FOR EO	DESCRIPTION OF EO	(R) GAEC EO RELEASE C
TO PROVIDE PROTECTION FOR EXPLOSIVE BOLT MECHANISM LCD 1173	REF EO C1 NAS697C04L WAS NAS697A04	JK [illegible]

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY									
DATE				6/8/67	6/12/6		6/12/67	6/13/67	
5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	[illegible]	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	ACCESS COVER INSTL D/S FWD INTERSTAGE	LDW280-28644	C3

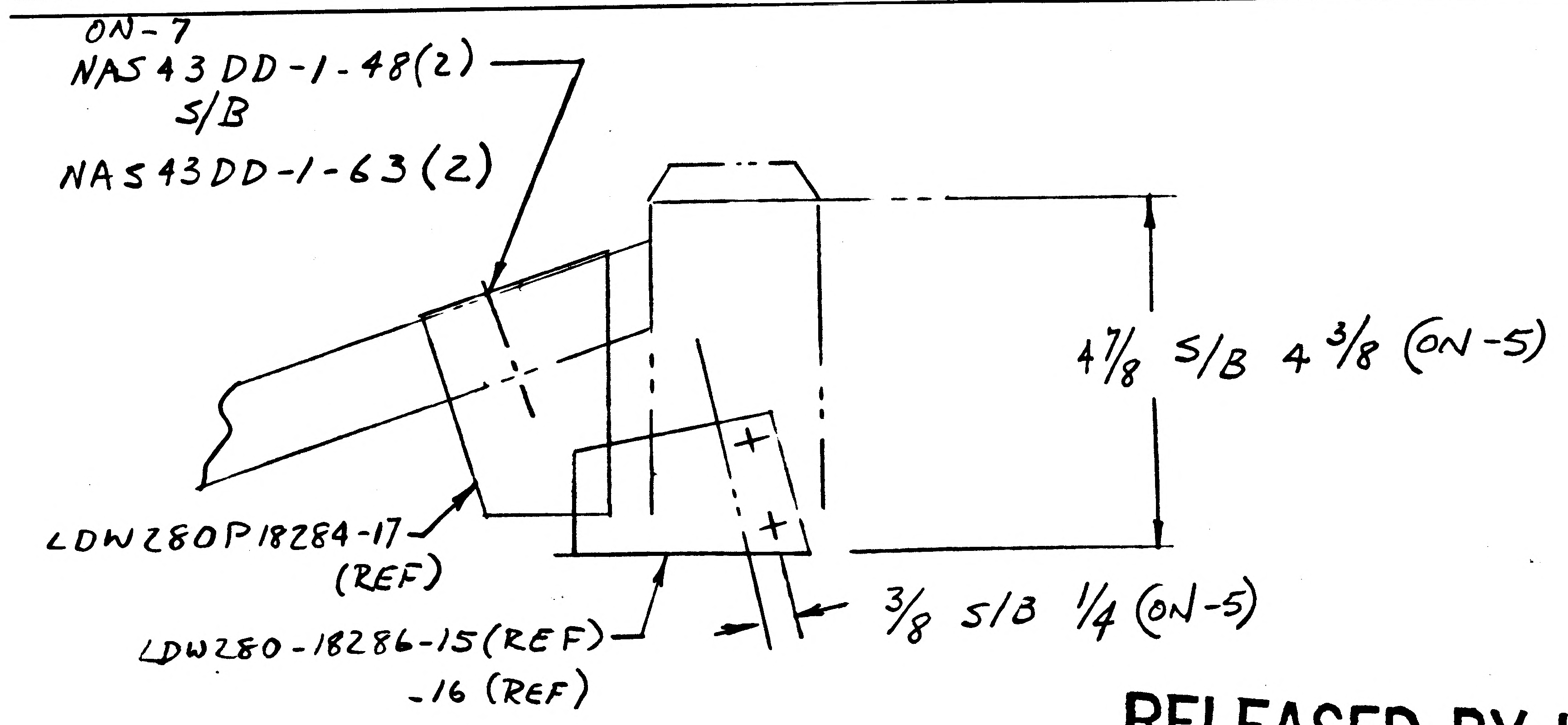
ISSUED BY R CLARK/J STRAKOSCH SECTION VD1 GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-28644
EO NO. C4
CONTROL INFO NO. LM 5-13523


ON-7
NAS43DD-1-48(2)
S/B
NAS43DD-1-63(2)
4 7/8 5/B 4 3/8 (ON-5)
LDW280P18284-17
(REF)
LDW280-18286-15(REF)
-16 (REF)
3/8 5/B 1/4 (ON-5)

RELEASED BY LIAISON

SHOP NOTE; PLUG HOLES WITH NAS1097 RIVETS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: TO FACILITATE INSTL OF DETAIL PARTS.

DESCRIPTION OF EO: ON-5 INSTL REVISED DIMS 1/4 WAS 3/8 & 4 3/8 WAS 4 7/8. ON-7 NAS43DD-1-63(2) WAS NAS43DD-1-48(2)

GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 1(31) THRU 15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

					GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	WT ALW				~	JFJ	EUB	
DATE	6-15-67				~	6-15-67	6/15/67	6/19	6/15/67
1	VDI	SUPPORT	RELIAB. GROUP					

PRIORITY: C
DRAWING TITLE: SHLD INSTL D/S - FWD INTERSTAGE - THERM.
DRAWING NO. LDW280-28644
EO NO. C4

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW 280-28644

EO NO. C5

CONTROL INFO NO. LM 5-15404

THIS IS A REVISION OF EO C4

"ON -7 INSTL." S/B "ON -17 INSTL."

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: -7 CHG'D, TO -17 BY EO C2. RTE 05-131-249

DESCRIPTION OF EO: REF EO C4 "ON-17 INSTL." WAS "ON -7 INSTL."

GAEC EO RELEASE: C JL

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	THRU
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

	6-1967	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	JaP				~	JFJ	CH	WAB
DATE	7/6/67				~	6-19-67	6-19-67	7/6/67

PRIORITY: C

DRAWING TITLE: SHIELD INSTL. D/S-FWD. INTERSTAGE-THERM

DRAWING NO.: LDW280-28644

EO NO.: C5

ISSUED BY LIAISON HEDGES- 86216 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28644
EO NO. C6
CONTROL INFO NO. LM-5-15412

THIS IS A REVISION OF EO'S C2 & C4

ON-17

GB511J-06-14(2)(WAS -16 ON EO C2)

NAS 43DD-1-59(2)(WAS -63 ON EO C4)

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
TO CORRECT HARDWARE CALLOUT	ON-17 REF EO C2 GB511J-06-14(2) WAS -16 REF EO C4 NAS43DD-1-59(2) WAS -63	JL

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				~	JFF	EVB	
DATE	7/6/67			~	6-20-67	6/20/67	6/20/67 6/20/67
6-20-67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL O/S FWD INTERSTAGE THERM.	LDW280-28644	C6

ISSUED BY LIAISON R.V. PHILLIPS
SECTION V01
GROUP NO. 335 PL 5

01 NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28644
EO NO. C7
CONTROL INFO NO. LDW280A 9699

IN MOD/BLK
FOR -5 & -17 INSTL RESTRICT EFF TO LM-1(31) & LM-2(32).

FITH

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1244

(5)

REASON FOR EO: TO PROVIDE FOR F.I.T.H. SHIELD

DESCRIPTION OF EO: RESTRICTED -5 & -17 EFF ON LM-1(31) & LM-2(32). WAS LM-1(31) THRU LM-15(45)

GAEC EO RELEASE: 11/10/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY									
				DATE	11/10/67			11-10-67	11/13/67		11/10/67	11-15-67
REVISE DWG	RECORD EO	REWORK	SCRAP	P	V.D.I.	THERMO ~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
✓			✓									

PRIORITY: C
DRAWING TITLE: SHIELD INSTL D/S-FWD INTER-STAGE THERMAL
DRAWING NO. LDW280-28644
EO NO. C7

CDR 11/17/67
H3. ISSUED BY DON THOMAS / P. THORJUSEN SECTION V.D.I. x1153 GROUP NO. 335 PL 25

01

NAS 9-1100

LDW 280-28645

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW 280-28553	LTA-8(18)	1 EA.
PART NO. LDW 280-28645-1		GAEC SCH NO. 52	

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	D	GRUMMAN REL INFO	
LAST DASH NO. USED	-1	PRIM NO.	VE(001) MP-8-7-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/4 ± .200 ± 30'
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100 | LINE ITEM #1 | DOCUMENTATION TYPE II

DRAWN BY		THERMO	AB 1/27/67
LAYOUT BY	C RUSSO	RELIABILITY	
CHECKED BY			
GR LEADER	Stackcomb 8/3/66		
VEH DESIGN	Kurland 8/4		
STRUCTURES	N/A N 8/4	PROJ ENGR	R.M. Carbee (EV) 8/7
STRUCTURES	Alderman 8/5	REL GROUP	J Tagliavia 1/27/67
WEIGHTS	Robertson 8-9		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOOR INSTL - DESCENT STAGE QUAD I PLSS BATTERY ACCESS

SIZE	CODE IDENT NO.	
B	26512	LDW 280-28645
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

C.L.	QTY PER ASSEMBLY						CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						AS REQD		GT535B-1-100	E	TAPE	STD PART						
						5		GT535G-LCS-0016	E	TAPE	STD PART						
						AS REQD				THREAD	SEE NOTE 1						
						1		LDW280 28762-1	E	FRAME	SEE DWG						
						1		LDW280P17472-1	E	BLANKET ASSY.	SEE DWG.						
C								LDW280-28645-1	E	DOOR INSTL							
////						-1											

C.L. = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-28645

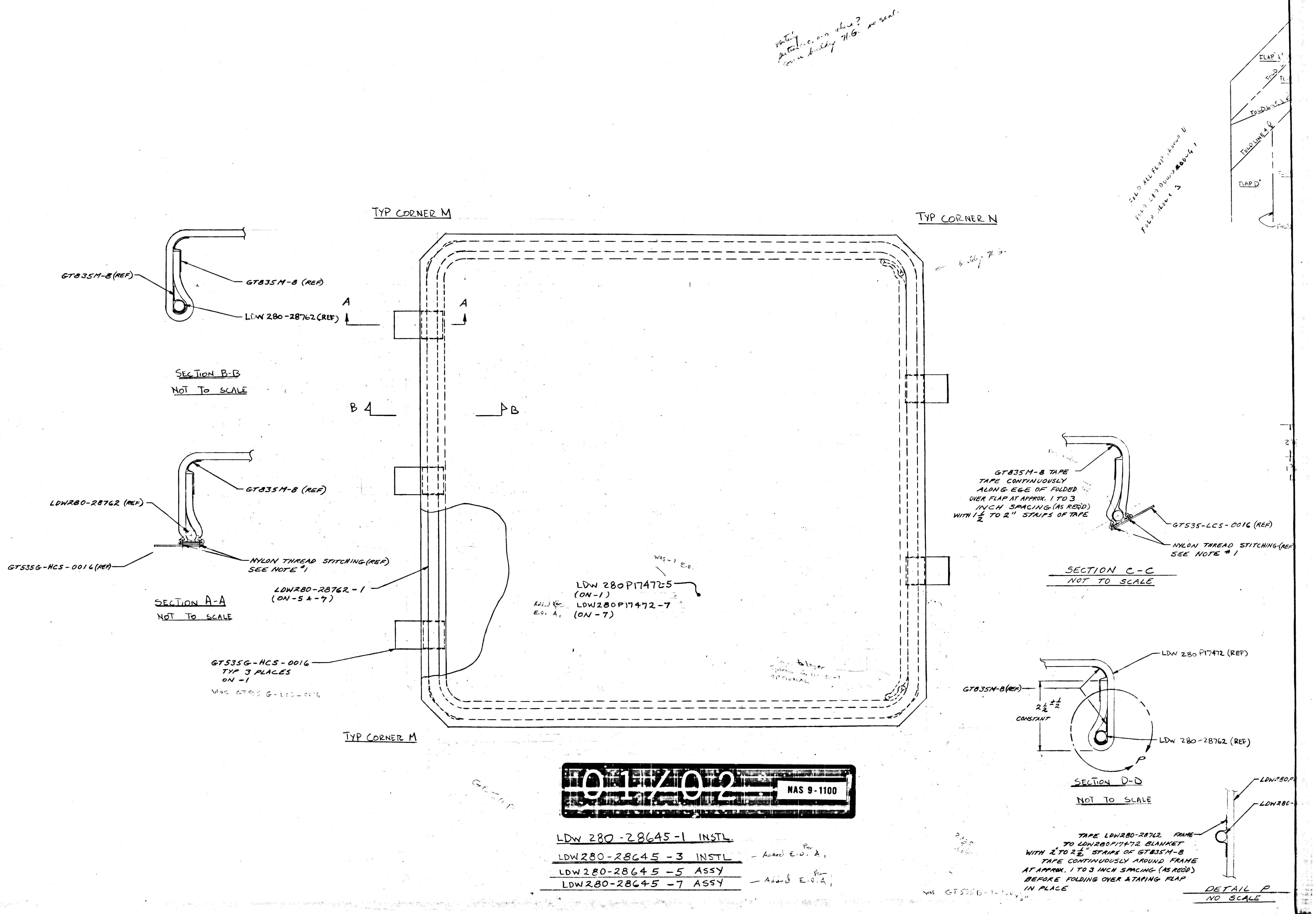
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


TYP CORNER M
TYP CORNER N
TYP CORNER M
GT835M-8 (REF)
GT835M-8 (REF)
LDW 280-28762 (REF)
SECTION B-B
NOT TO SCALE
A
A
B
B
LDW280-28762 (REF)
GT835M-8 (REF)
NYLON THREAD STITCHING (REF) SEE NOTE #1
GT535G-HCS-0016 (REF)
SECTION A-A
NOT TO SCALE
LDW280-28762-1 (ON-5 & -7)
GT535G-HCS-0016 TYP 3 PLACES ON -1
Was GT535G-LCS-0016
Was -1 E.O.
LDW 280P17472-5 (ON-1)
Added Per E.O. A,
LDW280P17472-7 (ON-7)
OPTIONAL
GT835M-8 TAPE TAPE CONTINUOUSLY ALONG EGE OF FOLDED OVER FLAP AT APPROX. 1 TO 3 INCH SPACING (AS REQ'D) WITH 1½ TO 2" STRIPS OF TAPE
GT535-LCS-0016 (REF)
NYLON THREAD STITCHING (REF) SEE NOTE #1
SECTION C-C
NOT TO SCALE
LDW 280 P17472 (REF)
GT835M-8 (REF)
2½ ±½ CONSTANT
LDW 280-28762 (REF)
P
SECTION D-D
NOT TO SCALE
LDW280P
LDW280-
FRAME
TAPE LDW280-28762 FRAME TO LDW280P17472 BLANKET WITH 2" TO 2½" STRIPS OF GT835M-8 TAPE CONTINUOUSLY AROUND FRAME AT APPROX. 1 TO 3 INCH SPACING (AS REQ'D) BEFORE FOLDING OVER & TAPING FLAP IN PLACE
DETAIL P
NO SCALE
FLAP
FOLD LINE
FLAP D
Was GT535G-

01/02 NAS 9-1100

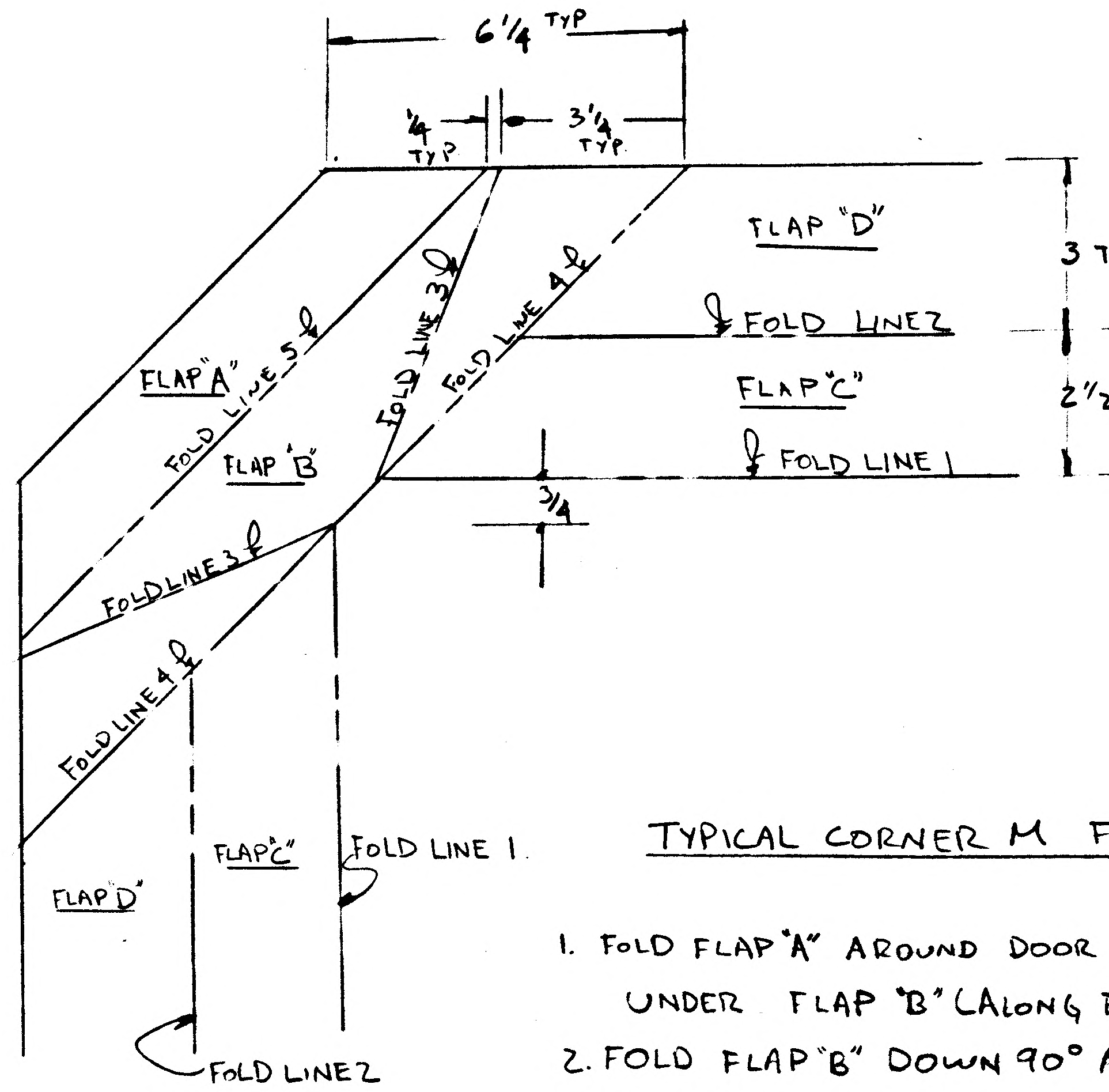
LDW 280-28645-1 INSTL.

LDW280-28645-3 INSTL — Added Per E.O. A,

LDW280-28645-5 ASSY

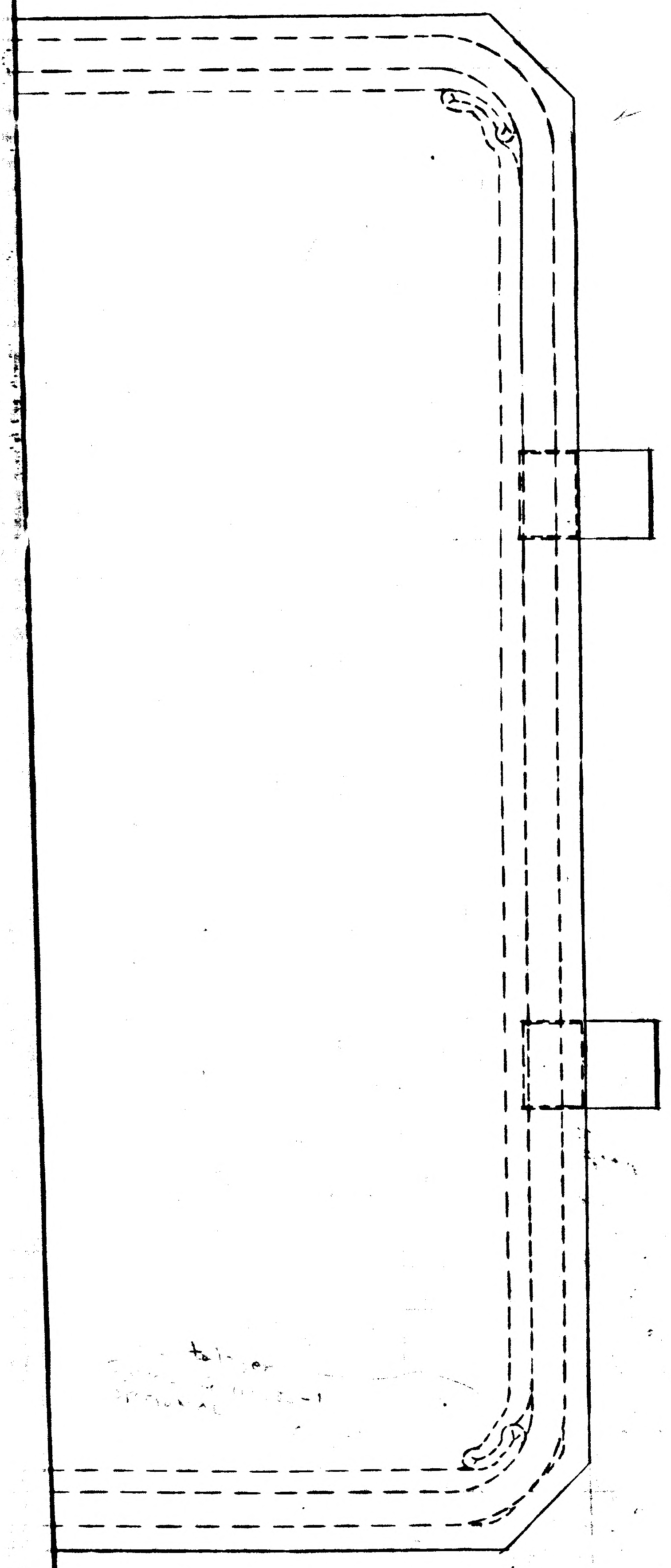
LDW280-28645-7 ASSY — Added Per E.O. A,

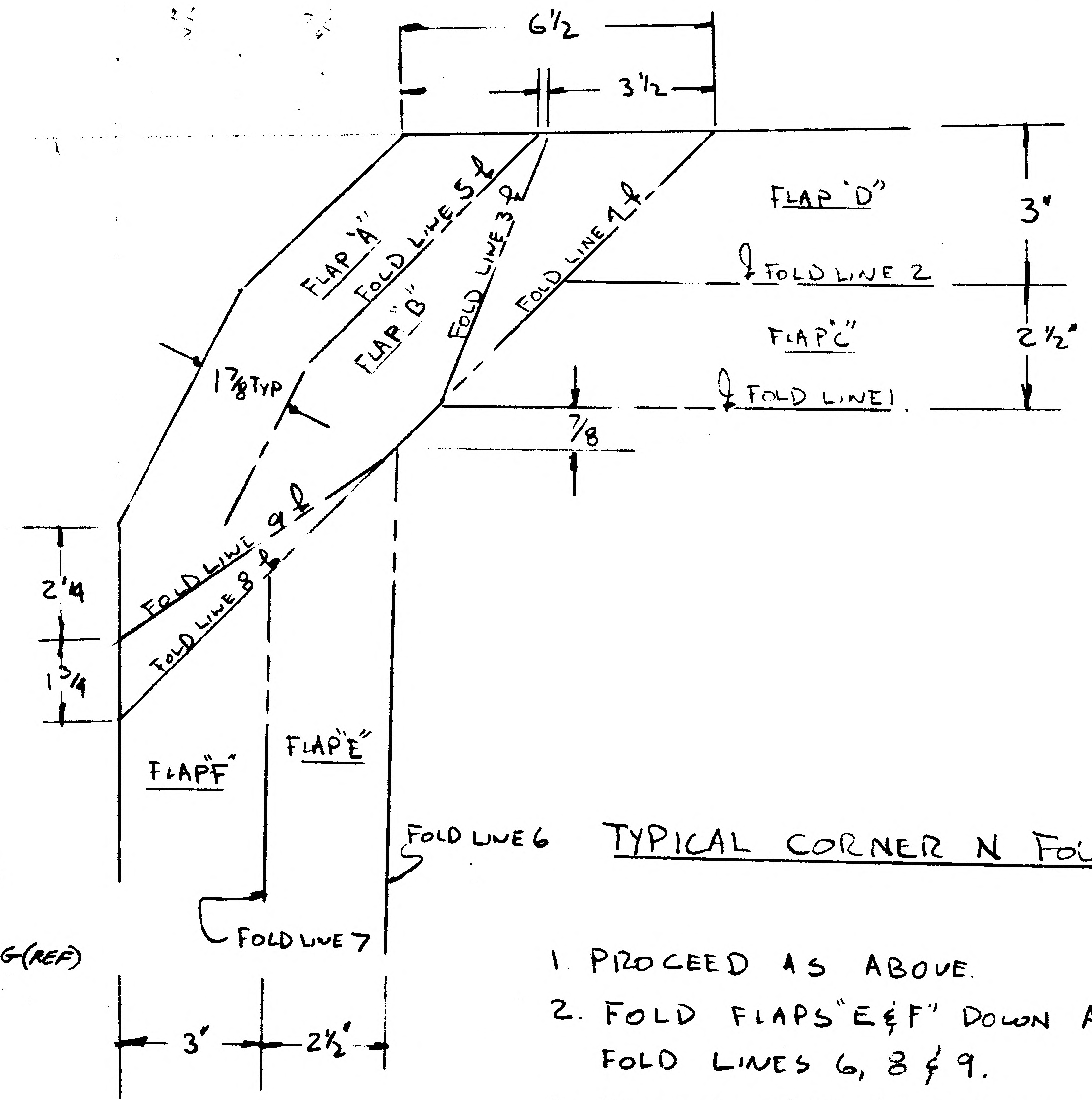
TYPICAL CORNER M FOLDING


6¼ TYP
¼ TYP
3¼ TYP
FLAP "D"
3 TYP
℄ FOLD LINE 2
FLAP "C"
2½ TYP.
℄ FOLD LINE 1
¾
FLAP "A"
FOLD LINE 5 ℄
FOLD LINE 3 ℄
FOLD LINE 4 ℄
FLAP "B"
FOLD LINE 3 ℄
FOLD LINE 4 ℄
FLAP "C"
FOLD LINE 1
FLAP "D"
FOLD LINE 2

1. FOLD FLAP "A" AROUND DOOR FRAME AND UNDER FLAP "B" (ALONG FOLD LINE 5).
2. FOLD FLAP "B" DOWN 90° ALONG FOLD LINE 4
3. FOLD FLAPS "C & D" DOWN 90° ALONG FOLD LINES 1 & 3
4. FOLD FLAPS "D" IN TOWARD FLAPS "C" ALONG FOLD LINE 2 AND AROUND DOOR FRAME & UP.

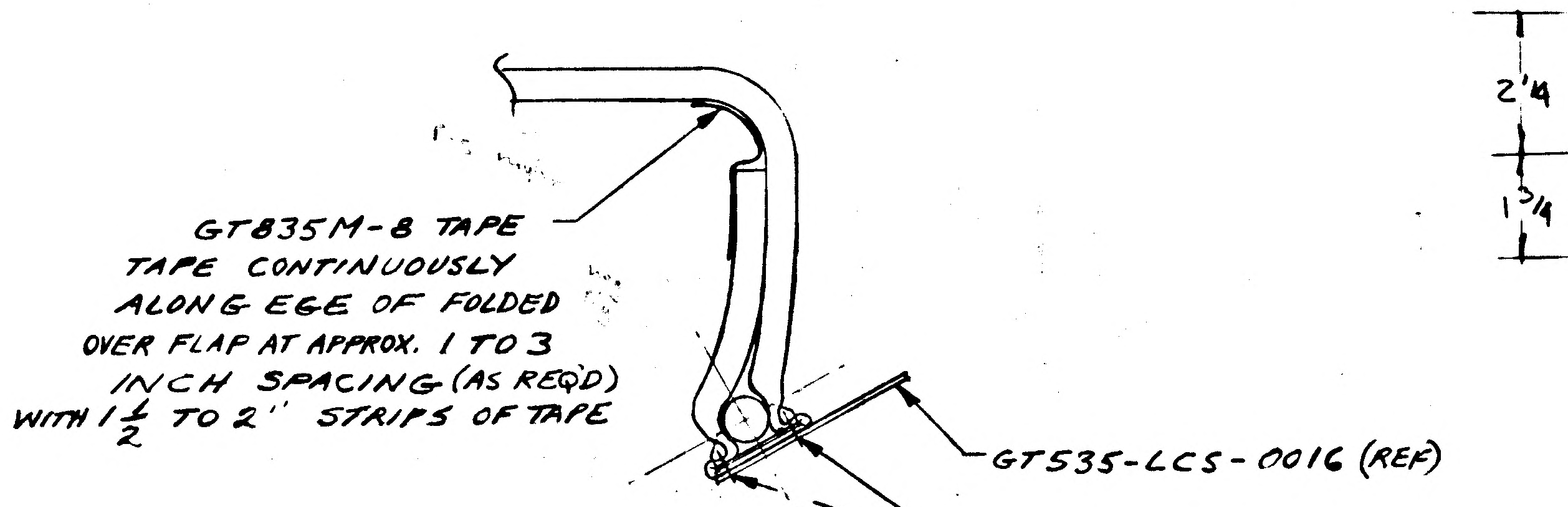
TYP CORNER N



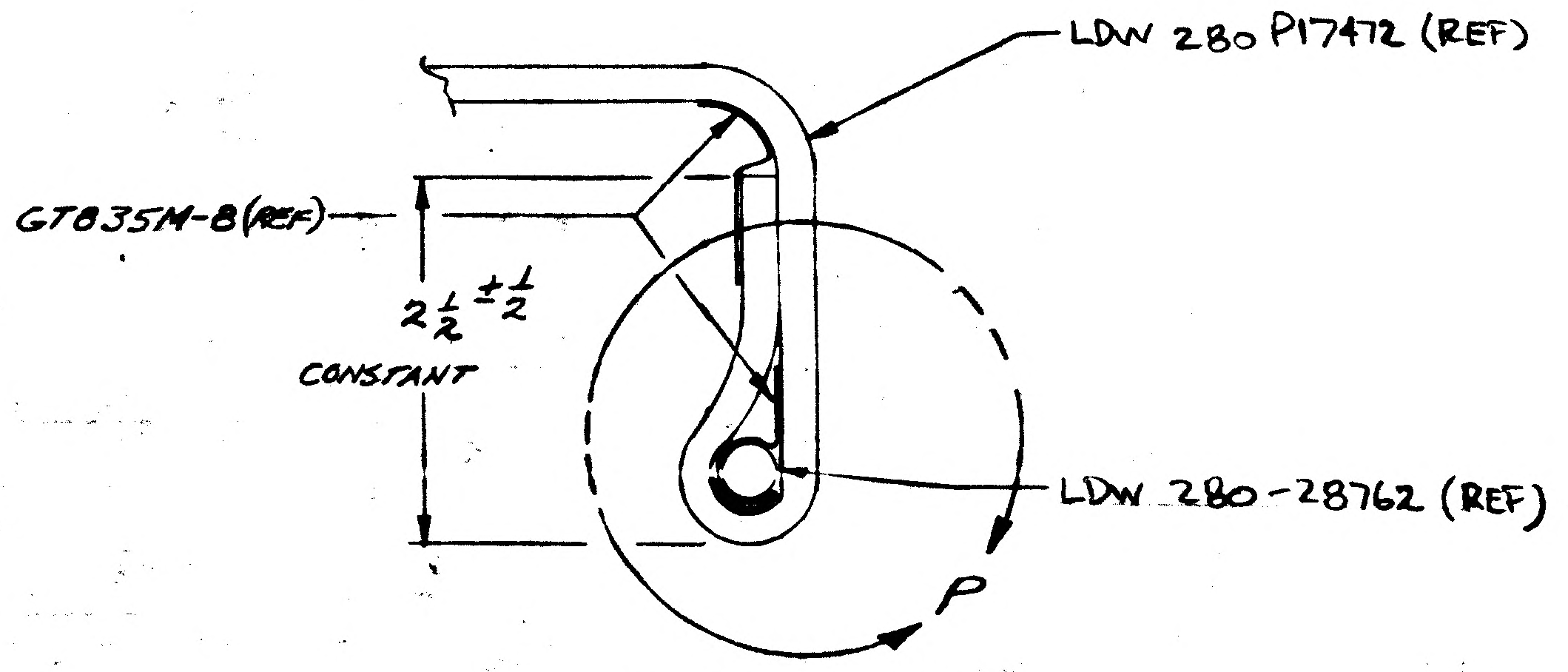

6½
3½
FLAP "D"
3"
℄ FOLD LINE 2
FLAP "C"
2½"
℄ FOLD LINE 1
⅞
FLAP "A"
FOLD LINE 5 ℄
FLAP "B"
FOLD LINE 3 ℄
FOLD LINE 4 ℄
1⅞ TYP
FOLD LINE 9 ℄
FOLD LINE 8 ℄
2¼
1¾
FLAP "F"
FLAP "E"
FOLD LINE 6
FOLD LINE 7
3"
2½"

TYPICAL CORNER N FOLDING

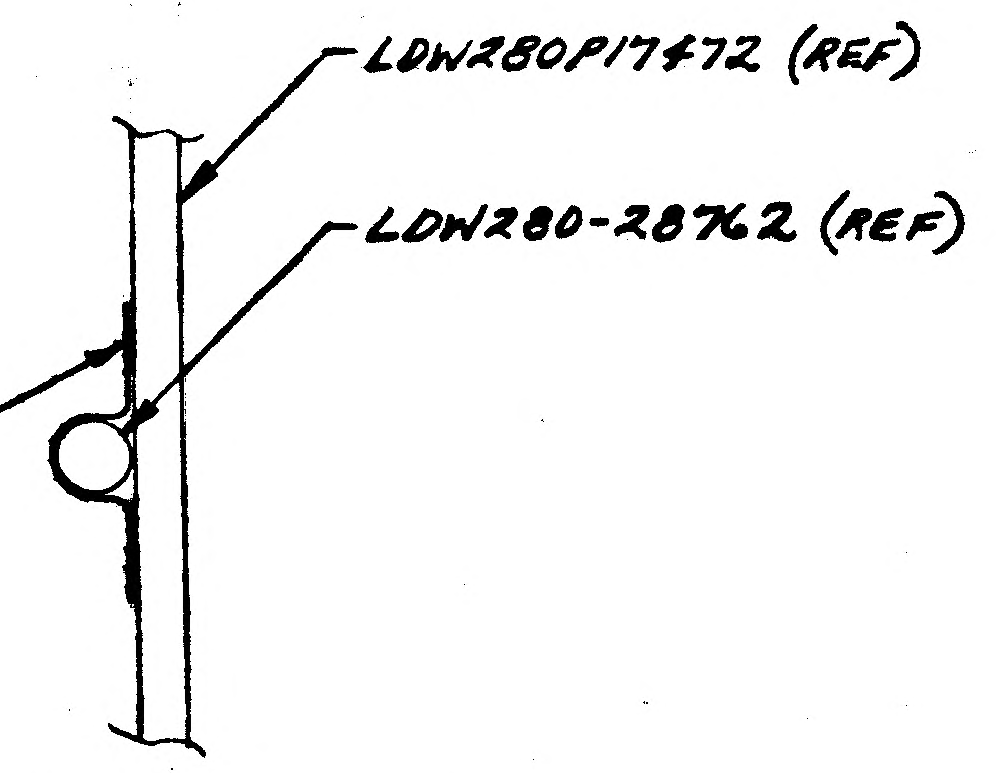
1. PROCEED AS ABOVE.
2. FOLD FLAPS "E & F" DOWN ALONG FOLD LINES 6, 8 & 9.
3. FOLD FLAP "F" AROUND DOOR FRAME AND UNDER FLAP "E".


GT835M-8 TAPE
TAPE CONTINUOUSLY ALONG EGE OF FOLDED OVER FLAP AT APPROX. 1 TO 3 INCH SPACING (AS REQ'D) WITH 1½ TO 2" STRIPS OF TAPE
GT535-LCS-0016 (REF)
NYLON THREAD STITCHING (REF) SEE NOTE # 1

SECTION C-C
NOT TO SCALE


LDW 280 P17472 (REF)
GT835M-8 (REF)
2½ ±½ CONSTANT
LDW 280-28762 (REF)
P

SECTION D-D
NOT TO SCALE


LDW280P17472 (REF)
LDW280-28762 (REF)
FRAME

TAPE LDW280-28762 FRAME TO LDW280P17472 BLANKET WITH 2" TO 2½" STRIPS OF GT835M-8 TAPE CONTINUOUSLY AROUND FRAME AT APPROX. 1 TO 3 INCH SPACING (AS REQ'D) BEFORE FOLDING OVER & TAPING FLAP IN PLACE

DETAIL P
NO SCALE

NOTE:

1. THREAD TO BE SAGE GREEN, SIZE E SPEC MILT-7807 TYPE II, CLASS I, NYLON THREAD MAY BE PURCHASED FROM THREADS INC. GASTONIA, NORTH CAROLINA CODE IDENT 19937. SEW GT535G-LCS-0016 TAPE AT 3/16 ± 1/16 FROM EDGE OF TAPE IN ACCORDANCE WITH FEDERAL STANDARD #751a & STITCH TYP. 301.

WAS GT535B-1-100 x 3"

LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT

02/02 NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X) = SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = SQ. FT.

PRINT TRIM LINE

LDW280-28645

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-28645
MODEL OR END ITEM	SCALE Full & Half		SHEET 3.00

2FR

1

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LDW280-28645
EO NO. A1
CONTROL INFO NO. LDW280A-0960

IN F/D & B/M ADD -5 DOOR ASSY TO -1 DOOR INSTL.
REMOVE LDW280-28762-1 FROM -1 ADD TO -5 1REQ'D
REMOVE LDW280P17472-1 FROM -1 ADD LDW280P17472-5 TO -5 1REQ'D
REMOVE TAPE & THREAD CALLOUTS FROM -1 ADD TO -5

IN N/A FOR -1	LDW280-28553	LTA8(18)	1REQ'D/MOD
	LDW280-51553	LM (31)	1REQ'D/MOD
	LDW280-52553	LM 2(32)	1REQ'D/MOD

WAS LTA8(18) ONLY.

IN F/D & B/M ADD -3 DOOR INSTL. (SAME AS -1 EXCEPT -7 REPLASES -5)
ADD -7 DOOR ASSY (SAME AS -5 EXCEPT LDW280P17472-7 REPLACES LDW280P17472-5)
ADD LDW280P17472-7

IN N/A FOR -3 N/A	LDW280-53553	LM 3(33)	1REQ'D/MOD
	LDW280-54553	LM 4(34) THRU LEM 6(36)	1REQ'D/MOD

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: TO PROVIDE PROPER EXPANSION RATIO

DESCRIPTION OF EO: ADDED -3, -5 & -7; ON -1 REMOVED LDW280-28762-1, LDW280P17472-1, GT595B-1-1.00 & GT535G-LCS-0016, THREAD & ADDED -5, LM-1 & LM-2 REQUIREMENTS

GAEC EO RELEASE: E 10/27

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18) LEM1(31) THRU	
		LEM6(36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	JAS				W		
DATE	10/6/66				10/10/66	10-21-66	10/26/66
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT.~~

PRIORITY: C

DRAWING TITLE: DOOR INSTL D/S QUAD I PLSS BATTERY ACCESS

DRAWING NO. LDW280-28645

EO NO. A1

ISSUED BY P. WEISSLITZ / J. STRAKOSCH x1153 SECTION VDI GROUP NO. 335 PL 35 EHF

01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280

EO NO. 526

CONTROL INFO NO. LDW280 A5914

TO THE FOLLOWING DRAWINGS LISTED BELOW & THEIR DASH NUMBERS * THAT ARE EFFECTIVE ON LM-6(36) ADD EFFECTIVITIES FOR LM-7(37) LM-8(38), LM-9(39), LM-10(40), LM-11(41), LM-12(42), LM-13(43), LM-14(44), LM-15(45). QUANTITIES & NA REMAIN THE SAME AS LM-6(36.)

DRAWING No.	DASH No *	CHG. NO.	TITLE	NEXT ASSY
LDW280-10245	-17, -19	C4	ANGLE CAB. L.H WIND	LDW280-23074
-10261	-13,-15,-17,-19,-20	C1	CHAN. M/S BEAM	-54030
-10300	-13, -15	D2	CLIP RH ZO FRM LWR	-54020
-10310	-15	D1	CHAN CAB. WIND AREA	-23074
-10380	-15	C1	SHIM FWD HATCH HINGE	-54083
-10561	-11	A1	WEB M/S ENG SPT. FWD	-23077
-10702	-17	A1	DBLR DOCK TUN.	-23069
-10830	ULTRA SONIC STD. PANELS	B1	FAB. PROC-RCS-HE MOD	H23143
-10833	-11, -13, -15	B2	WEB ECS HEAT EXC SPT	-23253
-10904	-11, -13, -17	C3	SUPT IMU BEAM WIRING	-23031
-23168	-1, -3, -5 & -7	A2	HATCH ASSY DOCK TUNNEL	-23069
M23139	-1	B1	VEE ASSY CAB NVP-LAP	-23066
-11066	-11, -12	A1	CLIP S BAND ANTENNA	-23246
-11110	-11	C1	FTG AEB CAGE STRUT	-23039
-11117	-17, -19	B1	CHANNEL X253 DECK	-23029
-11117	-11, -13 & -15		CHANNEL X253 DECK	-53476
-11159	-15, -17, -18	B2	ZEE SHIELD X253.5	-53476
-11191	-11	C1	SUPT F.F. EQUIP LINES	-54075
-11351	-1 & -3	B2	BRACKET ASSY	-23488
-53078	-1	A7	BEAM INSTL MS 210.25	-54012
H23903	-5	C4	SKIRT ASSY OXID	LDW280-23901
M10555	-1, -2	A1	CLIP LONGERON CABIN	-23048
-28753	-1	A4	SKIN ASSY DS SC	-28750
-23066	-1	B4	FR IN CAB NA BAS SUP	-54002
-23511	NONE	B3	JIG DATA-REF DWG.	NONE
M11108	-1	B1	BOLT ZO R.H SHIELD SUPT	-51199
-25709	-1	A2	SHIELD INSTL DS EC	-25661
-28362	-3	A2	STRAP ASSY CABIN	-54357
-28645	-3	A2	ACCESS COV INST PLSS	-54553

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LM-7(37) THRU LM-15(45) EFF.

Ⓡ 3

GAEC EO RELEASE: JK 3/27/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-7(37) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY				—				
DATE	3/16/67			—	3/20		3/23/67	3/24/67
6	VOI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 526

ISSUED BY A. MAILA X1392 SECTION VEH. DES. INTRE GROUP NO. 535 PL 35

01 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28645

EO NO. A3

CONTROL INFO NO. LM 29-1089

ON -7 ASSY REVISE TAPE GT535G-HCS-0016 WAS GT535G-LCS-0016. CHANGE F/D & B/M TO AGREE

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

29

REASON FOR EO: PART CALLED OUT INCORRECTLY. PARTS CONFORM

DESCRIPTION OF EO: ON -7 REVISED TAPE: GT535G-HCS-0016 WAS GT535G-LCS-0016

(P) GAEC EO RELEASE: JK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY					~	W.7		
DATE	10/28/67				~	9-26-67	10/28/67	10/26/67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C29

DRAWING TITLE: DOOR INSTL-DESCENT STAGE QUAD I PLSS BATTERY ACCESS

DRAWING NO.: LDW280-28645

EO NO.: A3

ISSUED BY LIAISON C. J. MONTEBELLO X7930 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 — EO NO. 810
CONTROL INFO NO. LDW280B0364

REMOVE LM-4(34) THRU LM-15(45) EFF FROM THE FOLLOWING DASH NO. *

DWG Nº	DASH Nº *	NEXT ASSY	TITLE	CHANGE NO.
✓ LDW280-28761	-3	LDW280-54558	SEE DWG	A5
✓ LDW280P17465	-11 -13, -15	LDW280-28761 LDW280-28778		B4
✓ LDW280 P17514	-11 -15, -17, -19, -21	LDW280-28761 LDW280-28778		B2
✓ LDW280P17516	-11	LDW280-28761		B5
✓ LDW280P17531	-11	LDW280-28778		B3
✓ LDW280P18087	-11	LDW280-28762		A3
✓ LDW280-28645	-3	LDW280-54553		A4
LDW280P17535	-13, -15	LDW280-28778	SEE DWG	B4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCR 2011 CCA 663 ⑤

REASON FOR EO: PARTS NOT USED BECAUSE OF MOD EQUIP STOWAGE

DESCRIPTION OF EO: REMOVED EFF LM-4(34) THRU LM-15(45) FROM DASH NO. *

GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY	JAS						JP	Botti
DATE	11/28/67			11-27-67	12/1/67		11/29/67	12-6-67
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO280	810

12/5
ISSUED BY J. ANDERSEN / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW 280-28646 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54553	LM6(36)	1
	LDW280-54553	LM5(35)	1
	LDW280-54553	LM4(34)	1
	LDW280-52553	LM3(33)	1
	LDW280-52553	LM2(32)	1
LM	LDW280-51553	LM1(31)	1
PART NO. LDW 280-28646-7		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA8(18)	1
PART NO. LDW280-28646-5.		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00			
REV	A	A	A		A			
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED	F	GRUMMAN REL INFO A		
LAST DASH NO. USED	-11	PRIM NO. 207		UMF
		LE(001)	MP-14	A-10-26-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/4 ±.200 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM I
DOCUMENTATION TYPE II

DRAWN BY	AMBROSIO	RELIABILITY	
LAYOUT BY	AMBROSIO	THERMO	W. Taur 10/21/66
CHECKED BY		N	
GR LEADER	J. Stratcosh 8/3/66		
VEH DESN	8/4		
STRUCTURE	W/H 8/4	PROJ ENGR	R.M. Carbee 8/7
STRUCTURE	8-5	REL GROUP	J. Tagliavia 10/26/66
WEIGHTS	8/12		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BLANKET INSTL D.S.
AFT RT HAND INTERSTAGE
FITTING - THERMAL

SIZE	CODE IDENT NO.		
B	26512	LDW280-28646	A
SCALE	NONE	SHEET 1 OF 5	

ENG 77.1 12-65

01 NAS 9-1100

LDW280-28646 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA-8(18)	1
PART NO. LDW280-28646-5		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54553	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
	LDW280-54553	LM-4(34)	1
	LDW280-53553	LM-3(33)	1
	LDW280-52553	LM-2(32)	1
LM	LDW280-51553	LM-1(31)	1
PART NO. LDW280-28646-7		GAEC SCH NO. 52	

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	B	B	B	B
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED D

LAST DASH NO. USED -13

GRUMMAN REL INFO B

PRIM NO. 207

LE(001) MP-14 B-3-18-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/4 ±.200 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM 1

DOCUMENTATION TYPE II

DRAWN BY	AMBROSIO	RELIABILITY	
LAYOUT BY	AMBROSIO	THERMO	M.TAWIL 10-25-66
CHECKED BY			
GR LEADER	J.STRAKOSCH 8-3-66		
VEH DES INT	L.PAULSRUD 8-4		
STRUCTURE	W.HAUCK 8-4	PROJ ENGR	R.M.CARBEE 8-7
STRUCTURE	R.HILDERMAN 8-5	REL GROUP	J.TAGLIAVIA 10-26-66
WEIGHTS	D.ROBESCH 8-12		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BLANKET INSTALLATION -
DESCENT STAGE - AFT RIGHT HAND
INTERSTAGE FITTING - THERMAL

SIZE B

CODE IDENT NO. 26512

LDW280-28646 B

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDES LDW280-28646A 9-23-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED N/C LAST REV A A. RIHA 3-13-67						
B	1	1.00, 1.10 2.00 3.00						EOB1	ADDED LDW280P18227-15, LDW280-18228-15, LDW280-18229-15 (2), LDW280-28646-13 ON -7 & LM-7 THRU LM-15 REQUIREMENTS.	LM-1 THRU LM-15	✓		A. RIHA 3-13-67	☒	
	2	1.00						①	FOR -7 ON LM-3 N/A LDW280-53553 WAS LDW280-52553	LM-3	NOT REQ'D		J.H.S	3/17/67	3/18/67

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO				
B		JHS 3/17/67									

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28646	B
SCALE	NONE		SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

CL	QTY PER ASSEMBLY					PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	-13	-11	-9	-7	-5											
		AS REQD	AS REQD	AS REQD	AS REQD	GW10H-3	E		WASHER	GRUMMAN STD						
	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	GT835P-8			TAPE (POLYIMIDE)	GRUMMAN STD						
		AS REQD	AS REQD	AS REQD	AS REQD	GR11B-1			RETAINER	GRUMMAN STD						
	1					LDW280P18227-15			SKIN	SEE DWG						8A
			1			LDW280P17562-21			INSULATION							3B
			1			-19			INSULATION							3D
		1				-7			BLANKET ASSY							3B
		1				LDW280P17562-5			BLANKET ASSY							3D
	2					LDW280-18229-15			FOIL							7A
	1					LDW280-18228-15			SHIELD	SEE DWG						8A
CL				1		LDW280-28646-13			SHIELD ASSY							4A
CL				1		-11			BLANKET ASSY							4A
CL					1	-9			BLANKET ASSY							4A
CL						-7			BLANKET INSTL							4A
CL						LDW280-28646-5	E		BLANKET INSTL							4A

CL= CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

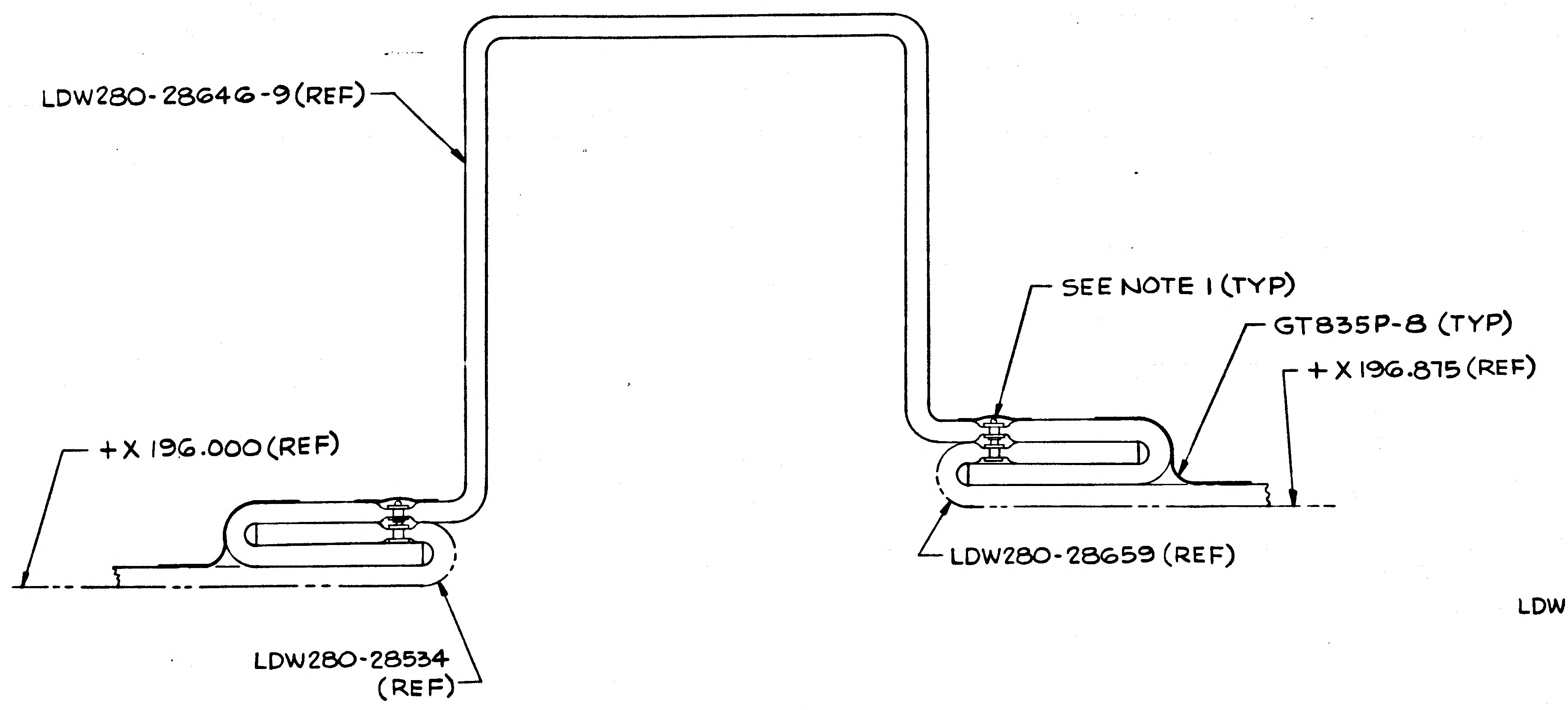
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28646	B
SCALE NONE		SHEET 2.00	

ENG 77.2 5-64

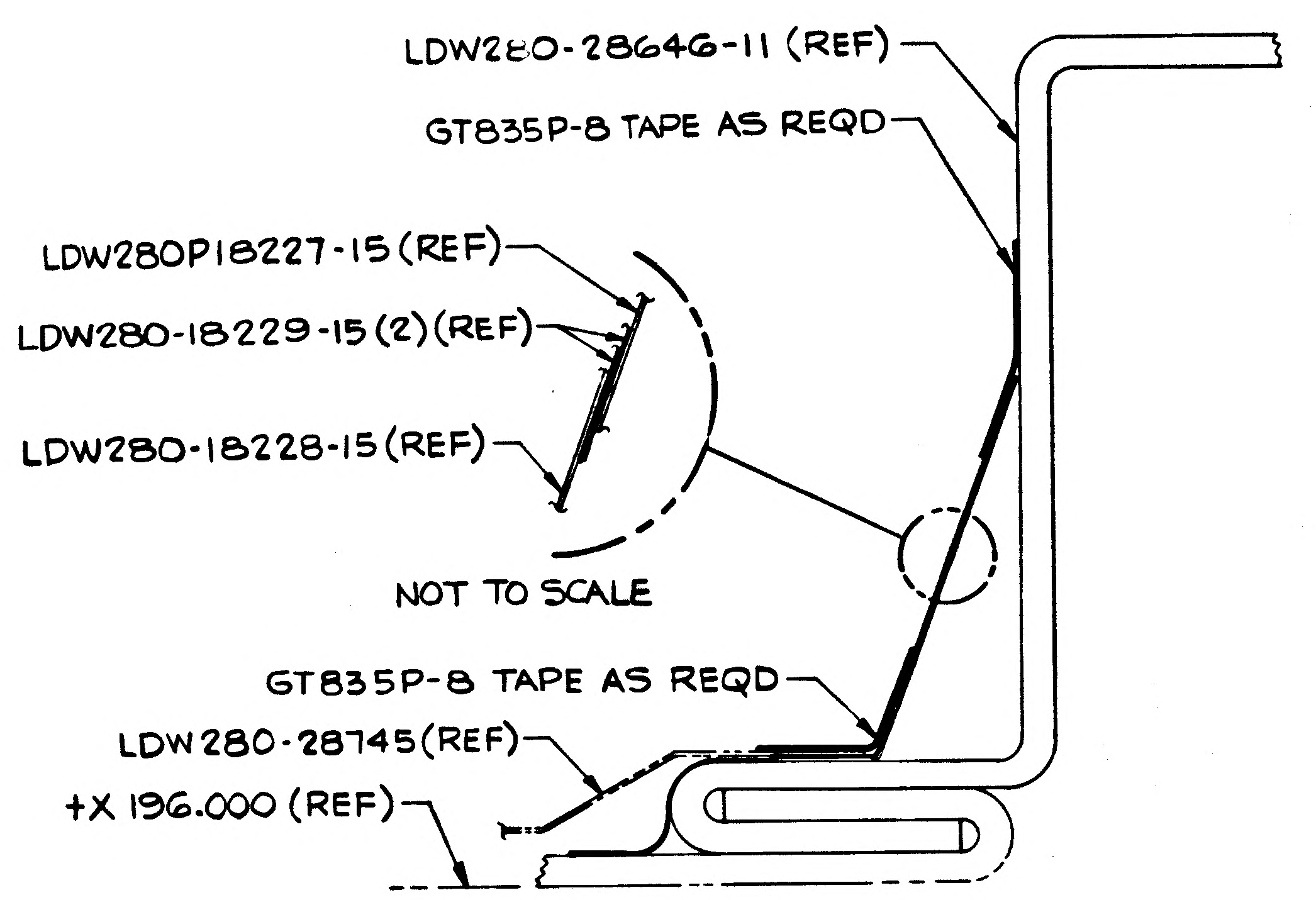
01

NAS 9-1100



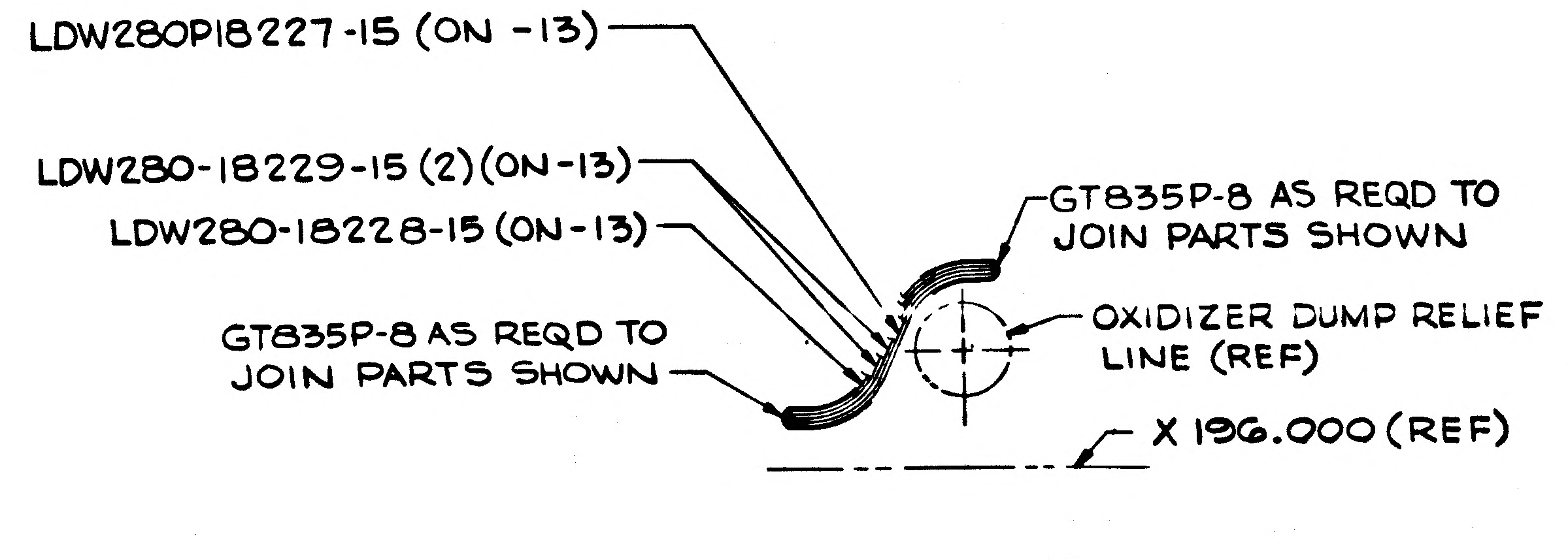
LDW280-28646-9 (REF)
SEE NOTE 1 (TYP)
GT835P-8 (TYP)
+X 196.875 (REF)
+X 196.000 (REF)
LDW280-28659 (REF)
LDW280-28534 (REF)

SECTION A-A (ZONE 3C)



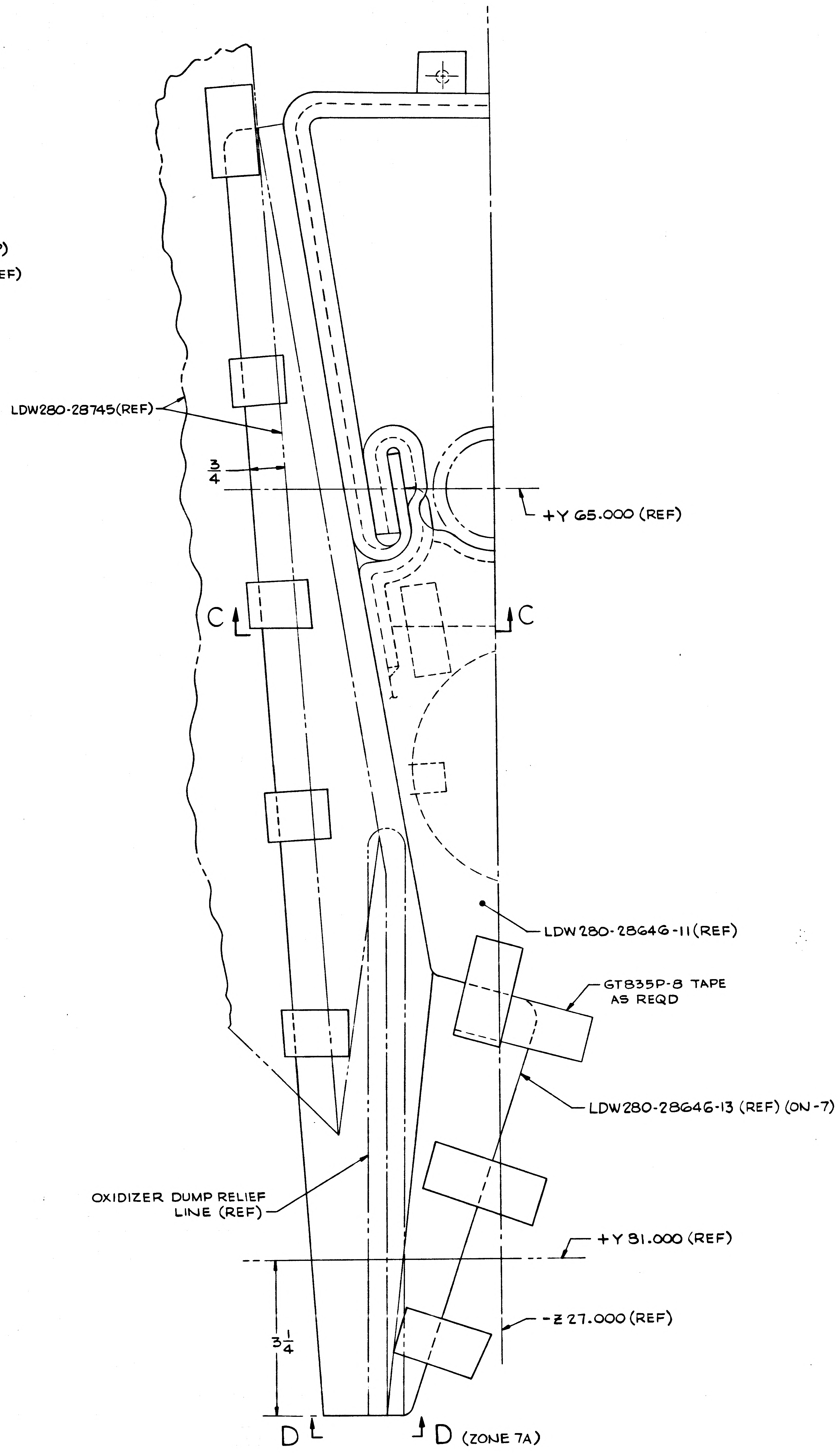
LDW280-28646-11 (REF)
GT835P-8 TAPE AS REQD
LDW280P18227-15 (REF)
LDW280-18229-15 (2) (REF)
LDW280-18228-15 (REF)
NOT TO SCALE
GT835P-8 TAPE AS REQD
LDW280-28745 (REF)
+X 196.000 (REF)

SECTION C-C (ZONE 5C)



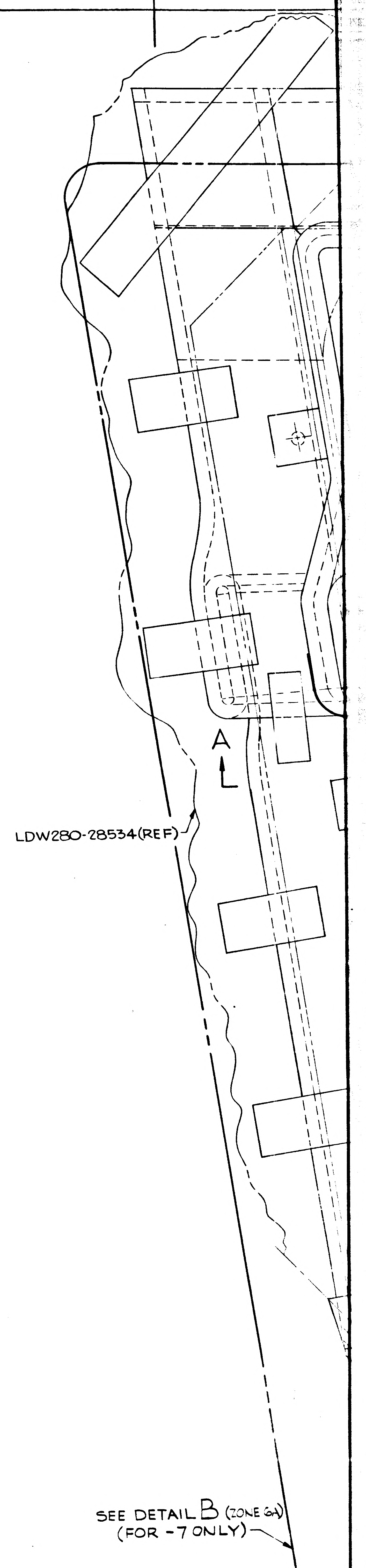
LDW280P18227-15 (ON -13)
LDW280-18229-15 (2) (ON-13)
LDW280-18228-15 (ON-13)
GT835P-8 AS REQD TO JOIN PARTS SHOWN
GT835P-8 AS REQD TO JOIN PARTS SHOWN
OXIDIZER DUMP RELIEF LINE (REF)
X 196.000 (REF)

VIEW D (ZONE 6A)
NOT TO SCALE



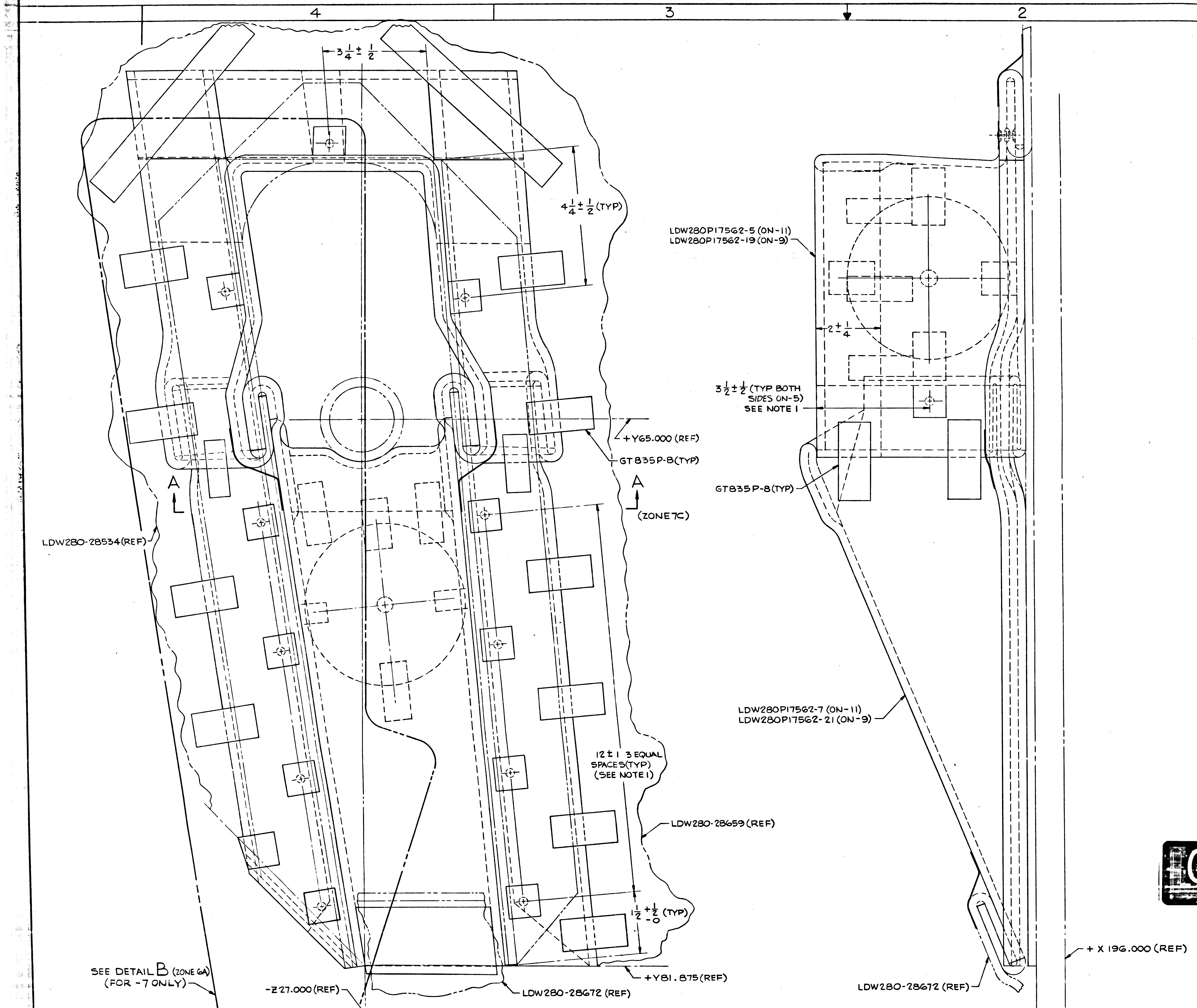
LDW280-28745 (REF)
3/4
+Y 65.000 (REF)
C
C
LDW280-28646-11 (REF)
GT835P-8 TAPE AS REQD
LDW280-28646-13 (REF) (ON -7)
OXIDIZER DUMP RELIEF LINE (REF)
+Y 81.000 (REF)
-Z 27.000 (REF)
3 1/4
D
D (ZONE 7A)

DETAIL B (ZONE 4A)
ON -7 ONLY



A
LDW280-28534 (REF)
SEE DETAIL B (ZONE 6A) (FOR -7 ONLY)

CODE IDENT NO. 26512	SH
LDW280-28646	3



4
3
2
$3\frac{1}{4} \pm \frac{1}{2}$
$4\frac{1}{4} \pm \frac{1}{2}$ (TYP)
+Y65.000 (REF)
GT835P-8(TYP)
A
A
(ZONE 7C)
LDW280-28534(REF)
12 ± 1 3 EQUAL SPACES(TYP) (SEE NOTE 1)
LDW280-28659 (REF)
$1\frac{1}{2} {}^{+\frac{1}{2}}_{-0}$ (TYP)
+Y81.875 (REF)
SEE DETAIL B (ZONE 6A) (FOR -7 ONLY)
-Z27.000 (REF)
LDW280-28672 (REF)
LDW280P17562-5 (ON-11)
LDW280P17562-19 (ON-9)
$2 \pm \frac{1}{4}$
$3\frac{1}{2} \pm \frac{1}{2}$ (TYP BOTH SIDES ON-5)
SEE NOTE 1
GT835P-8(TYP)
LDW280P17562-7 (ON-11)
LDW280P17562-21 (ON-9)
LDW280-28672 (REF)
+X 196.000 (REF)
+X 196.875 (REF)

LDW280-28646-5 INSTL
-7 INSTL (IDENT EXCEPT AS NOTED)
-9 ASSY (ON-5)
-11 ASSY (ON-7)
-13 ASSY (ON-7)

NOTES;

1. INSTALLATION OF BLANKET TO BE DONE IN ACCORDANCE WITH LPC 280-3.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 90)= 22.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 5.625 SQ. FT.

PRINT TRIM LINE

D
C
B
A
1

LDW280-28646B

LDW280-28646B

02/02 NAS 9-1100

IDENT NO. 26512
280-28646 SH 3

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK				
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28646	B
MODEL OR END ITEM	SCALE FULL & NOTED		SHEET 3.00	

2 FRAMES

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENG 32.1 REV 3-65 LIAISON ENGINEERING #5 **ENGINEERING ORDER**

DWG NO. LDW280-28646 EO NO. A1
CONTROL INFO NO. LEM5- 9023

IN F/D + B/M FOR -1 AND -3
REMOVE LDW280P17562-11, -13, -15 AND -17
(MAY BE LEFT IN F/D AS REF)
ADD LDW280P17562-1 BLANKET ASSY FOR -1
LDW280P17562-3 BLANKET ASSY FOR -3

5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO ANS RTE 05131-133
DRAW. ERROR. LDW280P17562-1 MADE FROM -11 + -15. LDW280P17562-3 MADE FROM -11, -13, -15 AND -17

DESCRIPTION OF EO
LDW280P17562-1 WAS -11 & -15, AND
LDW280P17562-3 WAS -11, -13, -15 & -17.

Ⓔ GAEC C EO RELEASE

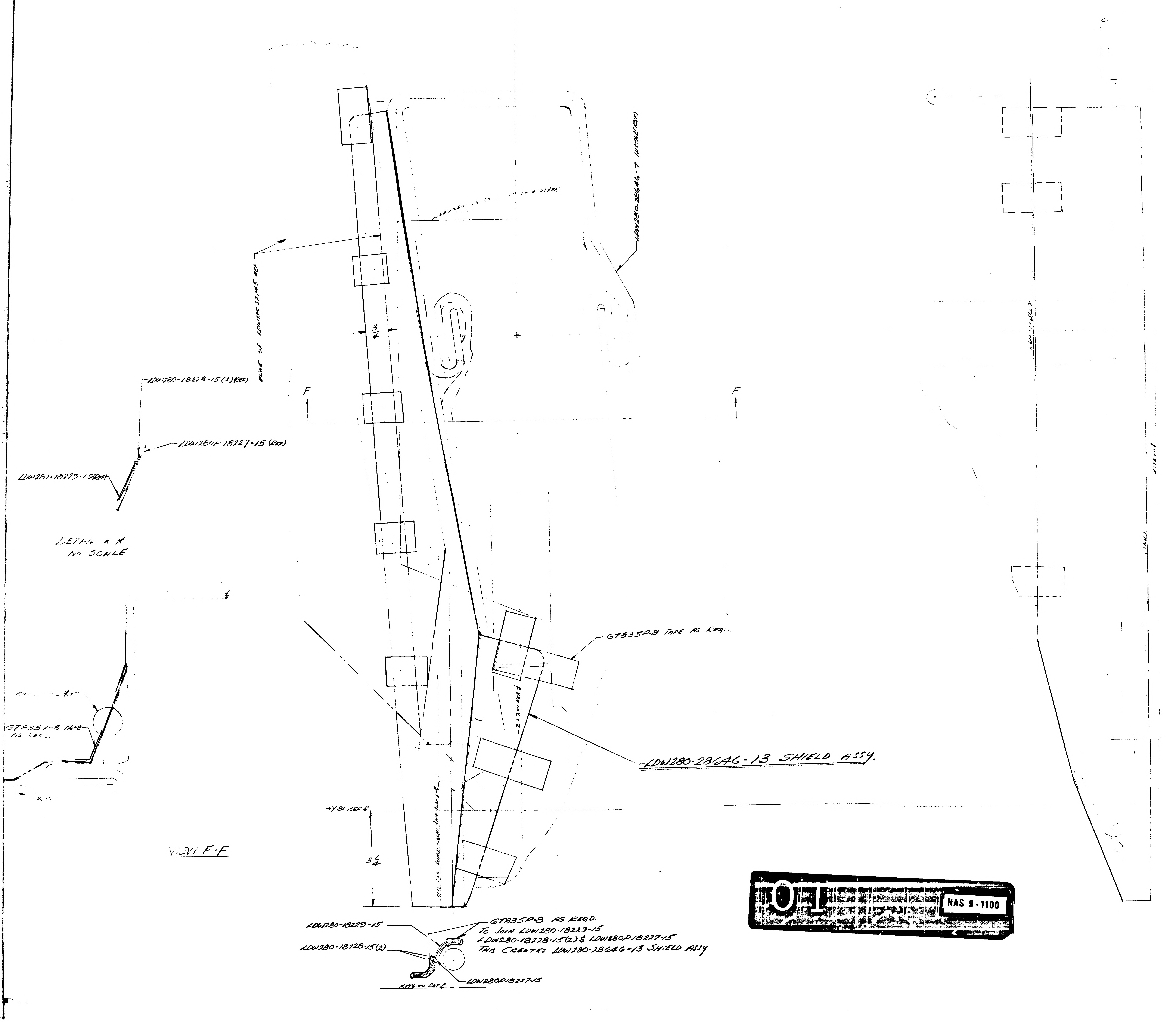
MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8 (18)	
		LEM-1 (31) TO	
		LEM-6 (36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		✓		APPROVED BY					JFF	CH		
				DATE	9-15	9-8			8-29-66	8-26-66	8-30-66	9-?/66
REVISE DWG	RECORD EO	REWORK	SCRAP	8-26-66	WJ	~~SUPPORT~~ VDI	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLANKET INSTL. D. S. AFT RT. HAND INTERSTAGE FITTING THERMAL	LDW280-28646	A1

ISSUED BY LIAISON J. GRASSIANO X6452 SECTION VDI STRAKOSCH GROUP NO. 335 PL 35

01 NAS 9-1100


LDW280-28646-7 INSTAL(REF)
LDW280-28646 SHIELD(REF)
EDGE OF LDW280-28785 REF
1/3
LDW280-18228-15(2)(REF)
LDW280P18227-15 (REF)
LDW280-18229-15(REF)
DETAIL * *
NO SCALE
F
F
GT835P-8 TAPE AS REQD
LDW280-28646-13 SHIELD ASSY.
+Y81 REF ℄
3 1/4
X196.00 REF ℄
GT835P-8 TAPE AS REQD.
VIEW F-F
LDW280-18229-15
LDW280-18228-15(2)
LDW280P18227-15

GT835P-8 AS REQD.
TO JOIN LDW280-18229-15
LDW280-18228-15(2) & LDW280P18227-15
THIS CREATES LDW280-28646-13 SHIELD ASSY

01 NAS 9-1100

AS REQD					
2		GT835P-8	E	TAPE POLYIMIDE	STD. MAT'L
1		LDW280-18229-15	E	[illegible]	SEE DWG
1		LDW280-18228-15	E	SHIELD	SEE DWG
	1	LDW280P18227-15	E	SKIN	SEE DWG
		LDW280-28646-13	E	SHIELD ASSY	
-13	-7(m)	PART NO.	ITEM	DESCRIPTION	MATERIAL

REVISE B/M AS SHOWN

IN MODEL BLOCK ADD REQTS
LDW-7(37) THRU LMI-[illegible] 1 REQD PER
N/A LDW280-28653 [illegible]

DETAIL SPEC REQD
CLASS II ENGRG CHG
CLASS I ENGRG CHG
CONTROL INFO NO. LDW280A-4255
GRUMMAN EO RELEASE C

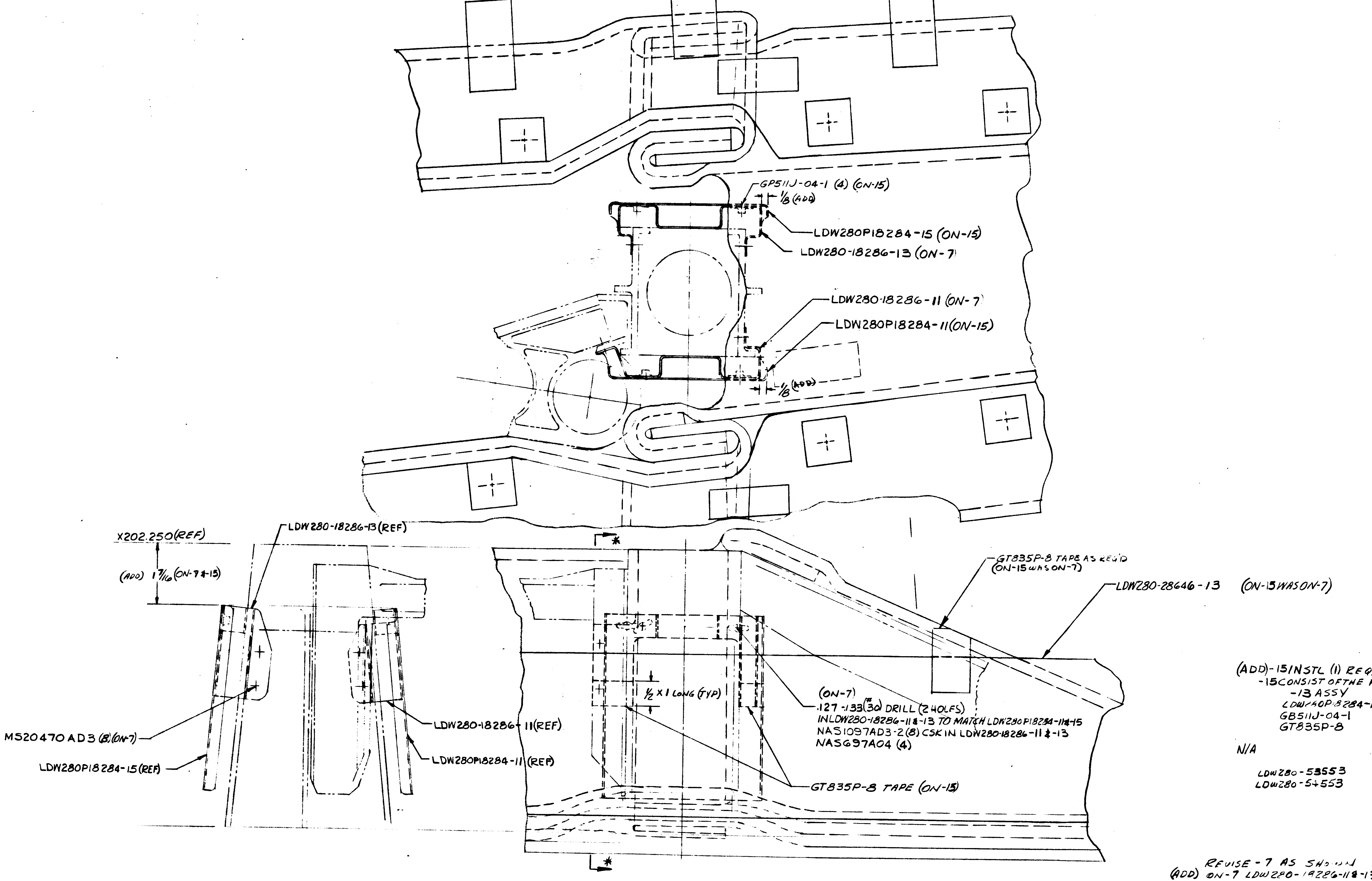
REASON FOR EO: PLUME IMPINGEMENT PROTECTION REQD FOR INTERSTAGE FITTING LCR-620

DESCRIPTION OF EO: [illegible] LDW280-18229-15(2) [illegible]

MODEL	PROCURING ACT. NO.	EFFECTIVITY GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		[illegible]	
		[illegible](45)	

DRAWING REVISION REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP
BY / DATE
SUPPORT
RELIAB GROUP
GROUP LEADER
STRESS GROUP
LIAISON ENGRG
PROJ ENGR
GOV'T

PRIORITY
DRAWING TITLE: BLANKET INST'L D.S. AFT R.H. INTERSTAGE FITTING
ENGINEERING ORDER
DRAWING NO. LDW280-28646
EO NO. B1
CODE IDENT NO. 26512
GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.
ISSUED BY R. FLANDERS [illegible] SECTION VEH DES. INT
GROUP NO. 335
PL 35
ENG 323 REV 3-65


GP511J-04-1 (4) (ON-15)
1/8 (ADD)
LDW280P18284-15 (ON-15)
LDW280-18286-13 (ON-7)
LDW280-18286-11 (ON-7)
LDW280P18284-11(ON-15)
1/8 (ADD)
X202.250(REF)
(ADD) 1 7/16 (ON-7 & -15)
LDW280-18286-13(REF)
MS20470AD3 (8)(ON-7)
LDW280P18284-15(REF)
LDW280-18286-11(REF)
LDW280P18284-11(REF)
*
*
GT835P-8 TAPE AS REQ'D (ON-15 WAS ON-7)
LDW280-28646-13 (ON-15WASON-7)
1/2 X 1 LONG (TYP)
(ON-7)
.127-.133(#30) DRILL (2 HOLES)
IN LDW280-18286-11 & -13 TO MATCH LDW280P18284-11 & -15
NAS1097AD3-2(8) CSK IN LDW280-18286-11 & -13
NAS697A04 (4)
GT835P-8 TAPE (ON-15)

SECTION *-*
(BLANKET NOT SHOWN)

FULL SIZE SHEET AREA (30X36) 7.5 SQ.FT.
¼ SIZE SHEET AREA (¼ OF FULL) 1.9 SQ.FT.

(ADD)-15 INSTL (1) REQ/MOD
-15 CONSIST OF THE FOLLOWING
-13 ASSY (1) REQ/MOD
LDW280P18284-11 & -15 (1EA) REQ/MOD
GB511J-04-1 (4) REQ/MOD
GT835P-8 AS REQ'D

N/A

LDW280-53553 LM-3(33)
LDW280-54553 LM-4(34) THRU LM-1

REVISE -7 AS SHOWN
(ADD) ON-7 LDW280-18286-11 & -13 (1EA) REQ/MOD
NAS697A04 (4) REQ/MOD
NAS1097AD3-2 (8) REQ/MOD
REMOVE -13 FROM -7

DETAIL SPEC REQD ☐	CLASS II ENGRG CHG ☑	CLASS I ENGRG CHG ☐	LCC-1173	CONTROL INFO NO. LDW280A6158	
REASON FOR EO TO PROVIDE PROTECTION FOR EXPLOSIVE BOLT MECHANISM LCR 1173		DESCRIPTION OF EO ON-7 ADDED LDW280-18286-11 & -13 (1EA), NAS697A04(4) NAS1097AD3-2(8) REMOVED -13 FROM -7 ADDED -15 INSTL			GRUMMAN EO RELEASE C JK

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15(45)	

DRAWING REVISION REQD		DISPOSITION OF PARTS									
REVISE DWG	RECORD EO	REWORK	SCRAP	BY / DATE	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	
✓		✓		5/31/67 5 VD1			6/1/67	6/1/67		6/	6/

PRIORITY	DRAWING TITLE	ENGINEERING ORDER DRAWING NO.	EO NO.
C	BLANKET INSTL D.S AFT RT HAND INTERSTAGE FITTING-THERMAL	LDW280-28646	C1

ISSUED BY R. Clark SECTION VD1 GROUP NO 335 PL 25 CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

01

NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28646
EO NO. C2
CONTROL INFO NO. LDW280A 7442

THIS EO IS A REVISION OF EO C1
REMOVE LM-1 (31) & LM-2 (32) FROM -7 EFF:

ADD -17 IDENT. TO -7 EXCEPT DO NOT INCLUDE LDW 280-18286-11 & -13 (1 EA) REQ/MOD, NAS 697A04 (4) REQ/MOD & NAS 1097AD3-2 (8) REQ/MOD

-17 EFF LM-1 (31) N/A LDW280-51553
LM-2 (32) N/A LDW280-52553

ON -7 NAS697C04L WAS NAS697A04 (REF EOC1)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	LCD 1173

REASON FOR EO: TO PROVIDE PROTECTION FOR EXPLOSIVE BOLT MECHANISM LCD 1173

DESCRIPTION OF EO: REF E.O. C1
ADDED -17
REMOVED LM-1 & -2 FROM -7 EFF:
NAS697C04L WAS NAS697A04

GAEC EO RELEASE: C JK 6/[illegible]/67 5

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-1 (31)	
		LM-2 (32)	

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
✓		✓	

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	6/9/67			6/[illegible]/67	6/12/67		6/12/67	6/13/67
5	VD1							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLANKET INSTL D/S AFT RT HAND INTERSTAGE FITTING THERMAL	LDW280-28646	C2

ISSUED BY R. CLARK / J STRAKOSCH SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
*

DWG. NO. LDW280-28646
EO NO. C3
CONTROL INFO NO. LM5-15388

THIS IS A REVISION OF EO C2

ADD LM-3(33) THRU LM-15(45) TO EFF. BLOCK OF EO C2

(REF) ON -7 NAS697C04L WAS NAS697A04 WAS EFF: LM-1 & LM-2
SHOULD BE LM-3 THRU LM-15.

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐

REASON FOR EO: EFF OF EO C2 INCORRECT

DESCRIPTION OF EO: REF EO C2
ADDED EFF LM-3 (33) THRU LM-15 (45) TO EFF BLOCK OF EO C2

⑨ GAEC EO RELEASE: C
JL
— —

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY				~				
DATE	7/6/67			~	6/17/67	6-17-67	7/6/67	6/19/67
6-17-67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLANKET INSTL D/S AFT RT HAND INTERSTAGE FITTING THERMAL	LDW280-28646	C3

ISSUED BY LIAISON J. GRASSIANO X6216 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28646
EO NO. C4
CONTROL INFO NO. LDW280A9698

IN F/D & M/B REMOVE -7 &-15 INSTLS

FITH

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD1244

REASON FOR EO: TO PROVIDE FOR F.I.T.H. SHIELD

DESCRIPTION OF EO: REMOVED -7 & -15

GAEC EO RELEASE: (5) C R J/C 11/16/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33) THRU LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-7 -15

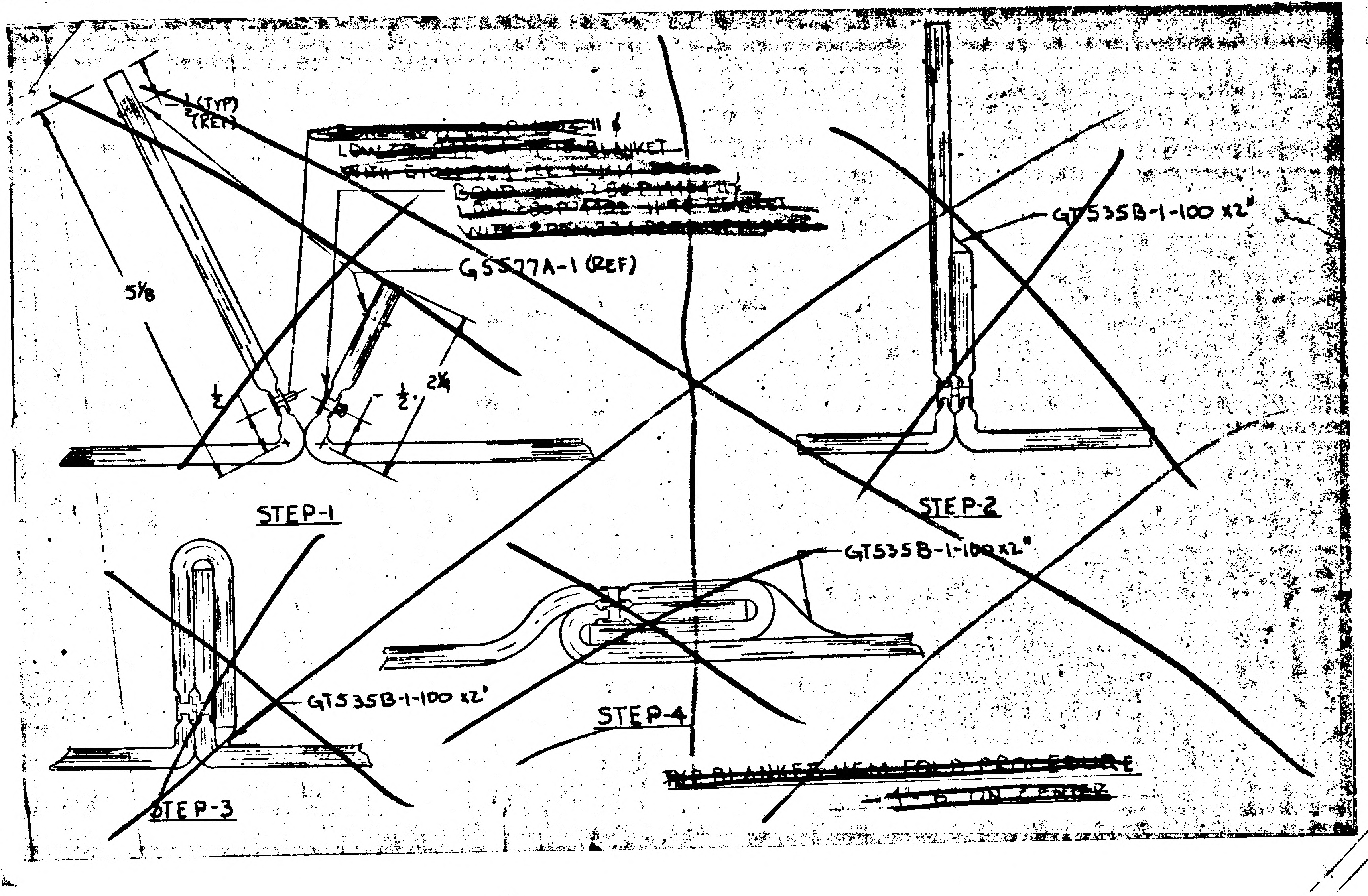
APPROVED BY								
			PSH			MB		
DATE	11/10/67			11-10-67	11/13/67		11/10/67	11-15-67
P	VOI	~~THERMO SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLANKET INSTL-D/S-AFT RIGHT HAND INTERSTAGE FTG-THERMAL	LDW280-28646	C4

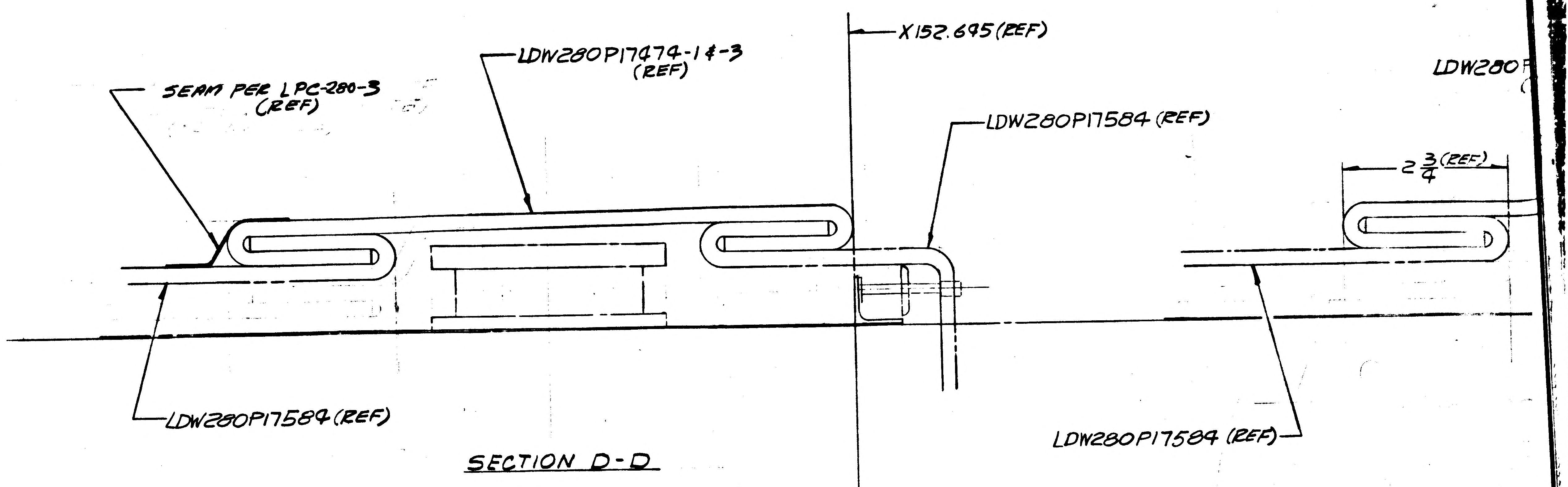
CDR 11/17/67
ISSUED BY E. ROESSLER / P. THORJUSEN SECTION VOI X1153 GROUP NO. 335 PL 25

01

NAS 9-1100



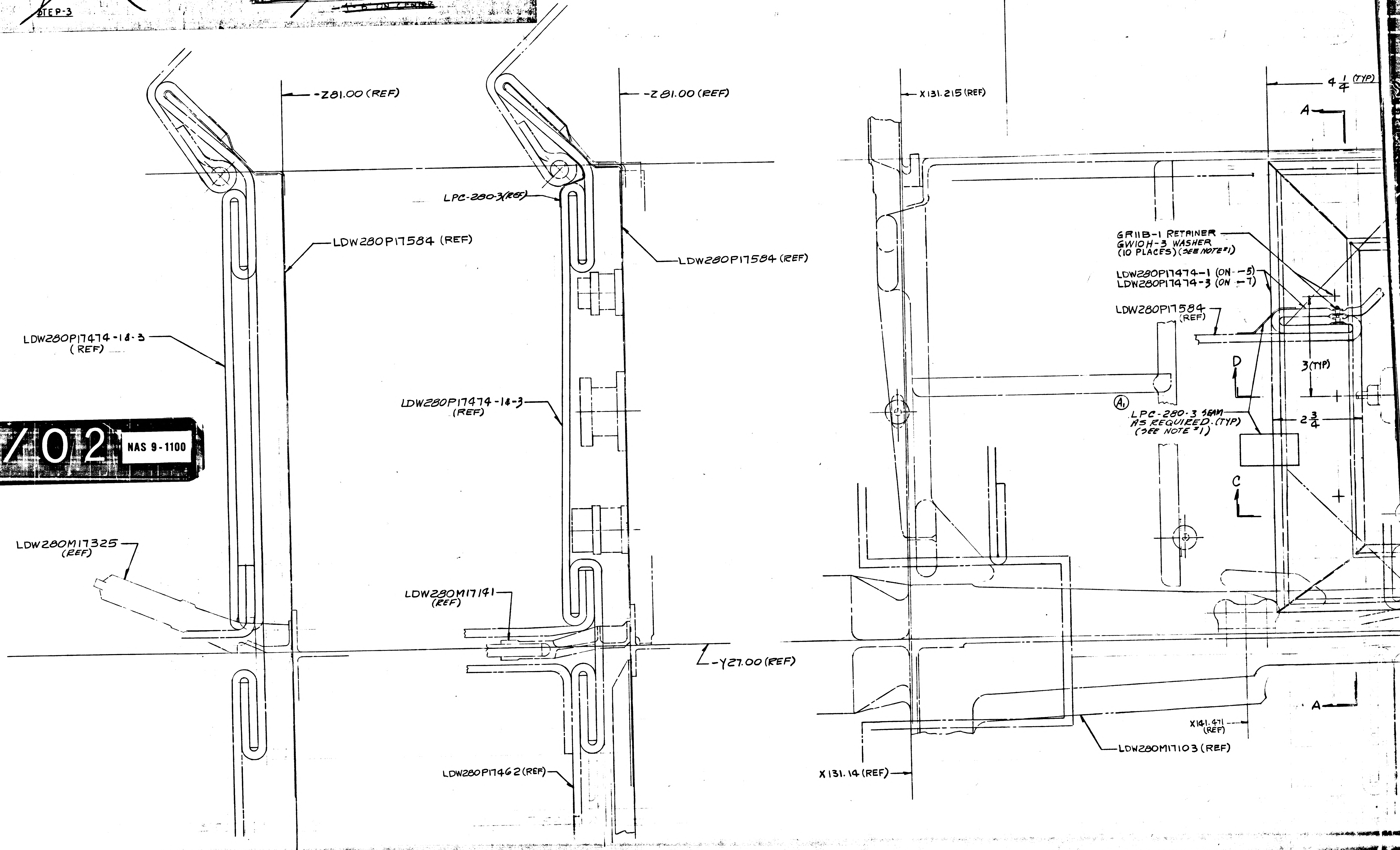
1 (TYP) (REF)
5⅛
GS527A-1 (REF)
GT535B-1-100 x2"
½
2¼
STEP-1
STEP-2
STEP-3
STEP-4



X152.695 (REF)
LDW280P17474-1&-3 (REF)
SEAM PER LPC-280-3 (REF)
LDW280P17584 (REF)
LDW280P17584 (REF)
LDW280P17584 (REF)
2¾ (REF)
LDW280

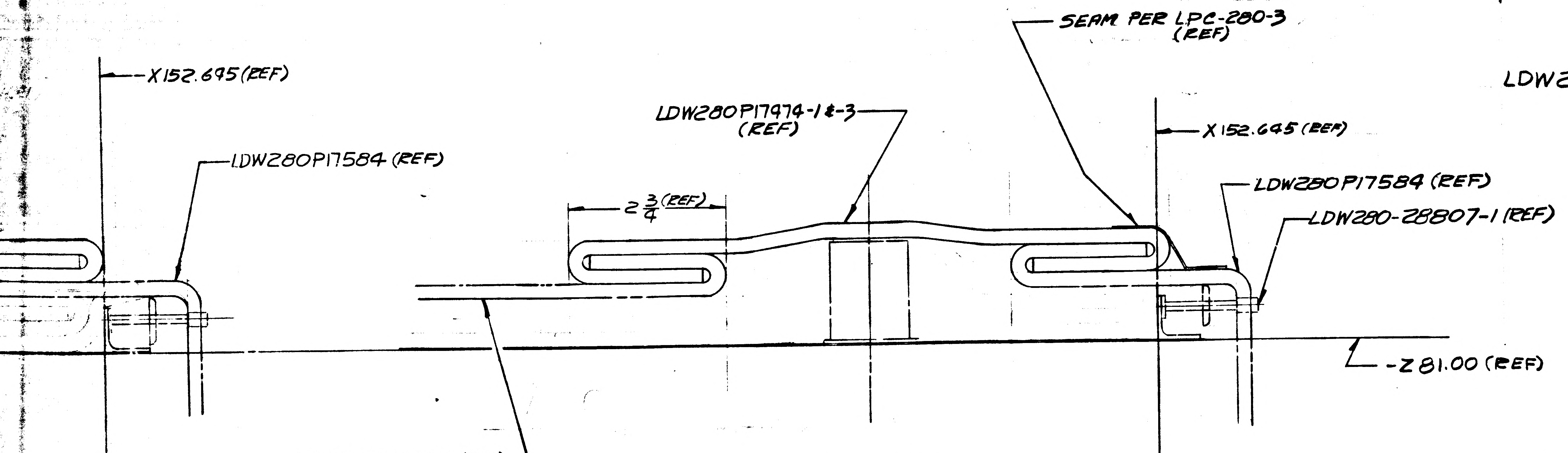
SECTION D-D

01/02 NAS 9-1100

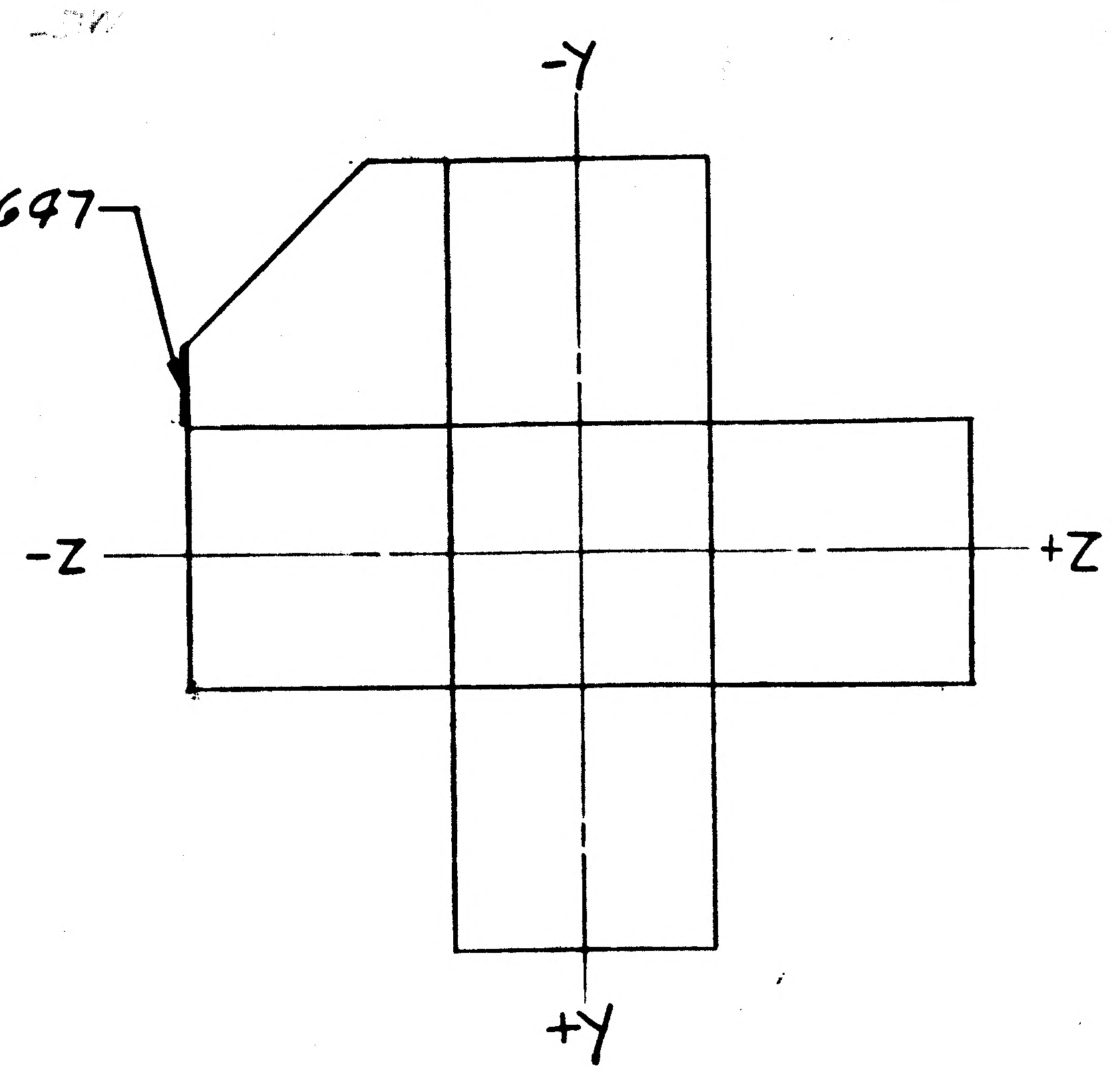


-Z81.00 (REF)
-Z81.00 (REF)
X131.215 (REF)
4¼ (TYP)
A
LPC-280-3 (REF)
LDW280P17584 (REF)
LDW280P17584 (REF)
GR11B-1 RETAINER
GW10H-3 WASHER
(10 PLACES) (SEE NOTE #1)
LDW280P17474-1 (ON -5)
LDW280P17474-3 (ON -7)
LDW280P17584 (REF)
3 (TYP)
D
LDW280P17474-1&-3 (REF)
LDW280P17474-1&-3 (REF)
A1
LPC-280-3 SEAM AS REQUIRED (TYP) (SEE NOTE #1)
2¾
C
LDW280M17325 (REF)
LDW280M17141 (REF)
-Y27.00 (REF)
A
X141.471 (REF)
LDW280M17103 (REF)
LDW280P17462 (REF)
X131.14 (REF)

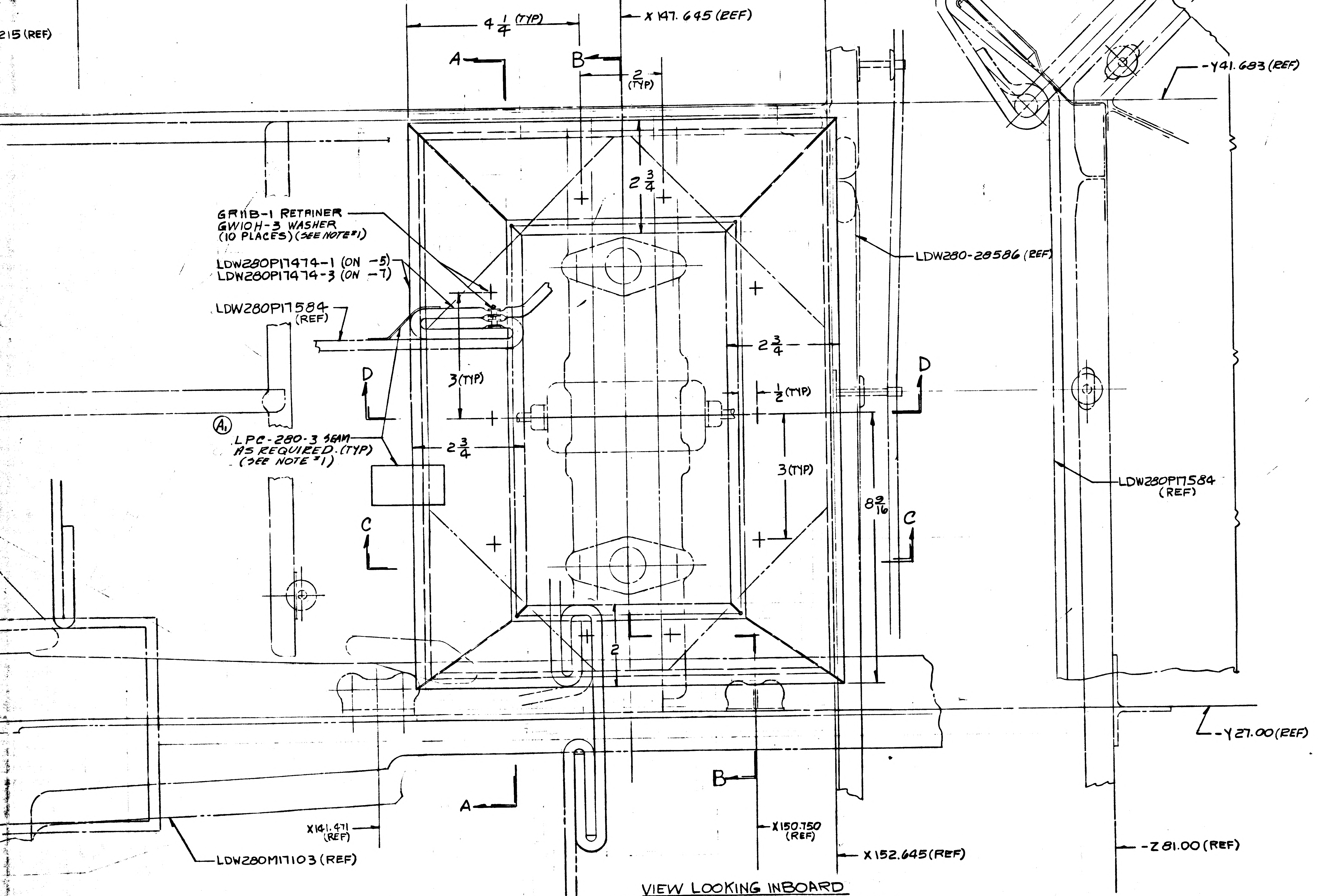
2/2


-X152.695 (REF)
LDW280P17974-1&-3 (REF)
SEAM PER LPC-280-3 (REF)
-LDW280P17584 (REF)
-X152.645 (REF)
LDW280P17584 (REF)
LDW280-28807-1 (REF)
2 3/4 (REF)
-Z81.00 (REF)
LDW280P17584 (REF)

SECTION C-C


LDW280-28647 (REF)
-Y
-Z
+Z
+Y

FOR ENGINEERING REF ONLY


215 (REF)
4 1/4 (TYP)
-X147.645 (REF)
A
B
2 (TYP)
-Y41.683 (REF)
2 3/4
GR11B-1 RETAINER
GW10H-3 WASHER
(10 PLACES) (SEE NOTE #1)
LDW280P17474-1 (ON -5)
LDW280P17474-3 (ON -7)
LDW280P17584 (REF)
LDW280-28586 (REF)
2 3/4
3 (TYP)
D
1/2 (TYP)
D
A1
LPC-280-3 SEAM AS REQUIRED (TYP) (SEE NOTE #1)
2 3/4
3 (TYP)
LDW280P17584 (REF)
8 9/16
C
C
2
-Y27.00 (REF)
B
A
X141.471 (REF)
-X150.750 (REF)
-LDW280M17103 (REF)
X152.645 (REF)
-Z81.00 (REF)

VIEW LOOKING INBOARD
LDW280-28647-1 SHIELD INSTL
Ⓐ LDW280-28647-3 SHIELD INSTL
LDW280-28647-5 BLANKET ASSY
LDW280-28647-7 BLANKET ASSY

NOTES:

~~1. TACK FOLDED EDGES OF BLANKET WITH GT5353-1-100 AT 2-3 IN PITCH.~~

2. INSTALL BLANKET WITH ALUMINIZED SURFACE MYLAR FILM INBOARD.

3. ALL INFO. ON THIS DWG NOT REQUIRED FOR THE INSTALLATION OF LDW280-28647 IS FOR INFO. ONLY.

4. -1, -3, -5 & -7 TO BE FABRICATED PER LPC-280-3.

02/02 NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

LDW280-28647 A

LDW280-28647 A

LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-28647	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.11	

THIS IS AN ORIGINAL DWG.

LDW280-28647 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54553	LM15(45)	1
		LM14(44)	1
		LM13(43)	1
		LM12(42)	1
		LM11(41)	1
		LM10(40)	1
		LM9(39)	1
		LM8(38)	1
		LM7(37)	1
		LM6(36)	1
		LM5(35)	1
	LDW280-54553	LM4(34)	1
LM	LDW280-53553	LM3(33)	1
PART NO. LDW280-28647-9		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52553	LM2(32)	1
LM	LDW280-51553	LM1(31)	1
PART NO. LDW280-28647-3		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA8(18)	1
PART NO. LDW280-28647-1		GAEC SCH NO. 52	

LM WORK PACKAGE FUNCTION NO.110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00		3.00		
REV	B	B		B		B		
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED	D-D	GRUMMAN REL INFO B		
LAST DASH NO. USED	-11	PRIM NO.	JK(001)	EMF
		207	MP-14	B-3/4/6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/4 ±.200 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	C.DE ANGLIS	RELIABILITY	
LAYOUT BY	C.DE ANGELIS 7-28-66	THERMAL	AB FOR MT 10-26-66
CHECKED BY JK EB			
GROUP LDR	J.STRAKOSCH 8-3-66		
VEH-DES-INT	L.PAULSRUD-8-4		
STRUCTURES	W.J.W J.J. 8-4-66	PROJ ENGR	R.M.CARBEE (EV) 8-7
STRUCTURES	R.HILDERMAN-8-5	REL GROUP	J.TAGLIAVIA 10-28-66
WEIGHTS	D.ROBESCH 8-7		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTALLATION
DESCENT-STAGE-QUAD II, SEQ H_2O & N_2
FILL DRAIN ACCESS-THERMAL

SIZE	CODE IDENT NO.		
B	26512	LDW280-28647	B
SCALE NONE		SHEET 1.00 OF	

SUPERSEDES LDW280-28647A 9-12-67

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
RETRACED NO CHG LAST REV"A"									R.D.BUCARIA	2-21-67					
B	1	1.00 2.00 3.00	3A 3D 4D 5B 6B					EO B1 ①	FOR-3, REMOVED LM-3(33) THRU LM-6(36) REQMTS. ON-5, ADDED LDW280P17474-5(1) & REMOVED LDW280P17474-1(1). ON-7, ADDED LDW280P17474-7(1) & REMOVED LDW280P17474-3(1). ADDED 1 REQD TO M/B FOR -3 REQMTS, & CLEANLINESS LEVEL "C" TO -5-7, & ADDED -9 INSTL & -11 ASSY. B	LM1(31) THRU LM15(45)	✓		R.D. BUCARIA 2-21-67	☒	☒

CHG APPROVED										
LTR	GROUP LDR	VEH.DES.INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMAL	PROJ.ENGR	REL.GROUP	
B										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28647	B
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01 NAS 9-1100

CL	-11	-9	-7	-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD		GW10H-3	E	WASHER	GRUMMAN STD						
	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD		GR11B-1		RETAINER	GRUMMAN STD						
	1							LDW280P17474-9		BLANKET	SEE DWG						4C
			1					LDW280P17474-7		BLANKET	SEE DWG						4C
				1				LDW280P17474-5		BLANKET	SEE DWG						4C
C		1						LDW280-28647-11		BLANKET ASSY					NONE	NONE	3A
C								-9		SHIELD INSTL							3A
C					1			-7		BLANKET ASSY							3A
C						1		-5		BLANKET ASSY							3A
C								-3		SHIELD INSTL							3A
C								LDW280-28647-1	E	SHIELD INSTL					NONE	NONE	3A

QTY PER ASSEMBLY

CL=CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28647	B

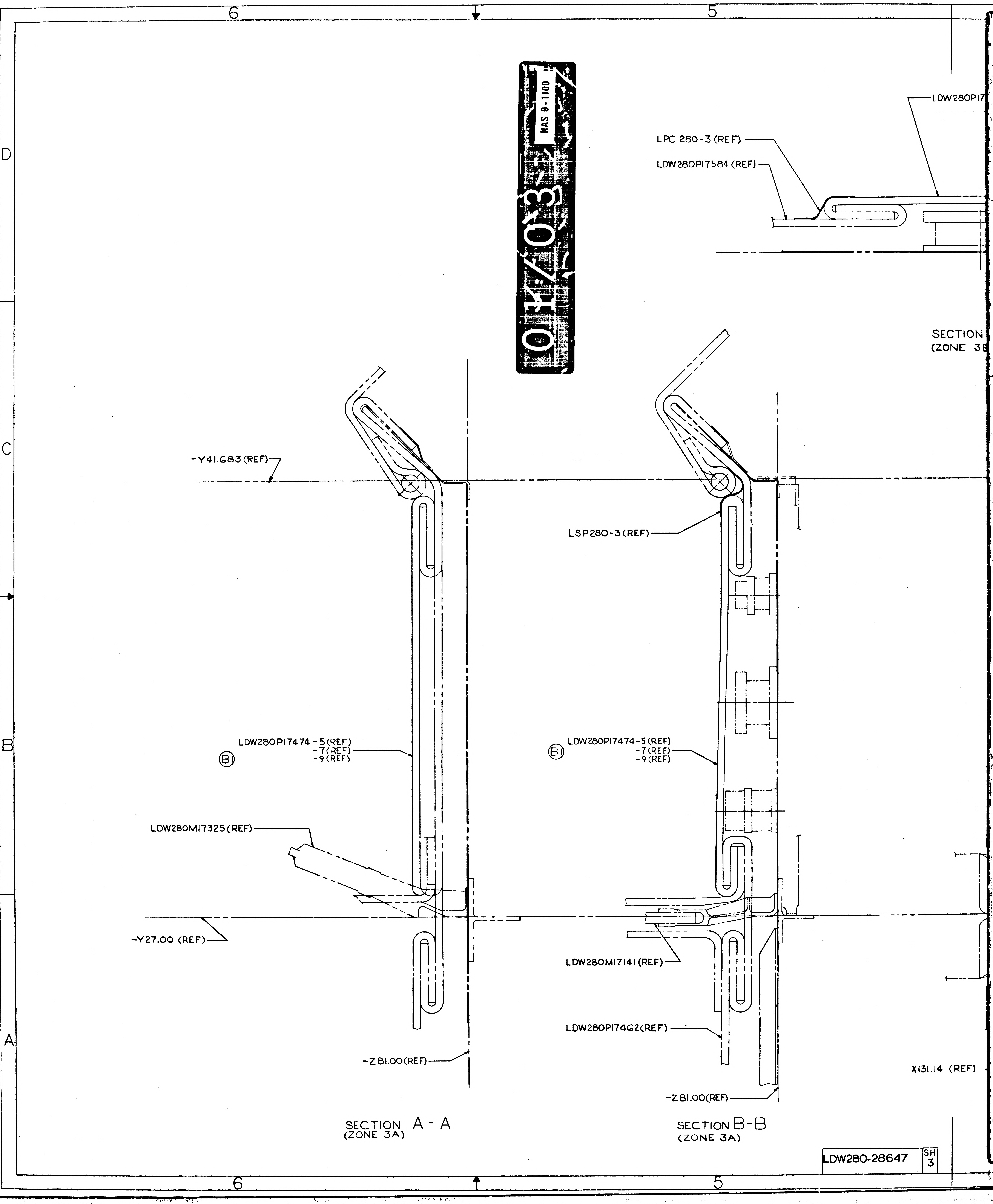
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


6
5
D
C
B
A
LDW280P17
LPC 280-3 (REF)
LDW280P17584 (REF)
-Y41.683 (REF)
LSP280-3 (REF)
B1
LDW280P17474-5 (REF)
-7 (REF)
-9 (REF)
B1
LDW280P17474-5 (REF)
-7 (REF)
-9 (REF)
LDW280M17325 (REF)
-Y27.00 (REF)
LDW280M17141 (REF)
LDW280P17462 (REF)
-Z81.00 (REF)
-Z81.00 (REF)
X131.14 (REF)

SECTION A - A
(ZONE 3A)

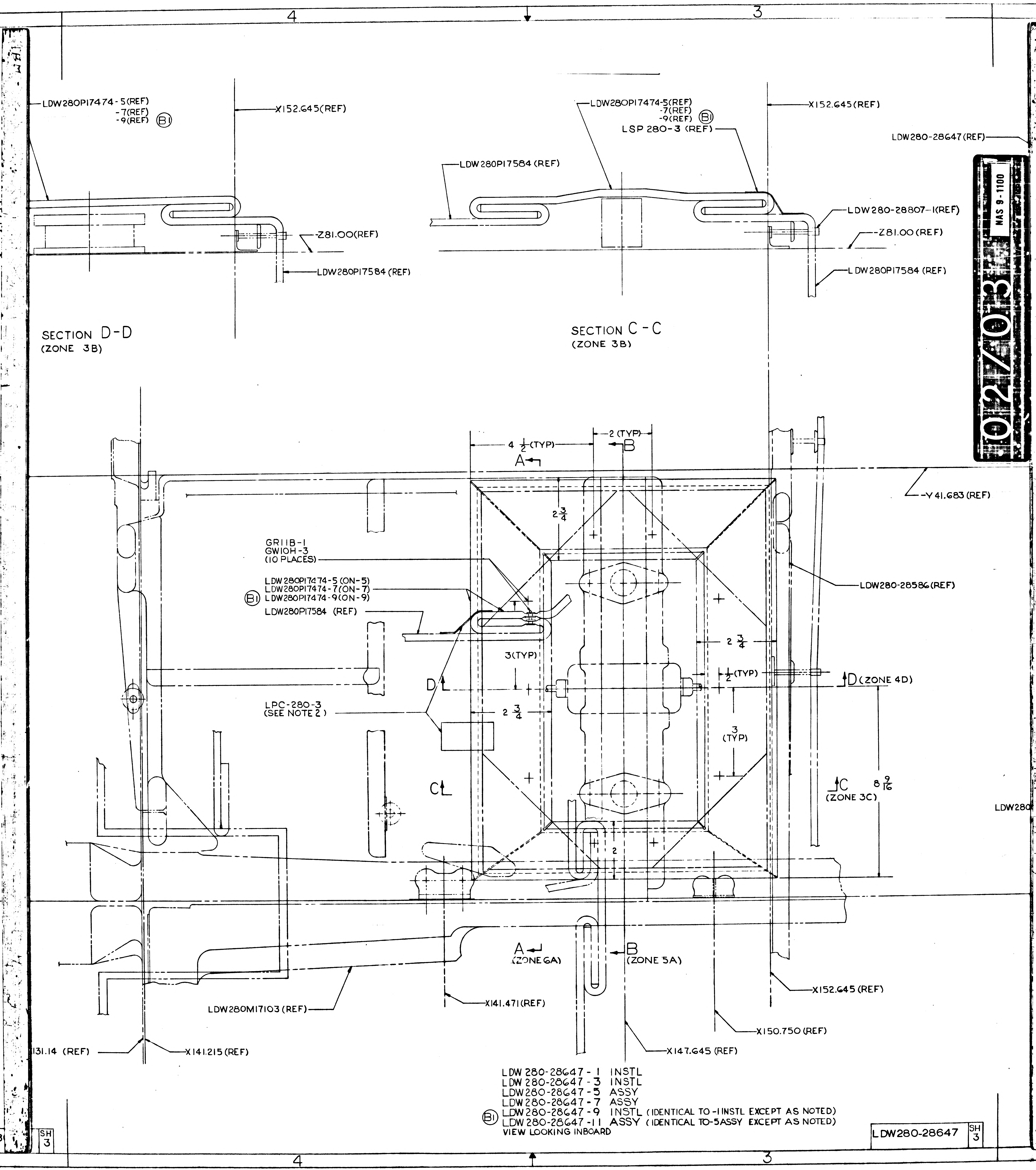
SECTION B-B
(ZONE 3A)

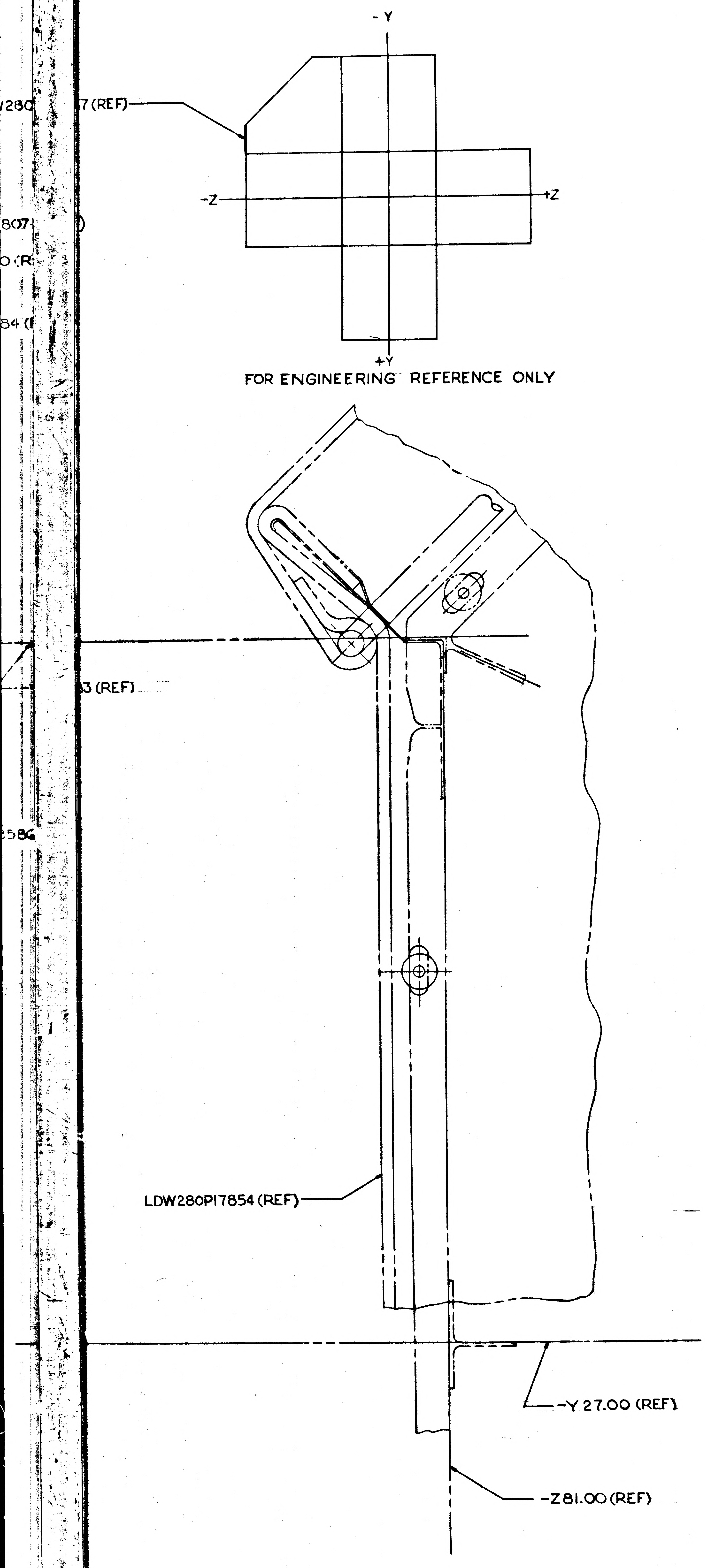
SECTION
(ZONE 3B

LDW280-28647 SH 3

01/03

NAS 9-1100


4
3
LDW280P17474-5(REF)
-7(REF)
-9(REF) Ⓑ1
X152.645(REF)
Z81.00(REF)
LDW280P17584 (REF)
SECTION D-D
(ZONE 3B)
LDW280P17474-5(REF)
-7(REF)
-9(REF) Ⓑ1
LSP 280-3 (REF)
X152.645(REF)
LDW280P17584 (REF)
LDW280-28807-1(REF)
Z81.00 (REF)
LDW280P17584 (REF)
SECTION C-C
(ZONE 3B)
LDW280-28647(REF)
02/03
NAS 9-1100
4 1/2 (TYP)
2 (TYP)
A
B
Y41.683 (REF)
2 3/4
GR11B-1
GW10H-3
(10 PLACES)
LDW280P17474-5(ON-5)
LDW280P17474-7(ON-7)
Ⓑ1 LDW280P17474-9(ON-9)
LDW280P17584 (REF)
LDW280-28586(REF)
2 3/4
3(TYP)
1/2 (TYP)
D
D (ZONE 4D)
LPC-280-3
(SEE NOTE 2)
2 3/4
3 (TYP)
C
(ZONE 3C)
8 9/16
CL
2
A
(ZONE 6A)
B
(ZONE 5A)
LDW280M17103 (REF)
X141.471(REF)
X152.645 (REF)
X150.750 (REF)
131.14 (REF)
X141.215 (REF)
X147.645 (REF)
LDW 280-28647-1 INSTL
LDW 280-28647-3 INSTL
LDW280-28647-5 ASSY
LDW280-28647-7 ASSY
Ⓑ1 LDW280-28647-9 INSTL (IDENTICAL TO -1 INSTL EXCEPT AS NOTED)
LDW280-28647-11 ASSY (IDENTICAL TO -5 ASSY EXCEPT AS NOTED)
VIEW LOOKING INBOARD
LDW280-28647
SH 3
0-28
SH 3
LDW280



FOR ENGINEERING REFERENCE ONLY

NOTES:

1. INSTALL BLANKET WITH ALUMINZED SURFACE MYLAR FILM INBOARD.
2. -1,-3,-5,-7,-9 & -11 TO BE FABRICATED PER LPC 280-3.

03/03

NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 40 X 94

PRINTING INFO ONLY
FULL SIZE SHEET AREA 42 X 96 28 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) 7 SQ. FT.
PRINT TRIM LINE

A LDW280-28647 B

B LDW280-28647 B

SH 3

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK
LM	SIZE K · CODE IDENT NO. 26512 · LDW280-28647 B
MODEL OR END ITEM	SCALE FULL · SHEET 3.00

3FR

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28647
EO NO. B1
CONTROL INFO NO. LDW 280 A 3858

ON-5 REMOVE LDW280P17474-1(1) & ADD LDW280P17474-5(1)

ON-7 REMOVE LDW280P17474-3(1) & ADD LDW280P17474-7(1)

ADD-9 INSTL IDENTICAL TO -1 INSTL EXCEPT AS NOTED. ON-9 ADD LDW 280-28647-11(1) & REMOVE LDW 280-28647-5(1).

ADD-11 ASSY IDENTICAL TO -5 ASSY EXCEPT AS NOTED. ON-11 ADD LDW280P17474-9(1) & REMOVE LDW280P17474-5(1).

-9 INST'L N/A LDW280-53553 EFF LM-3(33), 1 REQ'D/MODULE & N/A LDW280-54553 EFF LM-4(34) THRU LM-15(45), 1 REQ'D/MODULE.

ADD "1 REQD" M/B FOR REQMTS OF -3 EFF FOR LM-1(31) & LM-2(32).

ADD "C" (CLEANLINESS LEVEL) TO -5, -7

IN M/B FOR-3 REMOVE LM-3(33) THRU LM-6(36) REQMTS.

DESCRIPTION OF E.O.

FOR-3 REMOVED LM-3(33) THRU LM-6(36) REQMTS. ON-5 ADDED LDW280P17474-5(1) & REMOVED LDW 280P17474-1(1). ON-7 ADDED LDW280P17474-7(1) & REMOVED LDW 280P17474-3(1) ADDED 1 REQD" TO M/B FOR-3 REQMTS, & CLEANLINESS LEVEL "C" TO -5, -7, ADDED-9 INST'L & -11 ASSY.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

Pro Therm. Shld 2

REASON FOR EO: ADDITIONAL THERMAL REQMTS & DWG CORRECTIONS.

DESCRIPTION OF EO: NOTED ABOVE.

GAEC EO RELEASE: FR 12/6/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM			
LM		LM-1(31) THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP -3

APPROVED BY									
DATE	12/6/66	12/6/66		12/5/66	12/6/66		12/6	12/6/66
5	V.D.I.	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C

DRAWING TITLE: SHIELD INSTL ~ O.S. QUAD II ~ SEQ. H2O & N2 FILL & DRAIN ACCESS.

DRAWING NO. LDW280-28647

EO NO. B1

ISSUED BY Gus Hansmann X1153 SECTION V.D.I. GROUP NO. 230 PL 35

01 NAS 9-1100

ENG 82.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER LMP-4

DWG. NO. LEO280
EO NO. 476
CONTROL INFO NO. LDW280 A 5542

*

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8 (38), LEM-9 (39), LEM-10(40), LEM-11(41), LEM-12 (42), LEM-13 (43), LEM-14(44) AND LEM-15(45). QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280 - 25703	A6	SEE DRAWING
-25704	B1	
-25706	B1	
-25707	B4	
-25708	B6	
-28647	C1	
-28652	B8	
-28669	A3	
-28672	C1	
-28721	A2	
-28727	B2	
-28752	B3	
-28761	A4	
-28762	A1	
-28771	B5	
-28774	A8	
-28776	A1	
-28778	A1	
-28779	A4	
-28803	A3	
-28816	A2	
-28819	A2	
-51560	C1	
-51818	A3	
-51823	A1	
-52723	A5	
LDW280		SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		

2

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: FR 2/23/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12 (42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP — NOT REQ'D

APPROVED BY					W/H		RMG	
DATE	2/16/67				2/15/67		2-16-67	2-17-67
0	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO280

EO NO.: 476

ISSUED BY M. GREY / J. STRAKOSCH · X 1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL. 35

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28647
EO NO. C2
CONTROL INFO NO. LDW280B3067

CREATE -13 SHIELD INSTL IDENTICAL TO -9 SHIELD INSTL EXCEPT -15 BLANKET ASSY REPLACES -11 BLANKET ASSY AND ADD LDW280P17474-29 INBD OF LDW280P17474-25

-15 IS IDENTICAL TO -11 EXCEPT LDW280P17474-11 BLANKET REPLACES LDW280P17474-9 BLANKET

N/A FOR -13, LDW280-53553 1 EA

ADD NOTE * (USE NEXT AVAILABLE NOTE NUMBER)
THIS DWG. AFFECTED BY LFM-155 WHICH MAY BE USED ON LM-3(33).

LFM

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2899 PKG 1 (5)

REASON FOR EO: PLUME IMPINGEMENT PROTECTION SEVEN SECOND DOCKING

DESCRIPTION OF EO: ADDED -13, -15, LDW280P17474-29 & NOTE *

GAEC EO RELEASE: C JK 4/26/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 155	LM 3(33)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK / SCRAP: NOT REQD

APPROVED BY								
DATE	4/1/68	4/2/67		4/19/68	4/22/68		4/22/68	4-25-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: SHIELD INSTL DIS-QUAD II SEQ H_2O & N_2 FILL-DRAIN ACCESS-THERMAL

DRAWING NO.: LDW280-28647

EO NO.: C2

4-26-68
ISSUED BY D.SHAPIRO/P.THORJUSEN X-1153 SECTION VD I GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

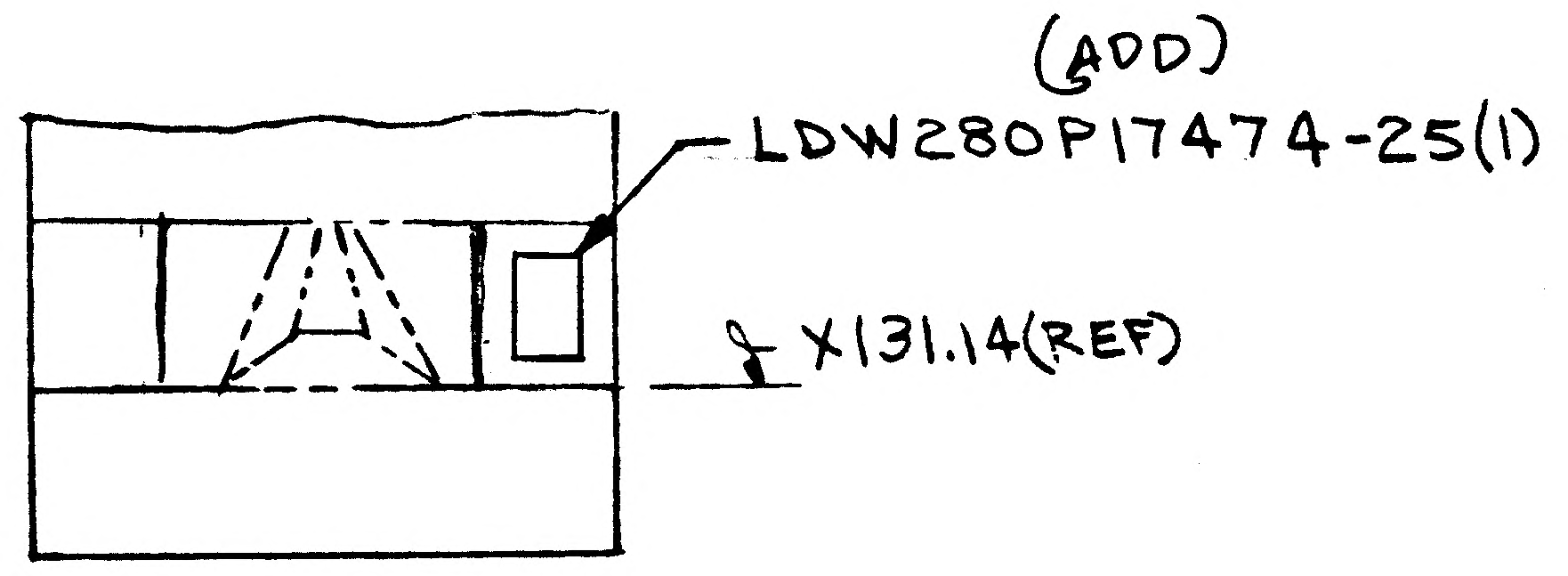
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28647
EO NO. C3
CONTROL INFO NO. LDW280B2798

IN FIELD & BM OF DWG.

RESTRICT -9 TO LM-3(33) EFF.
WAS LM-3(33) THRU LM-15(45)

ON -9 INSTL ADD LDW280P17474-25 (1)



-9 INSTL

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2360

PKG 30 (5)

REASON FOR EO: FOR EASE OF INSTL

DESCRIPTION OF EO: IN FIELD & BM OF DWG
RESTRICTED -9 TO LM-3(33) WAS LM-3(33) THRU LM-15(45)
ON-9 INSTL ADDED LDW280P17474-25(1)

GAEC EO RELEASE: C YC 4/22/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU	
		LM-15(45)	

	DRAWING CHANGE REQD		DISPOSITION OF PARTS										
	✓		✓	-9	APPROVED BY								
					DATE	4/12/68	4/18/68		4-12-	4/15/68		4/17/68	4-25-68
	REVISE DWG	RECORD EO	REWORK	SCRAP	P	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: SHIELD INSTL - D/S - QUAD II - SEQ. H2O & N2 FILL & DRAIN ACCESS

DRAWING NO.: LDW280-28647

EO NO.: C3

041768

ISSUED BY V.A. CHRISTINA/ P. THORJUSEN SECTION VDI x1153 GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-28648 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28553	LTA-8	1
PART NO. LDW 280-28648-7		GAEC SCH NO.	
LEM	LDW280-51553	LEM-1	1
PART NO. LDW 280-28648-5		GAEC SCH NO. 52	

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	~~1.00~~	~~2.00~~	~~2.01~~	~~3.00~~	
REV	~~—~~	~~—~~	~~—~~	~~—~~	
SHEET	1.00	1.10	2.00	2.01	3.00
REV	A	A	A	A	A
SHEET					
REV					

LAST SECT LTR USED D

LAST DASH NO. USED -11

GRUMMAN REL & INFO

PRIM NO. LE(001) 207 MP-A 10-7-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±.8 — ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY J Evan 5/18/66
LAYOUT BY
CHECKED BY
GR.LEADER
VEH.DES.INT
STRUCTURE WB 8/6
STRUCTURE 8/6
WEIGHTS 8-12

RELIABILITY
THERMO A3 1/27/67
PROJ ENGR R M. Carbee (EV) 8/7
REL GBA GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

ACCESS COVER INSTL
D/S - SEQ BAY THERMAL
SHIELD

SIZE B CODE IDENT NO. 26512 LDW280-28648 A

SCALE FULL NONE SHEET 1.00 OF 5

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
A	1.								ADDED SHEET 1.10 SHEET 1 OF 5 WAS 1 OF 4 ADDED SHEET 2.01	LEM 1 (31) LTA 8 (18)	-	-	G Kass 21 Sep 66.	10/6	10/17/66
	2	1.00 1.10							ADDED -5, -7, -9, -11 REMOVED -1 & -3			✓			
	3.	3.00						Ⓡ	ADDED NOTE 5.						

CHG APPROVED	LTR	~~GROUP LDR~~	VEH DESGN	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO	MATERIALS		
	A		10/1/66		10/4						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28648	A

SCALE NONE

SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY																
			-11	-7	-9	-5	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				AS REQD		AS REQD		GT835P-8	E	TAPE	GRUMM STD	SEE NOTE	5				
				AS REQD		AS REQD		GT535B2-2-100	E	TAPE	GRUMM STD	SEE NOTE	5				
				1		1		NAS427W22	E	PIN	STD PART						
				1		1		NAS427W16		PIN							
				4		4		MS24665-151		COTTER PIN							
				4		4		MS20470AD4		RIVET							
				4		4		AN960D10L		WASHER	STD. PART						
				—		1		LDW280P28767-3		PLUME SHIELD	SEE DWG						
				1		1		LDW280P17701-1		REFLECTOR ASSY							
			1		1			LDW280P175371-1		DOOR FRAME							
			1		1			LDW280P17475-9		BLANKET ASSY							
					1			-7		BLANKET ASSY							
			1					LDW280P17475-5		BLANKET ASSY							
				1		1		LDW280P17471-11		CHANNEL							
				1		1		LDW280P17471-1		TUBE ASSY	SEE DWG						
				1				LDW280-28648-11		COVER ASSY							
						1		-9		COVER ASSY							
								-7		INSTAL							
								LDW280-28648-5	E	INSTAL							

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28648	A
SCALE	NONE	SHEET	2.00

ENG 77.2 7-66

01

NAS 9-1100

-11	-9	-7	-5	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
11	11	11	11	GW10H-3	E		WASHER	GRUMMAN STD						
11	11	11	11	GR11B-1	E		RETAINER	↑						
		2	2	GT535G-LDS-0060	E		TAPE							
		2	2	GT535G-HDS-0060	E		TAPE							
		3	3	GT535G-LDS-0034	E		TAPE	↓						
		6	6	GT535G-HCS-0016	E		TAPE	GRUMMAN STD						
		✓	✓		E		THREAD	SEE NOTE 2						

QTY PER ASSEMBLY

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28648	A

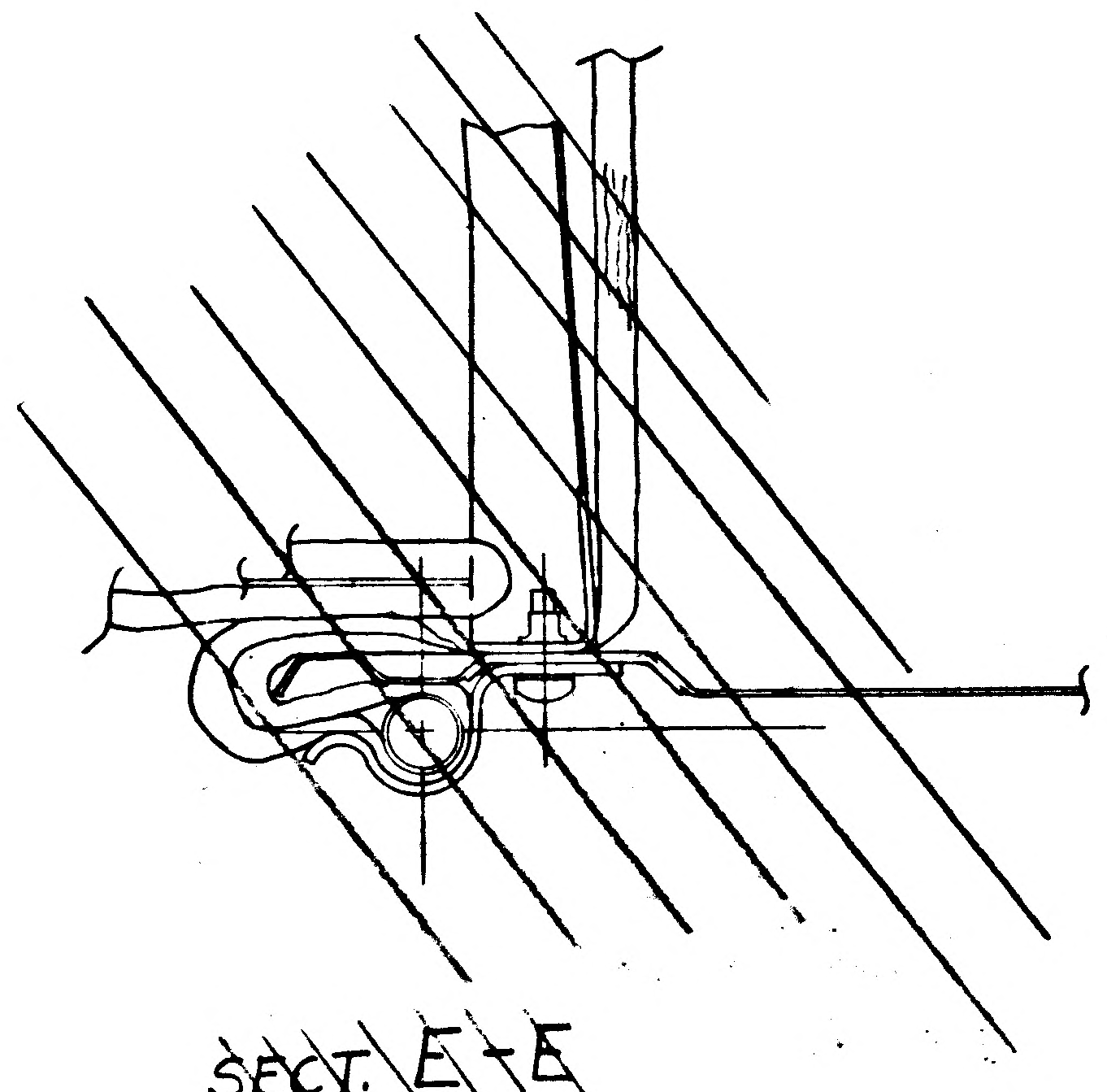
SCALE NONE

SHEET 2.01

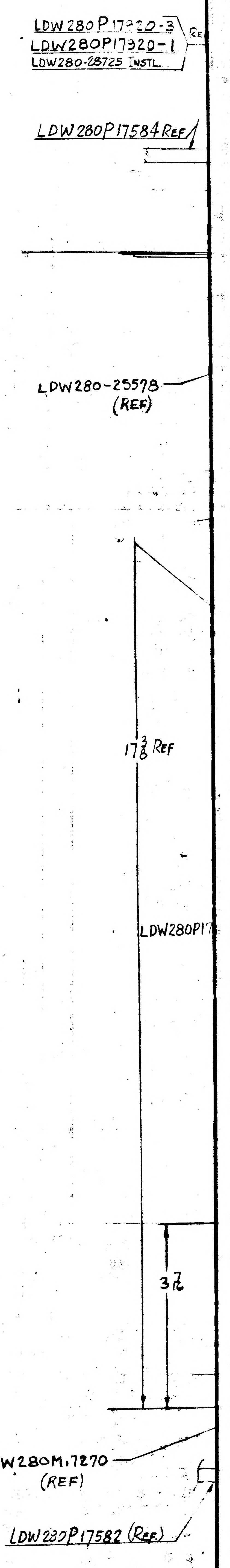
ENG 77.2 5-64

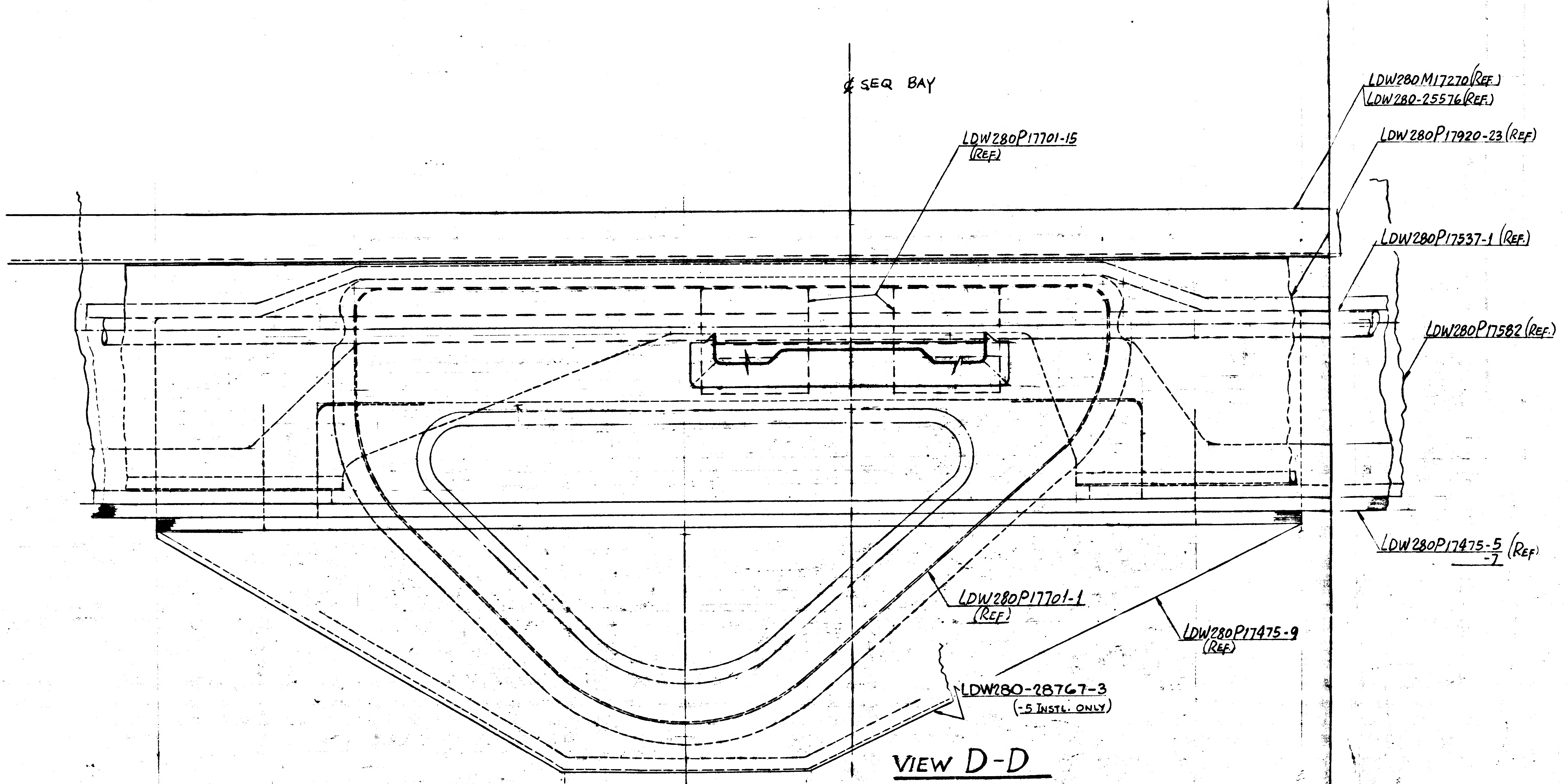
01

NAS 9-1100

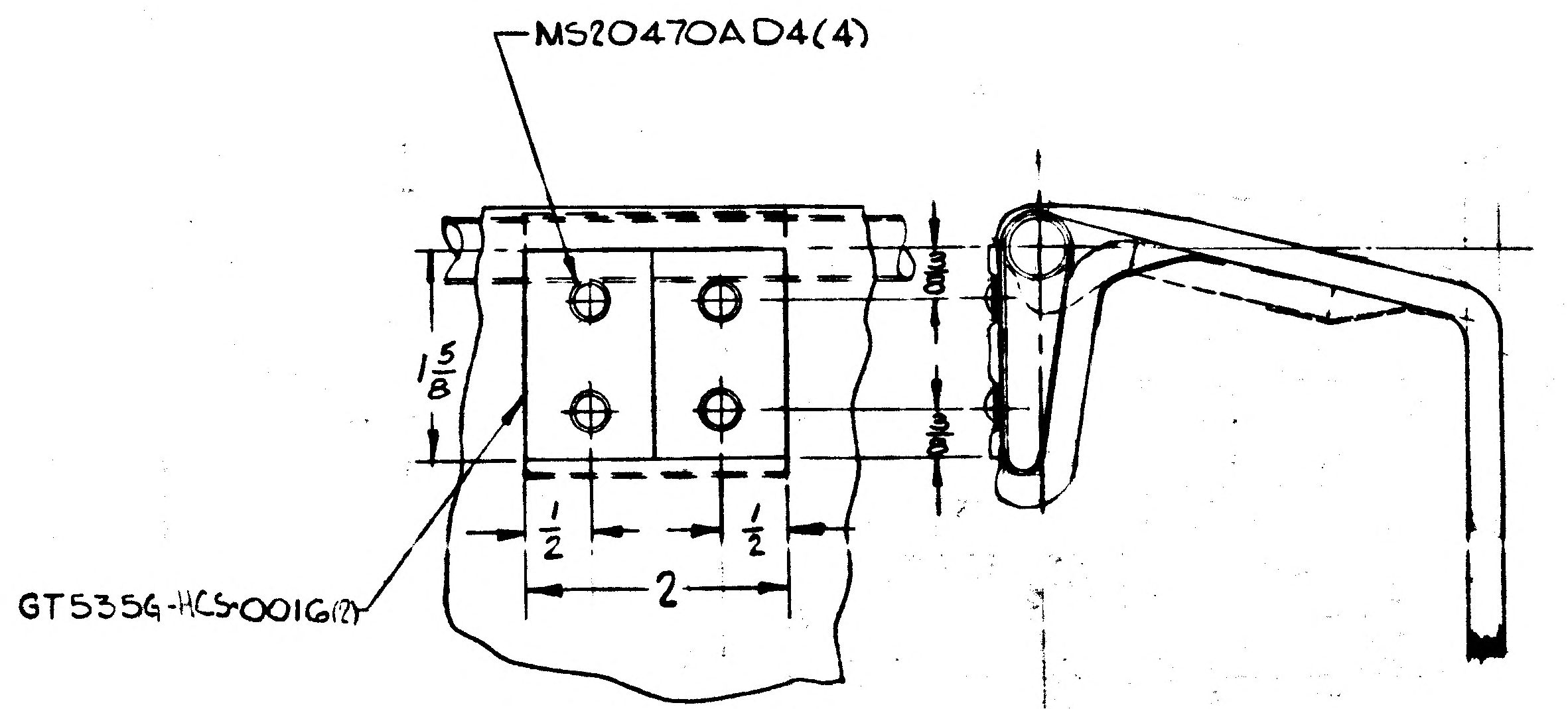


SECT. E-E


LDW280P17920-3
LDW280P17920-1
LDW280-28725 INSTL.
RE
LDW280P17584 REF
LDW280-25578
(REF)
17 3/8 REF
LDW280P17
3 7/16
LDW280M17270
(REF)
LDW280P17582 (REF.)


℄ SEQ BAY
LDW280P17701-15
(REF)
LDW280M17270 (REF.)
LDW280-25576 (REF.)
LDW280P17920-23 (REF)
LDW280P17537-1 (REF.)
LDW280P17582 (REF.)
LDW280P17475-5
-7 (REF)
LDW280P17701-1
(REF)
LDW280P17475-9
(REF)
LDW280-28767-3
(-5 INSTL. ONLY)

VIEW D-D

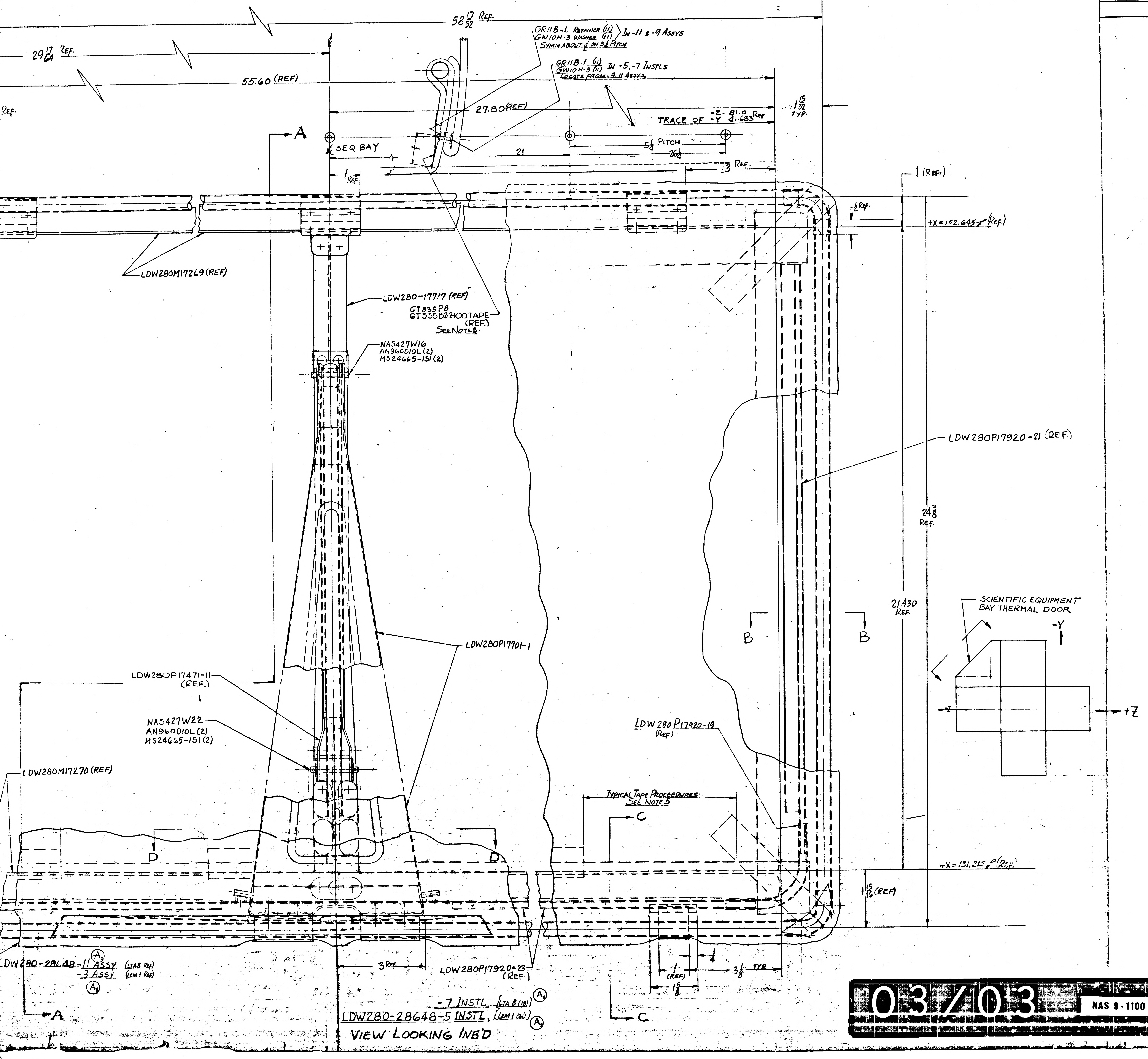

MS20470AD4(4)
GT5356-HCS-0016(2)
1 5/8
1/2
1/2
2

DETAIL "B"

01/03 NAS 9-1100

LDW280P17920-3 REF.
LDW280P17920-1
LDW280-28725 INSTL.
GT5356-LDS-0034
SEE DETAIL "B"
LDW280P17584 REF.
1 5/16 REF.
+X=152.645 ℄ (REF.)
GT5356-LDS-0034 (REF)
3/8
25/32 (REF)
LDW280M17269 (REF)
LDW280-25578 (REF)
LDW280P17921-11 (REF.)
17 3/8 REF
13.22 (REF)
LDW280P17475-7 ASSY (LEM.1)
LDW280P17475-5 ASSY. (LTA8)
LDW280P17471-11
LDW280P17471-11 (REF.)
LDW280P17471-1
LDW280P17475-9 ASSY (LTA-8 & LEM.1)
LDW280P17701-1 (REF)
3 7/16
124.215 ℄ (REF)
LDW280-28767-3 (REF.)
LDW280M17270 (REF)
LDW280P17582 (REF.)
SECT. A-A
7270 (REF.)
576 (REF.)
P17920-23 (REF)
P17537-1 (REF.)
W280P17582 (REF.)
P17475-5 -7 (REF.)
55.60 (REF.)
TRACE OF -Z81.0 -Y41.683
-Y41.683 (REF.)
LDW280P17920-15 (REF.)
4 1/4 (REF.)
-Z81.0 (REF.)
5/8 (REF.)
LDW280P17475-5 -7 (REF.)
SECT. B-B
LDW280P17475-5,-7. (REF)
GT5356-LDS-0060 (REF.)
4 1/4
2
1/2
LDW280P17701-17 (REF.)
GT5356-HDS-0060
SECT. C-C (TYP. 2 PLCS)
29 17/64 REF.
℄
55.60 (REF)
TRACE OF -Y=81.0 -Z=41.683 REF.
A
℄ SEQ BAY
3 (REF)
1 REF
LDW280M17269 (REF)
LDW280P18048-1 (REF.)
5/8 REF
LDW280P18048-11 (REF.)
LDW280P17537-1
LDW280P17471-11 (REF.)
NAS427W22
AN960D10L (2)
MS24665-151 (2)
LDW280M17270 (REF)
D
7/8
LDW280-28648-11 ASSY (LTA8 REF) A2
-9 ASSY (LEM1 REF) A2
A
LDW280
VIEW

02/03
NAS 9-1100


58 17/32 REF.
29 17/64 REF.
55.60 (REF)
REF.
GR11B-1 RETAINER (11)
GW10H-3 WASHER (11)
IN -11 & -9 ASSYS
SYMM ABOUT ℄ ON 5¼ PITCH
GR11B-1 (11)
GW10H-3 (11)
IN -5, -7 INSTLS
LOCATE FROM -9, 11 ASSYS
27.80 (REF)
TRACE OF -Z 81.0 -Y 41.683 REF
1 15/32 TYP.
A
℄
℄ SEQ BAY
5¼ PITCH
21
26¼
3 REF
1 REF
1 (REF.)
½ REF
+X = 152.645 ℄ (REF.)
LDW280M17269 (REF)
LDW280-17717 (REF)
GT835P8
GT535B2-2400 TAPE (REF.)
SEE NOTES.
NAS427W16
AN960D10L (2)
MS24665-151 (2)
LDW280P17920-21 (REF)
24 3/8 REF.
21.430 REF.
B
B
SCIENTIFIC EQUIPMENT BAY THERMAL DOOR
-Y
-Z
+Z
LDW280P17701-1
LDW280P17471-11 (REF.)
NAS427W22
AN960D10L (2)
MS24665-151 (2)
LDW280M17270 (REF)
LDW280P17920-19 (REF.)
TYPICAL TAPE PROCEEDURES SEE NOTE 5
C
C
D
D
+X = 131.215 ℄ (REF.)
1 15/16 (REF)
3 REF
1 (REF)
1 5/8
3 1/8 TYP
LDW280P17920-23 (REF.)
A₂
LDW280-28648-11 ASSY (LTA8 REF)
-9 ASSY (LEM 1 REF)
A

-7 INSTL. [LTA 8 (18)] (A₂)

LDW280-28648-5 INSTL. [LEM 1 (31)] (A₂)

VIEW LOOKING INB'D

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X) = SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = SQ. FT.

PRINT TRIM LINE

LDW280-28648 A

NOTES:
1. TEARS IN SINGLE LAYERS OF ALUMINIZED MYLAR SHALL BE REPAIRED INDIVIDUALLY WITH GT535B2-2-100 TAPE.
2. THREAD TO BE SAGE GREEN, SIZE E, SPEC MIL T-7807 TYPE II, CLASS 1, NYLON THREAD. MAY BE PURCHASED FROM THREADS, INC, GASTONIA, NORTH CAROLINA CODE IDENT. 19937. SEW TAPE GT535G (SEE DWG) AT 3/16 ± 1/16 FROM EDGE OF TAPE IN ACCORDANCE WITH FEDERAL STANDARD #751a ¢ STITCH TYP 301.
3. INSTALL COTTER PIN PER MS33540
4. INSTALL FASTENERS PER LSP 14-15302.
(A₃) 5. APPLY TAPE FASTENINGS PER FABRICATION PROCEEDURE LPC280-1 AND SEAM PROCEEDURE LPC280-3.

LDW280-28648

LAYOUT RELEASE. TO BE REDRAWN
ON PRODUCTION FORMAT.

03/03

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK
SIZE J
CODE IDENT NO. 26512
LDW280-28648 A
MODEL OR END ITEM
SCALE FULL
SHEET 3.00

3FR

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
*

DWG. NO. LDW280-28648 | EO NO. B1
CONTROL INFO NO. LDW280A 2023

CORRECT SHEET 2.10 OF DWG LDW280-28648 :

ADD

						1	LDW280-28767-3			WAS LDW280P28767-3
			1 →	*	1 →	*	LDW280P17701-1			MOVE 1 REQD FROM -5,-7 TO -9,-11
			1				LDW280P17537-1			WAS LDW 280P175371-1
		1			1		LDW280P17475-27		BLANKET ASSY	← ADD
			1				-25			← WAS -9
					1		-23			← WAS -7
			1				LDW280P17475-21			← WAS 17475-5
C							LDW280-28648-11			NO CHANGE
C							-9			
C							-7			
C							LDW280-28648-5	E		
CL			-11	-7	-9	-5	PART NO		NOMENCLATURE OR DESCRIPTION	
QTY PER ASSEMBLY										

CL. = CLEANLINESS LEVEL PER LSP 14-0011 ← ADD

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ 3

REASON FOR EO
CORRECT TYPOGRAPHICAL ERRORS AND OMISSION.

DESCRIPTION OF EO
LDW280P17701-1 ON -9 & -11 WAS ON -5 & -7
LDW280-28767-3 WAS LDW280P28767-3, ADDED CLEANLINESS LEVEL "C" TO -5, -7, -9 & -11
REMOVED LDW280P17475-5, -7, -9. ADDED LDW280P17475-21, 23, 25, 27

GAEC C EO RELEASE
FR 10/22/66

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (1B) LM1 (31)	

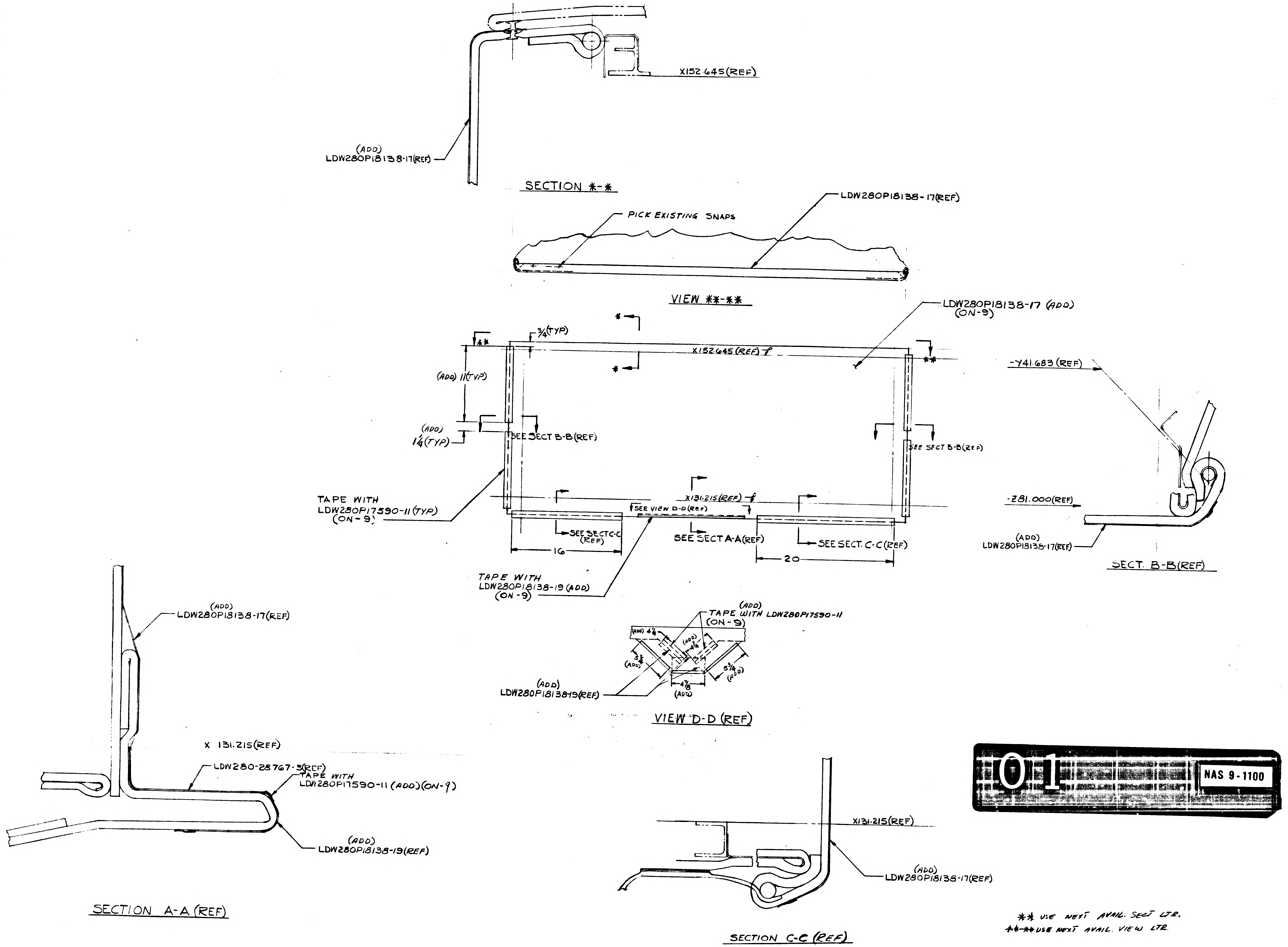
DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	10/12/66	10-17-66			10/12/66		10-13	10/21/66
	VDI	~~THERMO~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: ACCESS COVER INSTL. - D/S. S EQ BAY THERMAL SHIELD.
DRAWING NO.: LDW280-28648
EO NO.: B1

ISSUED BY GEO KASS 10 Oct 66 - J. STRAKOSCH X1393 SECTION VEH DES INTGRTN GROUP NO. 335 PL 35

01 NAS 9-1100


X152.645(REF)
(ADD)
LDW280P18138-17(REF)
SECTION *-*
PICK EXISTING SNAPS
LDW280P18138-17(REF)
VIEW **-**
LDW280P18138-17 (ADD)
(ON-9)
3/4(TYP)
**
*
X152.645 (REF)
*
**
(ADD) 11(TYP)
(ADD)
1 1/4(TYP)
SEE SECT B-B(REF)
SEE SECT B-B(REF)
-Y41.683 (REF)
-281.000(REF)
(ADD)
LDW280P18138-17(REF)
SECT. B-B(REF)
TAPE WITH
LDW280P17590-11(TYP)
(ON-9)
X131.215(REF)
SEE VIEW D-D(REF)
SEE SECT C-C (REF)
SEE SECT A-A(REF)
SEE SECT. C-C(REF)
16
20
TAPE WITH
LDW280P18138-19 (ADD)
(ON-9)
(ADD)
LDW280P18138-17(REF)
(ADD)
TAPE WITH LDW280P17590-11
(ON-9)
(ADD) 4 1/4
(ADD)
3 1/4
(ADD)
5 1/4
(ADD)
4 7/8
(ADD)
(ADD)
LDW280P18138-19(REF)
VIEW D-D (REF)
X 131.215(REF)
LDW280-28767-3(REF)
TAPE WITH
LDW280P17590-11 (ADD)(ON-9)
(ADD)
LDW280P18138-19(REF)
SECTION A-A (REF)
X131.215(REF)
(ADD)
LDW280P18138-17(REF)
SECTION C-C (REF)

** USE NEXT AVAIL. SECT LTR.
- USE NEXT AVAIL. VIEW LTR.

01 NAS 9-1100

(2)

DETAIL SPEC REQD		CLASS II ENGRG CHG		CLASS I ENGRG CHG	CONTROL INFO NO. LDW280A 109

REASON FOR EO: TO PROVIDE ADDITIONAL PLUME IMPINGEMENT PROTECTION

DESCRIPTION OF EO: IN F/D & B/M ON-9
ADDED LDW280P18138-17 & -19
ADDED LDW280P17590-11 AS REQD
SECT ** & VIEW **-**

GRUMMAN EO RELEASE: LE 11/16

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING REVISION REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	BY / DATE		SUPPORT THERMO	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	
✓		✓		11/8/66	11/8/66			11/7/66	11/14/66		RVS ② 11-17-66	11/16/66
				5	VDI							

PRIORITY: C

DRAWING TITLE: ACCESS COVER INSTL D/S — SEQ BAY THERMAL SHIELD

ENGINEERING ORDER — DRAWING NO.: LDW280-28648 — EO NO.: B2

ISSUED BY R. CLARK/J STRAKOSCH SECTION VDI GROUP NO. 335 PL 35

CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 32.3 REV 3-66

LDW280-28649 A

PART NO. LDW280-28649-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52553	LM-2(32)	1

PART NO. LDW280-28649-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52553	LM-2(32)	1
LM	LDW280-51553	LM-1(31)	1

PART NO. LDW280-28649-5

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51553	LM-1(31)	1

PART NO. LDW280-28649-3

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28553	LTA-8(18) 52	1

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	K	GRUMMAN REL INFO A	
LAST DASH NO. USED	-19	PRIM NO. 207	JK(001) MP-16A 8/1/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/4 ±.200 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	F. MADDEN	THERMO	AB 2/6/67
LAYOUT BY	F. MADDEN	RELIAB	
CHECKED BY			
GRP LDR	8/5/66		
VEH DES	8/5		
STRUCT	WB 8/4	PROJ ENGR	R.M. Carbee EV 8/7
STRUCT	Hilderman 8/6	REL GROUP GBA	2-4-67 2/10/67
WEIGHTS	8/9		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTALLATION ~
DESCENT STAGE ~ LH AFT
INTERSTAGE THERMAL

SIZE	CODE IDENT NO.		
B	26512	LDW280-28649	A

SCALE NONE
SHEET 1.00 OF 4

IG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED SH.#3 NO CHG. LAST REVISION NO CHG. SH. SIZE K WAS J	ADDED SH 1.10.	R. NISPET		7-26-68		
A	1	1.00, 1.10, 2.00 & 3.00	7A				✓	E.O. A1	REMOVED -1 INSTL, ADDED -3 & -5 INSTLS ADDED NOTE 1	LTA-8 LM-1 THRU LM-6		-1	R. NISBET 7-26-68		
	2	1.00, 1.10, 2.00 & 3.00	5C				✓	E.O. A2	ON-5 INSTL; ADDED -15 ASSY, ADDED LM-7(37) THRU LM-15 (45)	LM-1 THRU LM-15	✓				
	3	1.00, 1.10, 2.00 & 3.00	4C 7A				✓	E.O. A3 LCD 1173	ON-5 ADDED LDW280-18286-13(2), NAS697A04(4), NAS1097AD3-2(8), MS20470AD3(8) REMOVED -15 ASSY, ADDED -7 INSTL						
	4	1.00, 1.10, 2.00 & 3.00	4C 7A				✓	E.O. A4 LCD 1173	REF E.O. A3 -7 INSTL SHOULD BE -17 INSTL, ADDED DIM 1/8 TYP, REMOVED DIM 3/16 (ON-5) (2 PLACES)		NOT	REQD			
	5	1.10, 2.00 & 3.00	4C				✓	E.O. A5, LCD 1173	REF E.O. A3 ON-5 NAS697-C04L WAS NAS697A04		✓				
	6	1.00, 1.10, 2.00 & 3.00	7A				✓	E.O. A6 LCD 1173	IN FLD. B/M & MOD BLOCK ADDED -19 INSTL, REMOVED -5 INSTL FOR LM-2 THRU LM-15 (45) EFF.	LM-2 THRU LM-15	✓				
	7	1.10 & 3.00	3D			✓		E.O. A7, LCD 1173	ADDED E.O. TO RECORD BLOCK FOR LM-1	NOTED	NOTED				
	8	1.00 & 1.10		P		✓		E.O. A8, LCD 1244	IN MOD. BLOCK RESTRICTED -19 & -17 TO LM-1 & LM-2 (REMOVED LM-3 THRU LM-15 EFF)	LM-3 THRU LM-15		-5	E.C.G.		
	9	1.00		P		✓		LCD 1244 ①	REF EOA8: RESTRICT -19 & -17 TO LM-1 & LM-2 S/B RESTRICT -19 TO LM-2 & -17 TO LM-1 & LM-2					F. Zalucas 7-29-68	8/11/68

CHG APPROVED								
LTR	GROUP LDR	VEH.DES.INT	STRUCTURES	STRUCTURES	WEIGHTS	THERMO	RELIABILITY	
A								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28649	A Ⓐ
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

/////				-19	-17	-15	-13	-11	-9	-7	-5	-3	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				2										NAS697A04		NUT PLATE	STD PART						
				4							3			NAS1097AD3-2		RIVET							
				4										NAS1097AD3		RIVET							
				2							4			NAS697C04L		NUT PLATE							
				8							8			MS20470AD3		RIVET	STD PART						
							A.R.	A.R.	A.R.	A.R.				GWICH-3		WASHER	GRUMMAN STD						
					A.R.	A.R.	A.R.	A.R.	A.R.	A.R.				GT835P-8		TAPE							
							A.R.	A.R.	A.R.	A.R.				GR11B-1		RETAINER							
					4									GB511J-04-1		BOLT	GRUMMAN STD						
				1										LDW280P18284-17		BRACKET	SEE DWG						4C
				1	2									LDW280P18284-15		BRACKET							6C
				1										LDW280-18286-17		BRACKET							4C
				1							2			LDW280-18286-13		BRACKET							5D
						1								LDW280-18229-13		FOIL							7B
						1								LDW280-18228-13		INCONEL							7B
						1								LDW280P18227-13		SKIN							7B
							1							LDW280P17596-19		BLANKET ASSY	SEE DWG						7D
								1						-17									7D
										1				-9									7D
									1					LDW280P17596-7		BLANKET ASSY	SEE DWG						7D
														LDW280-28649-19		SHIELD INSTL							7A
														-17		SHIELD INSTL							7A
					1									-15		SKIN ASSY							7A
				1							1			-13		SHIELD ASSY							7A
				1							1			-11									7A
												1		-9									7A
												1		-7		SHIELD ASSY							7A
														-5		SHIELD INSTL							7A
C														LDW280-28649-3		SHIELD INSTL							7A
C.L.	QTY PER ASSEMBLY																						

C.L. = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28649	A

Ⓐ

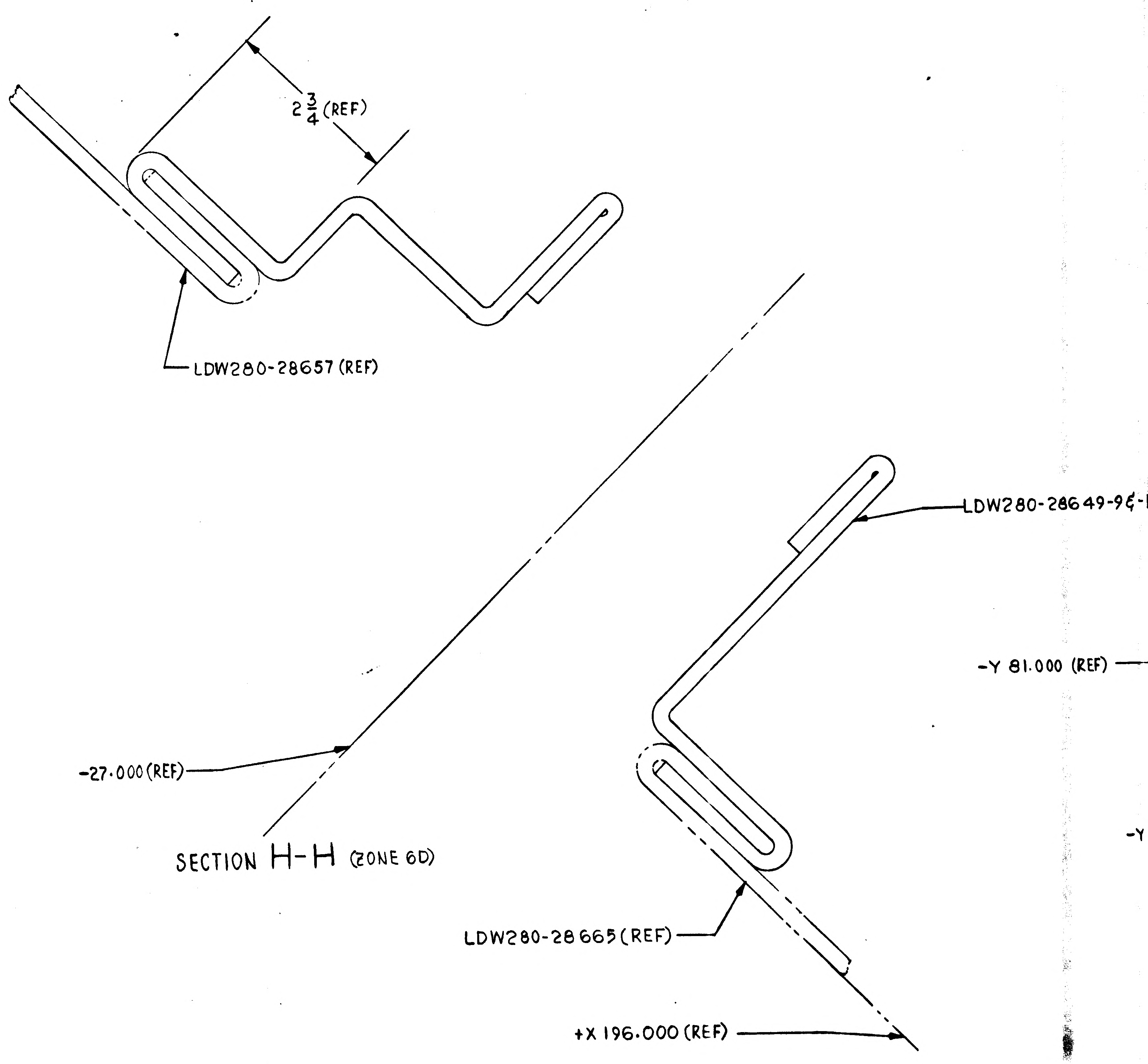
SCALE NONE

SHEET 200

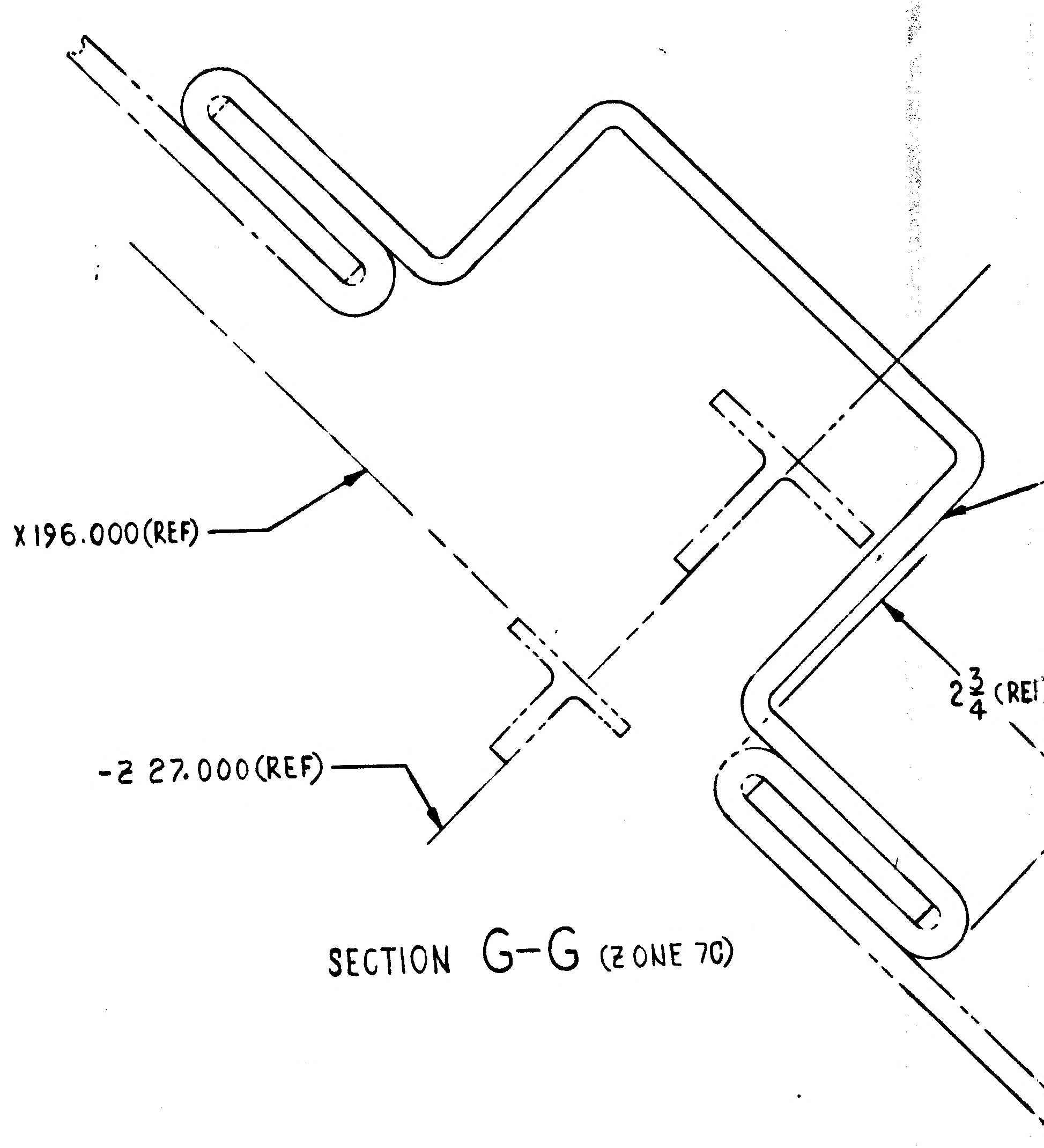
ENG 77.2 7-65

01

NAS 9-1100


2 3/4 (REF)
LDW280-28657 (REF)
LDW280-28649-9¢-
-Y 81.000 (REF)
-Y
-27.000 (REF)
LDW280-28665 (REF)
+X 196.000 (REF)

SECTION H-H (ZONE 6D)

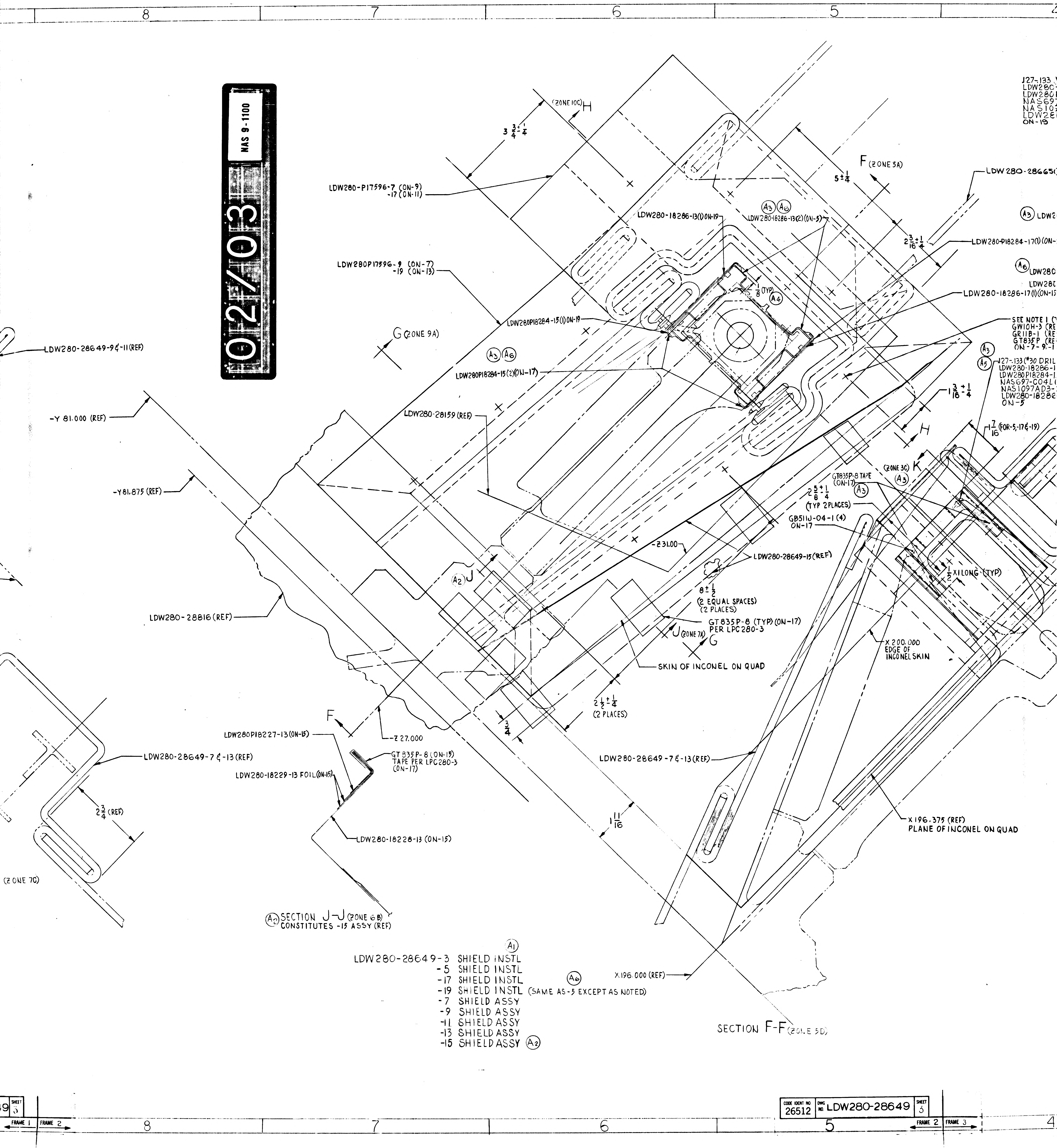

X 196.000 (REF)
-Z 27.000 (REF)
2 3/4 (RE

SECTION G-G (ZONE 7C)

01/03
NAS 9-1100

CODE IDENT NO	DWG NO	SHEET
26512	LDW280-28649	3

FRAME 1 | FRAME 2

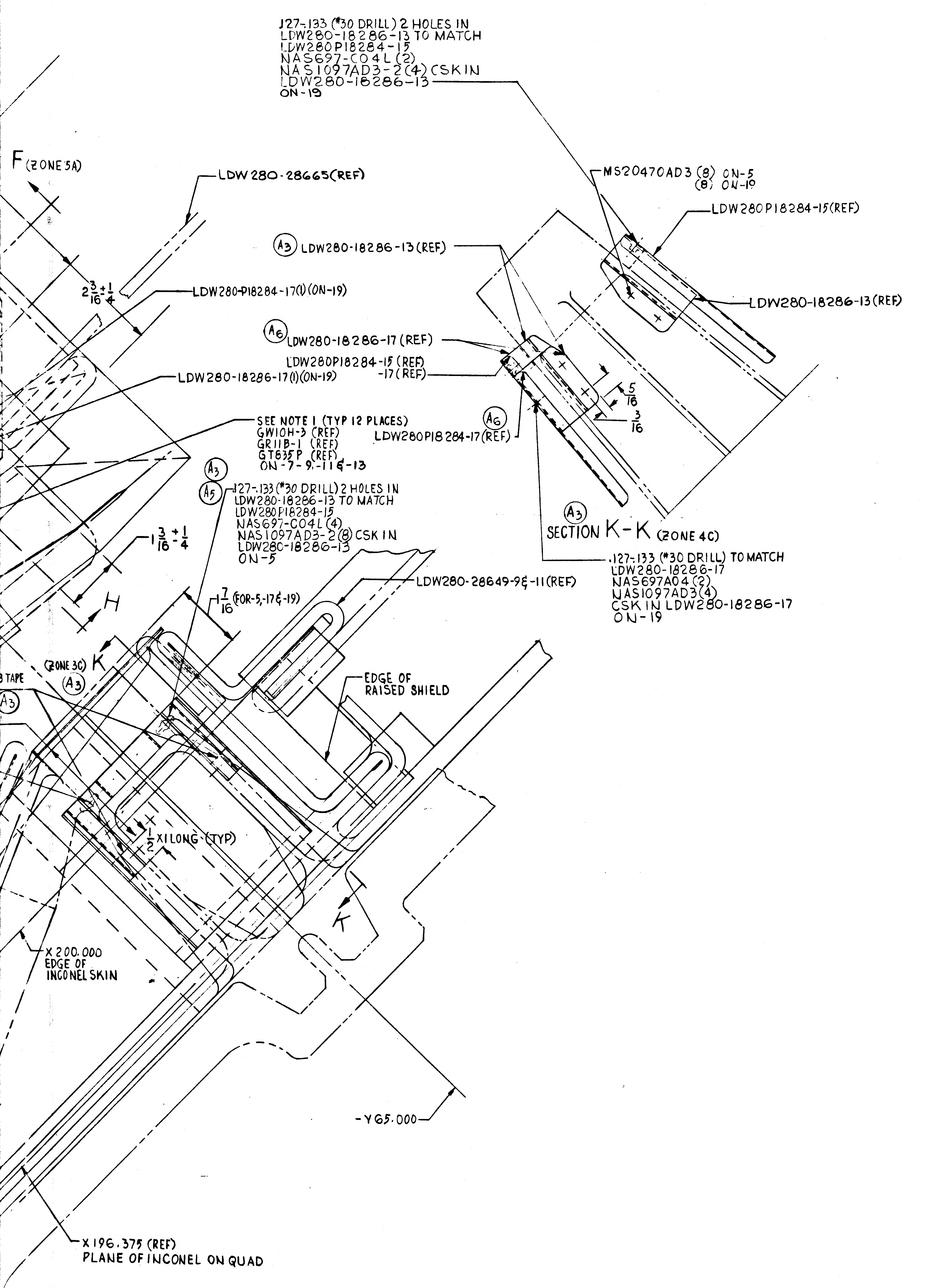
02/03
NAS 9-1100
8
7
6
5
4
(ZONE 10C) H
$3\frac{3}{4}\pm\frac{1}{4}$
J27-133
LDW280
LDW280
NAS69
NAS10
LDW28
ON-19
F (ZONE 5A)
$5\pm\frac{1}{4}$
LDW280-28665
LDW280-P17596-7 (ON-9)
-17 (ON-11)
LDW280-18286-13(1)ON-19
A3 A6
LDW280-18286-13(2)(ON-5)
A3 LDW2
$2\frac{3}{16}\pm\frac{1}{4}$
LDW280-P18284-17(1)(ON-
A6 LDW280
LDW280
LDW280P17596-9 (ON-7)
-19 (ON-13)
$\frac{1}{8}$ (TYP)
A4
LDW280-18286-17(1)(ON-1
LDW280P18284-15(1)ON-19
SEE NOTE 1 (
GW10H-3 (RE
GR11B-1 (RE
GT835P (RE
ON-7-9,-1
G (ZONE 9A)
A3
A5
J27-133(#30 DRIL
LDW280-18286-1
LDW280P18284-1
NAS697-C04L
NAS1097AD3-
LDW280-18286
ON-5
LDW280-28649-9 & -11 (REF)
A3 A6
LDW280P18284-15(2)(ON-17)
$1\frac{3}{16}\pm\frac{1}{4}$
-Y 81.000 (REF)
LDW280-28159 (REF)
H
$1\frac{7}{16}$ (FOR-5,-17 & -19)
(ZONE 3C) K
A3
GT835P-8 TAPE
(ON-17)
A3
$2\frac{5}{8}\pm\frac{1}{4}$
(TYP 2 PLACES)
-Y81.875 (REF)
GB511J-04-1 (4)
ON-17
-Z31.00
LDW280-28649-15 (REF)
$\frac{1}{2}$ X 1 LONG (TYP)
A2 J
$8\pm\frac{1}{2}$
(2 EQUAL SPACES)
(2 PLACES)
LDW280-28816 (REF)
GT835P-8 (TYP) (ON-17)
PER LPC280-3
J (ZONE 7A)
G
X 200.000
EDGE OF
INCONEL SKIN
SKIN OF INCONEL ON QUAD
F
LDW280P18227-13 (ON-15)
-Z 27.000
$2\frac{1}{2}\pm\frac{1}{4}$
(2 PLACES)
$\frac{3}{4}$
GT835P-8 (ON-15)
TAPE PER LPC280-3
(ON-17)
LDW280-28649-7 & -13 (REF)
LDW280-18229-13 FOIL (ON-15)
LDW280-28649-7 & -13 (REF)
$2\frac{3}{4}$ (REF)
$1\frac{11}{16}$
LDW280-18228-13 (ON-15)
X 196.375 (REF)
PLANE OF INCONEL ON QUAD
(ZONE 7C)
A2 SECTION J-J (ZONE 6B)
CONSTITUTES -15 ASSY (REF)
A1
LDW280-28649-3 SHIELD INSTL
-5 SHIELD INSTL
-17 SHIELD INSTL
A6
-19 SHIELD INSTL (SAME AS -5 EXCEPT AS NOTED)
X 196.000 (REF)
-7 SHIELD ASSY
-9 SHIELD ASSY
-11 SHIELD ASSY
-13 SHIELD ASSY
-15 SHIELD ASSY A2
SECTION F-F (ZONE 5D)
9 SHEET 3
FRAME 1
FRAME 2
CODE IDENT NO 26512
DWG NO LDW280-28649
SHEET 3
FRAME 2
FRAME 3

RECORD EO DATA		
MODULE	EO NO.	EFFECTIVITY
LM	A-	LM-1

NOTES:
1. TAPE, RETAINERS & WASHERS TO BE INSTALLED PER LPC: 80-3

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
INSTALL RIVETS IN ACCORDANCE WITH LSP-14-15302	✓

DWG SIZE 40X96
PRINTING INFO ONLY
PRINT TRIM LINE
FULL SIZE SHEET AREA (42X106)= 31 SQ FT
½ SIZE SHEET AREA (¼ OF FULL)= 7.75 SQ FT


.127-.133 (#30 DRILL) 2 HOLES IN
LDW280-18286-13 TO MATCH
LDW280P18284-15
NAS697-C04L(2)
NAS1097AD3-2(4) CSK IN
LDW280-18286-13
ON-19
F (ZONE 5A)
LDW280-28665(REF)
A3 LDW280-18286-13(REF)
2 3/16 ± 1/4
LDW280-P18284-17(1)(ON-19)
A6 LDW280-18286-17 (REF)
LDW280P18284-15 (REF)
-17 (REF)
LDW280-18286-17(1)(ON-19)
SEE NOTE 1 (TYP 12 PLACES)
GW10H-3 (REF)
GR11B-1 (REF)
GT835P (REF)
ON-7-9,-11 & -13
A6 LDW280P18284-17(REF)
A3
A5 .127-.133 (#30 DRILL) 2 HOLES IN
LDW280-18286-13 TO MATCH
LDW280P18284-15
NAS697-C04L(4)
NAS1097AD3-2(8) CSK IN
LDW280-18286-13
ON-5
1 3/16 ± 1/4
H
1 7/16 (FOR-5,-17 & -19)
LDW280-28649-9 & -11(REF)
(ZONE 3C) K
A3
TAPE
A3
EDGE OF
RAISED SHIELD
1/2 X 1 LONG (TYP)
K
X 200.000
EDGE OF
INCONEL SKIN
-Y65.000
X196.375 (REF)
PLANE OF INCONEL ON QUAD
MS20470AD3 (8) ON-5
(8) ON-19
LDW280P18284-15(REF)
LDW280-18286-13(REF)
5/16
3/16
A3
SECTION K-K (ZONE 4C)
.127-.133 (#30 DRILL) TO MATCH
LDW280-18286-17
NAS697A04(2)
NAS1097AD3(4)
CSK IN LDW280-18286-17
ON-19

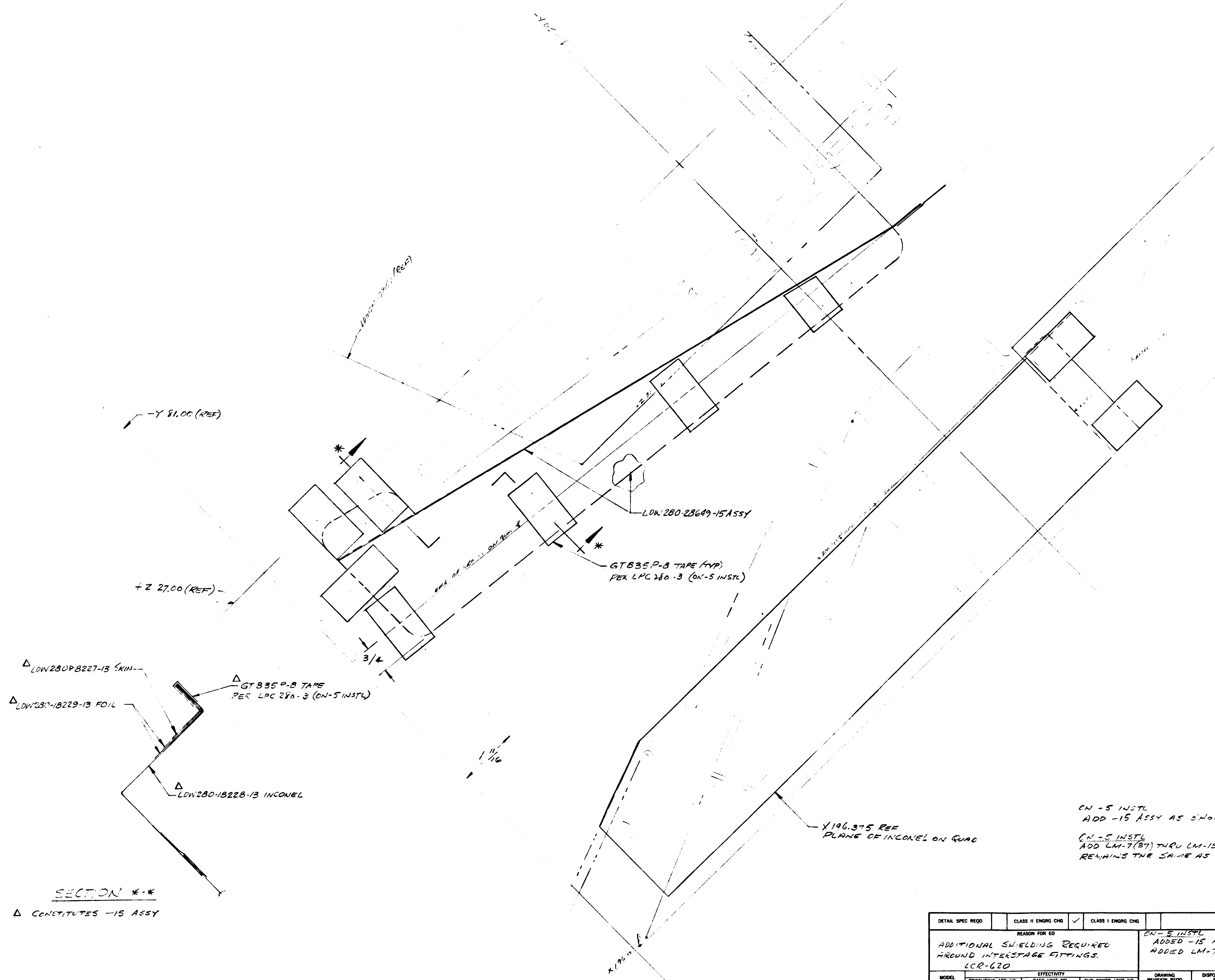
03/03
NAS 9-1100

80-28649 SHEET 3
FRAME 2 | FRAME 3

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
SIZE K	CODE IDENT NO. 26512	LDW280-28649	A
SCALE FULL		SHEET 3.00	

LDW280-28649 A
LDW280-28649 A

SUPERSEDES LDW280-28649 "N.C" 2-10-67



-Y 81.00 (REF)
+Z 27.00 (REF)
LDW280-28649-15 ASSY
GT835P-8 TAPE (TYP)
PER LPC 280-3 (ON-5 INSTL)
3/4
11/16
Δ LDW280P8227-13 SKIN
Δ LDW280-18229-13 FOIL
Δ GT835P-8 TAPE
PER LPC 280-3 (ON-5 INSTL)
Δ LDW280-18228-13 INCONEL
X 196.375 REF
PLANE OF INCONEL ON QUAD
*

SECTION *-*

Δ CONSTITUTES -15 ASSY

ON -5 INSTL
ADD -15 ASSY AS SHOWN

ON -5 INSTL
ADD LM-7(37) THRU LM-15(45) EFF. QTY & N/A
REMAINS THE SAME AS LM-6(36)

01 NAS 9-1100

DETAIL SPEC REQD ☐	CLASS II ENGRG CHG ☑	CLASS I ENGRG CHG ☐		CONTROL INFO NO. -DW280A 4-4

REASON FOR EO	DESCRIPTION OF EO	GRUMMAN EO RELEASE
ADDITIONAL SHIELDING REQUIRED AROUND INTERSTAGE FITTINGS. LCR-620	ON-5 INSTL ADDED -15 ASSY ADDED LM-7(37) THRU LM-15(45) EFF.	

MODEL	EFFECTIVITY: PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	LM-15(45)

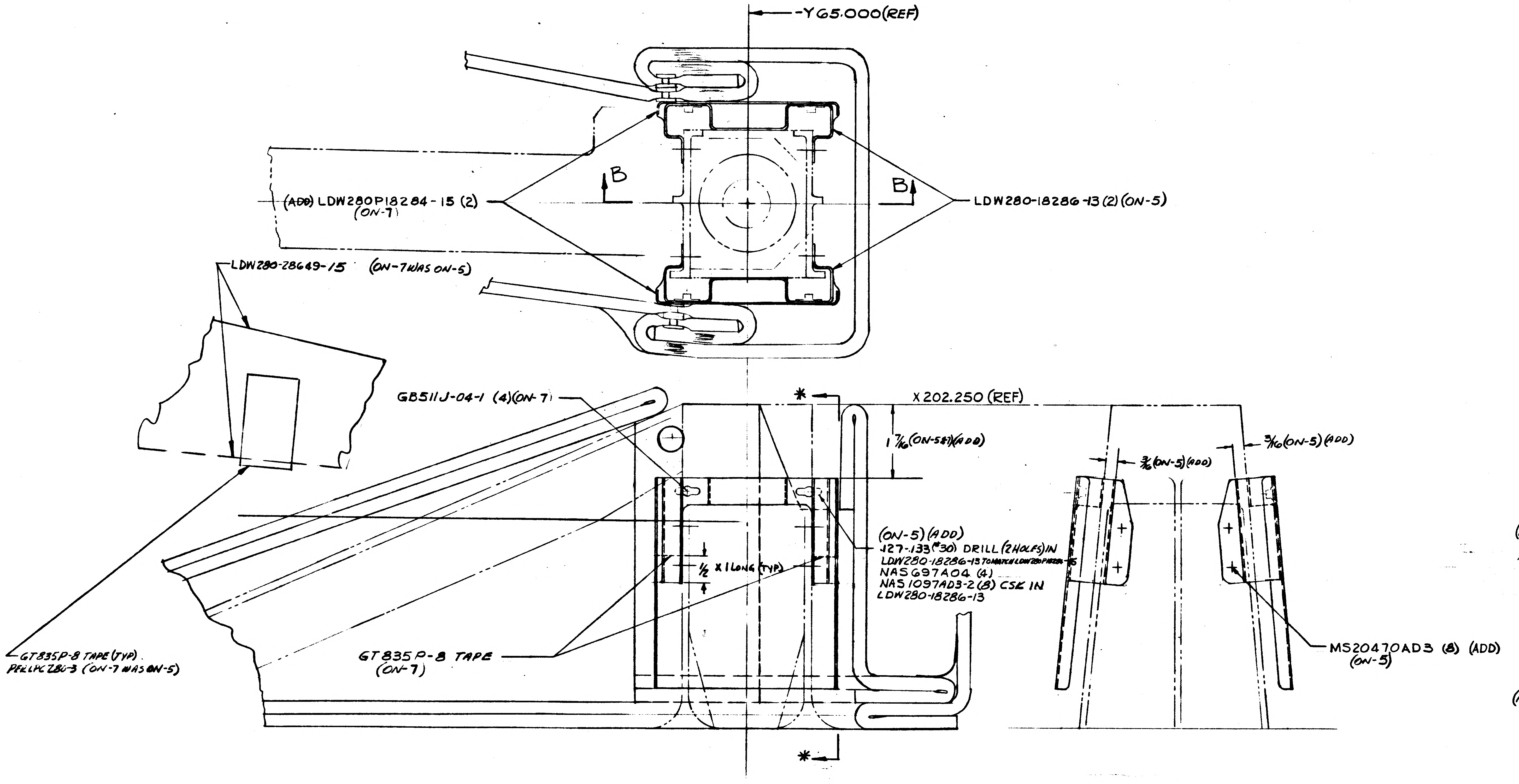
DRAWING REVISION REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	DATE	THERMO	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	GOV'T
✓				5 VDI							

PRIORITY	DRAWING TITLE	ENGINEERING ORDER: DRAWING NO	EO NO.
C	SHIELD INSTALLATION - DESCENT STAGE - L/H AFT INTERSTAGE - THERMAL	LDW280-28549	42

ISSUED BY	SECTION	GROUP NO.	CODE IDENT NO.	
QUEVEDO/STRAKOSCH X-1392	V.D.I.	335	26512	GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE, L. I., N. Y.

ENG 32.3 REV 3-66

FULL SIZE SHEET AREA (30x36) 7.5 SQ FT.
1/4 SIZE SHEET AREA (1/4 OF FULL) 1.9 SQ FT.


-Y65.000(REF)
(ADD) LDW280P18284-15 (2) (ON-7)
B
B
LDW280-18286-13 (2) (ON-5)
LDW280-28649-15 (ON-7 WAS ON-5)
GB511J-04-1 (4)(ON-7)
*
X 202.250 (REF)
1 7/16 (ON-5)(ADD)
(ON-5)(ADD)
.127-.133 (#30) DRILL (2 HOLES) IN
LDW280-18286-13 TO MATCH LDW280P18284-15
NAS697A04 (4)
NAS1097AD3-2 (8) CSK IN
LDW280-18286-13
1/2 X 1 LONG (TYP)
GT835P-8 TAPE (TYP)
PERLPC280-3 (ON-7 WAS ON-5)
GT835P-8 TAPE (ON-7)
*
3/16 (ON-5)(ADD)
3/16 (ON-5)(ADD)
MS20470AD3 (8) (ADD) (ON-5)

SECTION B-B (REF)

SECTION *-*

(ADD) -7 INSTL. (1) REQ/MOD
-7 CONSIST OF THE FOLLOWING

	LDW280P18284-15	(2) REQ/MOD
	GB511J-04-1	(4) REQ/MOD
	GT835P-8	AS REQ'D
	-15 ASSY	
N/A	LDW280-51553	EFF: LM-1(31)
	LDW280-52553	LM-2(32)
	LDW280-53553	LM-3(33)
	LDW280-54553	LM-4(34) THRU LM

REVISE -5 AS SHOWN

(ADD)(ON-5)	LDW280-18286-13	(2) REQ/MOD
	NAS697A04	(4) REQ/MOD
	NAS1097AD3-2	(8) REQ/MOD
	MS20470AD3	(8) REQ/MOD

REMOVE -15 ASSY

* USE NEXT AVAILABLE SECTION LTR.
LCD-1173

5

CONTROL INFO NO. LDW280A6159

DETAIL SPEC REQD		CLASS II ENGRG CHG	✓	CLASS I ENGRG CHG

REASON FOR EO
TO PROVIDE PROTECTION FOR EXPLOSIVE BOLT MECHANISM
LCR 1173

DESCRIPTION OF EO
ON-5 ADDED LDW280-18286-13 (2), NAS697A04 (4) NAS1097AD3-2 (8) MS20470AD3 (8) REMOVED -15 ASSY
ADDED -7 INSTL

GRUMMAN EO RELEASE C
JK 5/11/67

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
		THRU	
		LM-15(45)	

DRAWING REVISION REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	BY / DATE		SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	
✓		✓		Jap 5/9/67	5 VD1			5/11/67			5/10/67	

PRIORITY C

DRAWING TITLE
SHIELD INSTALLATION~
DESCENT STAGE~LH AFT
INTERSTAGE THERMAL

ENGINEERING ORDER
DRAWING NO. LDW280-28649
EO NO. A3

CODE IDENT NO. 26512
GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ISSUED BY R.Clark/J Stehkosch SECTION VD1 GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

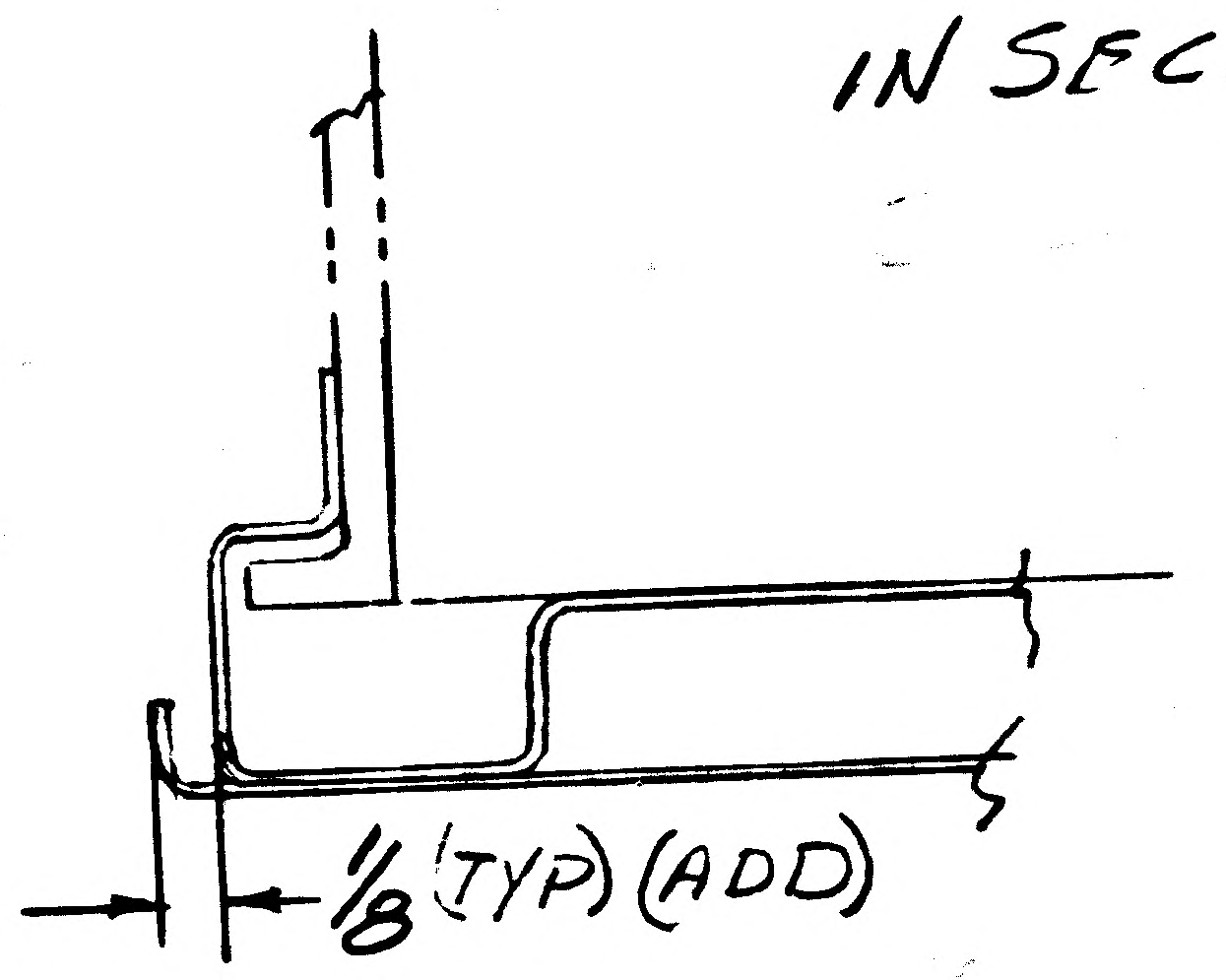
*

DWG. NO. LDW280-28649
EO NO. A4
CONTROL INFO NO. LDW280A 6936

THIS EO IS A REVISION E.O. A3

ADD -7 INSTL S/B ADD -17 INSTL

IN SECTION ** REMOVE DIM 3/16 (ON-5) (2 PLCS)



DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 1173 5

REASON FOR EO
TO PROVIDE PROTECTION FOR EXPLOSIVE BOLT MECHANISM
LCD 1173

DESCRIPTION OF EO
REF E.O.
-7 INSTL S/B -17 INSTL
ADDED DIM 1/8 TYP, REMOVED DIM 3/16 (ON-5) (2 PLCS)

Ⓡ GAEC EO RELEASE C
JK 5/26/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31) THRU LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	Jaf							
✓		NOT REQ'D		DATE	5/23/67			5/22/67	5/24/67		5/25/67	6/27/67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY C
DRAWING TITLE SHIELD INSTALLATION D/S LH AFT INTERSTAGE THERMAL
DRAWING NO. LDW280-28649
EO NO. A4

ISSUED BY R. CLARK / J STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28649
EO NO. A5
CONTROL INFO NO. LDW280A7458

THIS EO IS A REVISION OF EO A3

ON-5 ~ NAS697-C04L WAS NAS697A04

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

LCD 1173

5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE PROTECTION FOR EXPLOSIVE BOLT MECHANISM LCD 1173	REF EO. A3 ON-5 ~ NAS697-C04L WAS NAS697A04	JK 6/14/7

EFFECTIVITY

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
✓		✓		6/9/67 5	VD1			6/12/67	W/H 6/12/67		6/12/67	6/13/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL DIS ~ LH AFT INTERSTAGE THERMAL	LDW280-28649	A5

ISSUED BY R. CLARK / J. STRAKOSCH SECTION VD1 GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

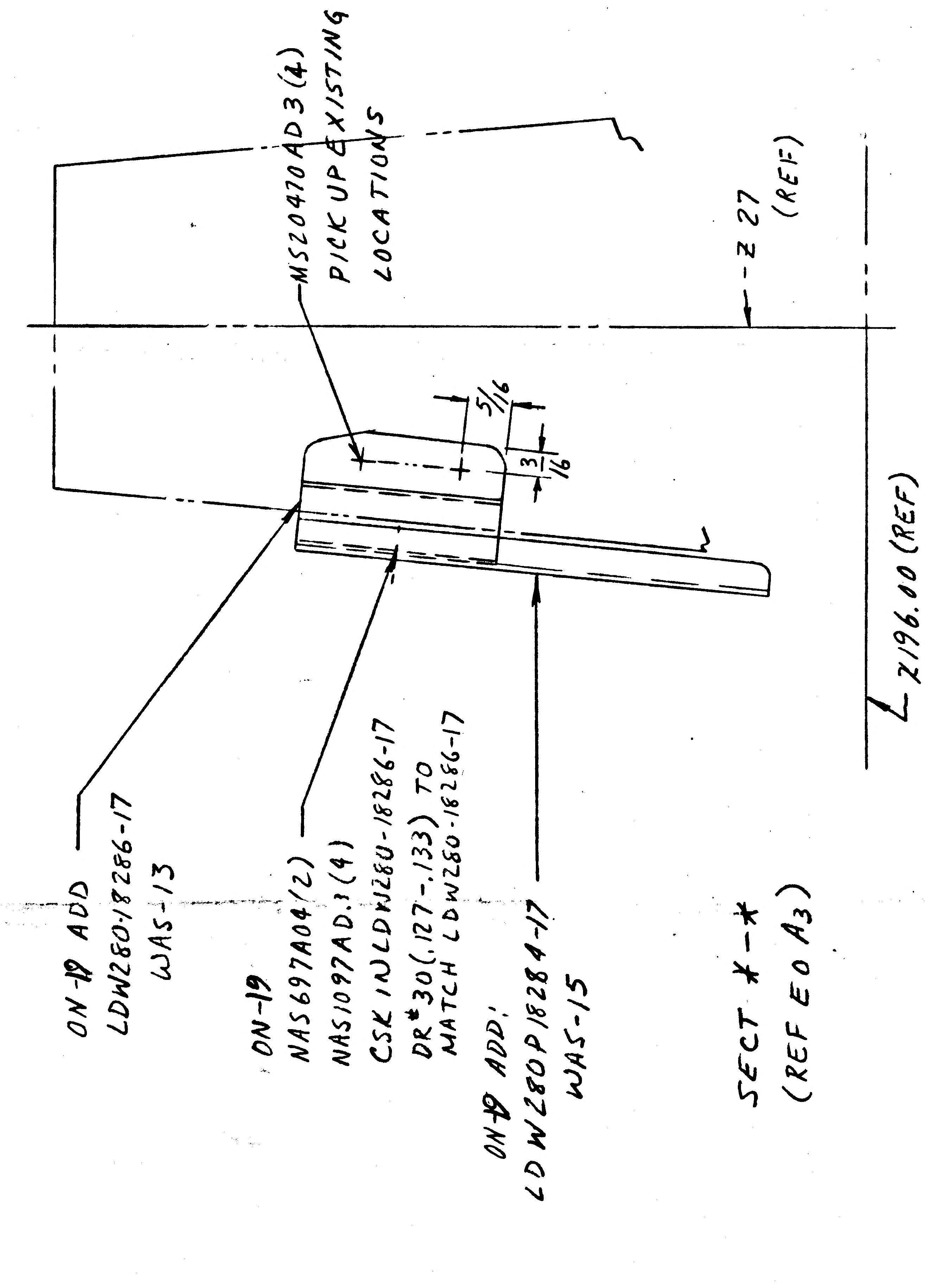
(A)

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-28649
EO NO. A6
CONTROL INFO NO. LDW280B-0096

IN FLD & B/M
ADD -19 INSTL IDENT TO -5 EXCEPT AS SHN.

IN MOD BLK ADD -19 N/A LDW280 52553 LM2(32) /
& REMOVE -5 LDW280 53554 LM3(33)
LDW280 54553 LM4(34) THRU15(45)



MS20470AD3(4)
PICK UP EXISTING LOCATIONS
Z 27 (REF)
5/16
3/16
Z196.00 (REF)
ON-19 ADD
LDW280-18286-17
WAS-13
ON-19
NAS697A04(2)
NAS1097AD.3(4)
CSK IN LDW280-18286-17
DR*30(.127-.133) TO
MATCH LDW280-18286-17
ON-19 ADD:
LDW280P18284-17
WAS-15

SECT *-*
(REF EO A3)

DETAIL SPEC REQ ☐	CL II ENGRG CHG ✓	CL I ENGRG CHG ☐	LCD 1173

REASON FOR EO: TO ELIMINATE INTERFERENCE WITH A/S & D/S SHIELD

DESCRIPTION OF EO: IN FLD, B/M & MOD BLK ADDED -19 INST'L, REMOVED -5 INSTL FOR LM2 THRU 15(45) EFF.

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM2(32) THRU 15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC EO RELEASE
APPROVED BY	JAP			RBT	W/H		EJ	JK
DATE	10/26/67			10-26-67	10/26/67		10/27	10/31/67

5

PRIORITY: C
DRAWING TITLE: SHIELD INSTL D/S L.H. INTERSTAGE FITTING
DRAWING NO.: LDW280-28649
EO NO.: A6

102767
ISSUED BY DON RAGAS X1153 SECTION VD1 GROUP NO. 335 PL 25

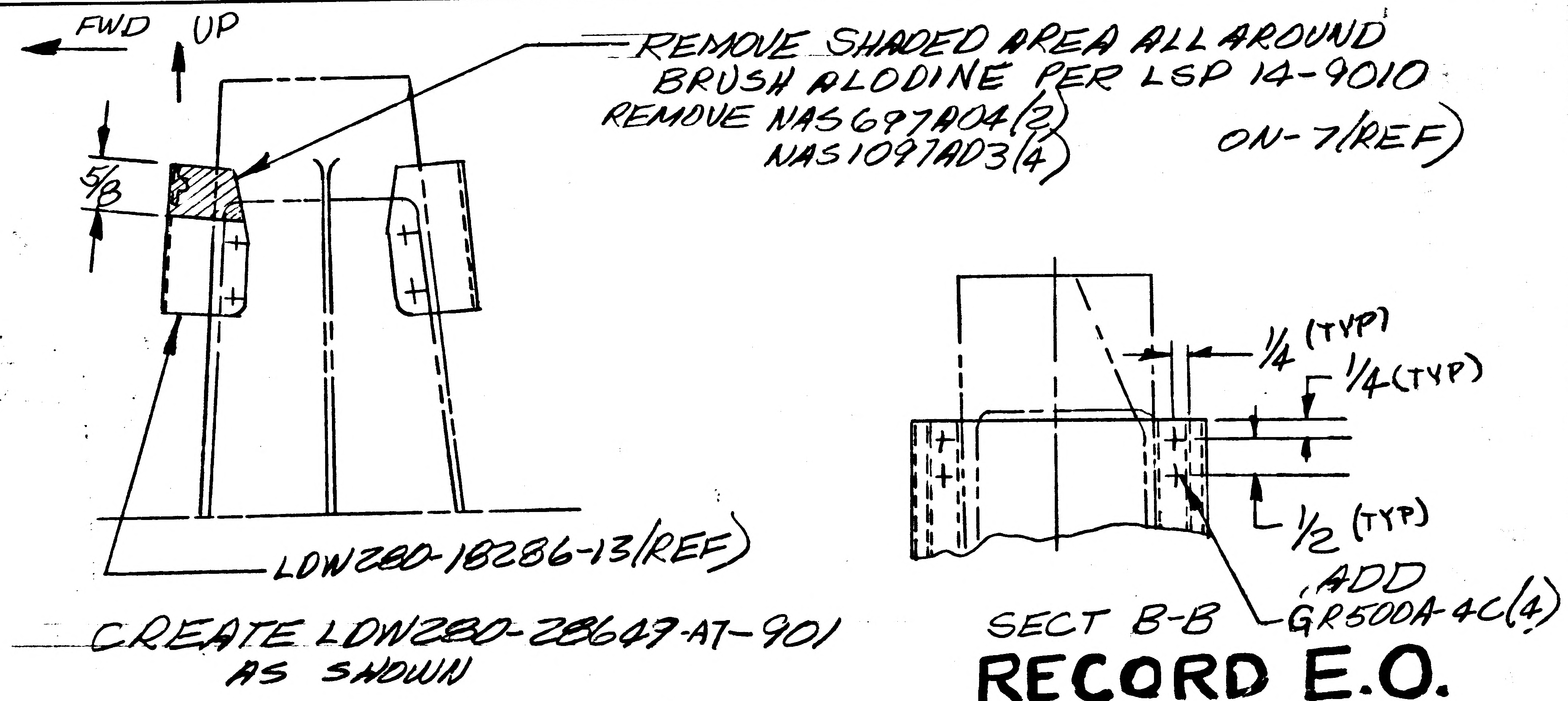
01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28649		EO NO. A7	
CONTROL INFO NO. LM-83-2139			



REMOVE SHADED AREA ALL AROUND
BRUSH ALODINE PER LSP 14-9010
REMOVE NAS697AD4 (2)
NAS1097AD3 (4)

ON-7 (REF)

LDW280-18286-13 (REF)

ADD GR500A-4C (4)

SECT B-B

CREATE LDW280-28649-A7-901
AS SHOWN

RECORD E.O.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD-1173

REASON FOR EO: TO REMOVE POSSIBLE DAMAGED MATERIAL. (TPS 122 REF)

DESCRIPTION OF EO: ADDED EO TO RECORD BLOCK FOR LM-1.

Ⓡ GAEC EO RELEASE: 83 C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
	✓	✓	

APPROVED BY	[illegible]	JAP		WB		DAM PE		
DATE	11/4/67	11/11/67		11/4	11/4/67	BPA	ANOV	11-7-67
	SYS.	~~SUPPORT~~ VDI	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	~~LIAISON ENGRG~~	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTALL D/S ~ L.H. AFT ~ INTERSTAGE THER.	LDW280-28649	A7

ISSUED BY LIAISON ~ V. KOSLOSKI X2818 SECTION V.D.I. GROUP NO. 816 PL 83 K

01

NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28649
EO NO. A8
CONTROL INFO NO. LDW280A9697

IN M/B, RESTRICT -19 & -17 TO LM-1 & LM-2.
(REMOVE LM-3 THRU LM-15 EFFECTIVITY)

FITH

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1244 (5)

REASON FOR EO.: TO PROVIDE FOR F.I.T.H. SHIELD

DESCRIPTION OF EO: IN M/B. RESTRICTED -19 & -17 TO LM-1 & LM-2 (REMOVED LM-3 THRU LM-15 EFF)

GAEC EO RELEASE: 11/16/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33) THRU LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP -5

APPROVED BY								
DATE	11/10/67			11-10-67	11/13/67		11/10/67	11-15-67
P	VDI	THERMO SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONF~~

PRIORITY: C
DRAWING TITLE: SHIELD INSTL- DIS LH AFT INTERSTAGE THERMAL
DRAWING NO.: LDW280-28649
EO NO.: A8

CDR 11/17/67
ISSUED BY E. ROESSLER / P. THORJUSEN X1153 SECTION V.D.I GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28651 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28553	LTA-8(18	1
PART NO. LDW-280-28651-5		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51553	LEM-1(31)	1
↑	52553	LEM-2(32)	1
	52553	LEM-3(33)	1
	54553	LEM-4(34)	1
↓	54553	LEM-5(35)	1
LEM	LDW280-54553	LEM-6(36)	1
PART NO. LDW280-28651-7		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED C-C

LAST DASH NO. USED -11

GRUMMAN REL INFO

PRIM NO. 207 | JK(001) MP-A | 9-236 | EMF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/4 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM 1

DOCUMENTATION TYPE II

DRAWN BY	R. J. DICK	MAT'LS	
LAYOUT BY		THERMO	M. Jam 10/21/66
CHECKED BY			
GP LDR	7/21/66		
V.D.I.	7/22		
STRUCT	W/H 7/23/66	PROJ ENGR	
STRUCT	7/23	REL GROUP	7/26/66
WEIGHTS	7-30		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOOR INSTALLATION ~ DES. STAGE QUAD III, DECA, GOX MOD, & FUEL VENT ACCESS ~ THERMAL

SIZE	CODE IDENT NO.		
B	26512	LDW280-28651	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

SUPERSEDES LDW280-28651 N/C 8-8-66

01 NAS 9-1100

LDW280-28651 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA-8(8)	1

PART NO. LDW280-28651-5

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54553	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
	LDW280-54554	LM-4(34)	1
	LDW280-53553	LM-3(33)	1
	LDW280-52553	LM-2(32)	1
LM	LDW280-51553	LM-1(31)	1

PART NO. LDW280-28651-7
GAEC SCH NO. 52

WORK PKG FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH										
SHEET	1.00	1.10	2.00	3.00						
REV	B	B	B	B						
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED C-C
LAST DASH NO. USED -7
GRUMMAN REL INFO B
PRIM NO. 207 JK(001) mP-14-B-2-23-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/4 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	R.J. DICK		
LAYOUT BY		THERMO	W. TAWIL 10/21/66
CHECKED BY			
GR LDR	J. STRAKOSCH 7/21/66		
VEH DESIGN	W. BISCHOFF 7/22/66		
STRUCT	W. HAUCK	PROJ ENGR	R. CARBEE 8-8-66
STRUCT	R. HILDERMAN 7/23/66	REL GROUP	J. TAGLIAVIA 10/28/66
WEIGHTS	D. ROBESCH 7/30/66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOOR INSTL. DESCENT STAGE DECA, GOX MOD. & FUEL VENT ACCESS - THERMAL

SIZE B
CODE IDENT NO. 26512
LDW280-28651 B
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDES LDW280-28651 "A" 10-25-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
								RETRACED	NO CHANGE, LAST REVISION "A" P.COMO 2-13-67						
B	1	1.00 1.10 2.00	3A 3B					EO B1	IN FLD & BM-9 & -11 BLANKET ASSY WAS BLANKET INSTL. FOR -11 LDW280P17594-7 WAS-3 & FOR-9 LDW 280P17594-9 WAS-5 IN B/M FOR ALL GRUMMAN STD PARTS GT15C-5, GT535B-2-1.00, GW11H-3 & GE11B-1 REMOVED QUANTITIES & ADDED "AS REQD"	LTA-8 LM-1 THRU LM-6	✓		P. COMO 2-13-67 EG		
	2	1.00 1.10						EO B2 Ⓡ	REVISED -7 MOD/BLK LM-3 (33) N/A LDW280-53553 WAS LDW 280-52553 & ADDED LM-7 (37) THRU LM-15(45) N/A LD280-54553 1 REQD/MOD N.Y.	LM-3 LM-7 THRU LM-15	NOT REQD				

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIAB
B						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28651	B
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01 NAS 9-1100

C.L.	-11	-9	-7	-5	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			AS REQD		GT15C-3	E		TAPE							
			AS REQD	AS REQD	GT535B-2-1.00	↓		TAPE							
	AS REQD	AS REQD	AS REQD	AS REQD	GW11H-3	↓		WASHER							C6
	AS REQD	AS REQD	AS REQD	AS REQD	GR11B-1	↓		RETAINER							C6
		1			LDW280P17594-9	↓		BLANKET	SEE DWG						3B
	1				LDW280P17594-7	↓		BLANKET	SEE DWG						3B
			1		LDW280-28770-3	↓		SHIELD ASSY	SEE DWG						4B
						↓									
						↓									
C			1		LDW280-28651-11	↓		BLANKET ASSY					NONE	NONE	3A
C				1	-9	↓		BLANKET ASSY					↓	↓	3A
C					-7	↓		SHIELD INSTL					↓	↓	6A
C					LDW280-28651-5	E		SHIELD INSTL					NONE	NONE	6A

QTY PER ASSEMBLY

CL. CLEANLINESS LEVEL PER LSP 14-0011

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

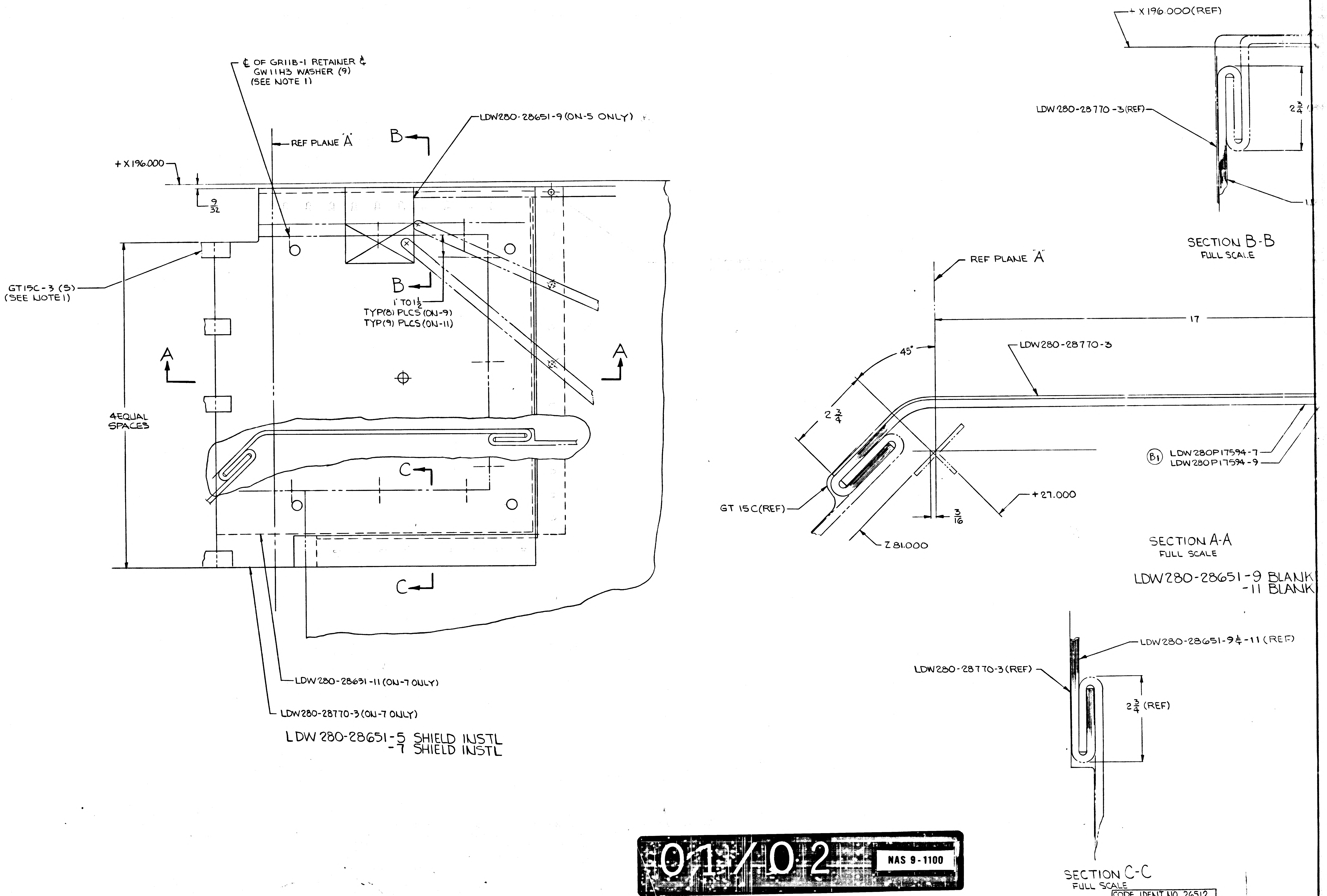
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28651	B
SCALE NONE			SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100



℄ OF GR11B-1 RETAINER & GW11H3 WASHER (9) (SEE NOTE 1)
LDW280-28651-9 (ON-5 ONLY)
REF PLANE "A"
B
+X196.000
9/32
GT15C-3 (5) (SEE NOTE 1)
1" TO 1½ TYP(8) PLCS (ON-9) TYP(9) PLCS (ON-11)
A
4 EQUAL SPACES
C
LDW280-28631-11 (ON-7 ONLY)
LDW280-28770-3 (ON-7 ONLY)
+X196.000 (REF)
LDW280-28770-3 (REF)
2¾
SECTION B-B
FULL SCALE
REF PLANE "A"
17
45°
LDW280-28770-3
2¾
B1
LDW280P17594-7
LDW280P17594-9
GT 15C (REF)
+27.000
3/16
Z81.000
SECTION A-A
FULL SCALE
LDW280-28651-9 & -11 (REF)
LDW280-28770-3 (REF)
2¾ (REF)
SECTION C-C
FULL SCALE

LDW 280-28651-5 SHIELD INSTL
-7 SHIELD INSTL

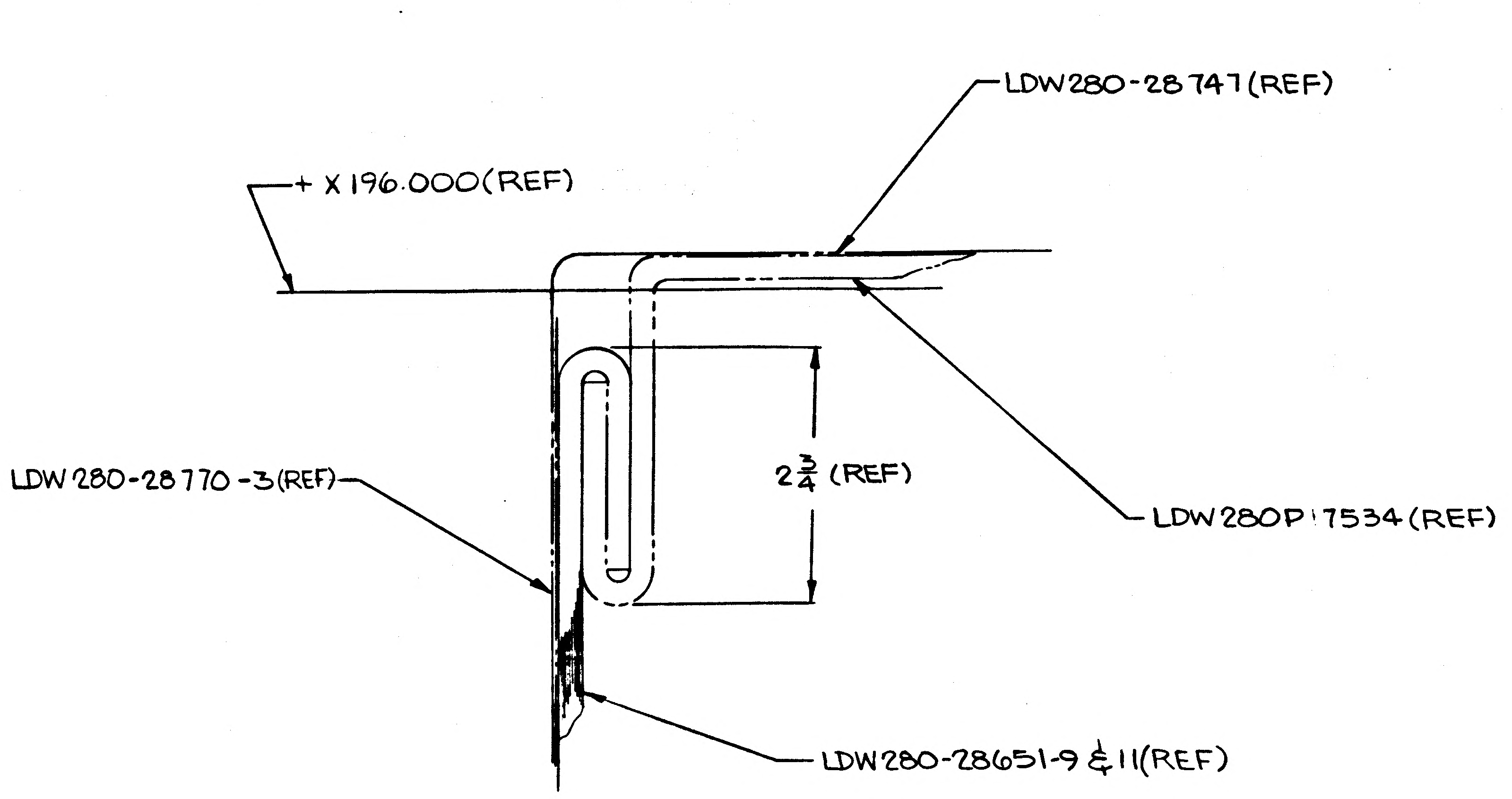
LDW280-28651-9 BLANK
-11 BLANK

01/02 NAS 9-1100

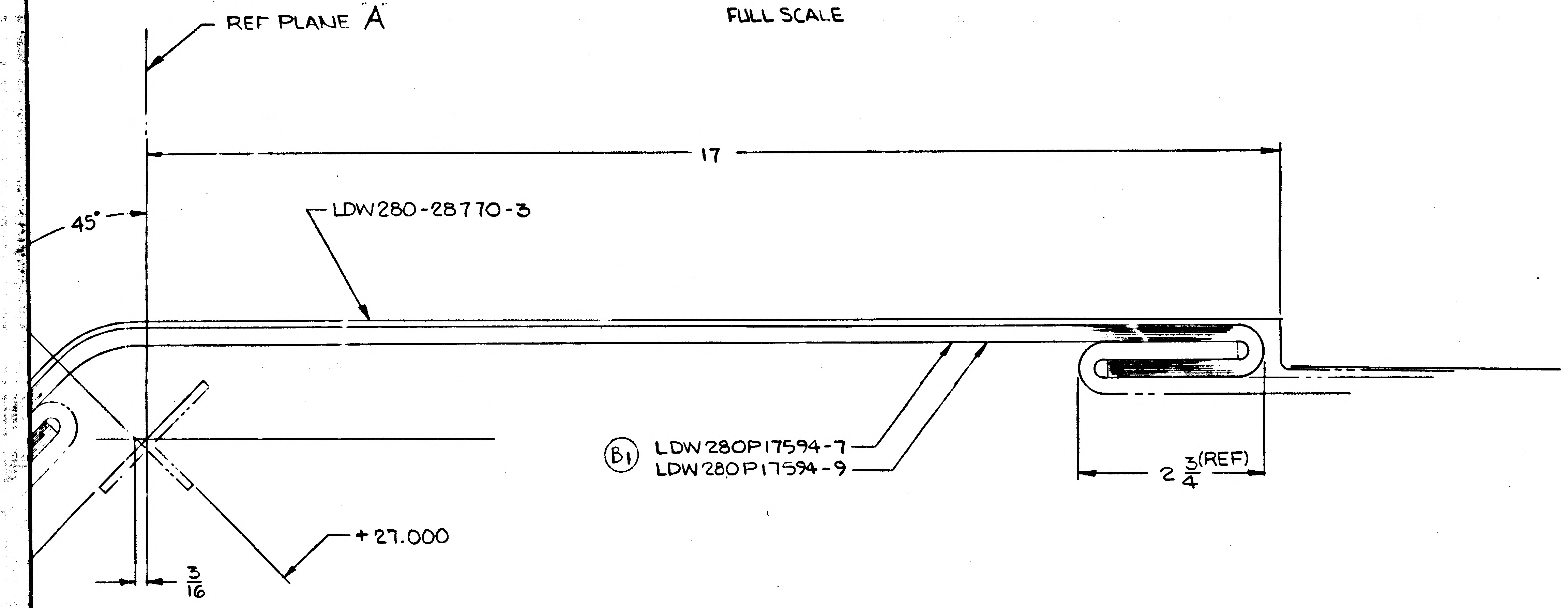
CODE IDENT NO. 26512	
LDW280-28651	SH 3

4 3 2 1

NOTES:
1. TAPE, RETAINERS AND WASHERS TO BE INSTALLED PER LPC 280-3

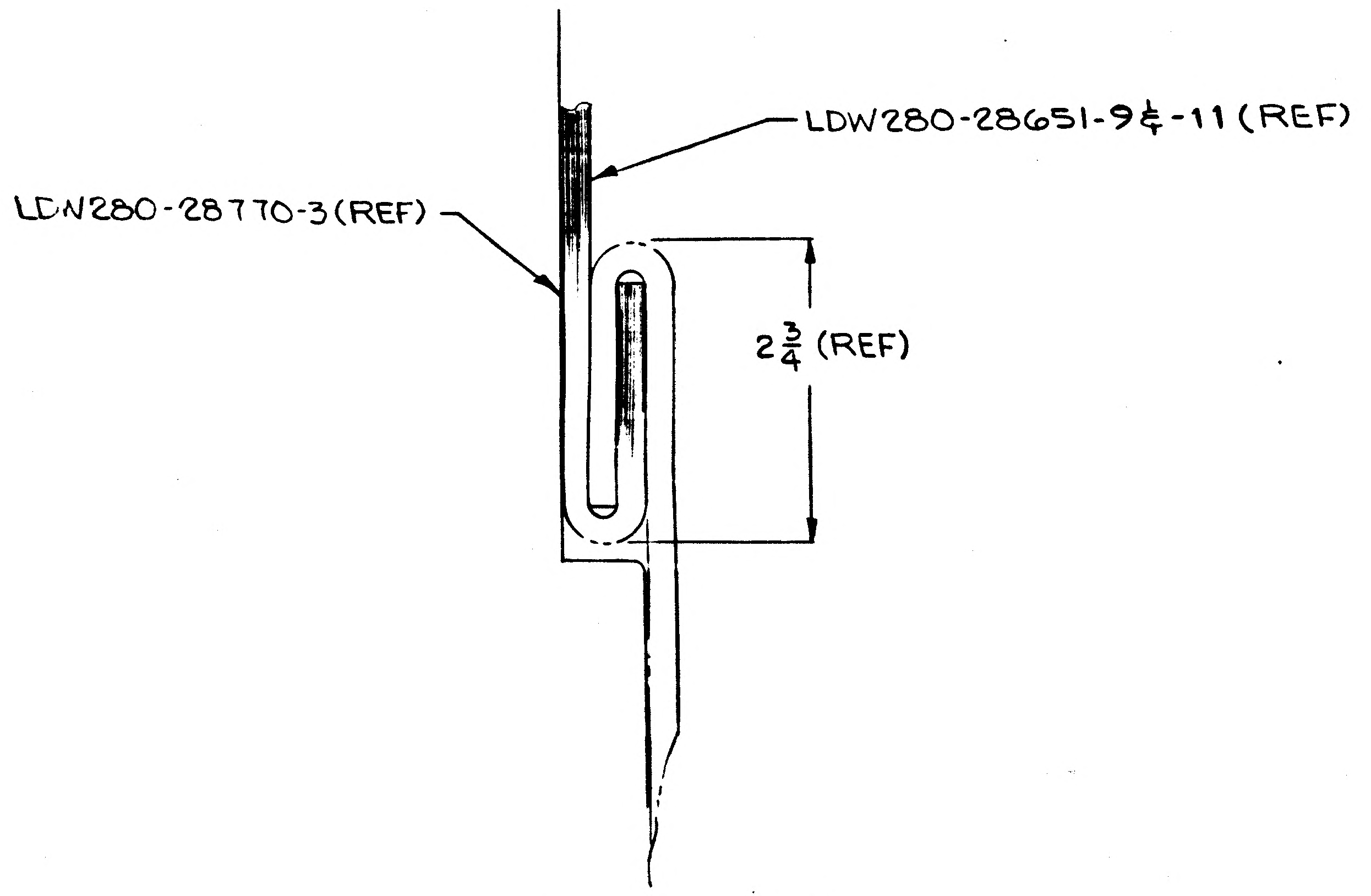

LDW280-28747 (REF)
+ X 196.000 (REF)
$2\frac{3}{4}$ (REF)
LDW280-28770-3 (REF)
LDW280P17534 (REF)
LDW280-28651-9 & 11 (REF)

SECTION B-B
FULL SCALE


REF PLANE 'A'
17
45°
LDW280-28770-3
(B1) LDW280P17594-7
LDW280P17594-9
$2\frac{3}{4}$ (REF)
+ 27.000
$\frac{3}{16}$
Z 81.000

SECTION A-A
FULL SCALE

LDW280-28651-9 BLANKET ASSY
-11 BLANKET ASSY (B1)


LDW280-28651-9 & -11 (REF)
LDW280-28770-3 (REF)
$2\frac{3}{4}$ (REF)

SECTION C-C
FULL SCALE

CODE IDENT NO. 26512	
LDW280-28651	SH 3

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 77

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 77) - 19 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) - 4.7 SQ. FT.

PRINT TRIM LINE

C

B

LDW280-28651 B

A

LDW280-28651 B

02/02 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28651	B
MODEL OR END ITEM	SCALE 1/2 & NOTED		SHEET 3.00	

2 FRAMES

4 3 2 1

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28651 EO NO. B1
CONTROL INFO NO. LDW280A-0916

IN F/D & B/M -9 & -11 BLANKET ASSY WAS BLANKET INSTL.
FOR -11 REMOVE LDW280P17594-3 / ADD LDW280P17594-7
FOR -9 REMOVE LDW280P17594-5 ADD LDW280P17594-9
IN B/M FOR ALL GRUMMAN STD. GT15C-5 TAPE, GT535B-2-1.00 TAPE, GW11H-3 WASHER & GR11B-1 RETAINER REMOVE QUANTITIES & ADD 'AS REQ'D."

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ ✓

REASON FOR EO: ADDITIONAL EXPANSION REQUIREMENTS.

DESCRIPTION OF EO: IN F/D & B/M -9 & -11 BLANKET ASS'Y WAS BLANKET INSTL., FOR -11 LDW280P17594-7 WAS -3 & FOR -9 LDW280P17594-9 WAS -5 IN B/M FOR ALL GRUMMAN STD PARTS GT15C-5, GT535B-2-1.00, GW11H-3 & GR11B-1 REMOVED QUANTITIES & ADDED "AS REQ'D."

GAEC EO RELEASE: (B) LE 10-8

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8(18) LM-1(31)	THRU LM6(36)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY / DATE								
✓		✓	✓		10/3/66	10-13-66			10/4/66		RWC 10-8	10/7/66
REVISE DWG	RECORD EO	REWORK	SCRAP		VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: DOOR INSTL D/S QUAD III DECA GOX. MOD & FUEL VENT ACCESS~THERMAL
DRAWING NO.: LDW280-28651
EO NO.: B1

ISSUED BY P. WEISSLITZ/J. STRAKOSCH X1153 SECTION VD1 GROUP NO. 335 PL 35
EMF

01

NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28651 | EO NO. B2
CONTROL INFO NO. LDW280A 4998

IN -7 MOD/BLK, N/A FOR LM-3(33) LDW280-52553 S/B LDW280 -53553 & ADD LM-7(37) THRU LM-15(45) N/A LDW280-54553 1 REQD/MOD.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: TO CORRECT LM 3 N/A & ADD LM 7 THRU LM 15 REQMTS

DESCRIPTION OF EO: REVISED -7 MOD/BLK LM-3(33) N/A LDW280-53553 WAS LDW280-52553 & ADDED LM-7(37) THRU LM-15(45) N/A LDW280-54553 1 REQD/MOD

GAEC EO RELEASE: C 1/19/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	LM-7 (37) THRU LM-15(45)		
LM	LM-3 (33)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

APPROVED BY			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	1/16/67				1/16/67	1/17/67		1/18/67	1/19/67
	6	VDI							

PRIORITY: C
DRAWING TITLE: DOOR INSTALLATION-DES-STAGE QUAD III, DECA, GOX MOD, & FUEL VENT ACCESS-THERMAL
DRAWING NO.: LDW280-28651
EO NO.: B2

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *EMF - A*

DWG. NO. LDW280-28651		EO NO. C1
CONTROL INFO NO. LDW280A-5492		

FOR-7 REMOVE LM-2(32) THRU LM-15(45) EFF
ADD -13 SHIELD INSTL IDENT TO -7 EXCEPT LDW280-28770-5
SHIELD ASSY REPLACES LDW280-28770-3
EFF FOR -13 LM-2(32) THRU LM-15(45) 1 REQD
N/A FOR- 13 LDW280-52553
-53553
-54553

(2)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
LCR-928 IMPROVE PAINT ADHESION	FOR-7 REMOVED LM-2(32) THRU LM-15(45) EFF ADDED -13	C CE 2/27/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32) THRU	LM-15(45)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	Jap			—	W/JH			
DATE	2/24/67			—	2/24/67		2/25/67	2-27-67
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DOOR INSTL DES STAGE QUAD III DECA, GOX & FUEL VENT ACCESS	LDW280-28651	C1

ISSUED BY G. ZEMAN/ J. STRACHOSCH SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28651
EO NO. C2
CONTROL INFO NO. LDW280A5838

REMOVE -7 INSTL
ON-13 ADD LH-1 (31) REQMTS, N/A LDW 280-51553
1 REQ'D/MODULE.

-13 MAY BE MADE BY REWORKING -7

(5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	LCR-928

REASON FOR EO: IMPROVE PAINT ADHESION
LCR 928

DESCRIPTION OF EO: REMOVED -7 INSTL
ON-13 ADDED LH-1 (31) REQMTS.

GAEC EO RELEASE: C/C LE 3/14/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY									
DATE	3/7/67			3/7/67	3/[illegible]/67		3-14-67	3/14/67	
5	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY: C
DRAWING TITLE: DOOR INSTL ~ D.S. ~ QUAD III, DECA, GOX MOD & FUEL VENT ACCESS
DRAWING NO.: LDW280-28651
EO NO.: C2

ISSUED BY Gus HANSMANN X1153 SECTION V.D.I. GROUP NO. 280 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 28651
EO NO. C3
CONTROL INFO NO. LDW280 B 2766

RESTRICT - 13 INSTL FOR USE ON LM-1(31) & LM-2(32)

IN FIELD & B/M ADD - 15 INSTL IDENTICAL TO
-13 INSTL EXCEPT THAT LDW280-28770-7 SHIELD ASSY
REPLACES LDW280-28770-5 SHIELD ASSY
EFF -15 INSTL LM-3 (33)
N/A LDW 280-53553 1 REQ.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCR 2360 A. PKG 18 (5)

REASON FOR EO: PLUME HEATING PROTECTION

DESCRIPTION OF EO: RESTRICTED - 13, EFF WAS LM-1 (31) THRU LM-15 (45)
ADDED - 15.

GAEC EO RELEASE: C VK 4/12/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		J	

APPROVED BY								
DATE	4/2/68	4/3/68		4-1-68	4/3/68		4/3/68	4-12-68
P	VDI	THERMO ~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY: C
DRAWING TITLE: SHIELD INSTL ~ D/S QUAD II LIQUID OXYGEN ACCESS
DRAWING NO.: LDW280-28651
EO NO.: C3

G2.
ISSUED BY F. LANZARO / P. THORNUSEN SECTION VDI GROUP NO. 335 PL 25
CDR 040568

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28651 | EO NO. C4
CONTROL INFO NO. LDW280B3063

CREATE -17 SHIELD INSTL IDENTICAL TO -15 SHIELD INSTL EXCEPT -19 BLANKET ASSY REPLACES -11 BLANKET ASSY

-19 IDENTICAL TO -11 EXCEPT LDW280P17594-23 REPLACES LDW280P17594-7

FOR -17, N/A LDW 280-53553 1EA

ADD NOTE * (USE NEXT AVAILABLE NOTE NUMBER)
THIS DWG AFFECTED BY LFM-155 WHICH MAY BE USED ON LM-3(33).

LFM

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ LCD 2899 PKG 1 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PLUME IMPINGEMENT PROTECTION SEVEN SECOND DOCKING	ADDED -17 & -19, & NOTE *	C 4/25/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 155	LM-3 (33)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK / SCRAP: NOT R'Q'D

APPROVED BY	VDI	THERMAL SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	4/19/68	4/22/68		4/19/68	4/22/68		4/22/68	4-25-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DOOR INSTL D/S-DECA, GOX MOD & FUEL VENT ACCESS - THERMAL	LDW280-28651	C4

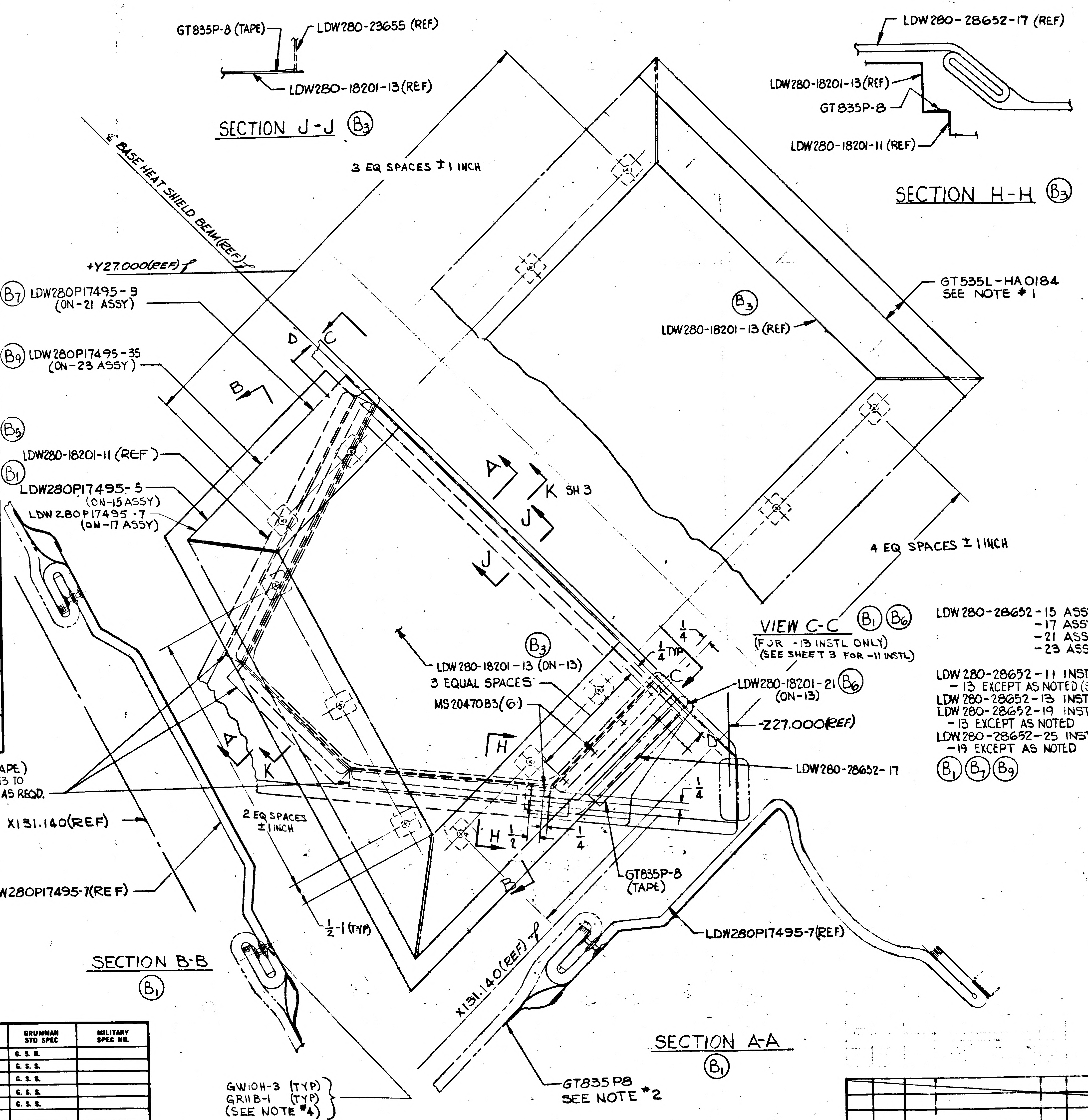
042668
ISSUED BY D.SHAPIRO/P.THORTUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

MANUFACTURING OPERATIONS

NOTES CHECKED ✓ APPLY TO THIS DWG.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES EXCEPT AS NOTED.	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031 EXCEPT AS NOTED.	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10 EXCEPT AS NOTED.	
250 FOR ALL DRILLED HOLES UNLESS OTHERWISE SPECIFIED.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	



GT835P-8 (TAPE)
LDW280-23655 (REF)
LDW280-18201-13 (REF)
SECTION J-J (B3)
BASE HEAT SHIELD BEAM (REF)
3 EQ SPACES ± 1 INCH
+Y27.000 (REF)
(B7) LDW280P17495-9 (ON-21 ASSY)
(B9) LDW280P17495-35 (ON-23 ASSY)
(B5)
LDW280-18201-11 (REF)
(B1) LDW280P17495-5 (ON-15 ASSY)
LDW280P17495-7 (ON-17 ASSY)
(B3) GT835P-8 (TAPE) TAPE LDW280-18201-13 TO LDW280-18201-11 (REF) AS REQD.
X131.140 (REF)
LDW280P17495-7 (REF)
SECTION B-B (B1)
LDW280-28652-17 (REF)
LDW280-18201-13 (REF)
GT835P-8
LDW280-18201-11 (REF)
SECTION H-H (B3)
GT535L-HA0184 SEE NOTE #1
(B3)
LDW280-18201-13 (REF)
D
C
B
A
K SH 3
J
4 EQ SPACES ± 1 INCH
VIEW C-C (B1) (B6) (FOR -13 INSTL ONLY) (SEE SHEET 3 FOR -11 INSTL)
1/4
1/4 TYP
(B3) LDW280-18201-13 (ON-13)
3 EQUAL SPACES
MS20470B3 (6)
LDW280-18201-21 (B6) (ON-13)
-Z27.000 (REF)
H
LDW280-28652-17
1/4
2 EQ SPACES ± 1 INCH
1/2
1/4
GT835P8 (TAPE)
1/2-1 (TYP)
LDW280P17495-7 (REF)
X131.140 (REF)
GW10H-3 (TYP)
GR11B-1 (TYP)
(SEE NOTE #4)
GT835P8 SEE NOTE #2
SECTION A-A (B1)

LDW280-28652-15 ASSY (ON-11)
-17 ASSY (ON-13)
-21 ASSY (ON-19)
-23 ASSY (ON-25)

LDW280-28652-11 INSTL IDENTICAL TO -13 EXCEPT AS NOTED (SEE SHEET 3)
LDW280-28652-13 INST'L (SHOWN)
LDW280-28652-19 INST'L IDENTICAL TO -13 EXCEPT AS NOTED
LDW280-28652-25 INST'L IDENTICAL TO -19 EXCEPT AS NOTED
(B1) (B7) (B9)

REVISIONS

REVISION LETTER	ITEM NO.	ZONE	AUTHORITY FOR REVISION: GRUMMAN INFO ONLY DCRF OR ECP	CLASS II	CLASS I	DET SPEC REQ	ENGRG ORDER	DESCRIPTION	REVISED BY AND DATE	EFFECTIVE ON MODULE NUMBER	DISPOSITION OF EXIST PARTS: RE-WORK	SCRAP	ENGRG APPD	GOVT APPD
A								ADDED NOTE 4 & -3 INST'L REVISED BLANKET FOLDS ADDED SHEETS #2 & 3 ADDED GR11B-1 RETAINERS & GW10H-3 WASHER PER LPC 280-3 ADDED: LDW280P17495-3 ASSY, LDW280-28808-3 ASSY, LDW280P18106-1 ASSY ADDED -9 ASSY	V.A. CHRISTINA 8/9/66	LTA-8 LEM 1-6	✓			
B	1			✓			EOB1	REMOVED LDW280P17495-1 & -3 ASSY. ADDED LDW280P17495-5 & -7 ASSY. REMOVED -1, -3, -5, -7 REPLACED WITH -11, -13, -15 & -17	F. DUCI 12-15-67	LTA-8 (18) LM-1 (31) THRU LM-6 (36)		✓		
	2						EOB2	ON -19 ASSY LDW280P18106-11 WAS LDW280P18106-1		LTA-8 (18)	✓			
	3			✓			EOB3	ADDED LDW280-18201-13 (1 REQD/MOD) & GT835P-8 TAPE TO LDW280-28652-13 INSTL ADDED SECTS H-H & J-J		LM-1 (31) THRU LM-15 (45)	NOT	REQ'D		
	4						EOB4	REF: EOB2 -19 S/B -9		NOT REQD	NOT	REQD		
	5						EOB5	IN F/D & L/M FOR -15 & -17 REMOVED LDW280-28808-1 & -3 SKIN ASSY.		LTA-8 (18) LM-1 (31) THRU LM-6 (36)	✓			
	6						EOB6	ON -13 INSTL ADDED LDW280-18201-21 (1 REQD) MS20470B3 & GT835P-8 AS REQD.		LM-1 (31) THRU LM-15 (45)	✓			
	7						EOB7	ADDED -19 & -21 SECTION K-K & DETAIL L ON -13 REMOVED LM-2 (32) THRU LM-6 (36) REQMTS.		LM-2 (32) THRU LM-15 (45)	✓			
	8						LEO280-476	FOR -13 & -25 ADDED LM-7 THRU LM-15 EFF.		LM-7 (37) THRU LM-15 (45)	NOT	REQD.		
	9		P		✓		EOB9 LCD 2360	FOR -19 REMOVED EFFECTIVITY LM-3 THRU LM-15. ADDED -23 & -25		LM-3 (33) THRU LM-15 (45)		-19		
	10			✓			LEO280-820	REVISED NOTE 1 SAGE (OR STAGE) GREEN SIZE "E" ETC. S/B TEFLON GLASMO TEE, P5040 & ASTROQUARTZ.	B. REYES 12-21-67	LM-2 THRU LM-15	✓			
	11			✓			Ⓑ	REF EOB3 & EOB6 EFF LM-1 THRU LM-15 S/B LM-1 THRU LM-6	F. DUCI 12-28-67	LM-1 (31) THRU LM-6 (36)	NOT	REQD		

NOTES:

1. SEW TAPE GT535L AT 3/16 ± 1/16 FROM EDGE OF TAPE IN ACCORDANCE WITH FEDERAL STANDARD 751a & STITCH TYPE 301 THREAD TO BE TEFLON GLASMO TEE F-E24 THREAD, MAY BE PURCHASED FROM BELDING CORTICELLI CO. INC., 1407 BWAY, NEW YORK, N.Y., 10018. CODE IDENT. NO. 94448, AS AN ALTERNATE ASTROQUARTZ RQ754-12 THREAD, MAY BE PURCHASED FROM DODGE FIBERS CORP. P.O. BOX 124, HOOSICK FALLS, N.Y. CODE IDENT. NO. 05712, OR P5040-3 THREAD, MAY BE PURCHASED FROM OWENS-CORNING FIBERGLASS CORP, TOLEDO, OHIO, CODE IDENT NO. 45255. THIS THREAD MAY BE USED FOR ALL REPLACEMENT & SPARES.
2. TACK TAPE TOP LAYER OF LDW280-28808-1, -3 DOWN TO THE TOP LAYER OF POLYIMIDE FILM AT 4 TO 6 INCH PITCH USING 2 TO 4 INCH STRIPS OF GT835P8 TAPE.
3. ALL INFORMATION NOT REQUIRED TO MANUFACTURE LDW280-28652-11 & -13 FOR REF ONLY
4. INSTL OF BLANKET TO BE DONE IN ACCORDANCE WITH LPC 280-3

LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT

NO.	FINISHES	GRUMMAN STD SPEC	MILITARY SPEC NO.
2	CADMIUM PLATE	G. S. S.	
10	ZINC CHROMATE PRIMER	G. S. S.	
15	TINTED PRIMER: 1 COAT	G. S. S.	
76	ALODINE	G. S. S.	
88	ANODIZE	G. S. S.	

SYM	PROCESSES	GRUMMAN STD SPEC	MILITARY SPEC NO.
	AL HEAT TREAT		MIL-H-6088
	MAGNAFLUX		MIL-I-6868
	PENETRANT INSPECTION (ZYGLO)		MIL-I-6866
	THREADING		MIL-S-7742
	STEEL HEAT TREAT PSI ROCKWELL C TO C		

ENG. 603

QTY REQ D PER ASSY	PART OR IDENTIFYING NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE (EA)	PROCESS SYMBOL	FINISH NO.	UNIT WT	ZONE

MODEL	NEXT ASSY	MODULE NO.	REQ D PER MODULE
LEM	LDW280-54553	LM-4 (34) THRU LM-15 (45)	1 EA
LEM	LDW280-53553	LM-3 (33)	1
PART NO.	LDW280-28652-25	GRUMMAN SCH INFO	
LEM	LDW280-52553	LM-2 (32)	1
PART NO.	LDW280-28652-19	GRUMMAN SCH INFO	

MODEL	NEXT ASSY	MODULE NO.	REQ D PER MODULE
LEM	LDW280-54553	LEM-15 (45) THRU	1
	LDW280-54553	LEM-7 (37)	
LEM	LDW280-51553	LEM-1 (31)	1
PART NO.	LDW280-28652-13	GRUMMAN SCH INFO	

MODEL	NEXT ASSY	MODULE NO.	REQ D PER MODULE
LEM	LDW280-28553	LTA-8 (18)	1
PART NO.	LDW280-28652-11	GRUMMAN SCH INFO 52	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
± 1/4 ± .200 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE
GRUMMAN REL INFO
PRIM. NO. 207

DRAWN BY	R CLARK	
CHECKED BY		
LAYOUT BY		
GRP LEADER		
VEH DES INT		
STRUCTURES		
WEIGHTS		
THERMO		
RELIABILITY		
PROJECT	R. M. Carbee	8-3

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., N. Y.

SHIELD INSTL

DS QUAD III LOWER FILL & DRAIN ACCESS THERMAL

CONTRACT NO. NAS9-1100 DOCUMENTATION TYPE II

CODE IDENT NO. 26512 SIZE F LDW280-28652 B

SCALE HALF SIZE SHEET 1 OF 3

LINE ITEM I

01 NAS 9-1100

CL	-25	-23	-21	-19	-17	-15	-13	-11	-9	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
										MS20470B3	E		RIVET	STD PART						
					A/R	A/R			A/R	GW10H-3	E		WASHER	GRUMMAN STD						
					A/R	A/R			A/R	GR11B-1	E		RETAINER	GRUMMAN STD						
					A/R	A/R	A/R	A/R	A/R	GT835P-8	E		TAPE (POLYIMIDE)	GRUMMAN STD						
					1	1				GT535L-HA0184	E		TAPE	GRUMMAN STD						
									1	LDW280P18106-11	E		BLANKET BOOT	SEE DWG						
		1								LDW280P17495-35	E		BLANKET ASSY	SEE DWG						
			1							LDW280P17495-9	E		BLANKET ASSY							
					1					LDW280P17495-7	E		BLANKET ASSY							
						1				LDW280P17495-5	E		BLANKET ASSY							
							1			LDW280-18201-21	E		PLATE							
							1			LDW280-18201-13	E		COVER	SEE DWG						
C										LDW280-28652-25	E		BLANKET ASSY							
C	1									LDW280-28652-23	E		BLANKET ASSY							
C				1						LDW280-28652-21	E		BLANKET ASSY							
C										LDW280-28652-19	E		SHIELD INST'L							
C							1			LDW280-28652-17	E		BLANKET ASSY							
C								1		LDW280-28652-15	E		BLANKET ASSY							
C										LDW280-28652-13	E		SHIELD INST'L							
C										LDW280-28652-11	E		SHIELD INST'L							
C								1		LDW280-28652-9	E		BOOT ASSY							

QTY PER ASSEMBLY

CL = CLEANLINESS LEVEL PER LSP 14-0011

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

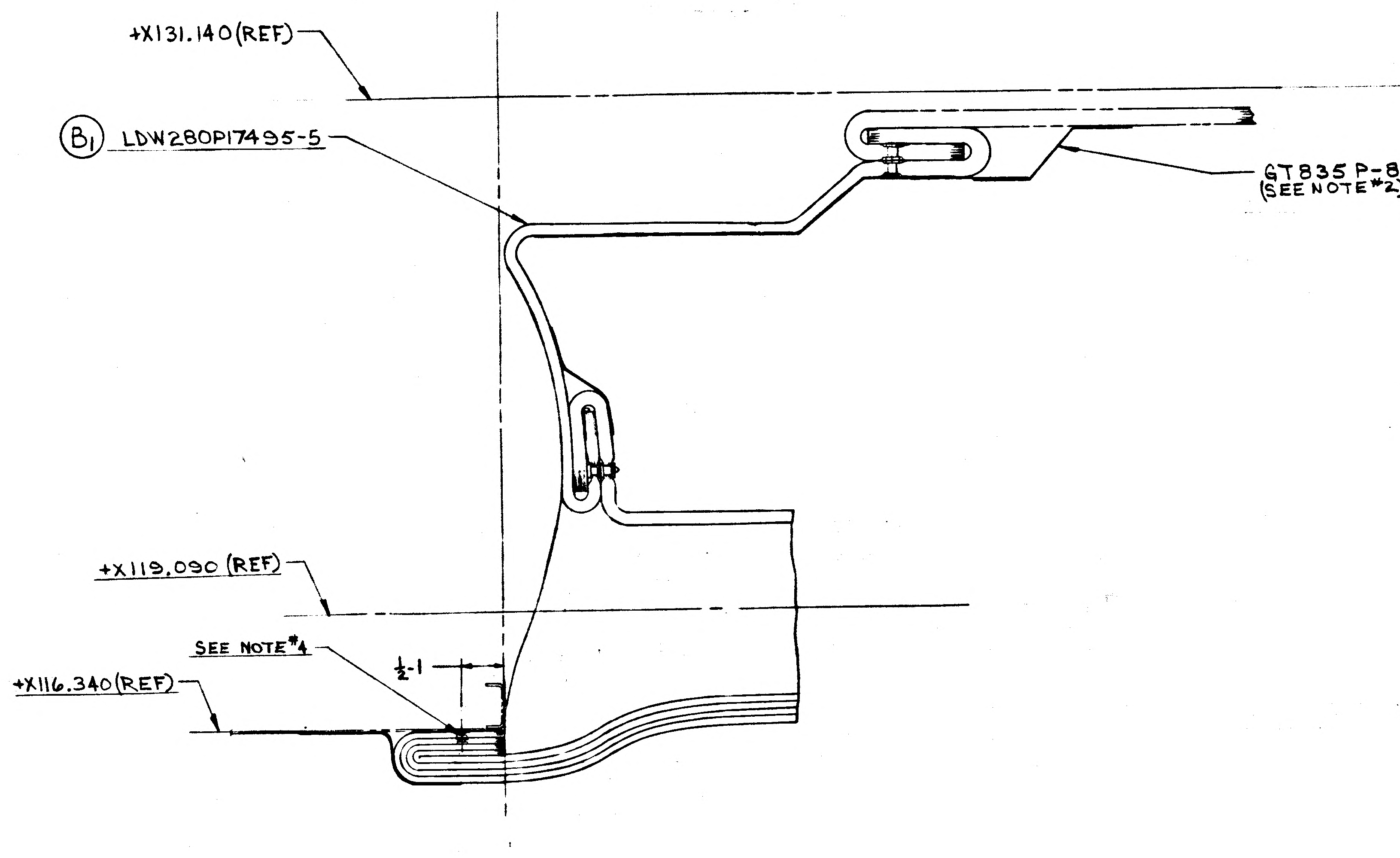
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28652	B
SCALE NONE			SHEET 2.00

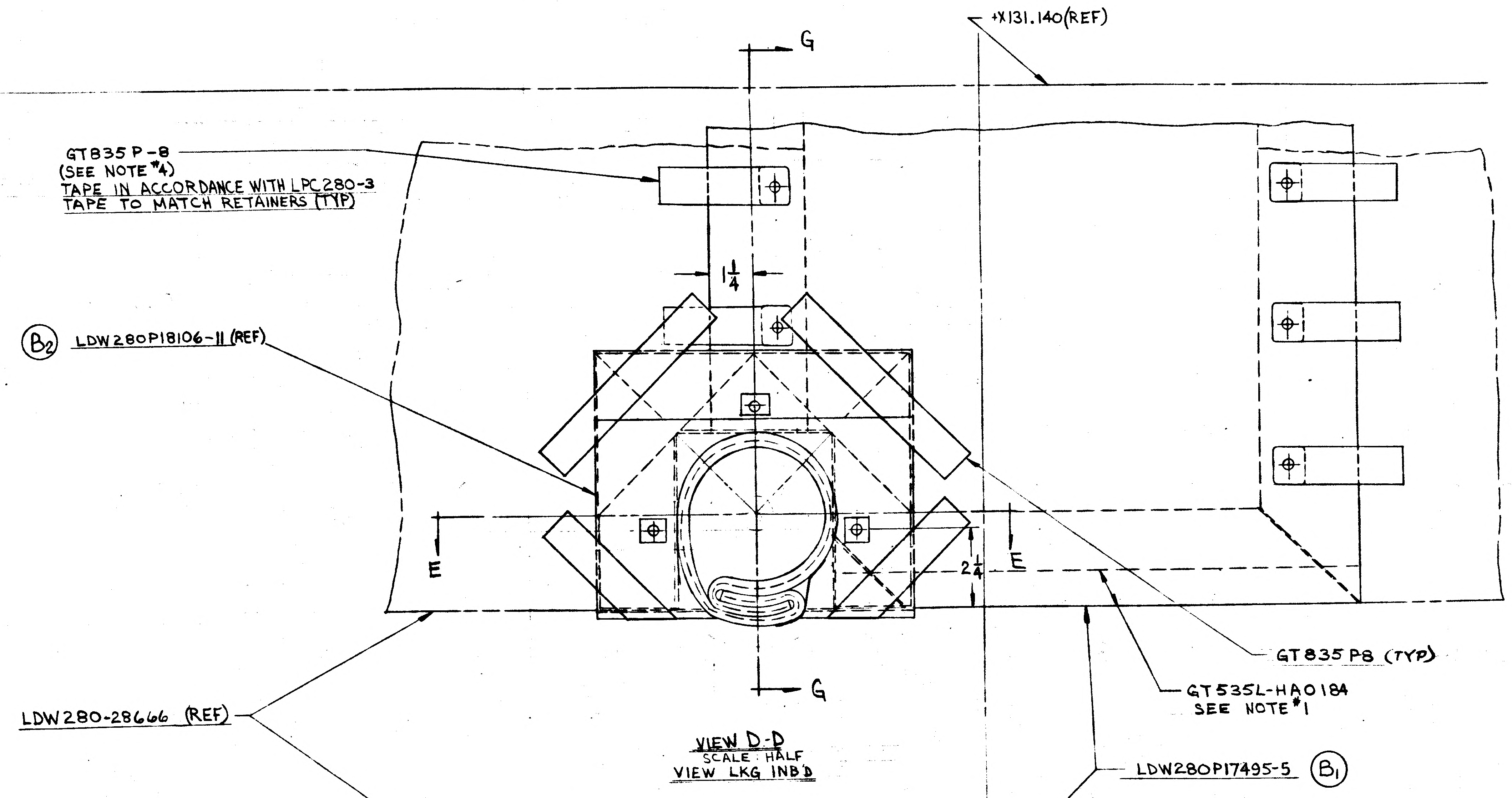
ENG 77.2 5-64

01

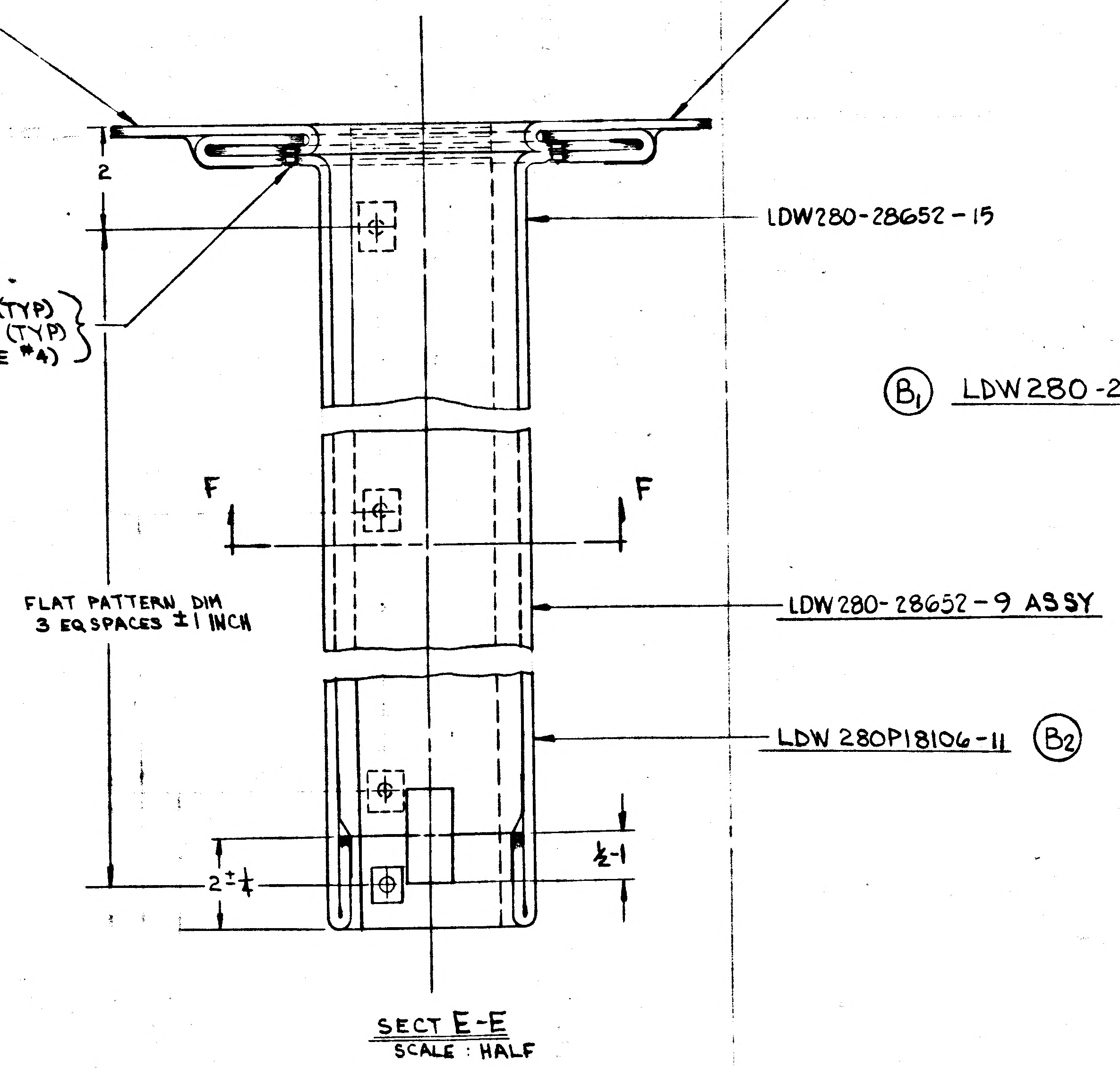
NAS 9-1100


+X131.140 (REF)
(B1) LDW280P17495-5
GT835 P-8 (SEE NOTE #2)
+X119.090 (REF)
SEE NOTE #4
1/2-1
+X116.340 (REF)

SECT G-G
SCALE : HALF

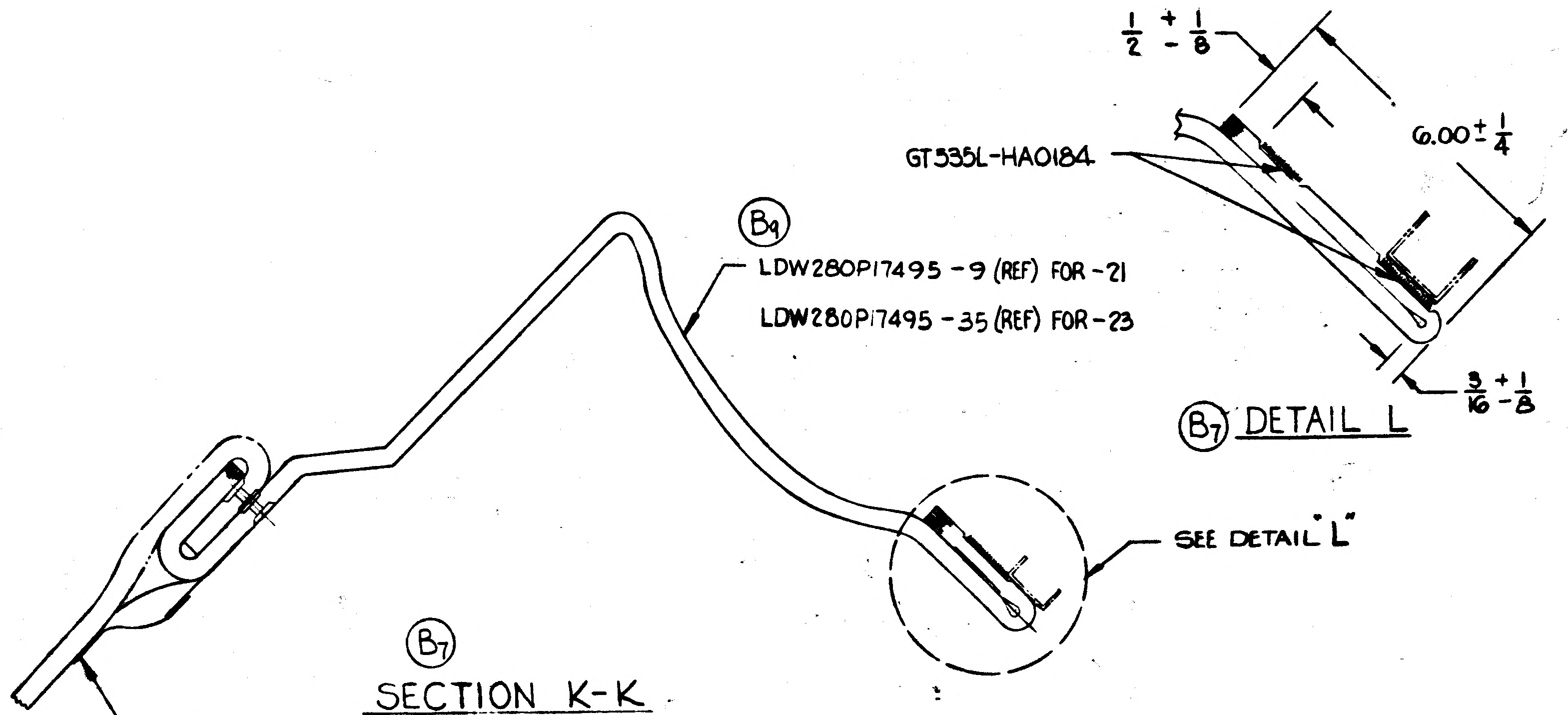

G
+X131.140 (REF)
GT835 P-8
(SEE NOTE #4)
TAPE IN ACCORDANCE WITH LPC 280-3
TAPE TO MATCH RETAINERS (TYP)
1 1/4
(B2) LDW280P18106-11 (REF)
E
2 1/4
E
G
GT835 P8 (TYP)
GT535L-HA0184
SEE NOTE #1

VIEW D-D
SCALE: HALF
VIEW LKG INBD


LDW280-28666 (REF)
LDW280P17495-5 (B1)
2
LDW280-28652-15
GR118-1 (TYP)
GW10H-3 (TYP)
(SEE NOTE #4)
F
F
FLAT PATTERN DIM
3 EQ SPACES ±1 INCH
LDW280-28652-9 ASSY
LDW 280P18106-11 (B2)
2 ± 1/4
1/2-1

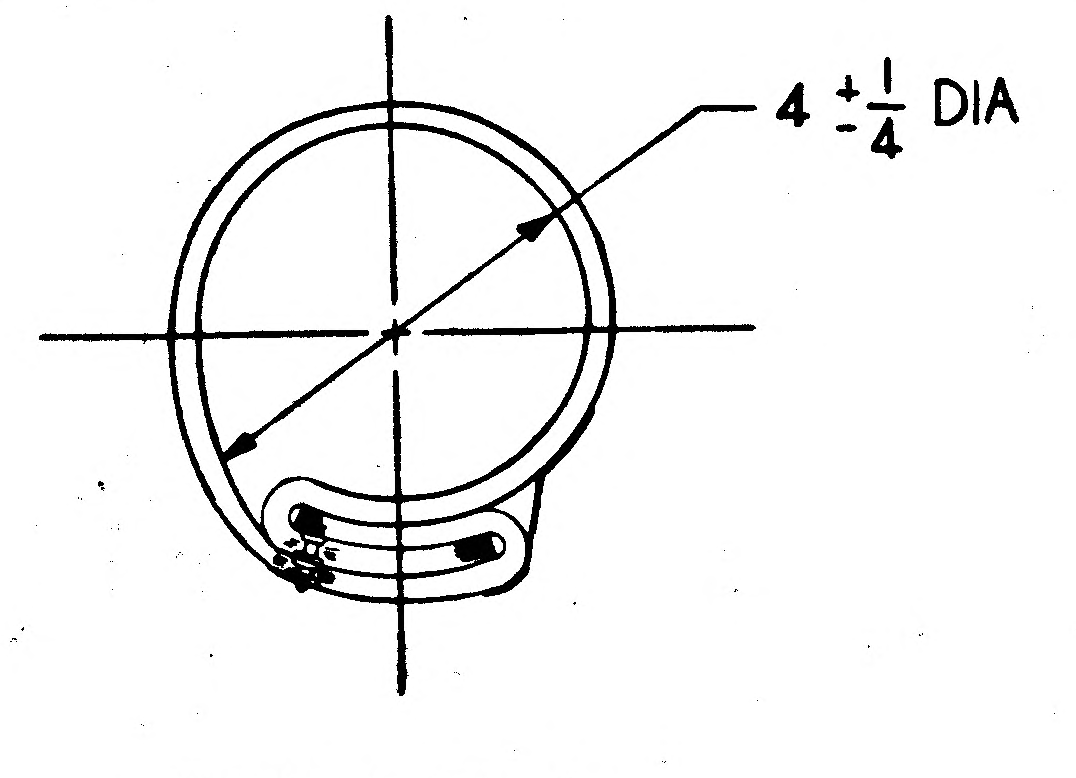
SECT E-E
SCALE : HALF

(B1) LDW280-28652-11 INSTL (REF)

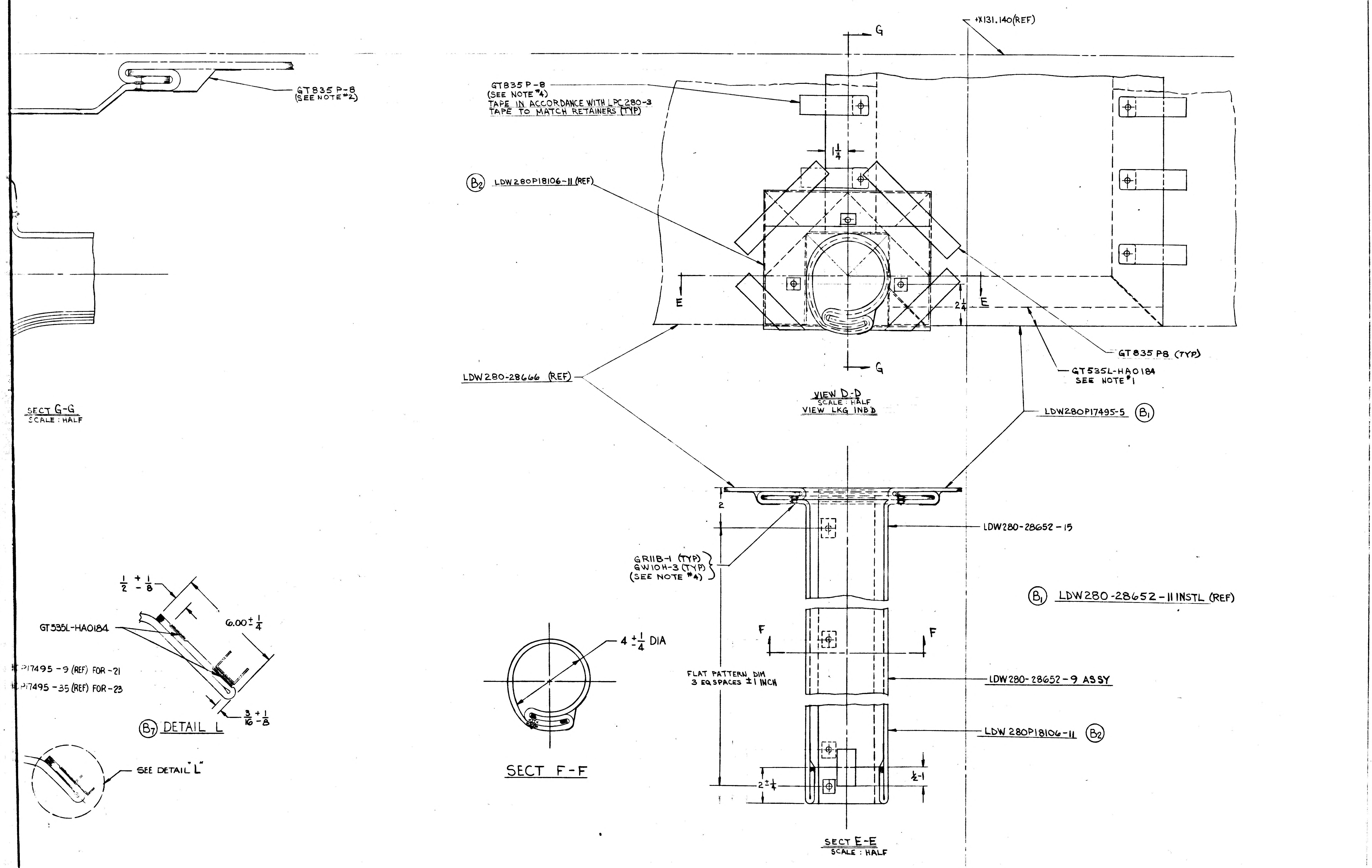

1/2 +1/8 -1/8
6.00 ± 1/4
GT535L-HA0184
(B9) LDW280P17495-9 (REF) FOR -21
LDW280P17495-35 (REF) FOR -23
3/16 +1/8 -1/8
SEE DETAIL "L"
GT835 P8
SEE NOTE #2

(B7) DETAIL L

(B7) SECTION K-K



SECT F-F


GT835 P-8 (SEE NOTE #2)
SECT G-G
SCALE : HALF
G
+X131.140(REF)
GT835 P-8
(SEE NOTE #4)
TAPE IN ACCORDANCE WITH LPC280-3
TAPE TO MATCH RETAINERS (TYP)
1 1/4
(B2) LDW280P18106-11 (REF)
E
E
2 1/4
GT835 P8 (TYP)
GT535L-HA0184
SEE NOTE #1
LDW280-28666 (REF)
G
VIEW D-D
SCALE : HALF
VIEW LKG INBD
LDW280P17495-5 (B1)
2
LDW280-28652-15
GR11B-1 (TYP)
GW10H-3 (TYP)
(SEE NOTE #4)
(B1) LDW280-28652-11 INSTL (REF)
F
F
FLAT PATTERN DIM
3 EQ SPACES ±1 INCH
LDW280-28652-9 ASSY
LDW 280P18106-11 (B2)
1/2 +1/8 -
6.00 ± 1/4
GT535L-HA0184
P17495 -9 (REF) FOR -21
P17495 -35 (REF) FOR -23
3/16 +1/8 -
(B7) DETAIL L
SEE DETAIL "L"
4 ±1/4 DIA
SECT F-F
2 ±1/4
1/2-1
SECT E-E
SCALE : HALF

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ☒
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP. THDS.
BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003 MIN
TO .0005 MAX. MIN THICKNESS TO
BE .0002 ON THREADED AREAS.
NO ALLOWANCES FOR PLATING IN
HOLES

125 √ SURFACE ROUGHNESS
INCLUDING REAMED HOLES
PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE
TO BE MACHINED

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY
RIVETS SHORTER THAN 1 INCH ARE
NOT SPECIFIED

TOLERANCE ON LOFTED
DELINEATIONS IS

C-98

THIS IS AN ORIGINAL DWG

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	R	26512	LDW 280-28652	B
	SCALE HALF			SHEET 3 OF

02/02 NAS 9-1100

1

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-28652	EO NO. B1
CONTROL INFO NO. LDW 280-A-0975	

REPLACEMENT OF PARTS IN FIELD & B/M: LDW280-28652-11,-13,-15 & -17 IDENT TO LDW280-28652-1,-3,-5 & -7 RESP EXCEPT AS NOTED

		1				LDW280P17495 -7	E	BLANKET ASSY	WAS LDW 280P 17495-3
			1			LDW280P17495 - 5	E	BLANKET ASSY	WAS LDW 280P 17495-1
C				1		LDW 280-28652 -17	E	BLANKET ASSY	WAS LDW280-28652 -7
C					1	-15	E	BLANKET ASSY	WAS -5
C						-13	E	SHIELD INSTL	WAS -3
C						LDW280-28652 - 11	E	SHIELD INSTL	WAS LDW280-28652-1
////	-	-17	-15	-13	-11	PART NO.	I&T	DESCRIPTION	
C.L.	QTY PER ASS'Y								

LM	LDW280-54553	LM 4,5,6 (34),35,36	1EA
LM	LDW280-52553	LM 2 (32)	1EA
LM	LDW280-51553	LM 1(31)	1EA
MODEL	N/A	MODULE	REQD/MOD

PART NO. LDW280-28652-13 WAS -3

LM	LDW280-53553	LM3(33)	1EA	WAS LDW280-52553

LM	LDW280-28553	LTA 8(18)	1EA
MODEL	N/A	MODULE	REQD/MOD

PART NO. LDW280-28652-11 WAS-1

(2)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO
REPLACEMENTS OF PARTS NEEDED TO CONFORM WITH THERMAL REQUIREMENT

DESCRIPTION OF EO
REMOVED LDW 280P17495-1 & -3 ASSY
ADDED LDW 280P17495-5 & -7 ASSY
REMOVED -1,-3,-5,-7 REPLACED WITH -11,-13,-15 & 17 RESP.

Ⓡ GAEC EO RELEASE 10/27

MODEL	EFFECTIVITY		
	~~PROCURING ACTIVITY~~ NO.	GAEC UNIT NO.	~~SUB CONTR UNIT~~ NO.
LM	LM 1(31)	LTA-8(18)	LM6(36)
	LM 2(32)	LM4(34)	
	LM 3(33)	LM 5(35)	*

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY									
✓			✓	DATE	10/5/66	10/25/66			10/10/66		10-11-66		
REVISE DWG	RECORD EO	REWORK	SCRAP		VDT	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL D/S QUAD III LWR FILL & DRAIN ACCESS-THERMAL	LDW280-28652	B1

ISSUED BY V.A. CHRISTINA/ J. STRAKOSCH X1153 SECTION LM - VDT GROUP NO. 335 PL 35

EMF

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28652 | EO NO. B2
CONTROL INFO NO. LDW280A3864

ON-19 ASSY LDW280P18106-11 WAS LDW280P18106-1

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: REPLACEMENT OF PART NEEDED TO CONFORM WITH THERMAL REQUIREMENT

DESCRIPTION OF EO: ON-19 ASSY LDW280P18106-11 WAS LDW280P18106-1

GAEC EO RELEASE: ⓒ 4 ER 12/2/66

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	

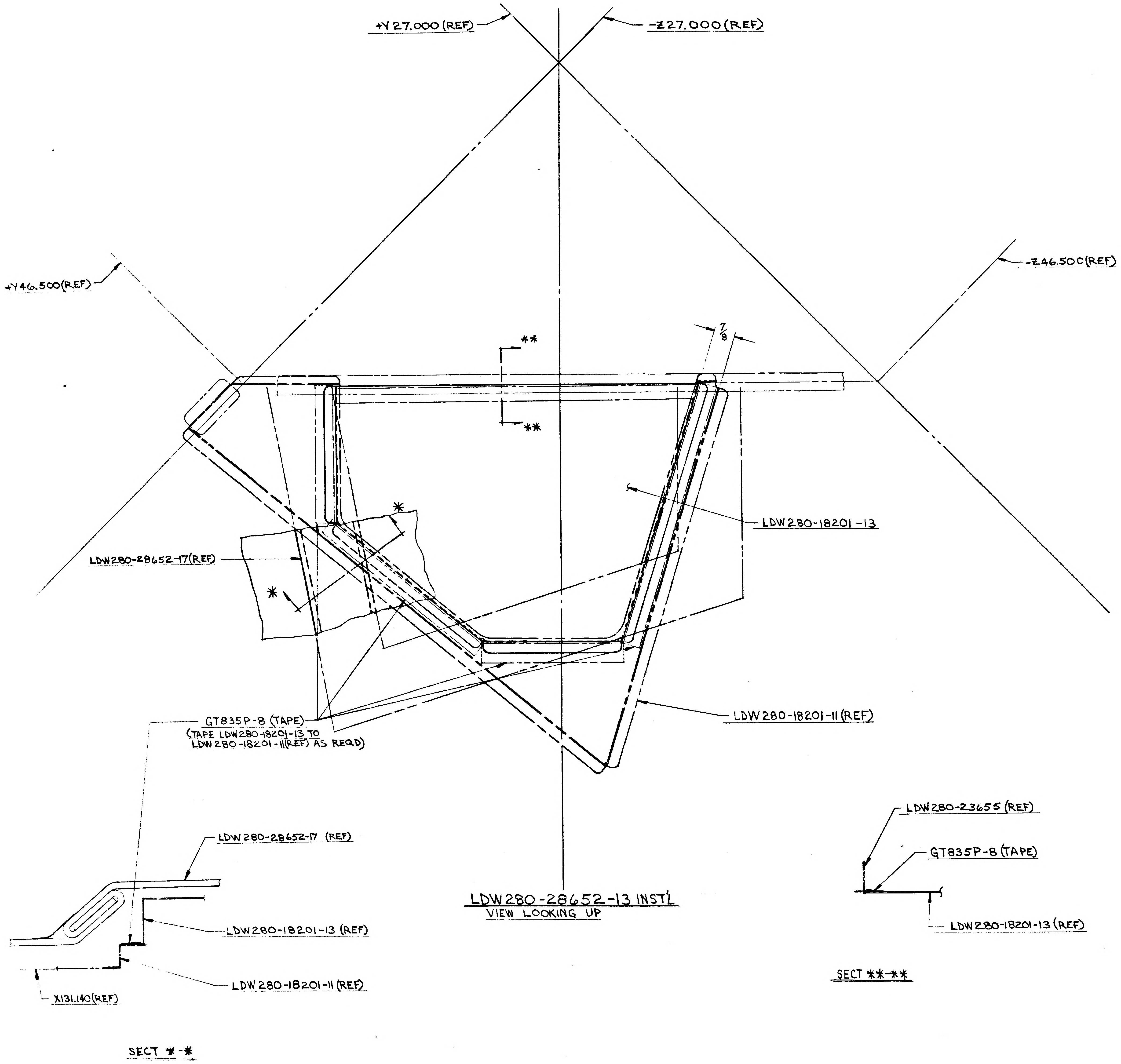
DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	-

APPROVED BY									
DATE	12/1/66	12/1/66		12/1/66			12-1-66	12-1-66
6	VD1	~~SUPPORT~~ THERMAL	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
SHIELD INST
DRAWING TITLE: D/S QUAD III LWR FILL & DRAIN ACCESS THERMAL
DRAWING NO.: LDW280-28652
EO NO.: B2

ISSUED BY AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 33

01 NAS 9-1100



+Y27.000(REF)
-Z27.000(REF)
+Y46.500(REF)
-Z46.500(REF)
7/8
**
**
*
*
LDW280-28652-17(REF)
LDW280-18201-13
LDW280-18201-11(REF)
GT835P-8 (TAPE)
(TAPE LDW280-18201-13 TO LDW280-18201-11(REF) AS REQ'D)
LDW280-28652-13 INST'L
VIEW LOOKING UP
LDW280-28652-17 (REF)
LDW280-18201-13 (REF)
LDW280-18201-11 (REF)
X131.140(REF)
SECT *-*
LDW280-23655 (REF)
GT835P-8 (TAPE)
LDW280-18201-13 (REF)
SECT **-**

- = USE NEXT AVAILABLE SECT LETTERS
-

(2)

DETAIL SPEC REQD		CLASS II ENGRG CHG	√	CLASS I ENGRG CHG	CONTROL INFO NO. LDW 280 A-3576

REASON FOR EO: METOROID PROTECTION REQ'D FOR S/C He TANK

DESCRIPTION OF EO: ADDED LDW 280-18201-13 (1 REQD/MOD) & GT835P-8 TAPE TO LDW280-28652-13 INST'L

GRUMMAN EO RELEASE: iE 12/3/6

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	EFFECTIVITY		
LM		LM-1-15 (31-45)	

DRAWING REVISION REQD		DISPOSITION OF PARTS		BY / DATE		SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	GOV'T
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI							
√		NOT REQ'D			11/22			11/22/66	11/29/66		11-29-66	12-3-66

PRIORITY: C

DRAWING TITLE: SHIELD INST'L D/S QUAD III LWR-FILL & DRAIN ACCESS THERMAL

ENGINEERING ORDER

DRAWING NO.: LDW 280-28652

EO NO.: B-3

ISSUED BY V.A. CHRISTINA/ J.STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 32.3 REV 3-65

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-28652
EO NO. B4
CONTROL INFO NO. LDW280A-4145

THIS IS A REVISION TO E.O. B2

-19 S/B -9

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

2

REASON FOR EO: DRAWING ERROR

DESCRIPTION OF EO: REF: EO B2 -19 S/B. -9

GAEC EO RELEASE: FR 12/7/66

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQ'D	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY									
DATE	12/7/66	12/7/66		12/7/66			12-7-66	12/7/66
6	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~SUPV~~

PRIORITY: E

DRAWING TITLE: SHIELD INST D/S QUAD III FILL AND DRAIN THERMAL

DRAWING NO. LDW280-28652

EO NO. B4

ISSUED BY AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01 NAS 9-1100

B *

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER EMF A

DWG. NO. LDW280-28652

EO NO. B5

CONTROL INFO NO. LDW280A4779

IN F/O & L/M FOR -15 & -17 REMOVE
LDW280-28808-1 } SKIN ASSY
LDW280-28808-3 }

* HAS BEEN REMOVED FROM LTA-8

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ 5

REASON FOR EO: PARTS NO LONGER REQUIRED

DESCRIPTION OF EO: IN F/O & L/M FOR -15 & -17 REMOVED LDW280-28808-1 & -3 SKIN ASSY

GAEC EO RELEASE: C FR 1/10/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31) THRU LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY								
DATE	1/10/67	1/10/67		1/10/67	1/10/67		1/10/67	1-10-67
1	VDI	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: SHIELD INSTL DESCENT STAGE QUAD III LOWER FILL & DRAIN

DRAWING NO.: LDW280-28652

EO NO.: B5

ISSUED BY DALLMEYER/STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 35

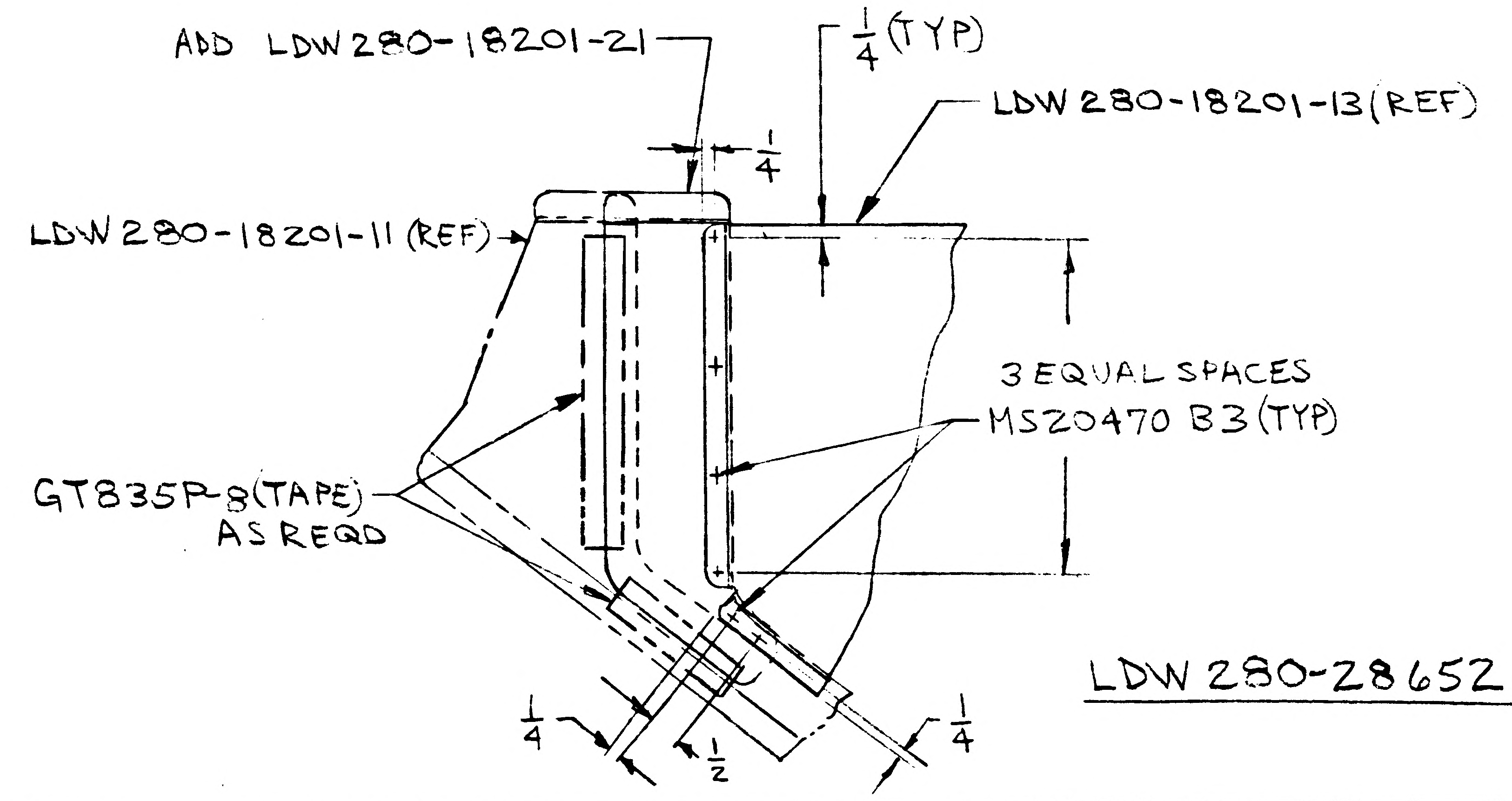
01 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-28652		EO NO. B6
CONTROL INFO NO. LDW 280A 5380		



ADD LDW280-18201-21
1/4 (TYP)
LDW 280-18201-13 (REF)
1/4
LDW 280-18201-11 (REF)
3 EQUAL SPACES
MS20470 B3 (TYP)
GT835P-8 (TAPE) AS REQD
1/4
1/2
1/4

LDW 280-28652-13 INSTL

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REDESIGN OF COVER TO PROVIDE CLEARANCE FOR LINES	ON-13 INSTL ADDED LDW 280-18201-21 (1 REQD) MS20470B3 & GT835P-8 AS REQD	2 C 2/13/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-13 THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY									
DATE	2/6/67			2/3/67	2/6/67		2/6/67	2/?/67
1	VDI	SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL - THERMAL D/S QUAD III LNR FILL & DRAIN ACCESS	LDW 280-28652	B6

ISSUED BY V.A CHRISTINA / J. STRAKOSCH SECTION VDI X1392 GROUP NO. 335 PL 35

01 NAS 9-1100

RELEASED BY LIAISON

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
* EMF A

ENG 32.1 REV 3-65

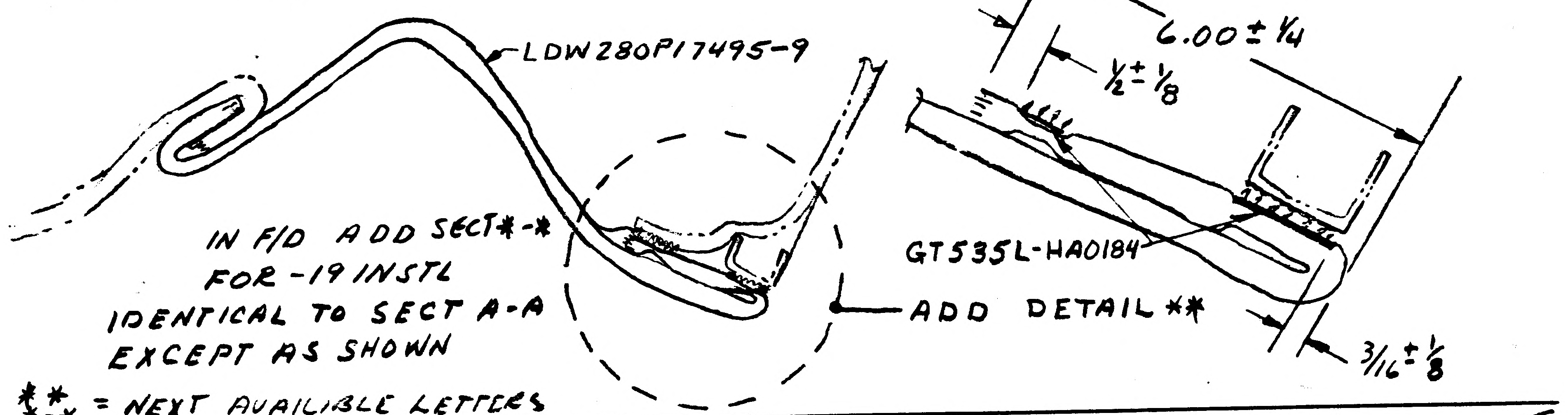
DWG. NO. LDW280-28652
EO NO. B7
CONTROL INFO NO. LM-5-11812

IN F/D, B/M & M/B ADD -19 SHIELD INSTL & -21 BLANKET ASSY

-21 IDENT TO -17 EXCEPT LDW280P17495-9 REPLACES LDW280P17495-7 & ADDED GT535L-HA0184 (2) REQD. -19 IDENT TO -13 EXCEPT -21 REPLACES -17.

FOR -13 REMOVE LM-2(32) THRU LM-6(36) REQMTS.

FOR -19 ADD LM-2(32) N/A LDW 280-52553, LM-3(33) N/A LDW 280-53553 & LM-4(34) THRU LM-15(45) N/A LDW 280-54553, 1 REQ'D PER MODULE.



IN F/D ADD SECT*-* FOR -19 INSTL IDENTICAL TO SECT A-A EXCEPT AS SHOWN

ADD DETAIL **

** *-* = NEXT AVAILIBLE LETTERS

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	5

REASON FOR EO: INCREASE BLANKET LENGTH TO JOIN WITH BASE HEAT SHIELD BLANKET

DESCRIPTION OF EO: ADDED -19 & -21. SECTION *-* & DETAIL **. ON -13 REMOVED LM-2 (32) THRU LM-6 (36) REQMTS.

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-2(32) THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY	WT			~		CH	RhC	
DATE	2/8/67			~	2-10-67	2-10-67	2-20-67	2-11-67
1	YDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SHIELD INSTL DESCENT STAGE QUAD III LOWER FILL & DRAIN ACCESS - THERMAL
DRAWING NO.: LDW280-28652
EO NO.: B7

ISSUED BY H. PALLMEYER X1153, X1724 G.W.H. SECTION VEH DES INT GROUP NO. 335 PL 5

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMP 4

DWG. NO. LE0280 — EO NO. 476
CONTROL INFO NO. LDW280 - 5542

*TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9 (39), LEM-10(40), LEM-11(41), LEM-12 (42), LEM-13(43), LEM-14(44) AND LEM-15(45) QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280 - 25703	A6	SEE DRAWING
-25704	B1	
-25706	B1	
-25707	B4	
-25708	B6	
-28647	C1	
-28652	B8	
-28669	A3	
-28672	C1	
-28721	A2	
-28727	B2	
-28752	B3	
-28761	A4	
-28762	A1	
-28771	B5	
-28774	A8	
-28776	A1	
-28778	A1	
-28779	A4	
-28803	A3	
-28816	A2	
-28819	A2	
-51560	C1	
-51818	A3	
-51823	A1	
-52723	A5	
LDW280		SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

DETAIL SPEC REQ — CL II ENGRG CHG — CL I ENGRG CHG

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: FR 2/23/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12 (42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ — RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)
APPROVED BY: V.D.I. — SUPPORT — RELIAB. GROUP — GROUP LEADER — STRESS GROUP WJH 2/15/67 — LIAISON ENGRG — PROJ ENGRG RMC 2-16-67 — GOVT 2-17-67
DATE: 8/7/62
GROUP: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 476

ISSUED BY M. GREY / J. STRAKOSCH X4453 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL 35

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NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28652
EO NO. B9
CONTROL INFO NO. LDW280B0629

FOR -19 SHIELD INSTL REMOVE EFFECTIVITY LM-3(33) THRU LM-15(45).

ADD -23 BLANKET ASS'Y IDENTICAL TO -21 BLANKET ASS'Y
EXCEPT THAT LDW280P17495-35 REPLACES
LDW280P17495-9.

ADD -25 SHIELD INSTL IDENTICAL TO -19 SHIELD INST'L
EXCEPT THAT -23 REPLACES -21.

EFFECTIVITY -25 LM-3(33) N/A LDW280-53553 1 REQ'D/MOD.
LM-4(34) THRU
LM-15(45) N/A LDW280-54553 1 REQ'D/MOD

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2360 (5)

REASON FOR EO: PLUME HEATING PROTECTION

DESCRIPTION OF EO: FOR -19 REMOVED EFFECTIVITY LM-3 THRU LM-15. ADDED -23 & -25.

GAEC EO RELEASE: 12/12/...

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		-19		DATE	12/?/67			12-8-67	12/9/67		12/8/67	12-11-67
REVISE DWG	RECORD EO	REWORK	SCRAP	P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: SHIELD INST'L - D/S - QUAD III ~~LOWER~~ FILL & DRAIN ACCESS THERMAL

DRAWING NO.: LDW280-28652

EO NO.: B9

ISSUED BY J. BACKOFEN/H. PALLMEYER/P. THORJUSEN X1153 6 JAN 68 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

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NAS 9-1100

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 820
CONTROL INFO NO. LM-29-1128

REVISE NOTE #* AS FOLLOWS:

REMOVE - SAGE (OR STAGE) GREEN SIZE "E" PER MIL ---- ETC. S/B

ADD - TEFLON GLASMO TEE F-E24 THREAD, MAY BE PURCHASED FROM BELDING CORTICELLI CO. INC., 1407 BWAY, NEW YORK, N.Y. 10018. CODE IDENT. NO. 94448, AS AN ALTERNATE ASTROQUARTZ RQ754-12 THREAD, MAY BE PURCHASED FROM DODGE FIBERS CORP. P.O. BOX 124, HOOSICK FALLS, N.Y., CODE IDENT. NO. 05712, OR P5040-3 THREAD, MAY BE PURCHASED FROM OWENS-CORNING FIBERGLASS CORP. TOLEDO, OHIO, CODE IDENT. NO. 45255. THIS THREAD MAYBE USED FOR ALL REPLACEMENT & SPARES. (LM-1 LTA-8)

DWG NO.	TITLE	APPLICABLE NOTE *	EFFECTIVITY	CHG NO.
✓ LDW 280-25662	SEE DWG	NOTE #11	LM-2(32) THRU LM-15(45)	G2
✓ LDW 280-28652	↕	NOTE #1	↕	B10
LDW 280-28667	↕	NOTE #6	↕	D3
LDW 280-51589	SEE DWG	NOTE #2	LM-2(32) THRU LM-15(45)	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: TO FACILITATE SEWING OF BLANKETS & IMPROVE THERMAL CAPABILITY

DESCRIPTION OF EO: REVISE NOTE #* SAGE (OR STAGE) GREEN SIZE "E" -- ETC. S/B TEFLON GLASMO TEE, P5040 & ASTROQUARTZ.

GAEC EO RELEASE: (R) (29) VK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY		MJ		—	JFJ	CH	JP	Bott
DATE	12/14/67	12/20/67		—	12-14-67	12-14-67	12/20/67	12-20-67
12-14-67	MATL	~~SUPPORT~~ VD1	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C29
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO 280
EO NO.: 820

ISSUED BY LIAISON C. J. MONTEBELLO X7930 SECTION VD1 GROUP NO. 335 PL. 25

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NAS 9-1100

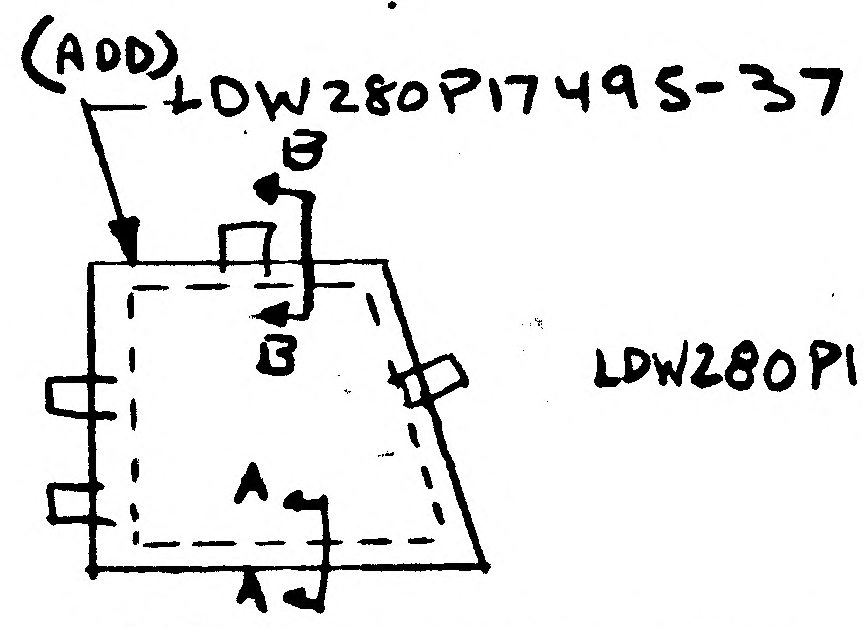
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

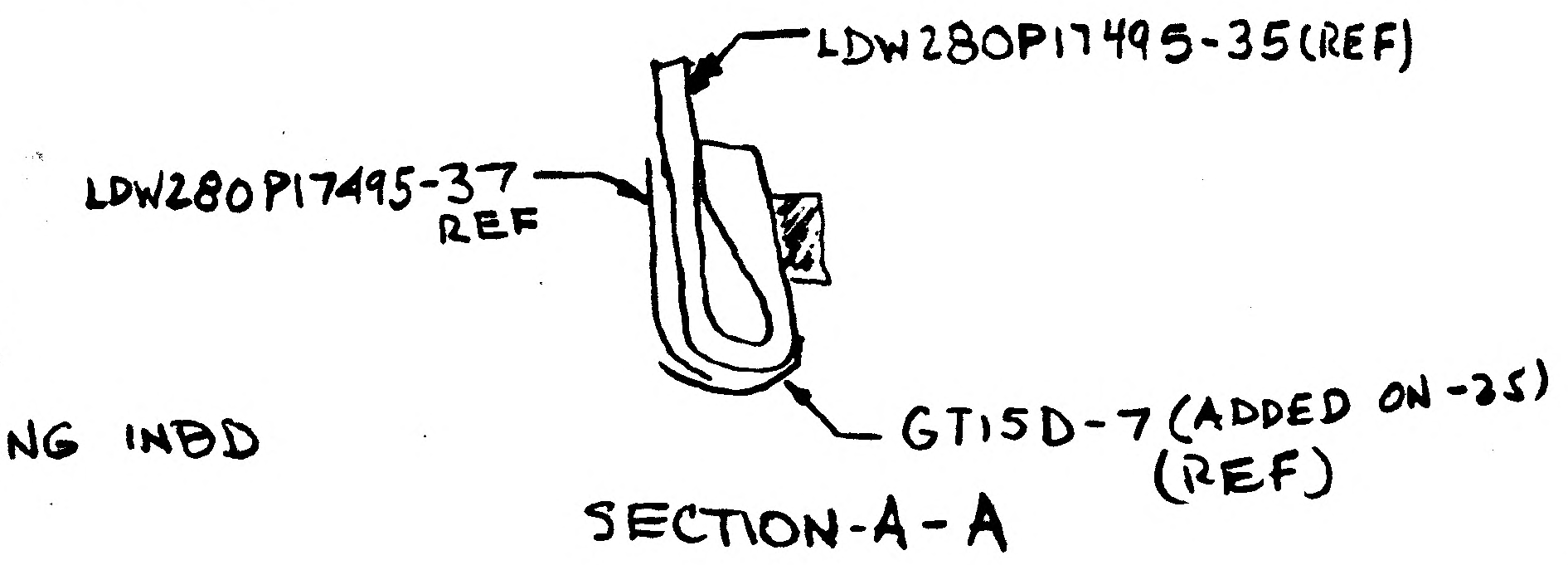
DWG. NO. LDW280-28652
EO NO. C1
CONTROL INFO NO. LDW280B2740

IN B/M & F/D ON -25 INSTL ADD LDW280P17495-37 SKIN 1EA & GT15D-7 AS SHOWN
IN M/B RESTRICT -25 INSTL FOR USE ON LM-3(33) (WAS) USED ON
LM-3(33) THRU LM-15(45)



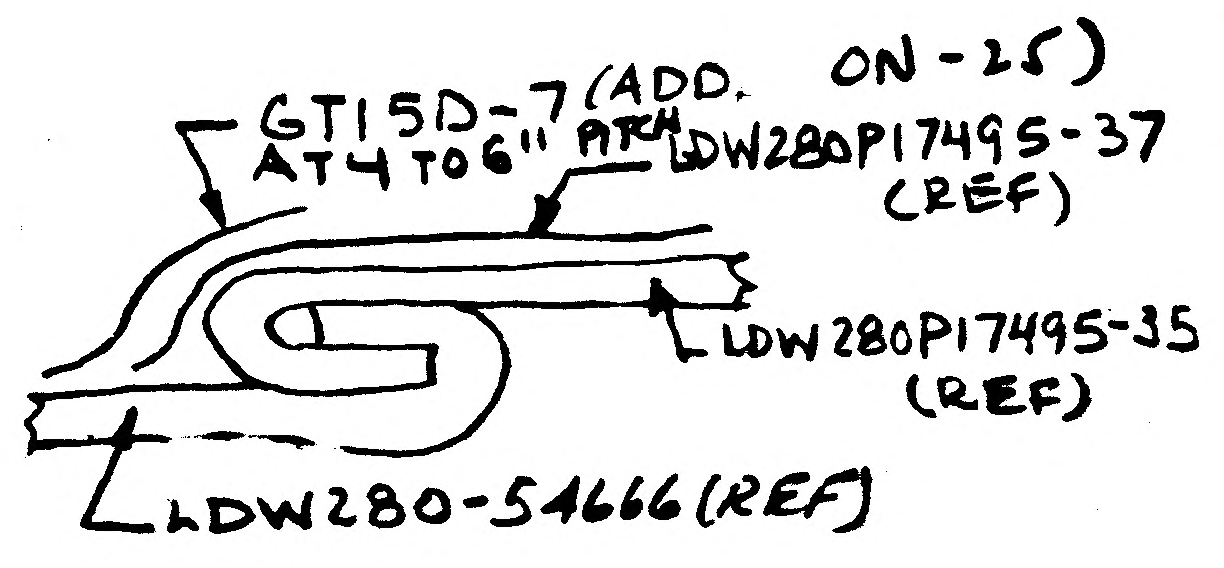
(ADD) LDW280P17495-37
B
B
A
A

VIEW LOOKING INBD



LDW280P17495-35 (REF)
LDW280P17495-37 REF
GT15D-7 (ADDED ON -25) (REF)

SECTION-A-A



GT15D-7 (ADD. ON -25) AT 4 TO 6" PITCH
LDW280P17495-37 (REF)
LDW280P17495-35 (REF)
LDW280-54666 (REF)

SECTION B-B.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2360 PKG 18 (5)

REASON FOR EO: PLUME HEATING PROTECTION

DESCRIPTION OF EO: IN B/M & F/D ON -25 INSTL ADDED LDW280P17495-37. IN M/B RESTRICTED -25 (WAS) USED ON LM-3(33) THRU LM-15(45)
REVISED VIEW LOOKING INBD, SECTIONS A-A & B-B

GAEC EO RELEASE: VK 4/10/68

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓	✓	DATE	4/1/68	4/3/68		4-1-68	4/3/68		4/3/68	4/4/68
REVISE DWG	RECORD EO	REWORK	SCRAP	P	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: SHIELD INSTL D/S QUAD III LOWER~ FILL & DRAIN ACCESS THERMAL

DRAWING NO.: LDW280-28652

EO NO.: C1

G2

ISSUED BY D. SHAPIRO/P. THORJUSEN X-1153
CDR 040568

SECTION VDI

GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28652
EO NO. C2
CONTROL INFO NO. LDW280B2997 –

CREATE -29 INSTL IDENT TO -19 EXCEPT -27 BLKT ASSY REPLACES -21

-27 IDENTICAL TO -21 EXCEPT LDW280P17495-39 INSULATION REPLACES LDW280P17495-35

N/A LDW280-53553 LFM EFF 155

ADD NOTE * (USE NEXT AVAILABLE NOTE NUMBER)

THIS DWG. AFFECTED BY LFM-155 WHICH MAY BE USED ON LM-3(33).

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2899	PKG 1

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE C
PLUME IMPINGEMENT PROTECTION SEVEN SECOND DOCKING	CREATED -29 INSTL & -27 BLKT. ASSY ADDED NOTE *	H.F. 4/23/68

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		NOT REQ'D		DATE	4/19/68	4/24/68		4/19/68	4/22/68		4/22/68	4-23-68
LM	LFM 155	LM-3 (33)		REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL ~ QUAD III ~ D/S FILL & DRAIN ACCESS	LDW280-28652	C2

042668
ISSUED BY J. LUCCHESI / H. DALLMEYER x1153 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-28652	EO NO.	C3
CONTROL INFO NO.	LDW 280 B3447		

ON -27ASSY

GT535L-HA0184(2) SHOULD BE GT535L-HA0144 (2)

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2899 PKG 1 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC/C EO RELEASE
INCORRECT STRAP LENGTH CALLOUT	ON-27ASSY GT535L-HA0144(2) WAS GT535L-HA0184(2)	JK 5/28/68

MODEL	PROCURING ~~ACTIVITY~~ NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 155	LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY				RST	NM			
DATE	5/27/68	5/27/68		5/27/68	5/27/68		5/27/68	5-27-68
—	VDI	SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLANKET ASSY D/S ACCESS DOOR THERMAL	LDW280-28652	C3

CDR 5/27/68
ISSUED BY V.A.CHRISTINA / P.THORJUSEN SECTION VDI x1724 x 1153 GROUP NO. 335 PL 29/25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28652
EO NO. C4
CONTROL INFO NO. LDW280B 4414

ON LDW280-28652 -13 RESTRICT EFFECTIVITY
TO LM 1 (31) WAS LM 1 (31), LM 7 (37) THRU LM 15 (45)

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD 2965 PKG 2 (5)

REASON FOR EO: BASE HEAT SHIELD REDESIGN

DESCRIPTION OF EO: ON LDW 280-23652-13 REMOVE LM 7 (37) THRU LM 15 (45) EFF

GAEC EO RELEASE: C
H.F 7/5/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM7(37	
LM		THRU LM15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

APPROVED BY	JaP	N		PSt	ECB		JaP	Bauman
DATE	7/10/68	7/11/68		7/9/68	7/12		7/12/68	7-15-68
P	V.D.I.	THERMO SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INST ~ D.S. QUAD III LOWER FILL & DRAIN ACCESS THERMAL	LDW280-28652	C4

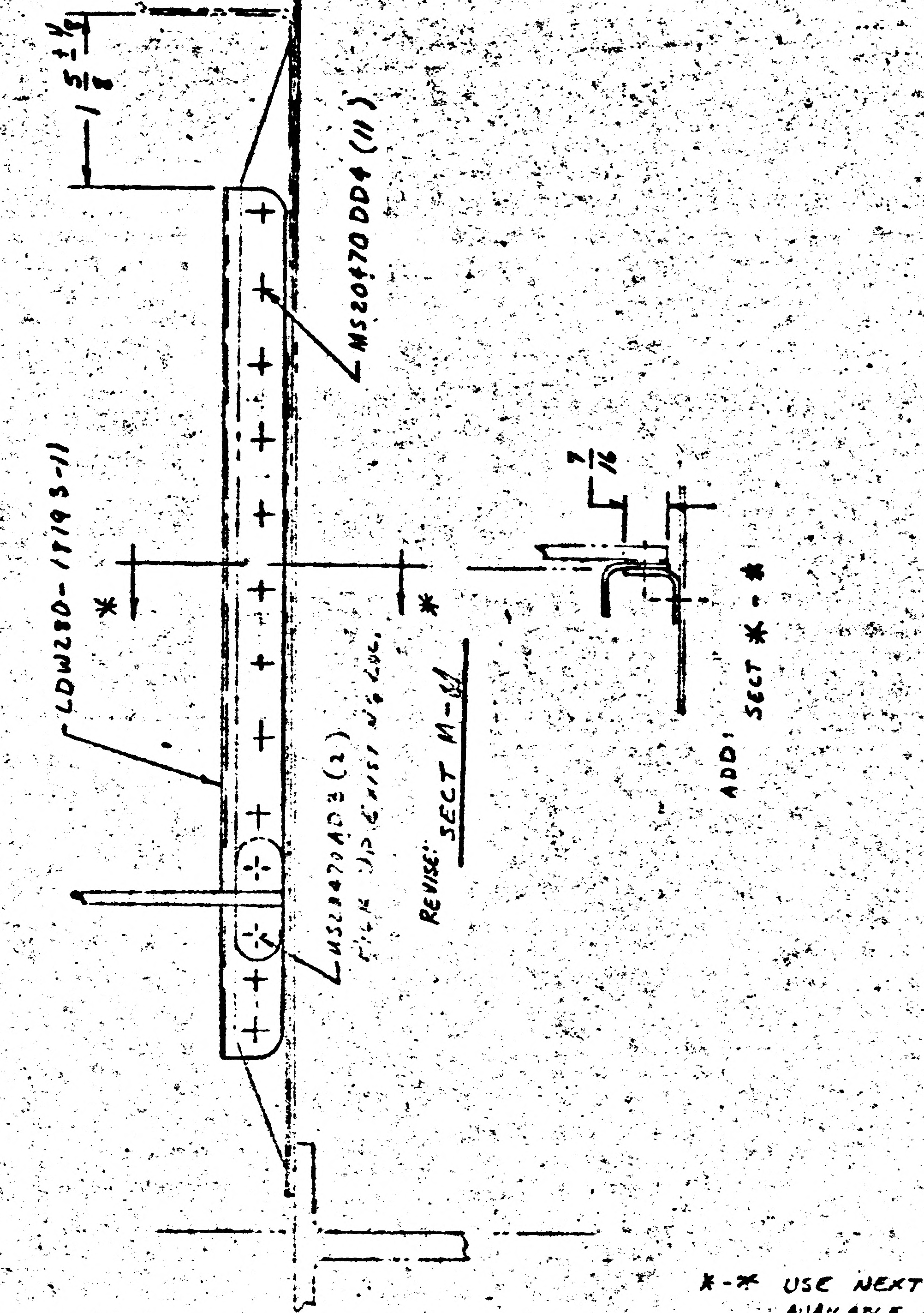
07 12 68
ISSUED BY ED COLEMAN SECTION V.D.I. GROUP NO. 335 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW 280 28655
EO NO. A3
CONTROL INFO NO. LM 5-11064

ON -3 INSTL
ADD LDW280 -18193 -11
AS SHN:



LDW280-18193-11
1 5/8 ±1/8
MS20470DD4 (11)
MS20470AD3 (2)
PICK UP EXIST'G LOC.
*
*
REVISE: SECT N-N
7/16
ADD: SECT * - *

LDW280 - 28655 - A3

- USE NEXT AVAILABLE LETTER

REASON FOR EO: ADDITIONAL SUPT REQD FOR COLD PLATE

DESCRIPTION OF EO: ON -3 INSTL: ADDED LDW280-18193-11 ADDED SECT *-*

WAPLII

STANDARDS UTIL

LDW280-28655

BY D. KAGAS X6057 SECTION VD1 GROUP NO 335 PL 5

518

LDW280-28656

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
		GAEC SCH NO.	
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28553	LTA-8(18)	1
PART NO. LDW280-28656-3		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28509	LTA-8(18)	1
PART NO. LDW280-28656-1		GAEC SCH NO. 50-1	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00	4.00	5.00			
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	M
LAST DASH NO. USED	-7

GRUMMAN REL INFO

PRIM NO.	VE(001)	628-6X	
207	MP		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY	P. CAPPADORO 6/18/66 R JACOBOWITZ	RELIABILITY	
LAYOUT BY	M. GRIECO	THERMO	
CHECKED BY	D. FASS 6-21-66		
GR LEADER	[illegible] 6/25/66		
VEH DES INT	[illegible] 6/25		
STRUCTURE	W/H EB 6/20	PROJ ENGR	Plunkett 13 July
STRUCTURE	[illegible] 6/28	REL GROUP	Botti 7-14-66
WEIGHTS	[illegible] 7-12		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STANDOFF INSTALLATION
DESCENT STAGE-FWD THERMAL

SIZE	CODE IDENT NO.	
B	26512	LDW280-28656
SCALE	NONE	SHEET 1.00 OF 5

ENG 77.1 12-65

01 NAS 9-1100

					A3 EQU		76381	# 852		TAPE							
								MS20470A3	E	RIVET	STD PART						
					33			AN515-6P4.		SCREW	STD PART						
				1				LDW280P17936-51		TAPE	SEE DWG						11E
					2			LDW280P17936-29		TAPE							25C
						39		LDW280P17936-13		TAPE							
					1			LDW280P17964-1		COVER							
			15	24				LDW280P17700-7		STANDOFF							
					31.			LDW280P17575-11		RETAINER							
			15	24				LDW280P17523-3		CAP							
			1					LDW280P17460-13		BLANKET ASSY	-51						5C
				1				LDW280P17460-11		BLANKET ASSY	-41						6B
						1		LDW280M17659-1		FITTING							3C
					1			LDW280M17649-1		FITTING							3C
						16		LDW280-23712-3		STANDOFF							
						15		LDW280-23712-1		STANDOFF	SEE DWG						
					1			LDW280-28656-7		BLANKET ASSY	-15						6A
					1			LDW280-28656-5		BLANKET ASSY	-13						6A
								LDW280-28656-3		BLANKET INSTL	-11						6A
			-15	-13	-11	9		LDW280-28656-1	E	STAND-OFF INSTL	-9						6A
			-7	-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
QTY PER ASSEMBLY																	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28656

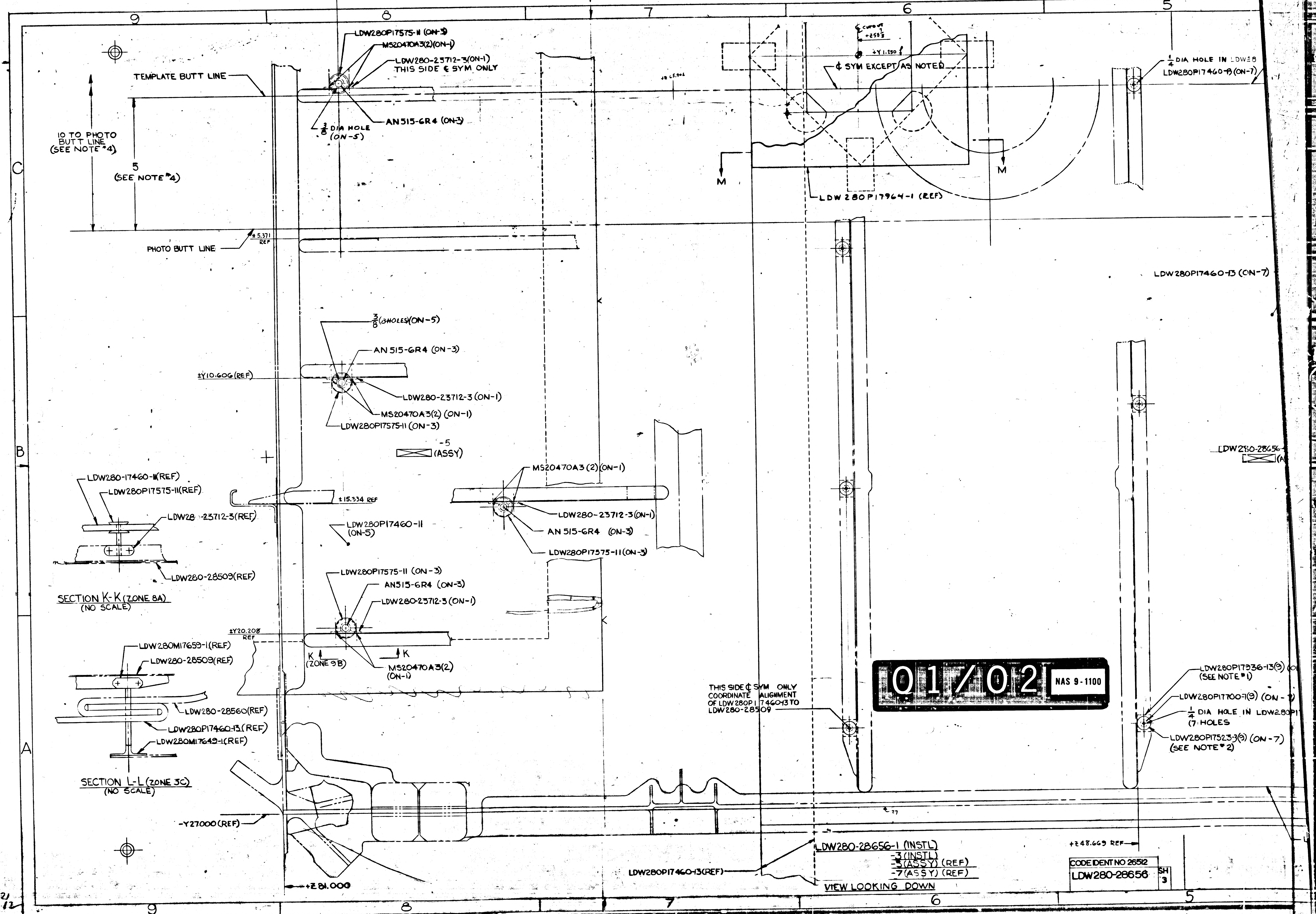
SCALE NONE

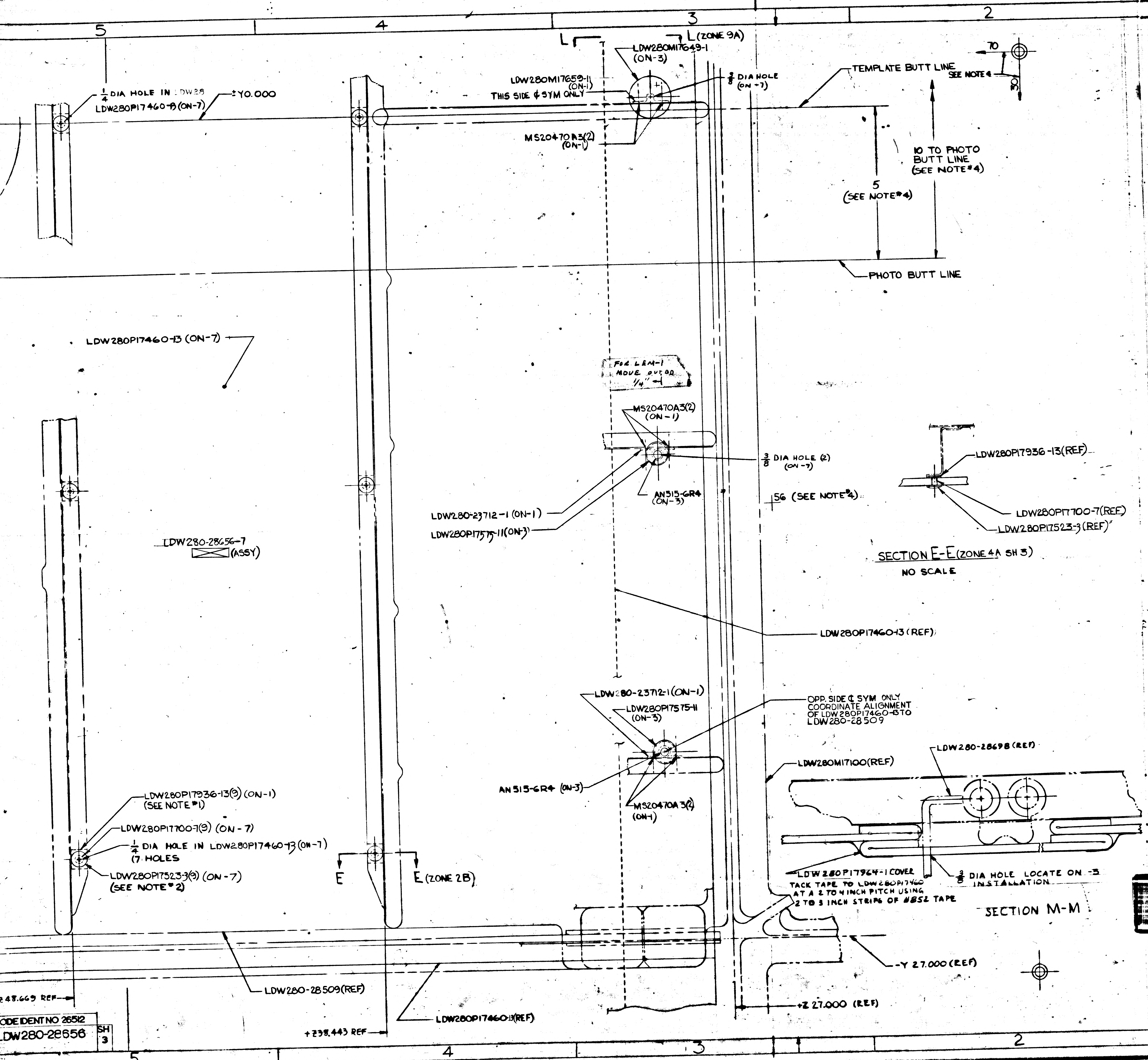
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


9
8
7
6
5
C
B
A
LDW280P17575-11 (ON-3)
MS20470A3(2)(ON-1)
LDW280-23712-3(ON-1)
THIS SIDE ℄ SYM ONLY
TEMPLATE BUTT LINE
AN515-6R4 (ON-3)
3/8 DIA HOLE (ON-5)
10 TO PHOTO BUTT LINE (SEE NOTE #4)
5 (SEE NOTE #4)
PHOTO BUTT LINE
±5.371 REF
℄ SYM EXCEPT AS NOTED
+Y1.250
1/4 DIA HOLE IN LDW28
LDW280P17460-13 (ON-7)
M
M
LDW 280 P17964-1 (REF)
LDW280P17460-13 (ON-7)
3/8 (3 HOLES)(ON-5)
AN 515-6R4 (ON-3)
±Y10.606 (REF)
LDW280-23712-3 (ON-1)
MS20470A3(2) (ON-1)
LDW280P17575-11 (ON-3)
-5 (ASSY)
LDW280-28656
MS20470A3 (2)(ON-1)
LDW280-17460-11(REF)
LDW280P17575-11(REF)
LDW28 -23712-3(REF)
±15.334 REF
LDW280P17460-11 (ON-5)
LDW280-23712-3(ON-1)
AN 515-6R4 (ON-3)
LDW280P17575-11(ON-3)
LDW280-28509(REF)
SECTION K-K (ZONE 8A) (NO SCALE)
LDW280P17575-11 (ON-3)
AN515-6R4 (ON-3)
LDW280-23712-3 (ON-1)
±Y20.208 REF
K
K
(ZONE 9B)
MS20470A3(2) (ON-1)
LDW280M17659-1(REF)
LDW280-28509(REF)
LDW280-28560(REF)
LDW280P17460-13(REF)
LDW280M17649-1(REF)
SECTION L-L (ZONE 3C) (NO SCALE)
THIS SIDE ℄ SYM ONLY COORDINATE ALIGNMENT OF LDW280P17460-13 TO LDW280-28509
LDW280P17936-13(9) (SEE NOTE #1)
LDW280P17700-7(9) (ON-7)
1/4 DIA HOLE IN LDW280P1 (7 HOLES
LDW280P17523-3(9) (ON-7) (SEE NOTE #2)
-Y27000 (REF)
+Z81.000
+Z48.669 REF
LDW280P17460-13(REF)
LDW280-28656-1 (INSTL)
-3 (INSTL)
-5 (ASSY) (REF)
-7 (ASSY) (REF)
VIEW LOOKING DOWN
CODE IDENT NO 26512
LDW280-28656
SH 3
01/02
NAS 9-1100


5
4
3
2
1
L
L (ZONE 9A)
LDW280M17649-1
(ON-3)
LDW280M17659-11
(ON-1)
THIS SIDE ⊄ SYM ONLY
$\frac{3}{8}$ DIA HOLE
(ON -7)
$\frac{1}{4}$ DIA HOLE IN LDW28
LDW280P17460-13 (ON-7)
Y0.000
TEMPLATE BUTT LINE
SEE NOTE 4
70
30
MS20470A3(2)
(ON-1)
10 TO PHOTO
BUTT LINE
(SEE NOTE #4)
5
(SEE NOTE #4)
PHOTO BUTT LINE
LDW280P17460-13 (ON-7)
FOR LEM-1
MOVE OUTBD
1/4"
MS20470A3(2)
(ON-1)
$\frac{3}{8}$ DIA HOLE (2)
(ON-7)
AN515-6R4
(ON-3)
LDW280-23712-1 (ON-1)
LDW280P17575-11(ON-3)
56 (SEE NOTE #4)
LDW280P17936-13(REF)
LDW280P17700-7(REF)
LDW280P17523-3(REF)
SECTION E-E (ZONE 4A SH 3)
NO SCALE
LDW280-28656-7
(ASSY)
LDW280P17460-13 (REF)
LDW280-23712-1(ON-1)
LDW280P17575-11
(ON-3)
OPP. SIDE ⊄ SYM ONLY
COORDINATE ALIGNMENT
OF LDW280P17460-13 TO
LDW280-28509
AN515-6R4 (ON-3)
MS20470A3(2)
(ON-1)
LDW280M17100(REF)
LDW280-28698 (REF)
LDW280P17936-13(9) (ON-1)
(SEE NOTE #1)
LDW280P17700-7(9) (ON - 7)
$\frac{1}{4}$ DIA HOLE IN LDW280P17460-13 (ON-7)
(7 HOLES
LDW280P17523-3(9) (ON - 7)
(SEE NOTE #2)
E
E (ZONE 2B)
LDW280P17964-1 COVER
TACK TAPE TO LDW280P17460
AT A 2 TO 4 INCH PITCH USING
2 TO 3 INCH STRIPS OF #852 TAPE
$\frac{3}{8}$ DIA HOLE LOCATE ON -3
INSTALLATION
SECTION M-M
-Y 27.000 (REF)
LDW280-28509(REF)
LDW280P17460-13(REF)
+Z 27.000 (REF)
48.669 REF
+238.443 REF

NOTES:

1. BOND LDW280P17936-13 TO STRUCTURE AS SHOWN WITH EPON 934 PER LSP 14-22500.
2. BOND LDW280P17523-3 TO LDW280P17700-7 AS SHOWN WITH EPON 934 PER LSP14-22500
3. LDW280P17936-29 & -51 SEW TO LDW280P17460 AT 3/16 ± 1/16 FROM EDGES OF LDW280P17936-29 & -51 IN ACCORDANCE WITH FED STD #751a & STITCH TYP 301.
4. LDW280-28656-5 & -7 ASSY SHN ON THIS DRAWING HAS BEEN DRAWN TO PROJECTED DIMENSIONS. THIS ASSEMBLY SHALL BE MADE TO EXPANDED DIMENSIONS BY MAKING A PHOTO LOFT TO THE EXPANDED TRAMMEL POINT DIMENSIONS INDICATED BELOW. THE EXPANSION RATIO IS .030 IN/IN

TRAMMEL POINT		SHOWN	EXPANDED
SHEET 3	LENGTH	70.0	72.100
3	WIDTH	30.0	30.900
SHEET 4	LENGTH	90.0	92.700
4	WIDTH	30.0	30.900
SHEET 5	LENGTH	70.0	72.100
5	WIDTH	30.0	30.900

CONTROL POINT	SHOWN	EXPANDED
SHEET 3	56.0	57.680
SHEET 4	72.0	74.160
SHEET 5	36.0	37.080
PHOTO BUTT (ALL)	10.0	10.300
TEMP BUTT (ALL)	5.0	5.150

5. TOLERANCE ON INSTALLED LOCATIONS OF BLANKET TRIM LINES IS ± $\frac{1}{2}$

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .000 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

EXCEPT AS NOTED

DWG SIZE 34 X 88

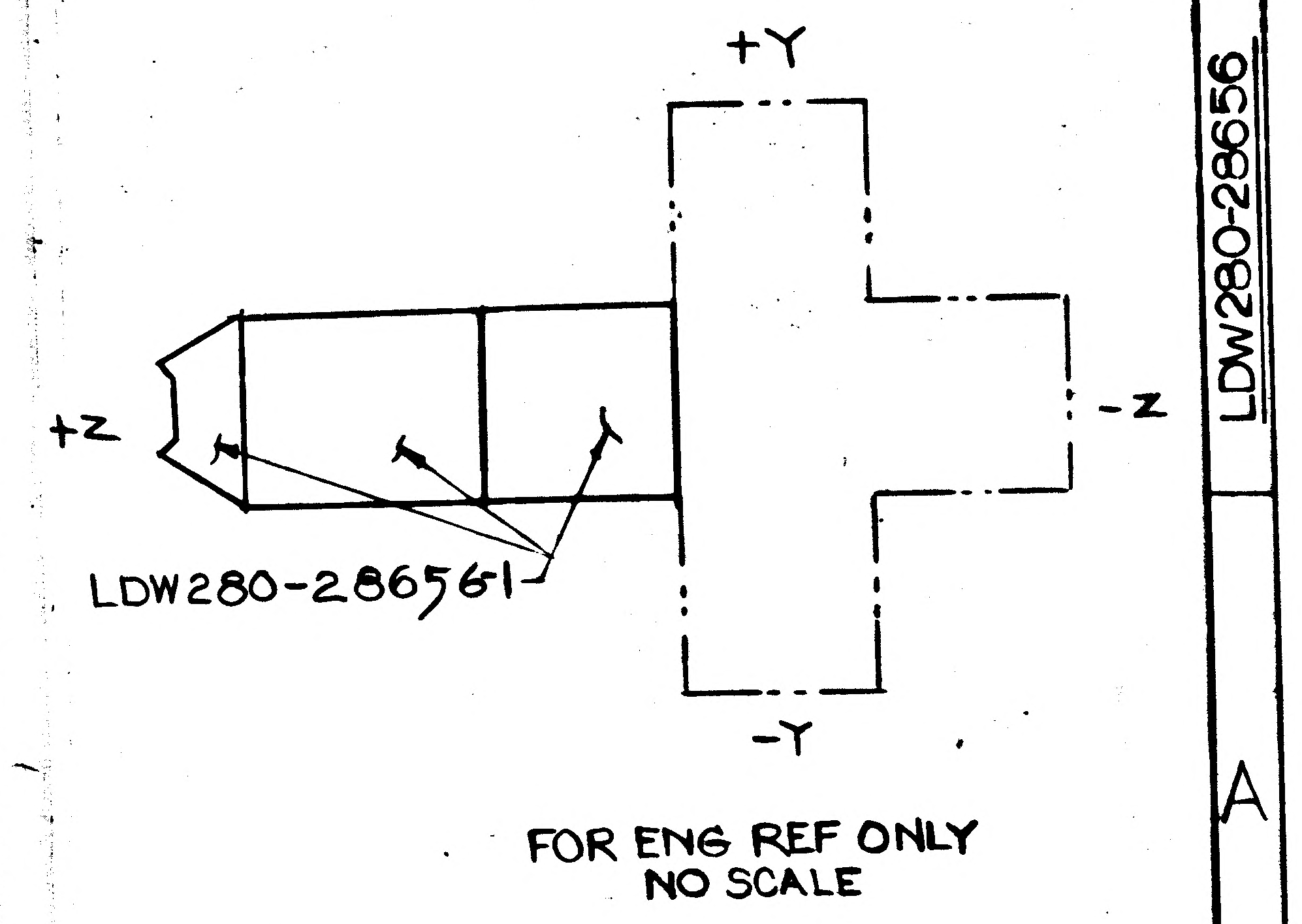
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 90) = 22.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 5.625 SQ. FT.

PRINT TRIM LINE

C

B

A


+Y
+Z
-Z
-Y
LDW280-28656-1

FOR ENG REF ONLY
NO SCALE

LDW280-28656

LDW280-28656

02/02

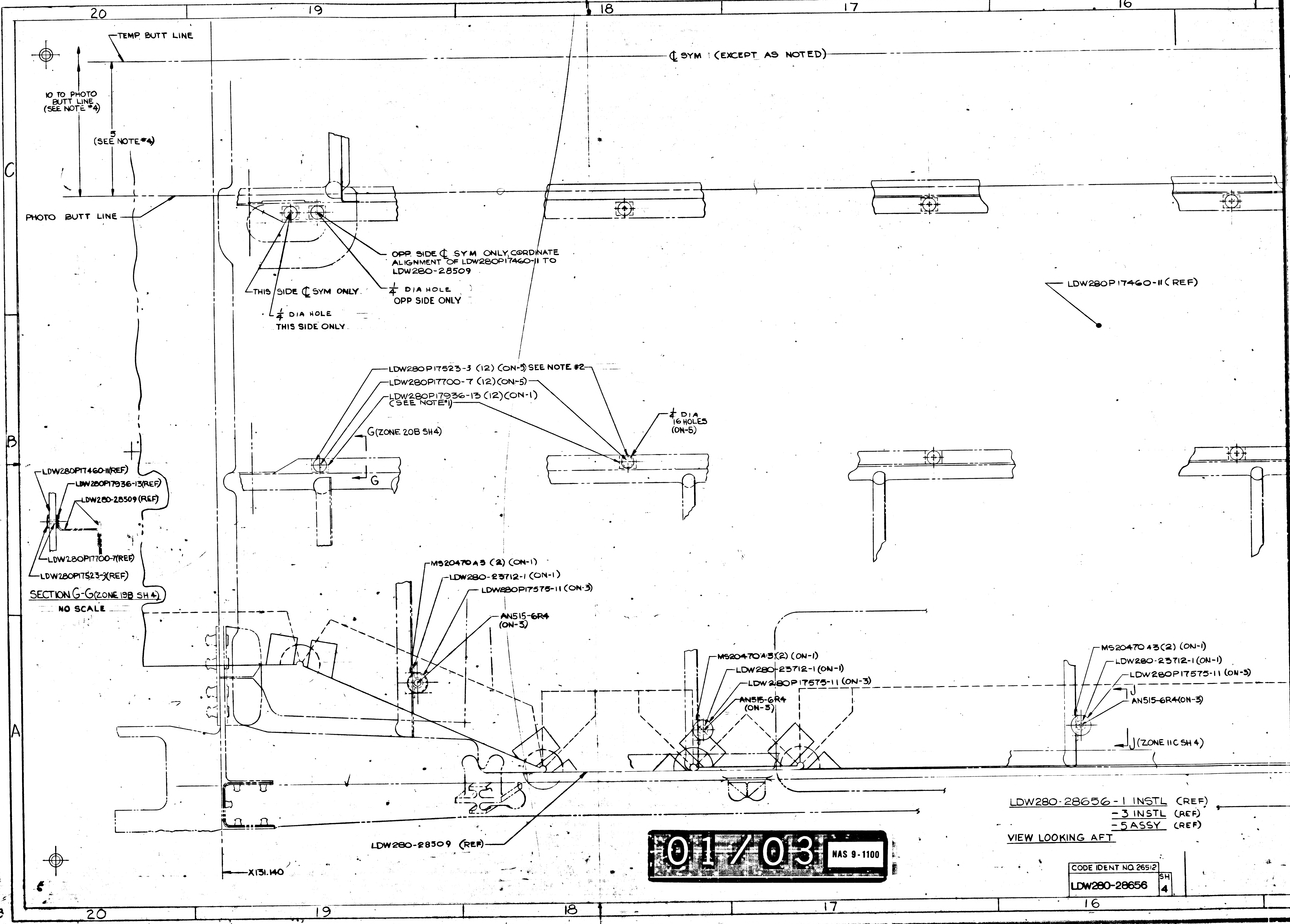
NAS 9-1100

CODE IDENT NO 26512
LDW280-28656
SH 3

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-28656	
MODEL OR END ITEM	SCALE FULL SIZE		SHEET 3.00	

FOR PHOTO REPRODUCTION

K2


20
19
18
17
16
C
B
A
TEMP BUTT LINE
℄ SYM (EXCEPT AS NOTED)
10 TO PHOTO BUTT LINE (SEE NOTE #4)
5 (SEE NOTE #4)
PHOTO BUTT LINE
OPP SIDE ℄ SYM ONLY, CORDINATE ALIGNMENT OF LDW280P17460-11 TO LDW280-28509
THIS SIDE ℄ SYM ONLY
1/4 DIA HOLE OPP SIDE ONLY
1/4 DIA HOLE THIS SIDE ONLY
LDW280P17460-11 (REF)
LDW280P17523-3 (12) (ON-5) SEE NOTE #2
LDW280P17700-7 (12) (ON-5)
LDW280P17936-13 (12) (ON-1) (SEE NOTE #1)
1/4 DIA 16 HOLES (ON-5)
G (ZONE 20B SH4)
G
LDW280P17460-11(REF)
LDW280P17936-13(REF)
LDW280-28509 (REF)
LDW280P17700-7(REF)
LDW280P17523-3(REF)
SECTION G-G (ZONE 19B SH 4)
NO SCALE
MS20470A3 (2) (ON-1)
LDW280-23712-1 (ON-1)
LDW280P17575-11 (ON-3)
AN515-6R4 (ON-3)
MS20470A3 (2) (ON-1)
LDW280-23712-1 (ON-1)
LDW280P17575-11 (ON-3)
AN515-6R4 (ON-3)
MS20470A3 (2) (ON-1)
LDW280-23712-1 (ON-1)
LDW280P17575-11 (ON-3)
J
AN515-6R4 (ON-3)
J (ZONE 11C SH 4)
LDW280-28309 (REF)
X131.140
20
19
18
17
16

LDW280-28656-1 INSTL (REF)
-3 INSTL (REF)
-5 ASSY (REF)

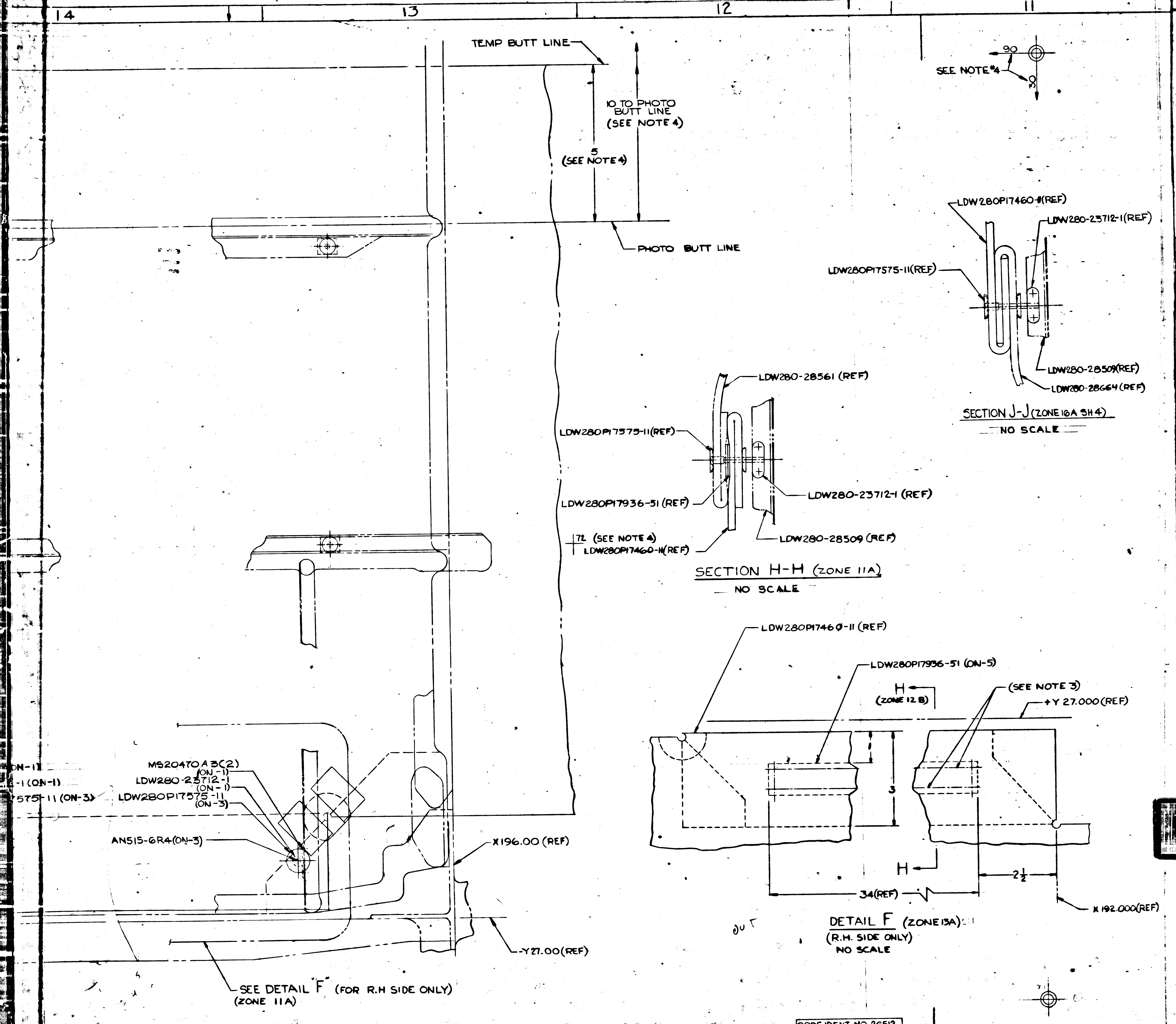
VIEW LOOKING AFT

01/03 NAS 9-1100

CODE IDENT NO. 26512
LDW280-28656
SH 4

16
15
14
13
12
11
TEMP BUTT LINE
SEE NOTE 4
90
90
10 TO PHOTO BUTT LINE (SEE NOTE 4)
5 (SEE NOTE 4)
PHOTO BUTT LINE
LDW280P17460-11(REF)
LDW280P17575-11(REF)
SECTION J-J (ZONE 1
NO SCALE
DW280P17460-11 (REF)
LDW280-28561 (REF)
LDW280P17575-11(REF)
LDW280-23712-1 (REF)
LDW280P17936-51 (REF)
LDW280-28509 (REF)
72 (SEE NOTE 4)
LDW280P17460-11(REF)
SECTION H-H (ZONE 11A)
NO SCALE
LDW280P17460-11 (REF)
LDW280P17936-51 (ON-5)
H (ZONE 12 B)
(SEE NOTE
+Y 2
3
H
2 1/2
34(REF)
DETAIL F (ZONE 13A)
(R.H. SIDE ONLY)
NO SCALE
MS20470 A3(2) (ON-1)
LDW280-23712-1 (ON-1)
LDW280P17575-11 (ON-3)
J
AN515-6R4(ON-3)
J (ZONE 11C SH 4)
MS20470 A3(2) (ON-1)
LDW280-23712-1 (ON-1)
LDW280P17575-11 (ON-3)
AN515-6R4(ON-3)
MS20470 A3(2) (ON-1)
LDW280-23712-1 (ON-1)
LDW280P17575-11 (ON-3)
AN515-6R4(ON-3)
X196.00 (REF)
-Y27.00(REF)
SEE DETAIL F (FOR R.H SIDE ONLY) (ZONE 11A)
8656-1 INSTL (REF)
-3 INSTL (REF)
-5 ASSY (REF)
G AFT
CODE IDENT NO. 26512
LDW280-28656
SH 4
CODE IDENT NO. 26512
LDW280-28656
SH 4

02/03 NAS 9-1100


14
13
12
11
10
TEMP BUTT LINE
10 TO PHOTO BUTT LINE (SEE NOTE 4)
5 (SEE NOTE 4)
PHOTO BUTT LINE
SEE NOTE #4
90
30
LDW280P17460-11(REF)
LDW280-23712-1(REF)
LDW280P17575-11(REF)
LDW280-28509(REF)
LDW280-28664(REF)
SECTION J-J (ZONE 16A SH 4)
NO SCALE
LDW280-28561 (REF)
LDW280P17575-11(REF)
LDW280P17936-51 (REF)
LDW280-23712-1 (REF)
.72 (SEE NOTE 4)
LDW280P17460-11(REF)
LDW280-28509 (REF)
SECTION H-H (ZONE 11A)
NO SCALE
LDW280P17460-11 (REF)
LDW280P17936-51 (ON-5)
H (ZONE 12 B)
(SEE NOTE 3)
+Y 27.000(REF)
3
H
34(REF)
2 1/2
X 192.000(REF)
DETAIL F (ZONE 13A)
(R.H. SIDE ONLY)
NO SCALE
ON-1)
-1 (ON-1)
575-11 (ON-3)
MS20470A3(2)
(ON-1)
LDW280-23712-1
(ON-1)
LDW280P17575-11
(ON-3)
AN515-6R4(ON-3)
X196.00 (REF)
-Y27.00(REF)
SEE DETAIL "F" (FOR R.H SIDE ONLY)
(ZONE 11A)

CODE IDENT NO. 26512
LDW280-28656 SH 4

03/03 NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ☒
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP THDS.
BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003 MIN.
TO .0005 MAX. MIN. THICKNESS TO
BE .0002 ON THREADED AREAS.
NO ALLOWANCE FOR PLATING IN
HOLES

125 SURFACE ROUGHNESS
INCLUDING REAMED HOLES
PER MIL-STD-10

250 FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL ƒ DENOTES SURFACE
TO BE MACHINED

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY
RIVETS SHORTER THAN 1 INCH ARE
NOT SPECIFIED.

TOLERANCE ON LOFTED
DELINEATIONS IS

DWG SIZE 34 X 106

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 108)= 27 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 6.750 SQ. FT.

PRINT TRIM LINE

C
B
A

LDW280-28656

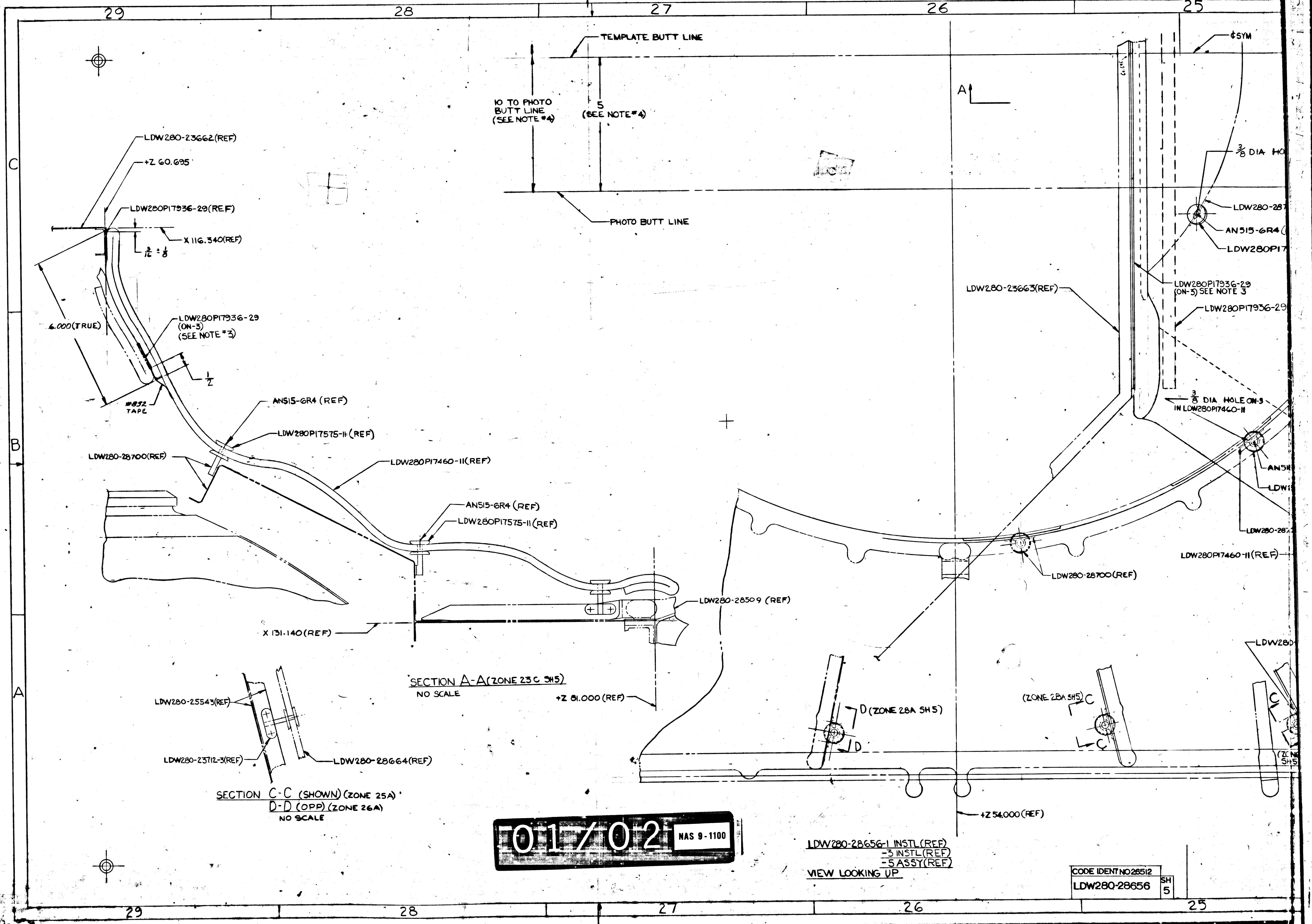
LDW280-28656

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LEM	J	26512	LDW280-28656
	SCALE FULL NOTED		SHEET 4.00

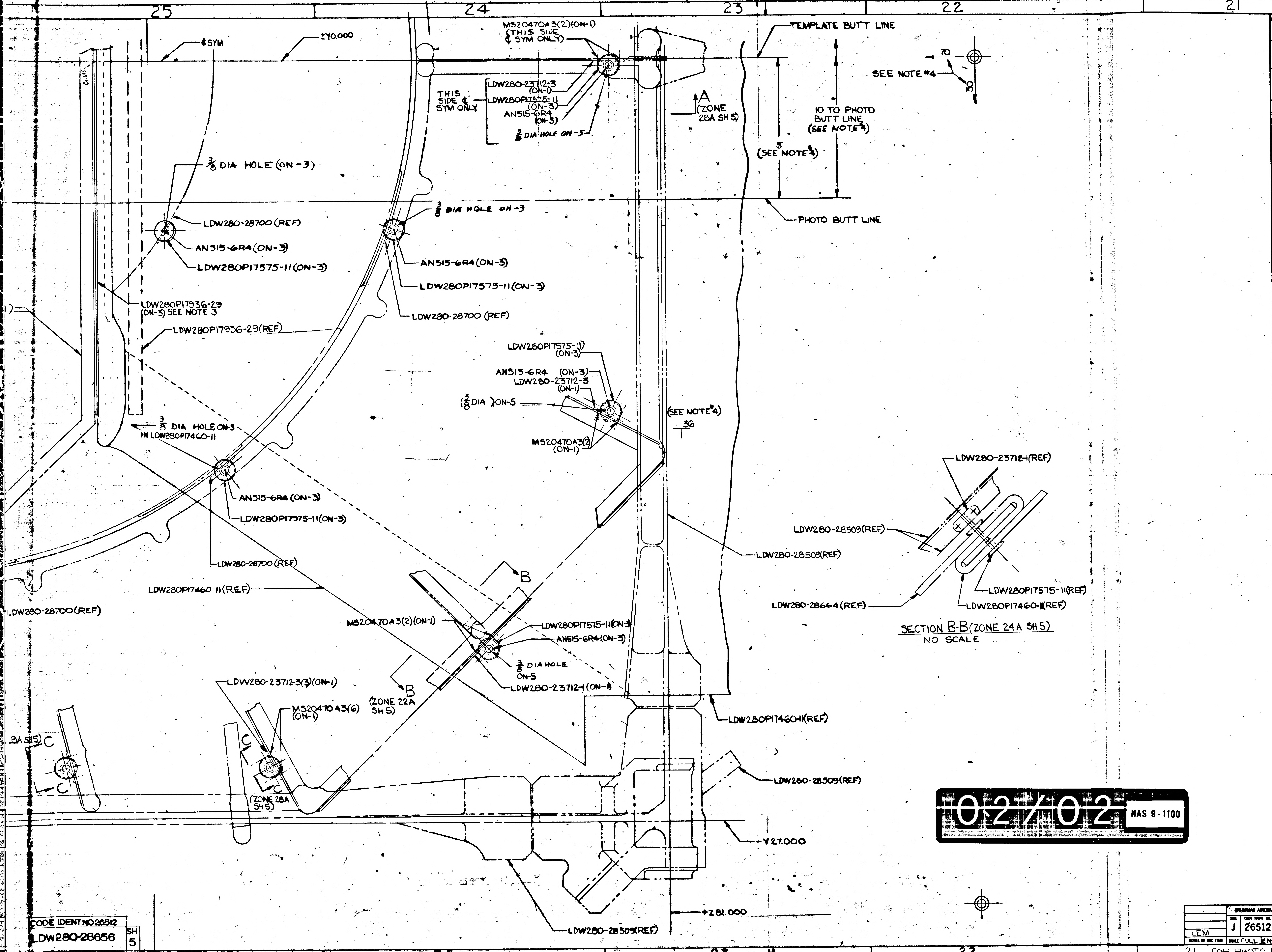
10 FOR PHOTO RERODUCTION.

K2


29
28
27
26
25
C
B
A
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE (SEE NOTE #4)
5 (SEE NOTE #4)
PHOTO BUTT LINE
¢SYM
A
LDW280-23662(REF)
+Z 60.695
LDW280P17936-29(REF)
X 116.340(REF)
3/16 ± 1/8
6.000(TRUE)
LDW280P17936-29 (ON-3) (SEE NOTE #3)
1/2
#852 TAPE
AN515-6R4 (REF)
LDW280P17575-11 (REF)
LDW280-28700(REF)
LDW280P17460-11(REF)
AN515-6R4 (REF)
LDW280P17575-11 (REF)
LDW280-28509 (REF)
X 131.140(REF)
SECTION A-A (ZONE 23C SH5)
NO SCALE
+Z 81.000(REF)
LDW280-25543(REF)
LDW280-23712-3(REF)
LDW280-28664(REF)
SECTION C-C (SHOWN) (ZONE 25A)
D-D (OPP) (ZONE 26A)
NO SCALE
3/8 DIA HO
LDW280-287
AN515-6R4
LDW280P17
LDW280-23663(REF)
LDW280P17936-29 (ON-3) SEE NOTE 3
LDW280P17936-29
3/8 DIA HOLE ON-3 IN LDW280P17460-11
AN51
LDW
LDW280-287
LDW280P17460-11(REF)
LDW280-28700(REF)
LDW280
D (ZONE 28A SH5)
D
(ZONE 28A SH5) C
C
C
(ZC SH5
+Z 54.000(REF)
LDW280-28656-1 INSTL(REF)
-3 INSTL(REF)
-5 ASSY(REF)
VIEW LOOKING UP

01/02 NAS 9-1100

CODE IDENT NO 26512	SH
LDW280-28656	5


25
24
23
22
21
¢SYM
±Y0.000
M520470A3(2)(ON-1)
(THIS SIDE
¢ SYM ONLY)
THIS
SIDE ¢
SYM ONLY
LDW280-23712-3
(ON-1)
LDW280P17575-11
(ON-3)
AN515-6R4
(ON-3)
3/8 DIA HOLE ON-5
A
(ZONE
28A SH 5)
TEMPLATE BUTT LINE
10 TO PHOTO
BUTT LINE
(SEE NOTE 4)
5
(SEE NOTE 4)
PHOTO BUTT LINE
70
30
SEE NOTE #4
3/8 DIA HOLE (ON-3)
LDW280-28700 (REF)
AN515-6R4 (ON-3)
LDW280P17575-11 (ON-3)
3/8 DIA HOLE ON-3
AN515-6R4 (ON-3)
LDW280P17575-11 (ON-3)
LDW280-28700 (REF)
LDW280P17936-29
(ON-3) SEE NOTE 3
LDW280P17936-29 (REF)
LDW280P17575-11
(ON-3)
AN515-6R4 (ON-3)
LDW280-23712-3
(ON-1)
(3/8 DIA) ON-5
M520470A3(2)
(ON-1)
(SEE NOTE 4)
36
3/8 DIA HOLE ON-3
IN LDW280P17460-11
AN515-6R4 (ON-3)
LDW280P17575-11 (ON-3)
LDW280-28700 (REF)
LDW280P17460-11 (REF)
LDW280-28700 (REF)
LDW280-28509 (REF)
B
M520470A3(2)(ON-1)
LDW280P17575-11 (ON-3)
AN515-6R4 (ON-3)
3/8 DIA HOLE
ON-5
LDW280-23712-1 (ON-1)
B
(ZONE 22A
SH 5)
LDW280-23712-3(3)(ON-1)
M520470A3(6)
(ON-1)
C
C
C
C
(ZONE 28A
SH 5)
8A SH 5)
LDW280P17460-11 (REF)
LDW280-28509 (REF)
Y27.000
+281.000
LDW280-28509 (REF)
LDW280-23712-1 (REF)
LDW280-28509 (REF)
LDW280-28664 (REF)
LDW280P17575-11 (REF)
LDW280P17460-11 (REF)
C
B
A

SECTION B-B (ZONE 24A SH 5)
NO SCALE

02/02 NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ⊠
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP THDS.
BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003 MIN.
TO .0005 MAX. MIN. THICKNESS TO
BE .0002 ON THREADED AREAS.
NO ALLOWANCE FOR PLATING IN
HOLES

125 √ SURFACE ROUGHNESS
INCLUDING REAMED HOLES
PER MIL-STD-10

250 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE
TO BE MACHINED

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY
RIVETS SHORTER THAN 1 INCH ARE
NOT SPECIFIED.

TOLERANCE ON LOFTED
DELINEATIONS IS

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 90) = 22.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 5.625 SQ. FT.

PRINT TRIM LINE

LDW280-28656

LDW280-28656

CODE IDENT NO 26512
LDW280-28656
SH 5

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
J	26512	LDW280-28656

LEM
MODEL OR END ITEM
SCALE FULL & NOTED
SHEET 5.00

FOR PHOTO REPRODUCTION

01 NAS 9-1100

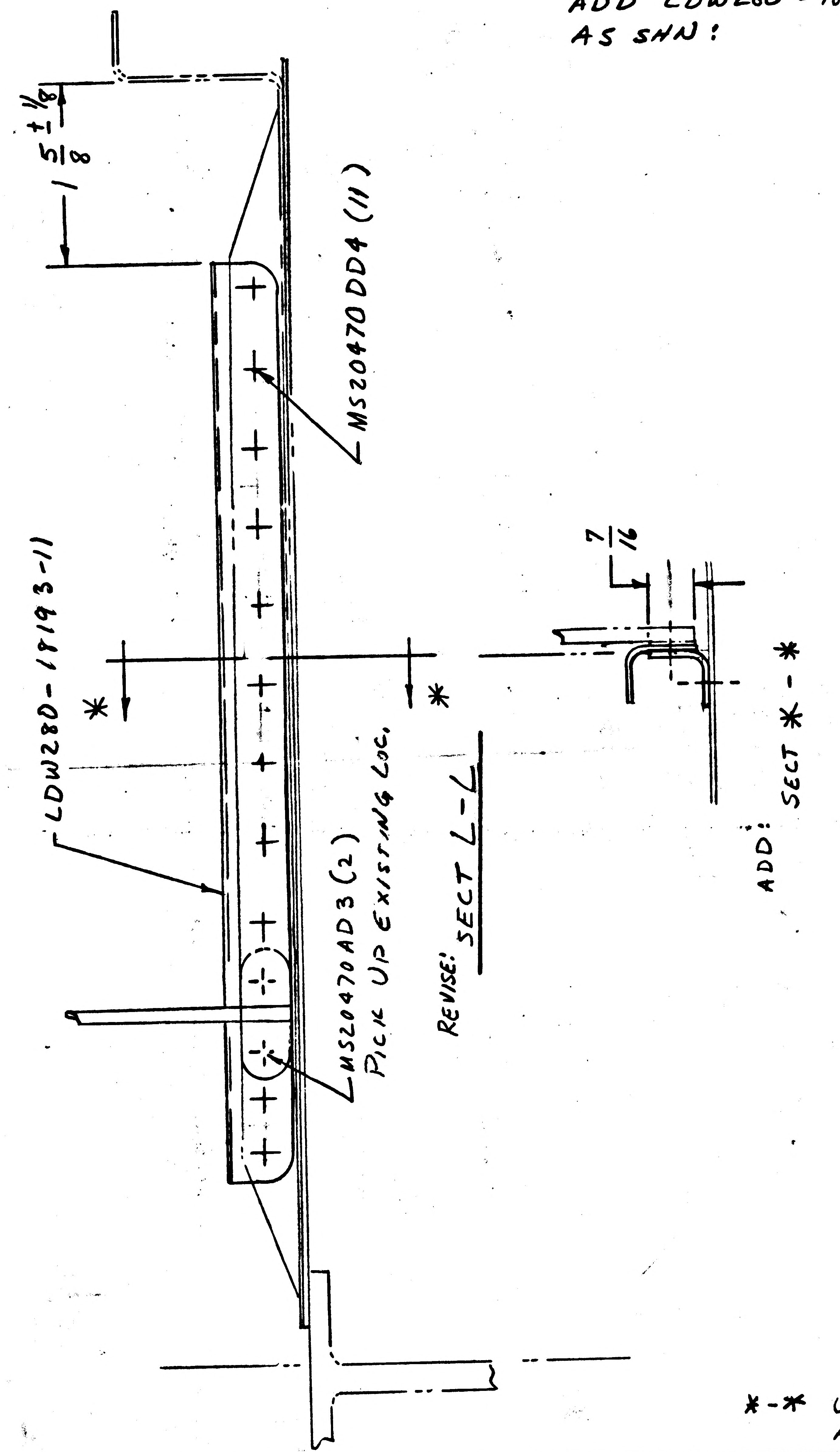
*

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280 28656		EO NO. A1
CONTROL INFO NO. LM 5-11067		

ON -1 INSTL
ADD LDW280-18193-11
AS SHN:



REVISE: SECT L-L

ADD: SECT *-*

- USE NEXT AVAILABLE LETTER

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: ADDITIONAL SUPT REQD FOR COLD PLATE

DESCRIPTION OF EO: ON -1 INSTL: ADDED LDW280-18193-11 ADDED SECT *-*

GAEC EO RELEASE: K

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
	JMS				M.S. NM	DV	RMcC	B.T.
DATE	11/11/66				11/11/66	11/11	11-22-66	11-12-6C
5	11/11/66							

PRIORITY: C

DRAWING TITLE: STANDOFF INSTL D/S FWD-THERMAL

DRAWING NO.: LDW280-28656

EO NO.: A1

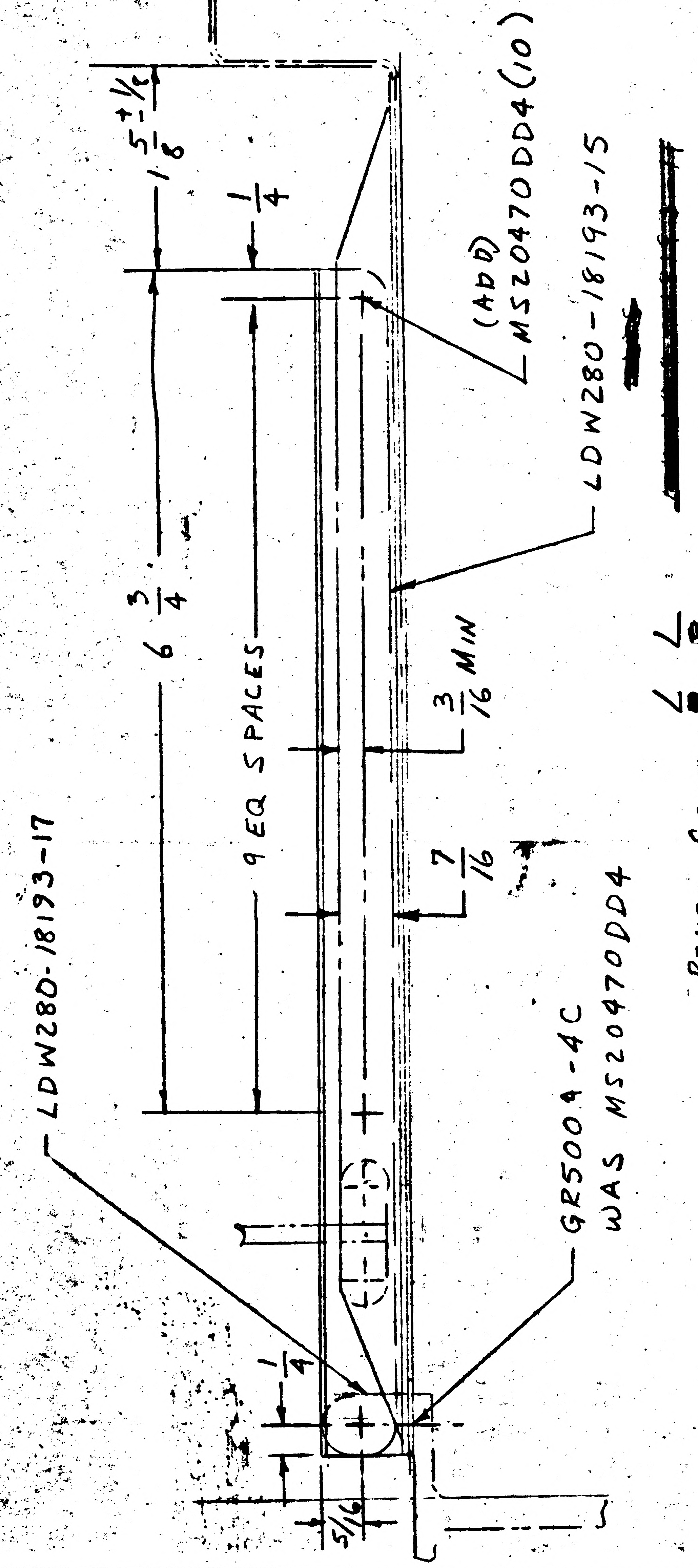
ISSUED BY D. RAGAS X6454 SECTION VD1 GROUP NO. 335 PL 5

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 28656
EO NO. A4
CONTROL INFO NO. LM5-11221

THIS EO CANCELS EO A1



1 5/8 ±1/16
1/4
6 3/4
9 EQ SPACES
(ADD) MS20470DD4(10)
LDW280-18193-15
3/16 MIN
7/16
LDW280-18193-17
GR500A-4C
WAS MS20470DD4
1/4
5/16

REVISE SECT L-L

CANCELL EO A1
ON-9INSTL ADDLDW280-18193-15 [redacted]
ADD LDW280-18193-17

5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO FACILITATE INSTL WITH SUPPORT STRUCT FOR COLD PLATE	CANCELLED EO A1, ON-9 INSTL ADDED LDW280-18193-15 & -17 & MS20470DD4(10) & GR500A-4C WAS MS20470DD4	® C4 VE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
				APPROVED BY	WT			~	RH	CH	RMC (WP)	RY
				DATE	11/28/66			~	11-28-66	11-28-66	11-30-66	11/29/66
✓		✓		S	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTL D/S FWD -- THERMAL	LDW280-28656	A4

ISSUED BY D. RAGAS SECTION VDI GROUP NO 32~

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG NO. LDW280-28656
EO NO. A5
CONTROL INFO NO. LDW280A-4304

ON-13 REMOVE LDW280P17524-1; 12 PLCS

ON-19 LDW280P17964-1 WAS LDW280P17964-5

THERMAL SHLD

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: TO MAKE DWG AGREE WITH TEMPLATE

DESCRIPTION OF EO:
ON-13 REMOVED LDW280P17524-1; 12 PLCS
ON-19 LDW280P17964-1 WAS LDW280P17964-5

GAEC EO RELEASE: FR 12/13/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8(19)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY		V.J.D.			W.H.			
✓		NOT	REQ'D	DATE	12/13/66	12/13		12/13/66	12/13/66		12/13	12/13/66
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: STANDOFF INSTL D/S FWD THERMAL
DRAWING NO.: LDW 280-28656
EO NO.: A5

ISSUED BY AMBROSIO / STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL. 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 28656
EO NO. 81
CONTROL INFO NO. LM5-11538

FOR -9 INSTL

ADD LDW280-23713-19-1(13) WHICH REPLACE -19 ASSY(13)

RELEASED BY LIAISON

(SHOP NOTE ONLY)
ALL EXTRANEOUS HOLES TO BE PLUGED WITH MS20470AD" "

DETAIL SPEC REQ ☐
CL II ENGRG CHG ☐
CL I ENGRG CHG ☐

REASON FOR EO: TO SUPT HEATER SKINS

DESCRIPTION OF EO: IN F/D & BM ON-9
ADDED LDW280-23713-19-1(13) WAS -19(13)

GAEC EO RELEASE: 5 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

	APPROVED BY	DATE
	WT	1/3/67
	5	VDI
SUPPORT		
RELIAB. GROUP		
~~GROUP LEADER~~	~	~
STRESS GROUP	CW	1/3/67
LIAISON ENGRG	DV	1/3/67
PROJ ENGRG	[illegible]	1-6-67
~~CUST~~	[illegible]	1/4/67

PRIORITY: C
DRAWING TITLE: STANDOFF INSTL D/S FWD - THERMAL
DRAWING NO. LDW280-28656
EO NO. 81

ISSUED BY RAGAS X6454 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

LDW280-28657 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28553	LTA-8(18)	1
PART NO. LDW280-28657-9		52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28509	LTA-8(18)	1
PART NO. LDW280-28657-7		50-1	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00	5.00	6.00		
REV	A	A	A	A	A	A	A		
SHEET		1.11	2.01						
REV		A	A						
SHEET									
REV									

LAST SECT LTR USED	W-W	GRUMMAN REL INFO A	
LAST DASH NO. USED	-17	PRIM NO. 207	JK 001 MP-16A-12/...

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ± 1/32 ± .020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM I
DOCUMENTATION TYPE II

DRAWN BY	CASTELLANO JESAITIS 7-11-66	RELIABILITY	
LAYOUT BY	DAVE STEA	THERMO	ab 1/30/67
CHECKED BY	WCG 7/14/66		
GR. LEADER	7/15/66		
VEH DES INT	7/16		
STRUCTURES	JEB 7/14	PROJ ENGR	7-27
STRUCTURES	Hillerman 7/16	REL GROUP	
WEIGHTS	7-27		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STANDOFF INSTL
DESCENT STAGE ~ L.H. THERMAL

SIZE	CODE IDENT NO.		
B	26512	LDW280-28657	A
SCALE	NONE	SHEET 1.00 OF 9	

Ⓐ

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 3.00	2C 15,16,17 & 18A					EO-A1	ADDED INFORMATION TO NOTE 1. RELOCATED STANDOFFS & .030 IN/IN EXPANSION RATIO WAS .015 IN/IN FOR TRAMMEL & CONTROL POINTS. (ADDED SH. 1.10)	LTA-8 (18)	✓		R. DOTTIN 12-13-67		
	2	1.10, 2.00 & 4.00	6F				✓	EO-A2	ON -1 REMOVED LDW280P17572-13 & ADDED LDW280P17572-23	LTA-8, LM-1 THRU LM-6					
	3							EO-A3	CANCELLED BY EOA6	LTA-8 (18)	✓				
	4	1.10, 2.00, 2.01, 3.00 4.00, 5.00 & 6.00	3B 3D 3E 3F 4A 4B 4C 4D 4E 5D 5F 7A 7B 7C 8B 8E 8F 9B 10E 10F				✓	EO-A4	IN FLD & B/M: REMOVED -1, -3, -5, LDW280P17461-21 & LDW280P17936-51 ADDED -7, -9, -11, -13, -15, LDW280P17461-41, 53 & -57, LDW280P17524-1, & LDW280P17700-17 LDW280-23713-19 WAS LDW280P17700-7, LDW280P17572-23 WAS -13, LDW280P17523-3 WAS -1, LDW280-23713-13 WAS -3 & LDW280-23713-15 WAS -5. ADDED GW10H-1 & GB10J-1 RELOCATED LDW280-28721-1 3 PLACES ADDED LDW280-18102-17. CORRECTED TAPE CALLOUTS LDW280P17936-29 & -13 WITH GT535L-HA-0250 & GT535G-LAS004 ADDED GR11B-1, GW10H-3 IN FLD; REMOVED NOTES #2, #3 & #4; ADDED NOTES #5, #6 & #7 DET "U" SECT. "W-W" CORRECTED BLKT SEAMS & LOCATIONS; 5/32 DIA HOLES WERE 1/4; RELOCATED "Z" MEMBER (DET Z) REMOVED 1 OF LDW280-28721, 2 OF LDW280-23712-3, 4 OF LDW280-23712-1, 38 OF LDW280P17700-7, 8 OF LDW280P17523-1. CORRECTED GEOM. DESIGNATIONS IN BOTTOM VIEW I.e. -Y81.00 WAS +Z81.00 & +Z27.00 WAS -Y27.00 (ADDED SH. 2.01)	LTA-8 (18)	✓				
	5	3.00					✓	LE0280-2,4	ON DWG. NO. LDW280-28657-7 ADDED GENERAL NOTE #8						
	6	1.10, 2.00 & 4.00	3D					EO-A6	CANCELLED EOA3 ON -7 ADDED LDW280-18193-13 & MS20470DD4 (7)						
	7	1.10, 2.00 4.00	5E					EO-A7	ON -11 REMOVE LDW280P17524-1, ON -9 LDW280P17964-1 WAS LDW280P17964-5 (3 PLACES)		NOT	REQD.			
	8	1.10, 2.00	21B					EO-A8	IN FLD & B/M ON -7 ADDED LDW280-23713-19-1 (6) WAS -19 (6)		✓				
	9	1.10, 2.01 & 5.00	3B					EO-A9	ADDED SECT V-V LDW450-5257-1 & 15/16 DIA.						
	10	1.10 & 4.00	3D				✓	EO-A10	IN FLD (SECT J-J SH. 4) REVISED PICTURE OF LDW280M17659-7 (2 3/8 WAS 2 7/8)				ES		

CHG APPROVED

LTR	GROUP LDR	VEH DES IN	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO
A							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28657	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS: REWORK	DISPOSITION OF EXISTING PARTS: SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
A	11	1.00, 1.10, 1.11 & 3.00							REF EOA1: ADDED TO NOTE *1 "CURE RANGE 1 OR ROOM TEMP. CURE FOR 7 DAYS PERMITTED"	LTA-8 (18)	✓		R. DOTTIN 12-13-67 (ES)	T. Schwede 12-20-67	
	12	1.10, 1.11, 2.00, 4.00					✓	(F)	REF EOA2: EFF SHOULD BE LTA-8 ONLY						

CHG APPROVED												
LTR	GROUP LDR	VEH DES IN	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO					
A												

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28657	A (A)
SCALE NONE			SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100

	QTY PER ASSEMBLY																
	-17	-15	-13	-11	-9	-7	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								NOTE #1 & #2	E	CEMENT	EPON 934						
								MS20470AD3	E	RIVET	STD PART						
								MS20470A3	E	RIVET	STD PART						
					44			AN515-6R4	↑	SCREW	STD PART						11B
								GT835P-8		TAPE							
								GT15C-1		TAPE							
					1			LDW280M17659-1		FITTING	SEE DWG						6D
						1		LDW280M17649-1		FITTING	↑						6D
				1				LDW280P17936-51		TAPE							
					2			GT535L-HA-0250		TAPE							27C
						30		GT535G-LAS-004		TAPE							9B
						6		LDW280-23713-19-1		STANDOFF							21B
					3			LDW280P17964-1		COVER							
					44			LDW280P17575-11		RETAINER							11B
						4		LDW280P17572-23		STANDOFF							6F
				30				LDW280P17523-3		CAP							9B
	1							LDW280P17461-57		BLANKET ASS'Y.							
		1						LDW280P17461-53		BLANKET ASS'Y.							
			1					LDW280P17461-41		BLANKET ASS'Y.							
						2		LDW280-28721-1		STANDOFF							8A
						3		LDW280-23713-15		STANDOFF							7B
						1		LDW280-23713-3		STANDOFF							8F
						11		LDW280-23712-3		STANDOFF							11E
						9		LDW280-23712-1		STANDOFF	↓						11B
								LDW280-28657-17		SKIN	SEE DWG				NONE	NONE	
								LDW280-28657-15		BLANKET ASS'Y					NONE	NONE	
								LDW280-28657-13		BLANKET ASS'Y					NONE	NONE	
					1			LDW280-28657-11		BLANKET ASSY					NONE	NONE	
								LDW280-28657-9	↓	BLANKET INSTL					NONE	NONE	
								LDW280-28657-7	E	STANDOFF INSTL					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28657	A

(A)

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

-17	-15	-13	-11	-9	-7	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						GS577A-1	E		STAPLE	STA PART						
			12			GW10H-3	E		WASHER	↑						
			12			GB10J-1	↑		BUSHING							
			44			GW10H-1			WASHED	↓						
			44			GR11B-1	↓		RETAINER	STD PART						
				1		LDW-450-5257-1	E		TUBE	SEE DWG						13B

QTY PER ASSEMBLY

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

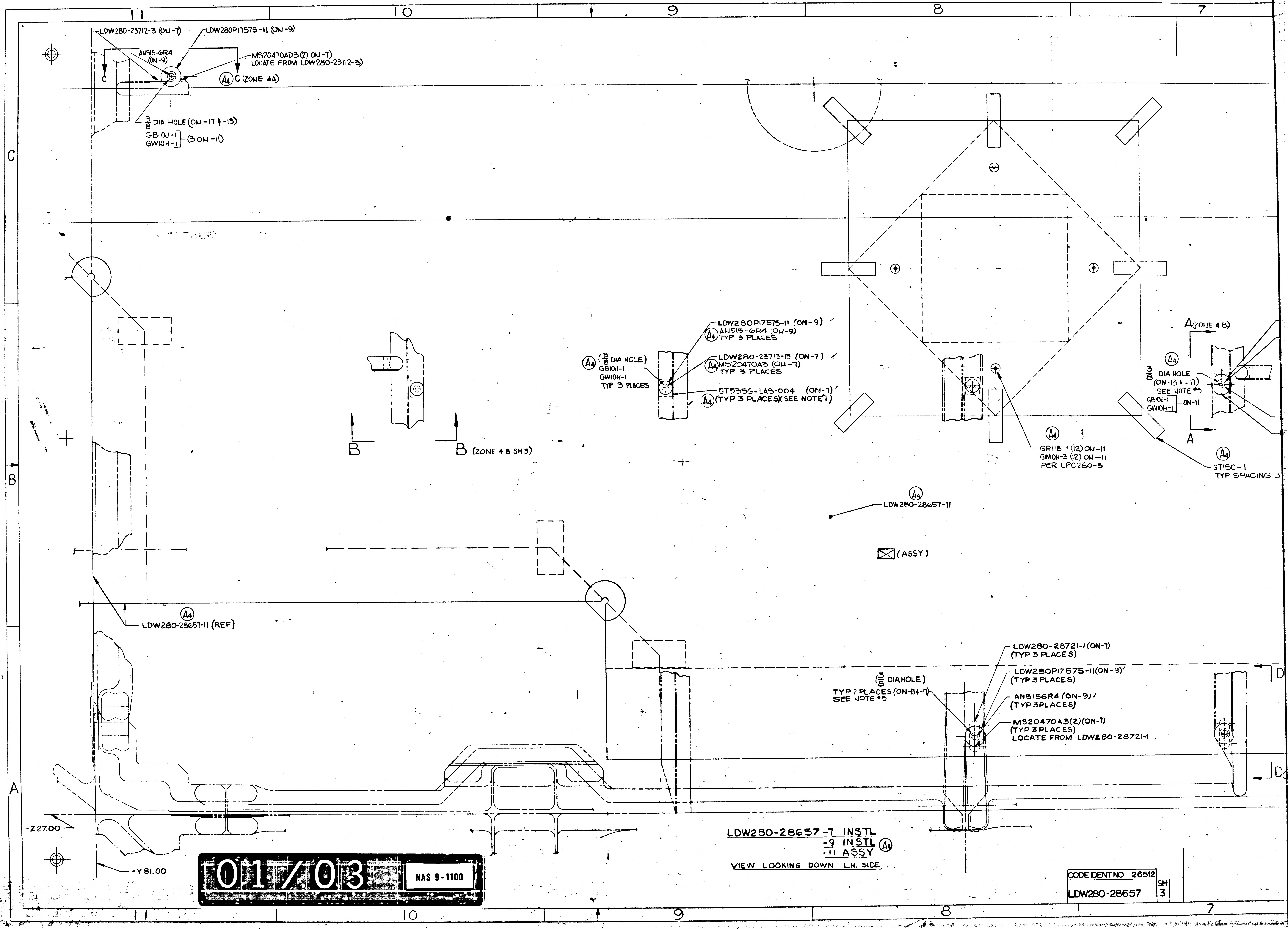
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28657	A

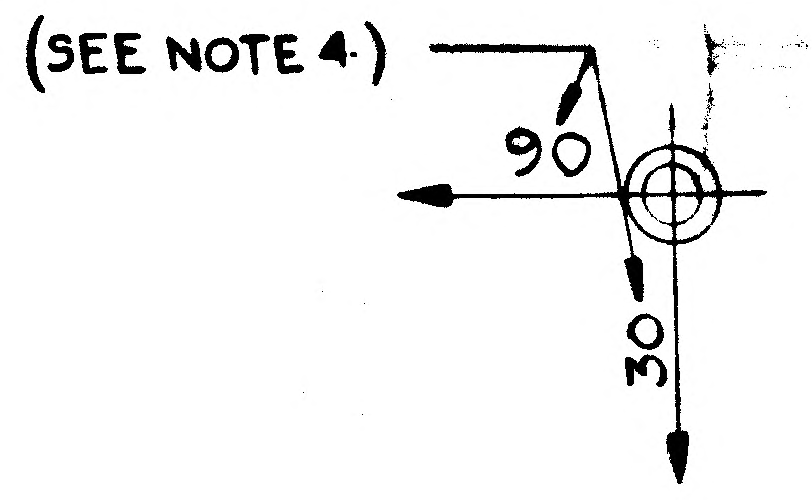
SCALE NONE SHEET 2.01

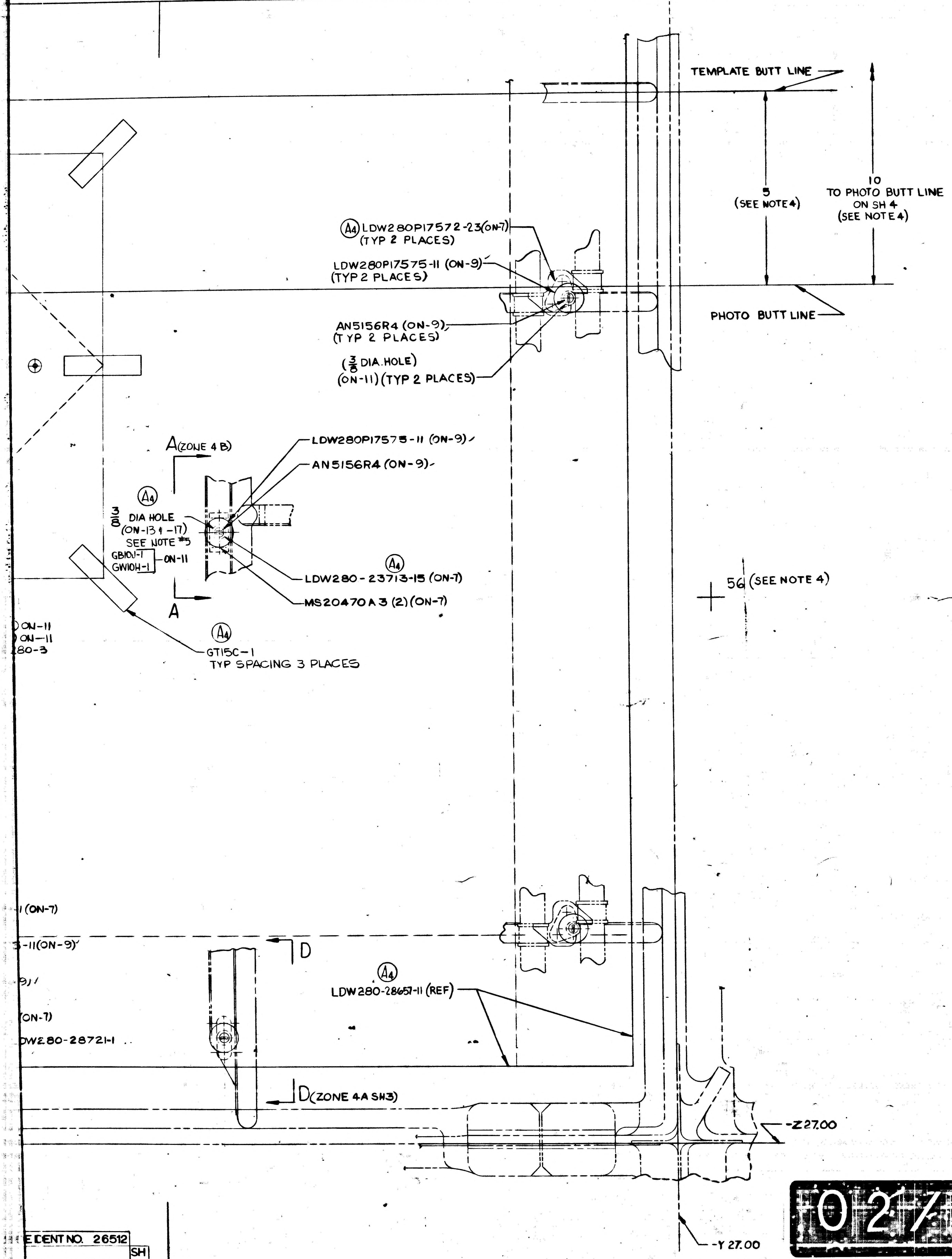
ENG 77.2 5-64

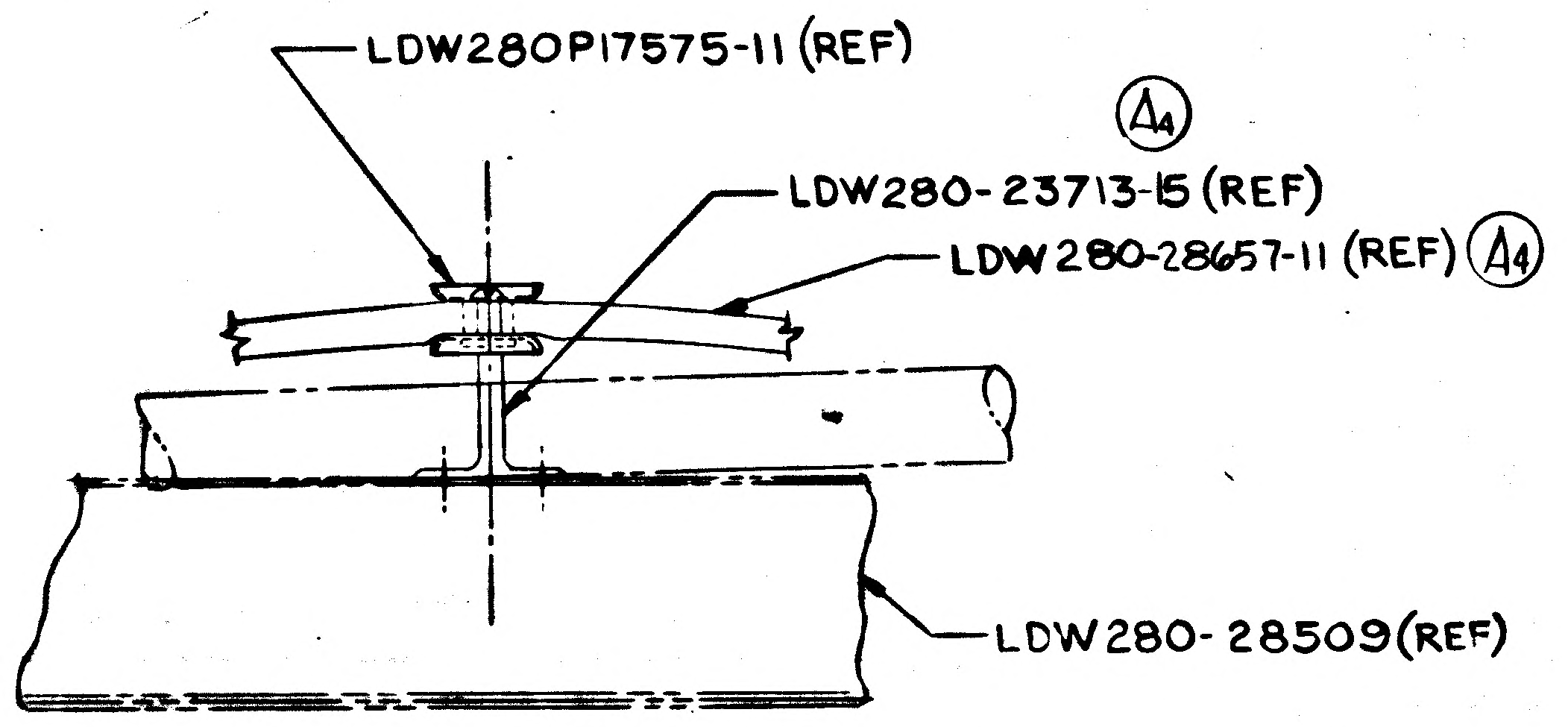
01 NAS 9-1100


11
10
9
8
7
C
B
A
LDW280-23712-3 (ON-7)
LDW280P17575-11 (ON-9)
AN515-6R4 (ON-9)
MS20470AD3 (2) ON-7)
LOCATE FROM LDW280-23712-3)
C
A4 C (ZONE 4A)
3/8 DIA. HOLE (ON -17 & -13)
GB10J-1
GW10H-1
(3 ON -11)
LDW280P17575-11 (ON-9)
A4 AN515-6R4 (ON-9)
TYP 3 PLACES
A4 (3/8 DIA HOLE)
GB10J-1
GW10H-1
TYP 3 PLACES
LDW280-23713-15 (ON-7)
A4 MS20470A3 (ON-7)
TYP 3 PLACES
GT535G-LAS-004 (ON-7)
A4 (TYP 3 PLACES)(SEE NOTE 1)
B
B (ZONE 4 B SH 3)
A (ZONE 4 B)
A4
3/8 DIA HOLE
(ON-13 & -17)
SEE NOTE #5
GB10J-1
GW10H-1
ON-11
A
A4
GR11B-1 (12) ON-11
GW10H-3 (12) ON-11
PER LPC280-3
A4
GT15C-1
TYP SPACING 3
A4
LDW280-28657-11
☒ (ASSY)
A4
LDW280-28657-11 (REF)
LDW280-28721-1 (ON-7)
(TYP 3 PLACES)
LDW280P17575-11(ON-9)
(TYP 3 PLACES)
AN5156R4 (ON-9)
(TYP 3 PLACES)
MS20470A3(2)(ON-7)
(TYP 3 PLACES)
LOCATE FROM LDW280-28721-1
(3/8 DIAHOLE)
TYP 2 PLACES (ON-13 & -17)
SEE NOTE #5
D
D
-Z27.00
-Y81.00
LDW280-28657-7 INSTL
-9 INSTL
-11 ASSY A4
VIEW LOOKING DOWN L.H. SIDE
CODE IDENT NO. 26512
LDW280-28657
SH
3
01/03
NAS 9-1100

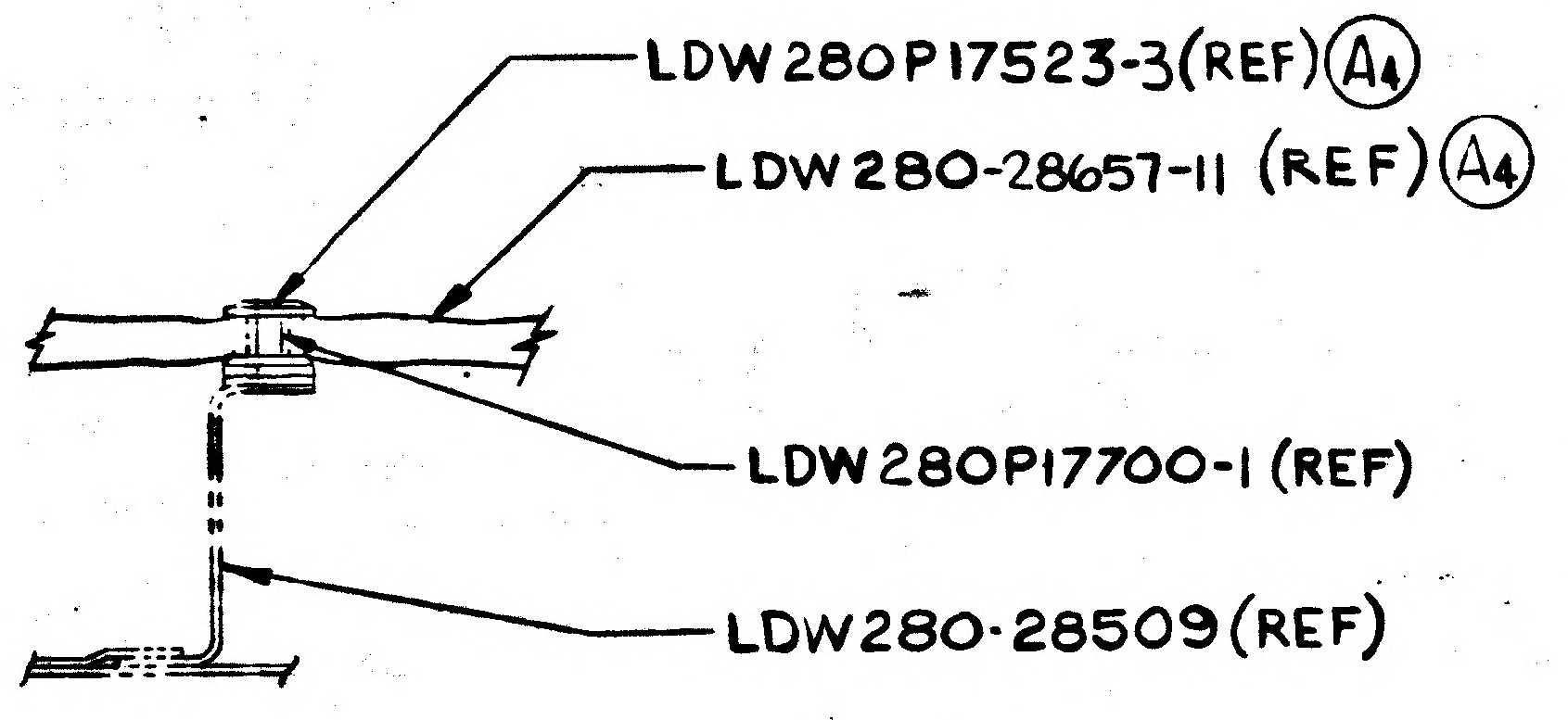
TRANS MIC B...


(SEE NOTE 4)
90
30

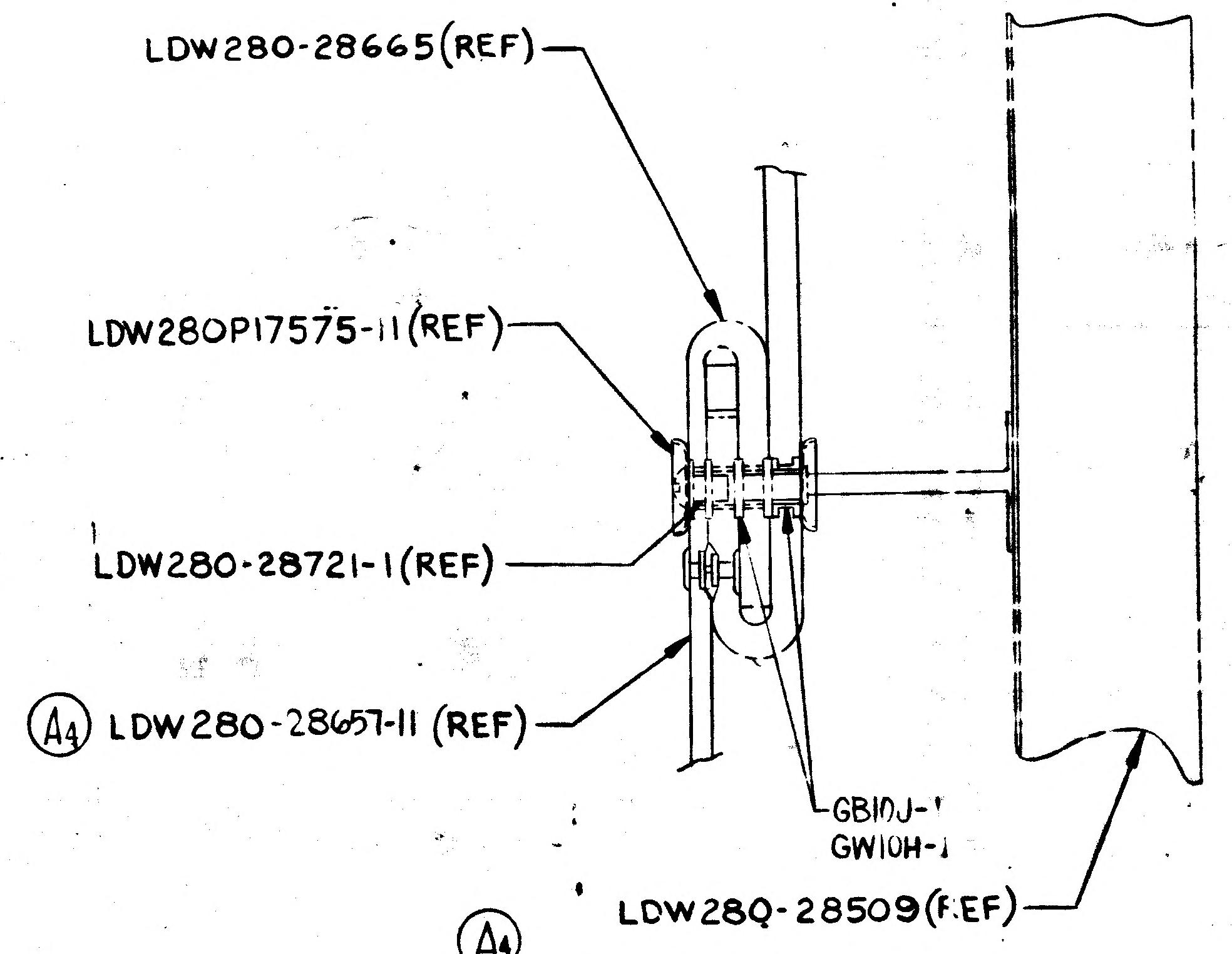

TEMPLATE BUTT LINE
5 (SEE NOTE 4)
10 TO PHOTO BUTT LINE ON SH 4 (SEE NOTE 4)
PHOTO BUTT LINE
(A4) LDW280P17572-23(ON-7) (TYP 2 PLACES)
LDW280P17575-11 (ON-9) (TYP 2 PLACES)
AN5156R4 (ON-9) (TYP 2 PLACES)
(3/8 DIA. HOLE) (ON-11) (TYP 2 PLACES)
A(ZONE 4 B)
LDW280P17575-11 (ON-9)
AN5156R4 (ON-9)
(A4)
3/8 DIA HOLE (ON-13 & -17) SEE NOTE #5
GB10J-1 GW10H-1 ON-11
(A4) LDW280-23713-15 (ON-7)
MS20470A3 (2) (ON-7)
A
ON-11
ON-11
280-3
(A4) GT15C-1 TYP SPACING 3 PLACES
56 (SEE NOTE 4)
-1 (ON-7)
-11 (ON-9)
9)
(ON-7)
DW280-28721-1
D
D(ZONE 4A SH3)
(A4) LDW280-28657-11 (REF)
-Z 27.00
-Y 27.00


LDW280P17575-11 (REF)
(A4)
LDW280-23713-15 (REF)
LDW280-28657-11 (REF) (A4)
LDW280-28509 (REF)

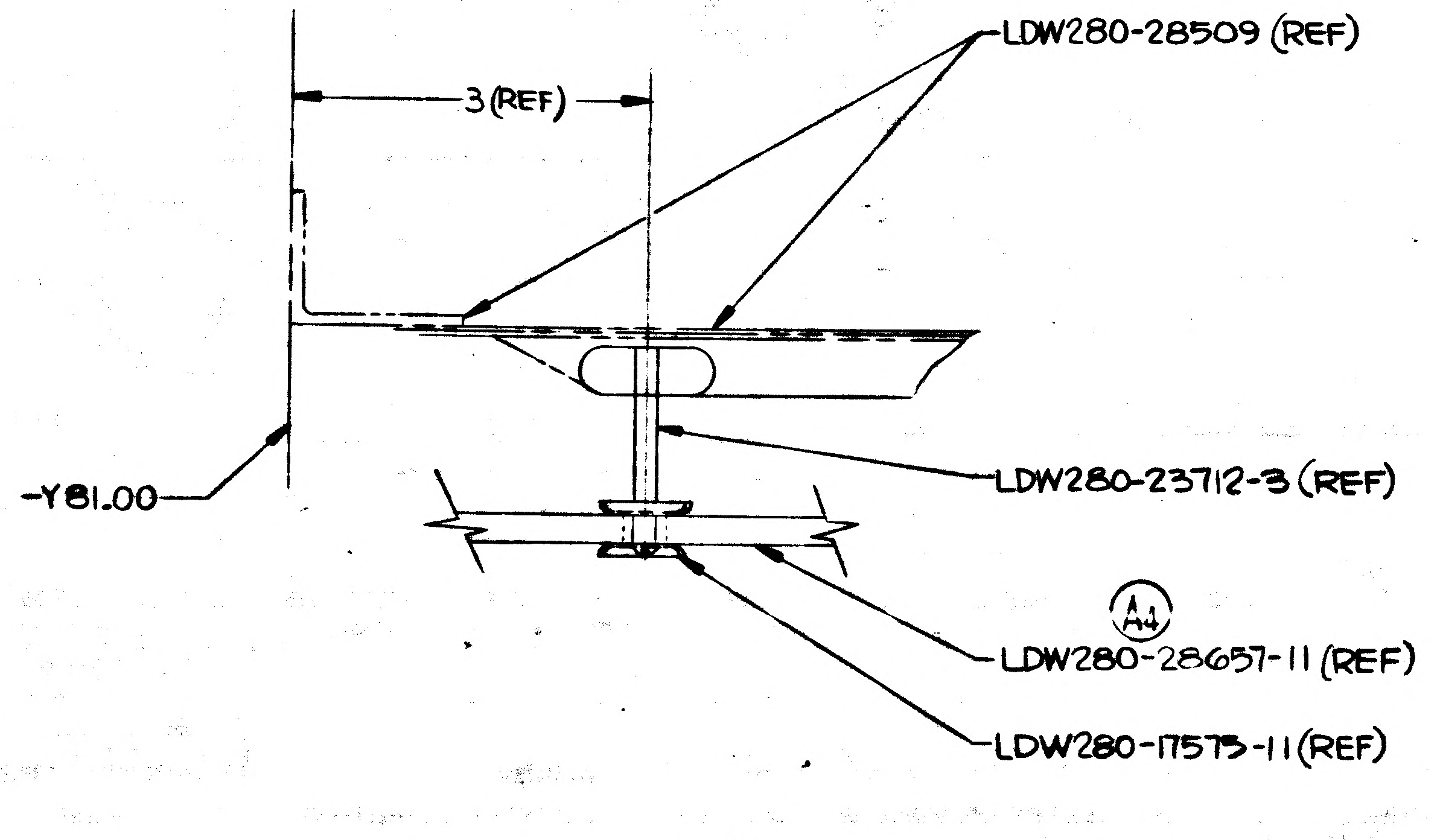
SECTION A-A (ZONE 7B SH 3)
(ROTATED 90°) NO SCALE


LDW280P17523-3 (REF) (A4)
LDW280-28657-11 (REF) (A4)
LDW280P17700-1 (REF)
LDW280-28509 (REF)

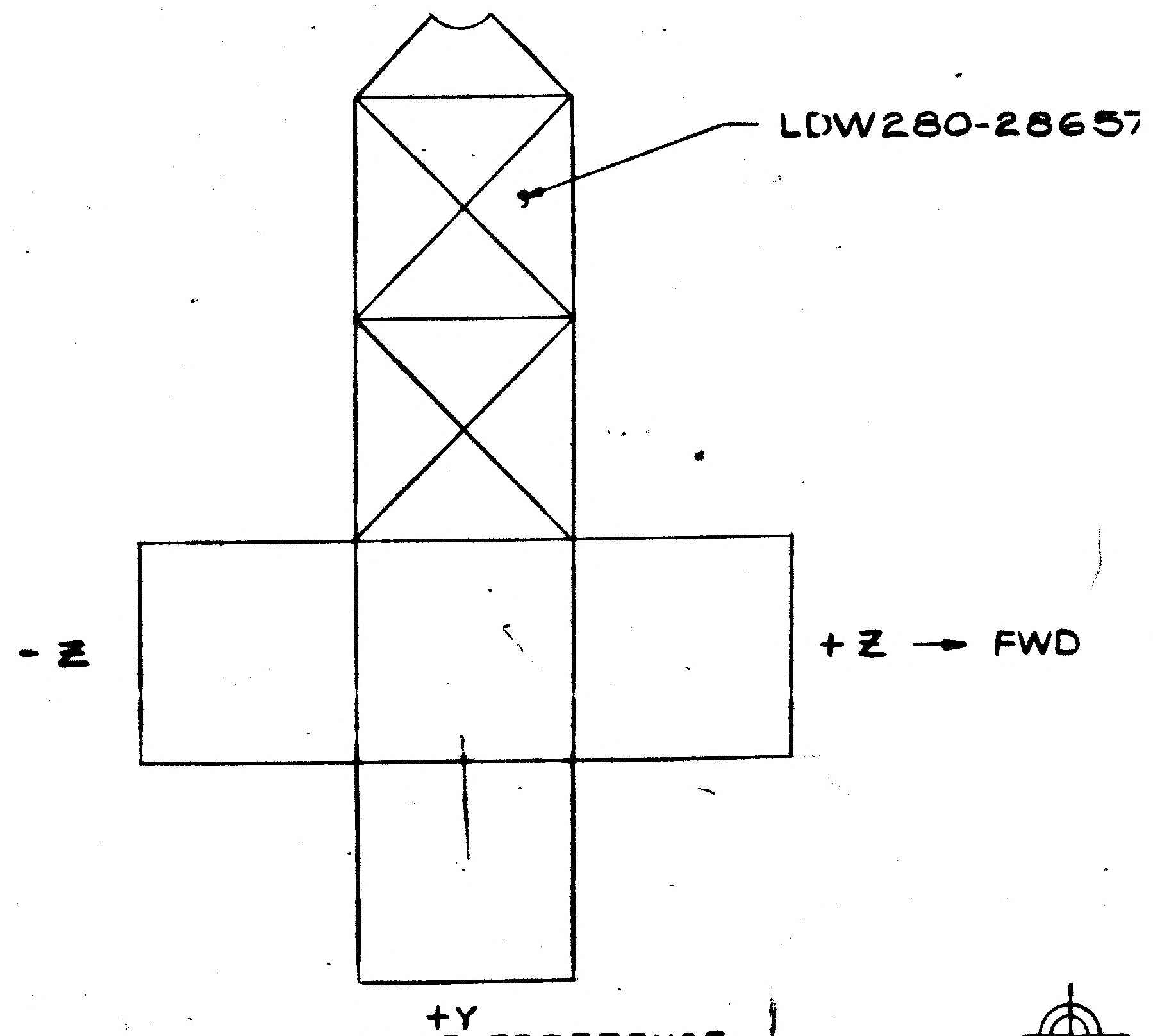
SECTION B-B (ZONE 10B SH 3)
NO SCALE


LDW280-28665 (REF)
LDW280P17575-11 (REF)
LDW280-28721-1 (REF)
(A4) LDW280-28657-11 (REF)
GB10J-1
GW10H-1
LDW280-28509 (REF)

(A4)
SECTION D-D (ZONE 7A SH 3) (TYP 5 PLACES)
NO SCALE


LDW280-28509 (REF)
3 (REF)
-Y81.00
LDW280-23712-3 (REF)
(A4)
LDW280-28657-11 (REF)
LDW280-17575-11 (REF)

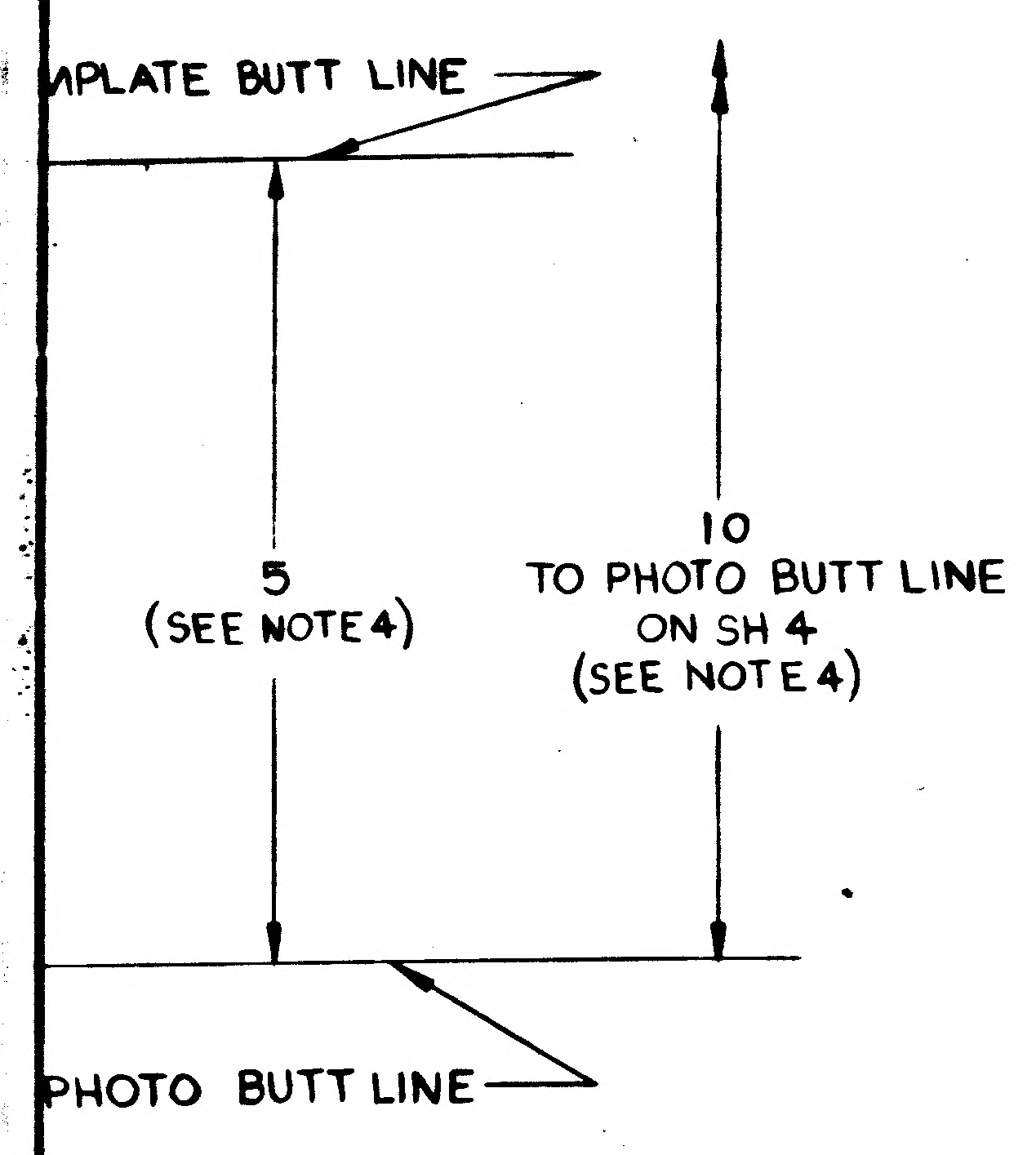
SECTION C-C (ZONE 11C SH 3) (TYP 5 PLACES)
NO SCALE


LDW280-28657
-Z
+Z → FWD
+Y

FOR ENG'R REFERENCE

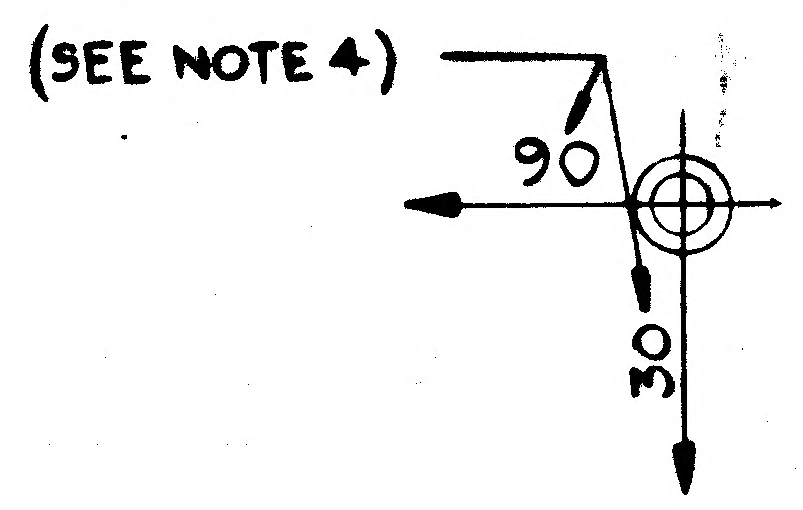
02/03 NAS 9-1100

CODE IDENT NO. 26512
LDW280-28657 SH 3

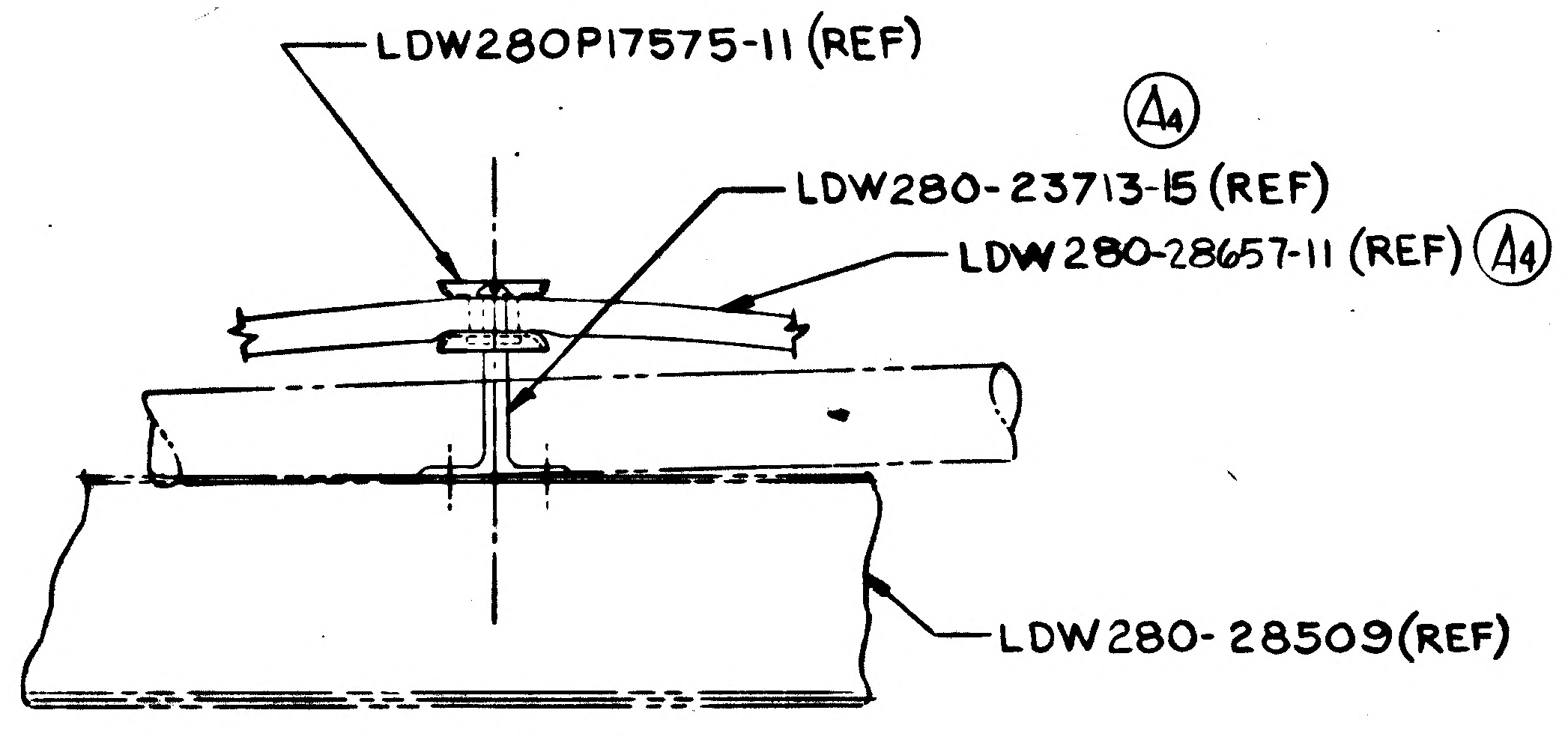


MPLATE BUTT LINE
5
(SEE NOTE 4)
10
TO PHOTO BUTT LINE
ON SH 4
(SEE NOTE 4)
PHOTO BUTT LINE

56 (SEE NOTE 4)

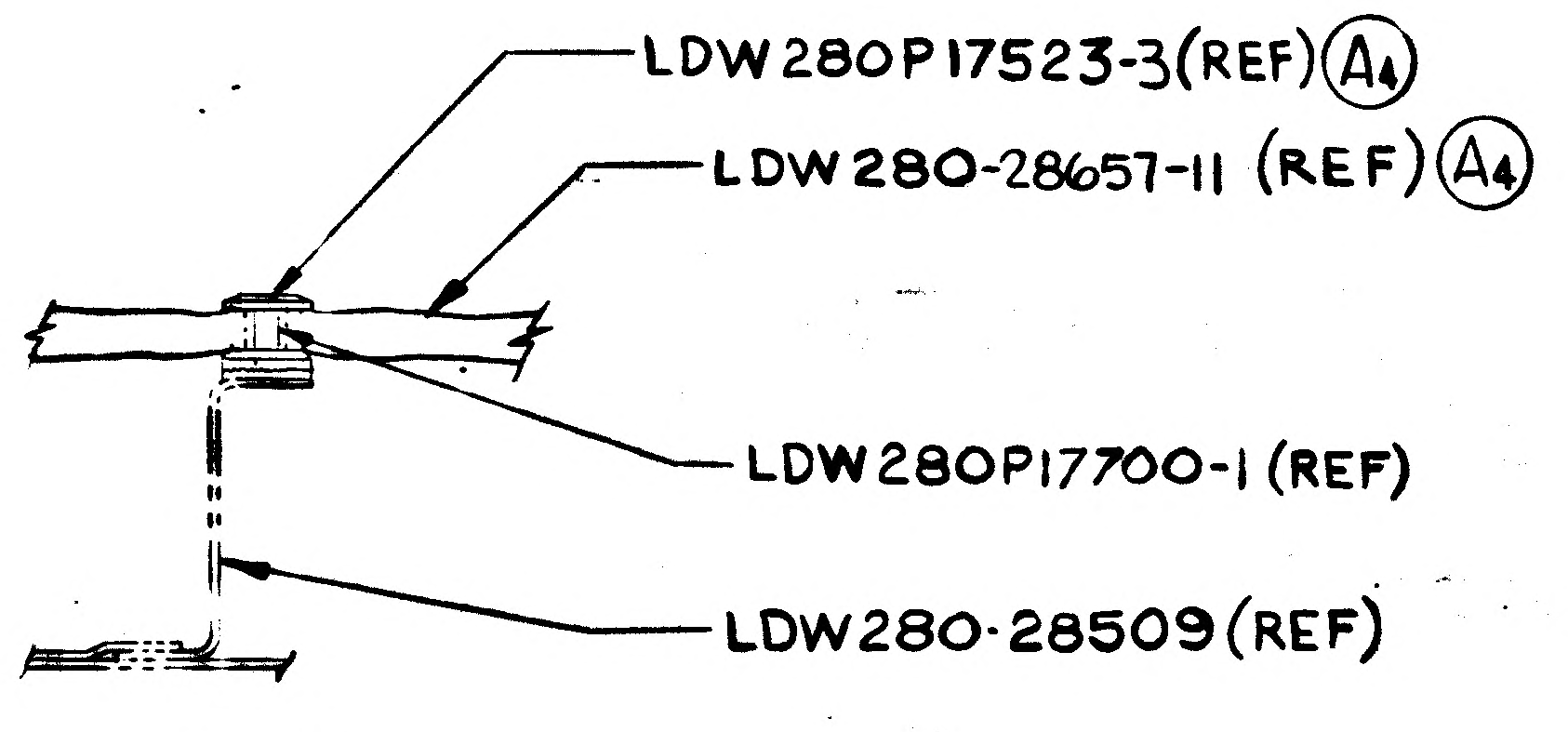


(SEE NOTE 4)
90
30



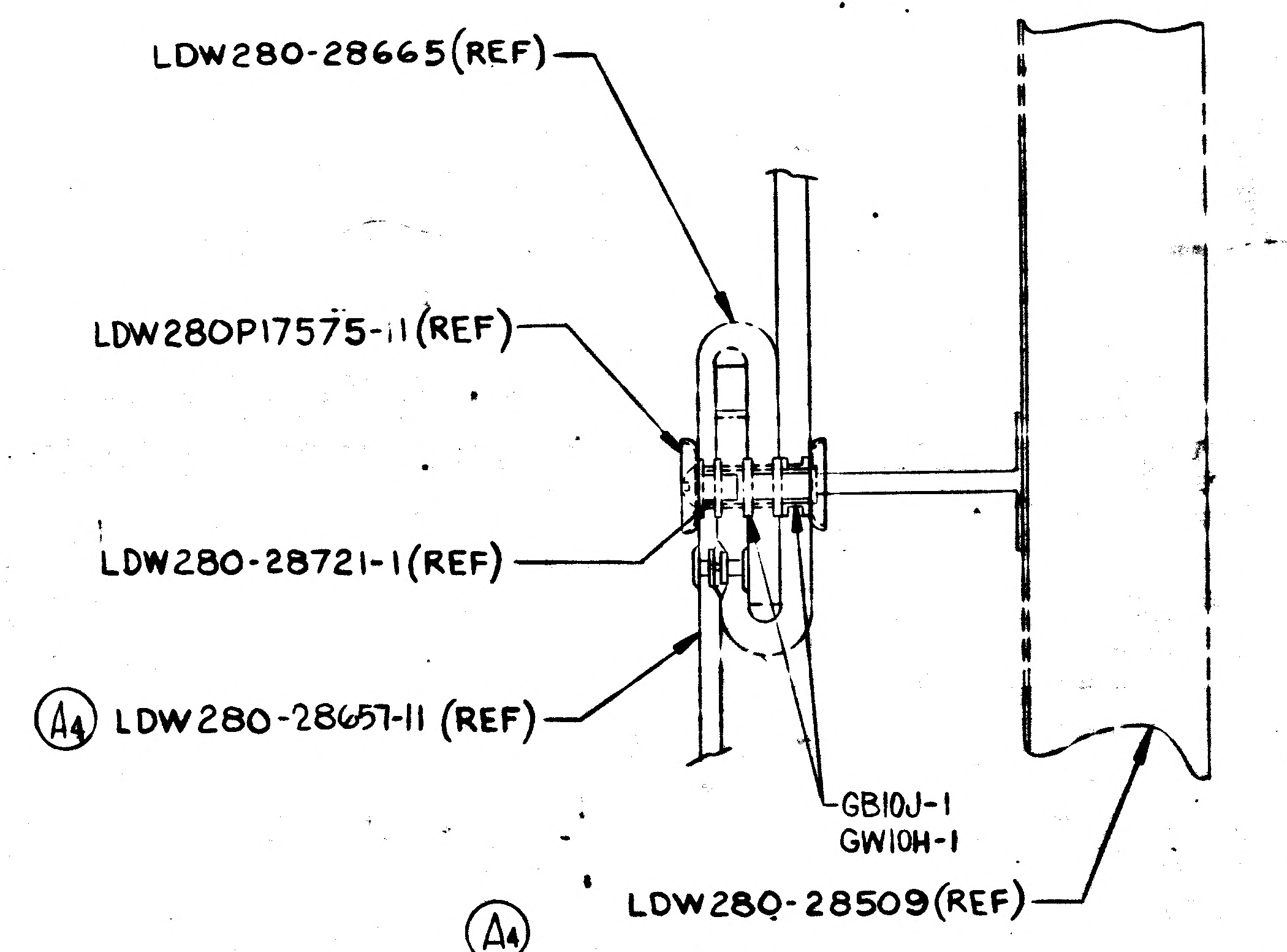
LDW280P17575-11 (REF)
(A4)
LDW280-23713-15 (REF)
LDW280-28657-11 (REF) (A4)
LDW280-28509 (REF)

SECTION A-A (ZONE 7B SH 3)
(ROTATED 90°) NO SCALE



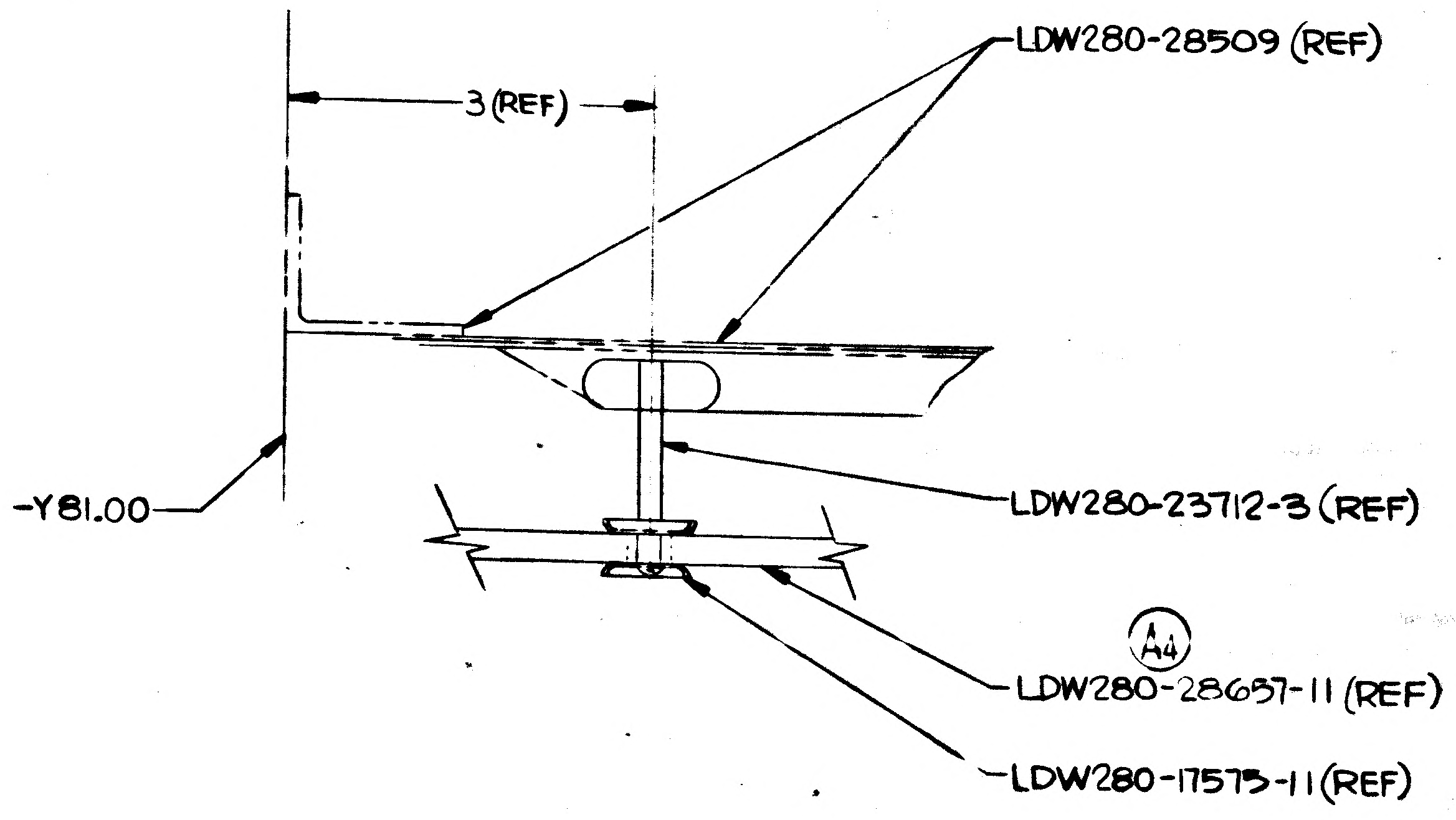
LDW280P17523-3 (REF) (A4)
LDW280-28657-11 (REF) (A4)
LDW280P17700-1 (REF)
LDW280-28509 (REF)

SECTION B-B (ZONE 10B SH 3)
NO SCALE



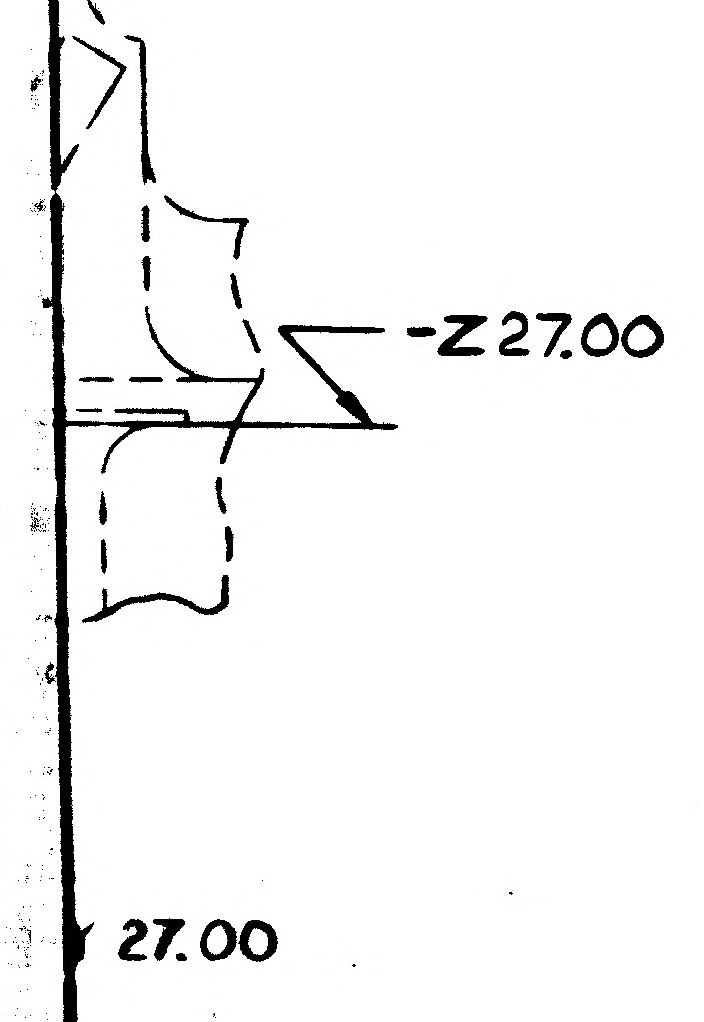
LDW280-28665 (REF)
LDW280P17575-11 (REF)
LDW280-28721-1 (REF)
(A4) LDW280-28657-11 (REF)
GB10J-1
GW10H-1
LDW280-28509 (REF)
(A4)

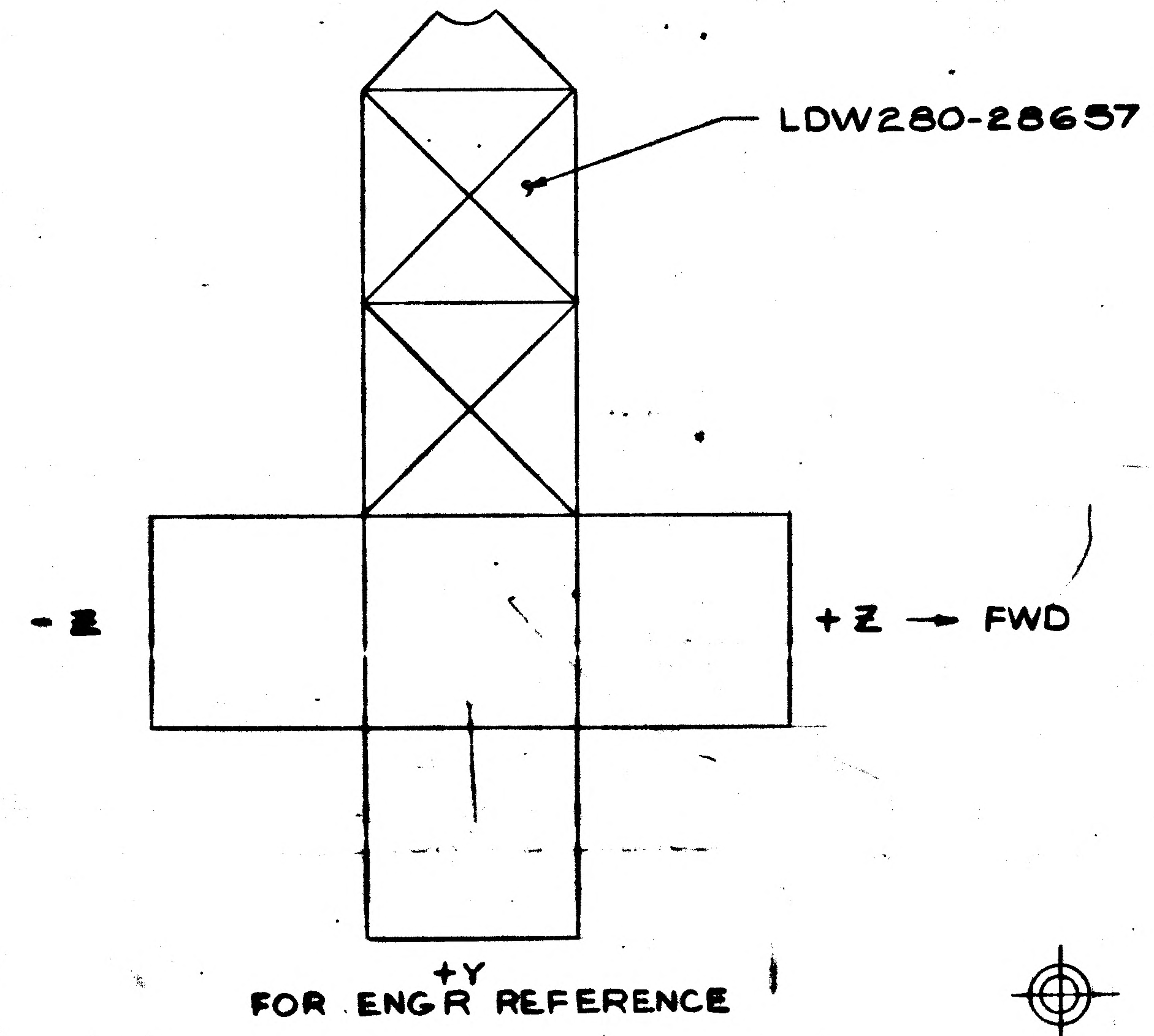
SECTION D-D (ZONE 7A SH 3) (TYP 3 PLACES)
NO SCALE



3 (REF)
LDW280-28509 (REF)
-Y81.00
LDW280-23712-3 (REF)
(A4)
LDW280-28657-11 (REF)
LDW280-17575-11 (REF)

SECTION C-C (ZONE 11C SH 3) (TYP 3 PLACES)
NO SCALE





LDW280-28657 (REF)
-Z
+Z → FWD
+Y

FOR ENGR REFERENCE

NOTES:

1 BOND LDW280P17936-13 TO STRUCTURE AS SHOWN WITH EPON 934 PER LSP14-22500 "CURE RANGE 1 OR ROOM TEMP CURE FOR 7 DAYS PERMITTED."

~~2. BOND LDW280P17523-1 TO LDW280P17700-7 AS SHOWN WITH EPON 934 PER LSP14-22500~~

~~3. LDW280P17936-29 & -51 SEW TO LDW280P17461 AT 3/16 ± 1/16 FROM EDGES OF LDW280P17936-29 & -51 IN ACCORDANCE WITH FED STD #751a & STITCH TYP 301~~

~~4. LDW280-28657-5 ASSY SHOWN ON THIS DRAWING HAS BEEN DRAWN TO PROJECTED DIMENSIONS. THIS ASSEMBLY SHALL BE MADE TO EXPANDED DIMENSIONS BY MAKING A PHOTO LOFT TO THE EXPANDED TRAMMEL POINT DIMENSIONS INDICATED BELOW. THE EXPANSION RATIO IS .030 IN/IN~~

~~TRAMMEL POINT~~		~~SHOWN~~	~~EXPANDED~~
~~SHEET 3~~	~~LENGTH~~	~~90~~	~~92.700~~
~~3~~	~~WIDTH~~	~~30~~	~~30.900~~
~~SHEET 4~~	~~LENGTH~~	~~90~~	~~92.700~~
~~4~~	~~WIDTH~~	~~30~~	~~30.900~~
~~SHEET 5~~	~~LENGTH~~	~~90~~	~~92.700~~
~~5~~	~~WIDTH~~	~~30~~	~~30.900~~
~~6~~	~~LENGTH~~	~~70~~	~~72.100~~
~~6~~	~~WIDTH~~	~~30~~	~~30.900~~
~~CONTROL POINTS~~			
~~SHEET 3~~		~~56~~	~~57.680~~
~~4~~		~~56~~	~~57.680~~
~~5~~		~~72~~	~~74.160~~
~~6~~		~~36~~	~~37.080~~
~~PHOTO BUTT (ALL)~~		~~10.0~~	~~10.300~~
~~TEMP BUTT (ALL)~~		~~5.0~~	~~5.150~~

5. ATTACH LDW280P17523-3 TO LDW280P1700-17 PER LCP280-14

6 SEW GT535L-HA-0250 TO LDW280P17461 AT 3/16 ± 1/16 FROM EDGES OF GT535L-HA-0250 IN ACCORDANCE WITH FED STD #751a & STICTH TYP 301.

7. ALL ALUMINIZED MYLAR PARTS SHALL BE MADE WITH EXPANDED DIM'S. THE EXPANSION RATIO IS TO BE .050 IN/IN. e.g. 10.000 SHN. EXPANDS TO 10.500
ALL ALUMINZED POLYMIDE PARTS SHALL BE MADE WITH EXPANDED DIM'S. THE EXPANSION RATIO IS TO BE .070 IN/IN e.g. 10.000 SHL EXPANDS TO 10.700

8. WRAP STEMS OF ALL STANDOFFS WHICH ARE RIVETED TO STRUCTURE WITH 1 LAYER OF GT835M-8 TAPE (ON -7) STANDOFF INSTL.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X 106

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 117) = 29.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 7.3 SQ. FT.

PRINT TRIM LINE

LDW280-28657 A

LDW280-28657 A

03/03

NAS 9-1100

CODE IDENT NO. 26512
LDW280-28657
SH 3

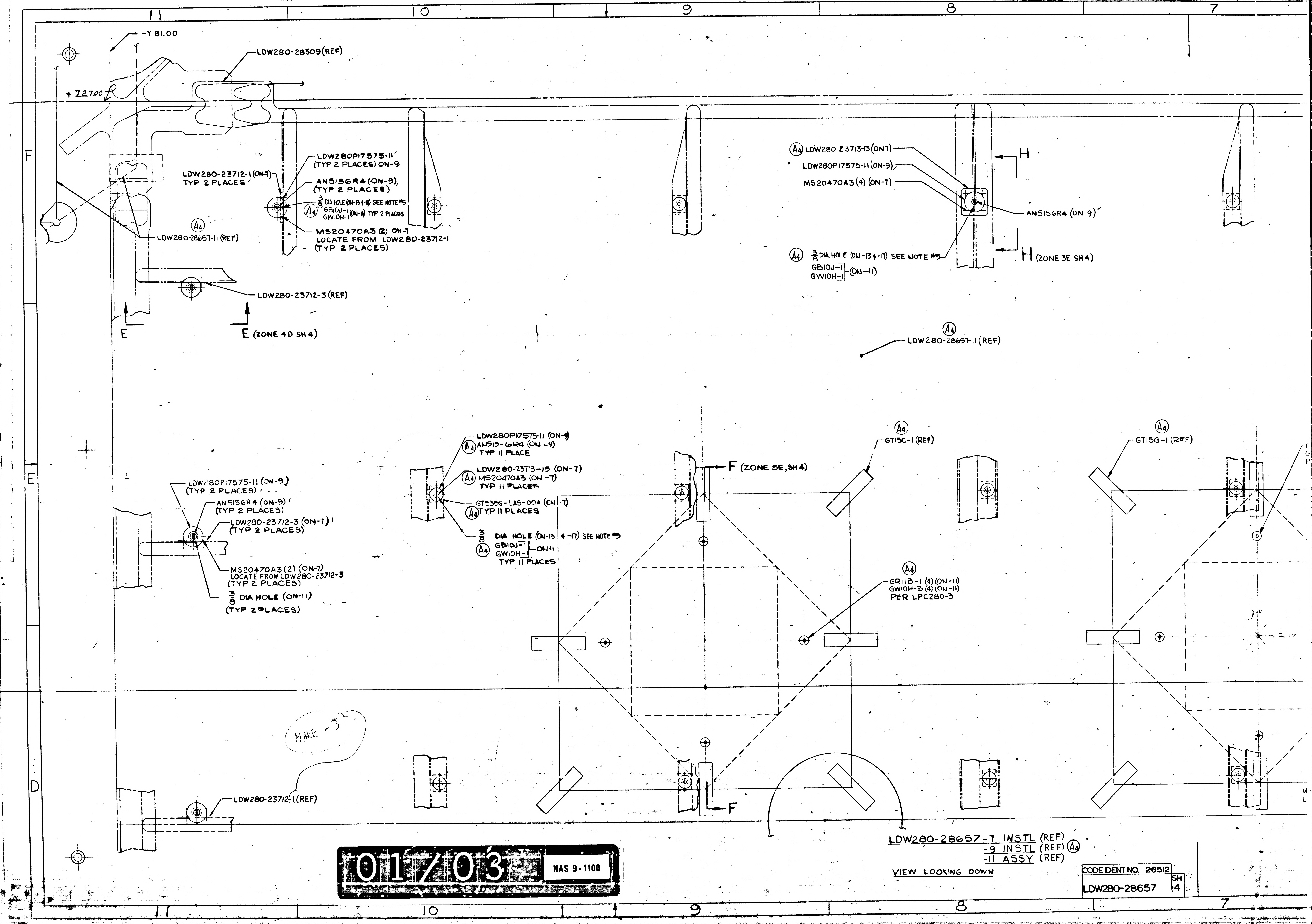
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	J	26512	LDW280-28657	A
	SCALE FULL & NOTED		SHEET 3.00	

3F

FOR PHOTO REPRODUCTION K2

LDW280-28657 SH 3


11
10
9
8
7
F
E
D
-Y 81.00
+Z 27.00
LDW280-28509 (REF)
LDW280-23712-1 (ON-7)
TYP 2 PLACES
LDW280P17575-11
(TYP 2 PLACES) ON-9
AN5156R4 (ON-9),
(TYP 2 PLACES)
3/8 DIA HOLE (ON-13 & -17) SEE NOTE #5
A4
GB10J-1
GW10H-1 (ON-11) TYP 2 PLACES
MS20470A3 (2) ON-7
LOCATE FROM LDW280-23712-1
(TYP 2 PLACES)
A4
LDW280-28657-11 (REF)
LDW280-23712-3 (REF)
E
E (ZONE 4D SH 4)
A4 LDW280-23713-13 (ON 7)
LDW280P17575-11 (ON-9)
MS20470A3 (4) (ON-7)
AN5156R4 (ON-9)
H
A4 3/8 DIA. HOLE (ON-13 & -17) SEE NOTE #5
GB10J-1
GW10H-1 (ON-11)
H (ZONE 3E SH 4)
A4
LDW280-28657-11 (REF)
LDW280P17575-11 (ON-9)
A4 AN515-6R4 (ON -9)
TYP 11 PLACE
LDW280-23713-15 (ON-7)
A4 MS20470A3 (ON -7)
TYP 11 PLACES
GT535G-LAS-004 (ON -7)
A4 TYP 11 PLACES
3/8 DIA HOLE (ON-13 & -17) SEE NOTE #5
A4 GB10J-1
GW10H-1 ON-11
TYP 11 PLACES
F (ZONE 5E, SH 4)
F
A4
GT15C-1 (REF)
A4
GT15G-1 (REF)
A4
GR11B-1 (4) (ON-11)
GW10H-3 (4) (ON-11)
PER LPC280-3
LDW280P17575-11 (ON-9)
(TYP 2 PLACES)
AN5156R4 (ON-9)
(TYP 2 PLACES)
LDW280-23712-3 (ON-7)
(TYP 2 PLACES)
MS20470A3 (2) (ON-7)
LOCATE FROM LDW280-23712-3
(TYP 2 PLACES)
3/8 DIA HOLE (ON-11)
(TYP 2 PLACES)
MAKE -3
LDW280-23712-1 (REF)
2.75

LDW280-28657-7 INSTL (REF)
-9 INSTL (REF) Ⓐ4
-11 ASSY (REF)

VIEW LOOKING DOWN

01/03 NAS 9-1100

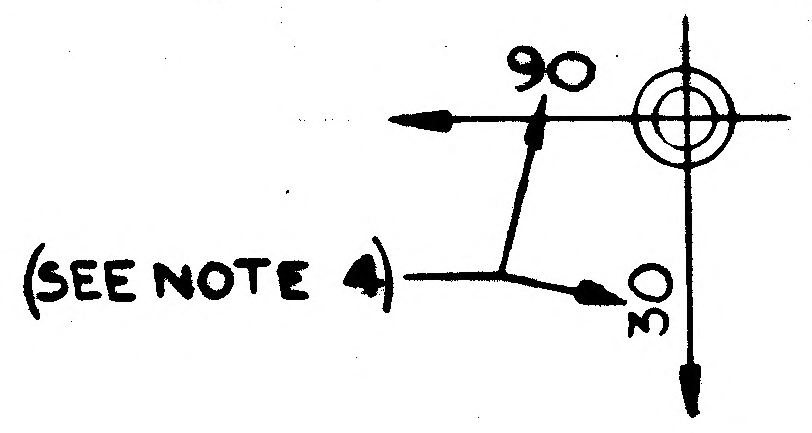
CODE IDENT NO. 26512
LDW280-28657
SH 4

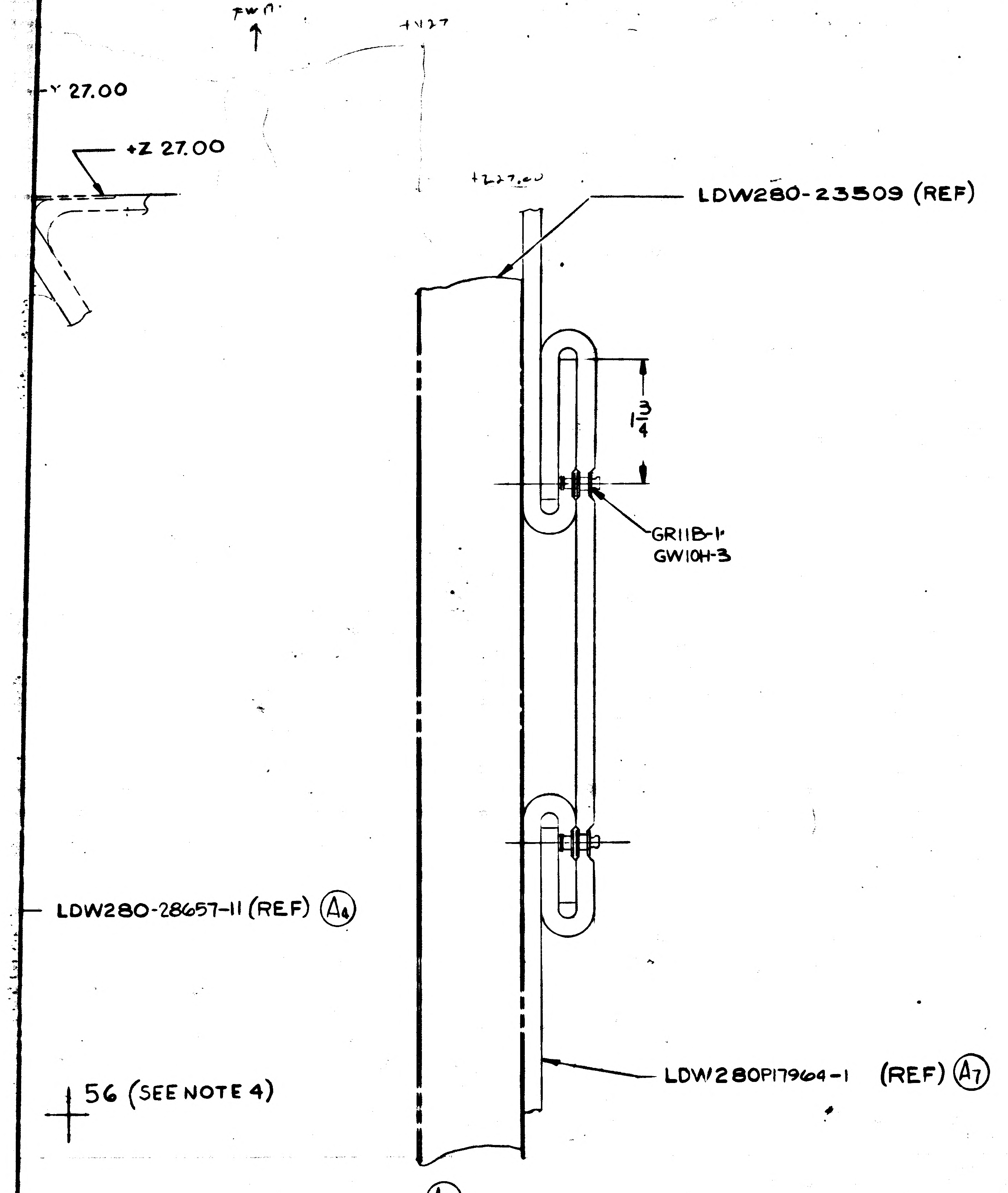
7
6
5
4
3
-Y 27.00
+Z 27.00
LDW280-23509 (REF)
(SEE NOTE 4)
(A2) LDW280P17572-23 (ON-7)
(TYP 2 PLACES)
LDW280P17575-11 (ON-9)
(TYP 2 PLACES)
AN5156R4 (ON-9)
(TYP 2 PLACES)
(3/8 DIA. HOLE)
(ON-11) (TYP 2 PLACES)
1 3/4
GR11B-1
GW10H-3
LDW280-28509 (REF)
(A4) LDW280P17572-23 (REF)
(A4) LDW280-28657-11 (REF)
LDW280P17575-11 (REF)
SECTION G-G (ZONE 6D, SH4)
NO SCALE
LDW280-28657-11 (REF) (A4)
+56 (SEE NOTE 4)
LDW280P17964-1 (REF) (A7)
(A4)
SECTION F-F (ZONE 9E, SH4)
NO SCALE
(A4)
GT15G-1 (REF)
(A4)
GR11B-1 (4) (ON-11)
GW10H-3 (4) (ON-11)
PER LPC280-3
LDW280-28509 (REF)
(A4) LDW280-28657-11 (REF)
(A4) LDW280-23713-13 (REF)
LDW280P17575-11 (REF)
SECTION H-H (ZONE 6D SH4)
NO SCALE
G
G (ZONE 4E SH4)
PHOTO BUTT LINE
5
(SEE NOTE 4)
10
TO PHOTO BUTT LINE
ON SH3
(SEE NOTE 4)
LDW280M17659-1 (ON-7)
LDW280M17649-1
(ON-9)
(A4)
3/8 DIA HOLE (ON-11)
GB10J-1
GW10H-1 (5 ON-11)
MS20470AD3 (2) (ON-7)
LOCATED FROM LDW280M17659-1
J (ZONE 3D SH4)
J
TEMPLATE BUTT LINE
LDW280P17575-11 (REF)
LDW280-28657-11 (REF) (A4)
LDW280-23712-3
LDW280-28509
-Y 81.00
3
SECTION E-E (ZONE 11E SH4)
NO SCALE
1 5/8
1/4
3/4
(A10)
(A6)
LDW280-18193-13
(ON-7)
MS20470DD4 (7)
1.0
1.0
4 5/8
LDW280-17998-23 (REF)
MS20470AD3 (4)
(165-1
(A6)
SECTION J-J (ZONE 6D) 5 PLACES

CODE IDENT NO. 26512
LDW280-28657 SH 4

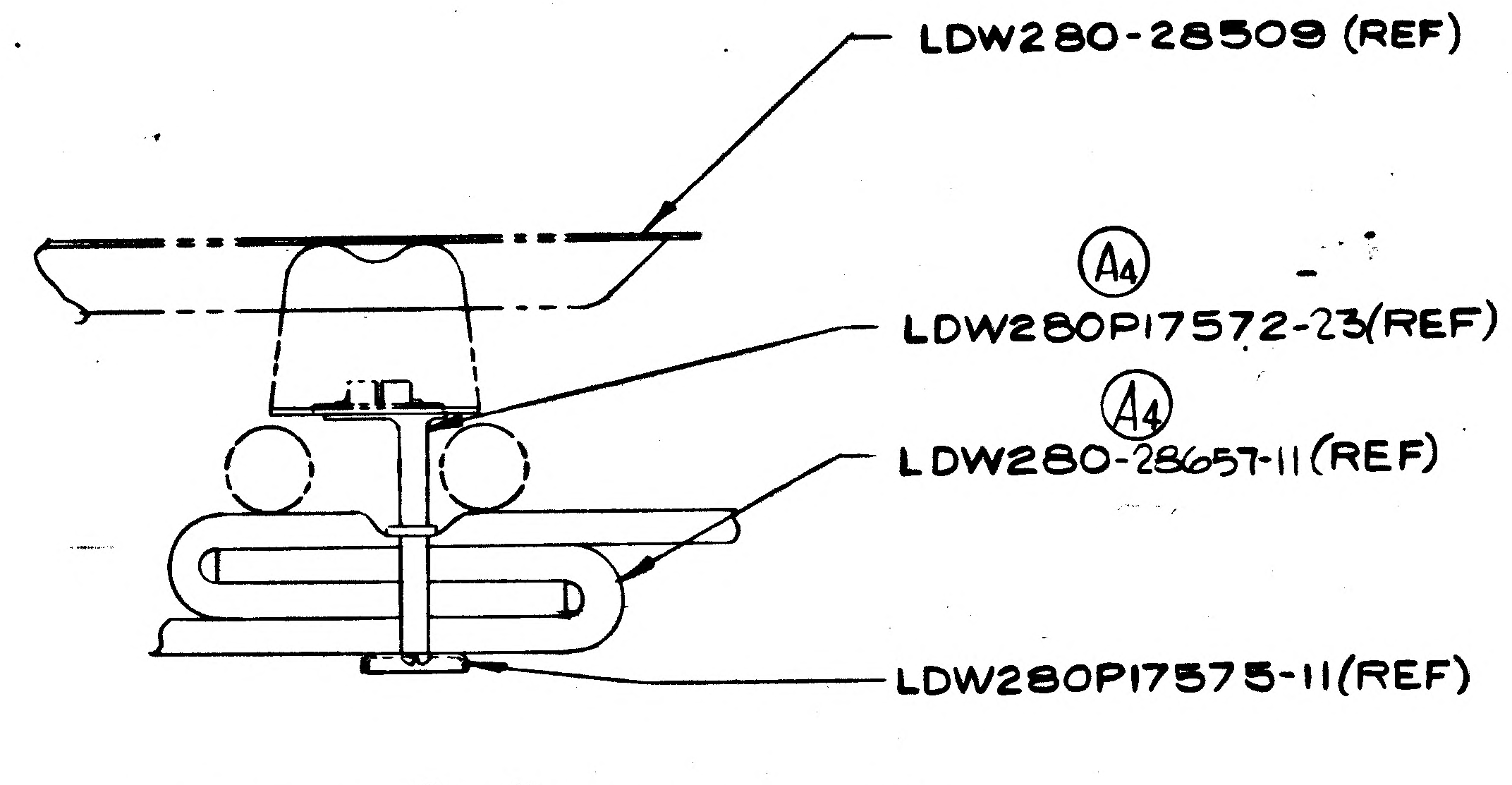
02/03 NAS 9-1100

CODE IDENT NO. 26512
LDW280-28657 SH 4

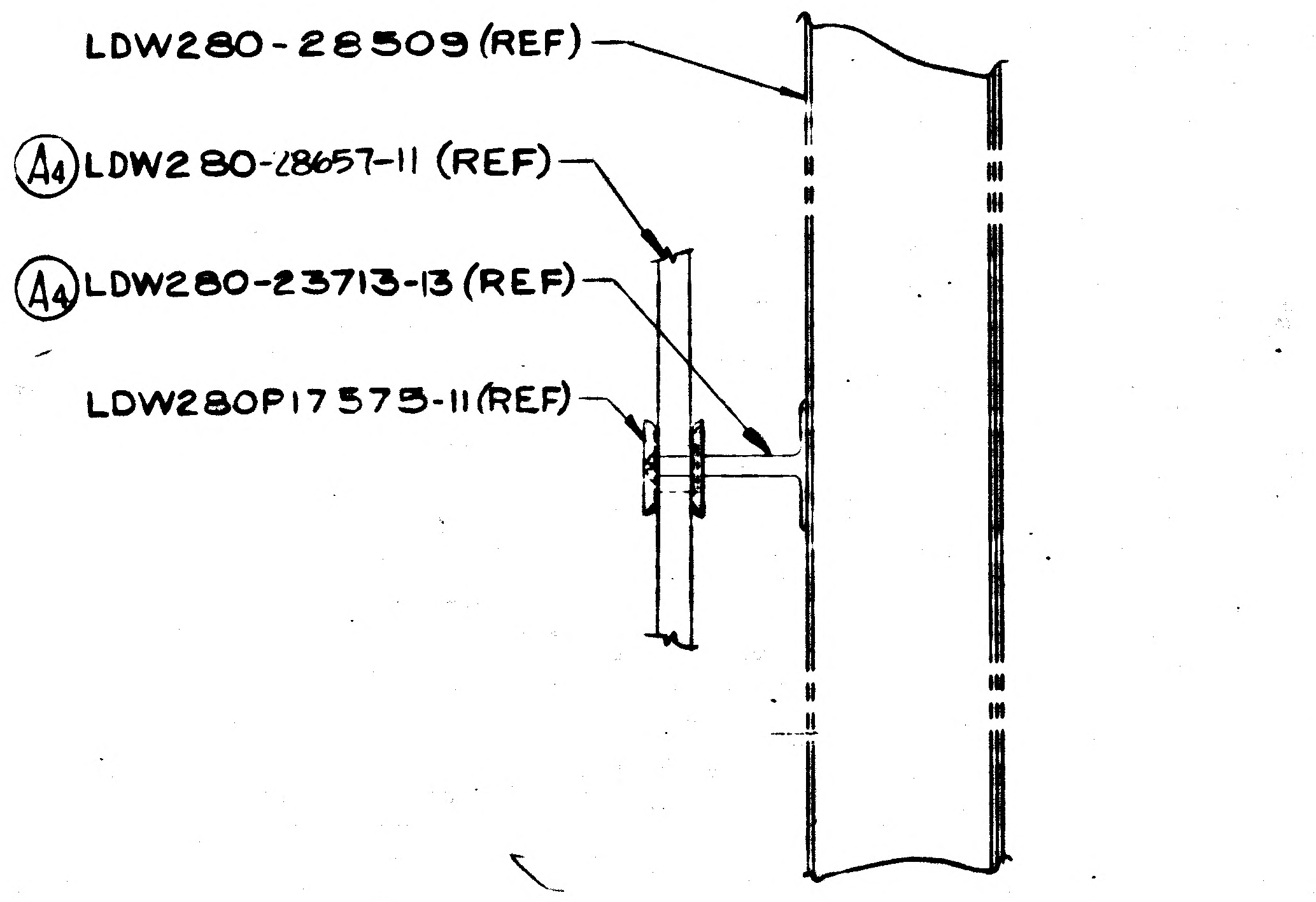

90
30
(SEE NOTE 4)


FWD
Y 27.00
+Z 27.00
LDW280-23509 (REF)
$1\frac{3}{4}$
GR11B-1
GW10H-3
LDW280-28657-11 (REF) Ⓐ4
+56 (SEE NOTE 4)
LDW280P17964-1 (REF) Ⓐ7

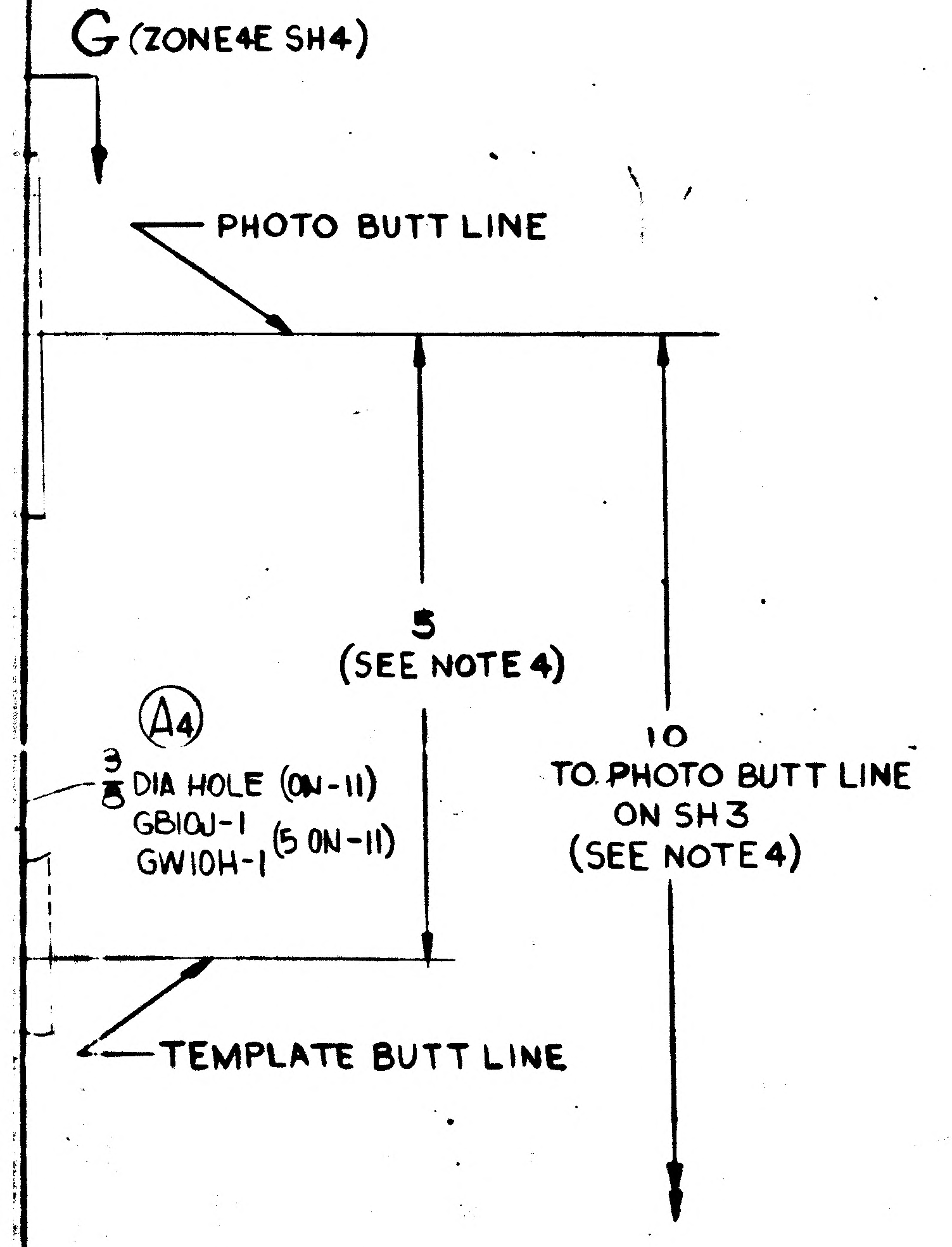
Ⓐ4
SECTION F-F (ZONE 9E, SH4)
NO SCALE

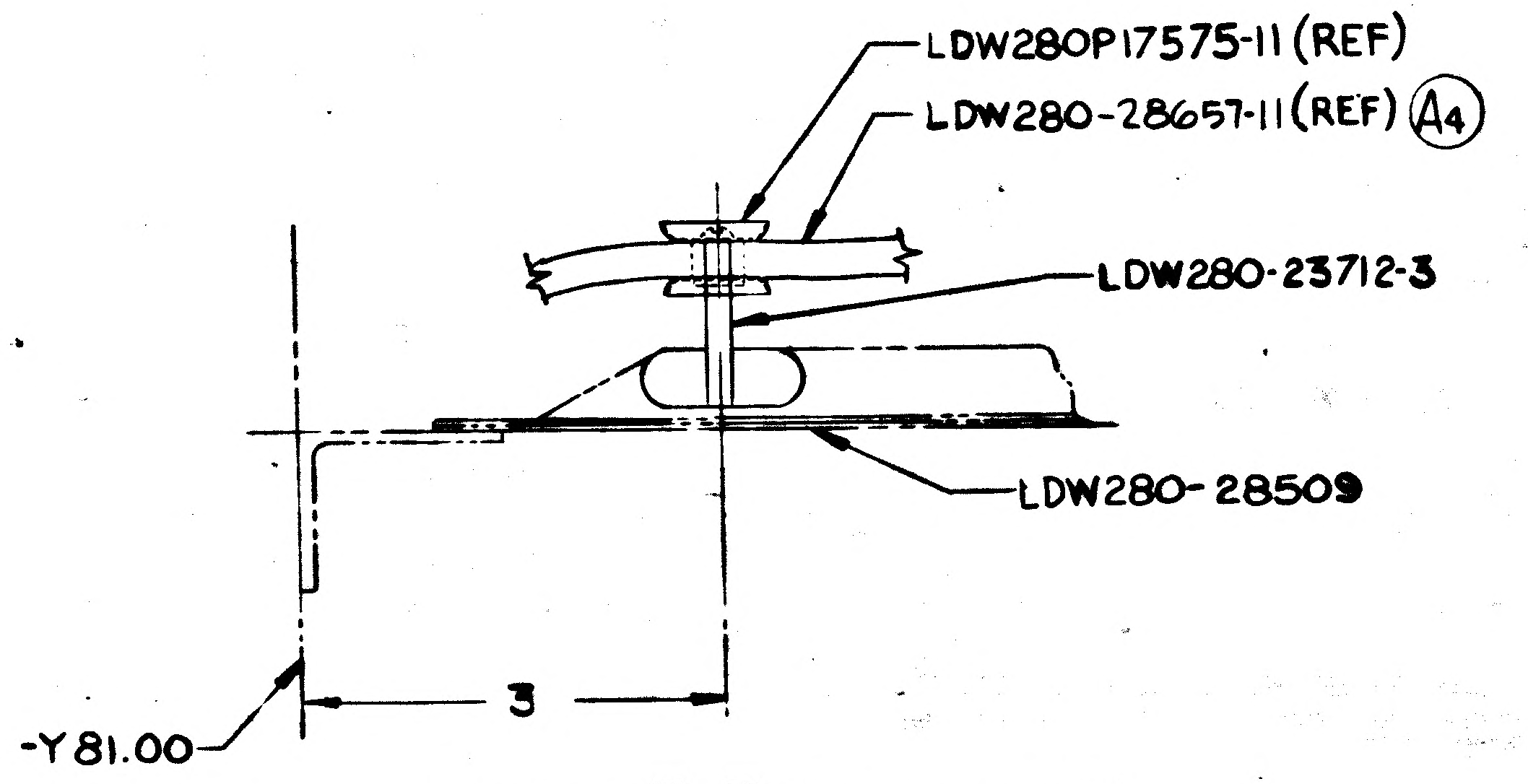

LDW280-28509 (REF)
Ⓐ4
LDW280P17572-23(REF)
Ⓐ4
LDW280-28657-11(REF)
LDW280P17575-11(REF)

SECTION G-G (ZONE 6D, SH4)
NO SCALE

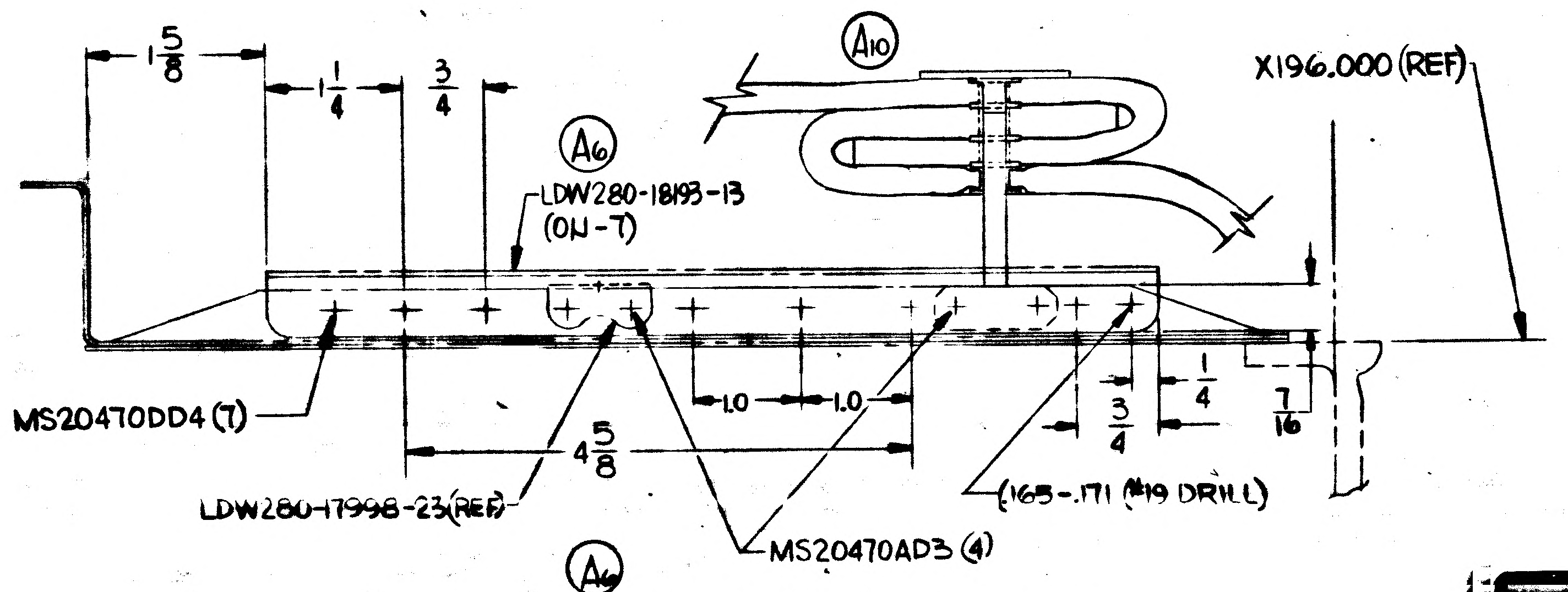

LDW280-28509 (REF)
Ⓐ4 LDW280-28657-11 (REF)
Ⓐ4 LDW280-23713-13 (REF)
LDW280P17575-11(REF)

SECTION H-H (ZONE 6D SH4)
NO SCALE


G (ZONE 4E SH4)
PHOTO BUTT LINE
5
(SEE NOTE 4)
10
TO PHOTO BUTT LINE
ON SH 3
(SEE NOTE 4)
Ⓐ4
$\frac{3}{8}$ DIA HOLE (ON-11)
GB10J-1
GW10H-1 (5 ON-11)
TEMPLATE BUTT LINE


LDW280P17575-11 (REF)
LDW280-28657-11 (REF) Ⓐ4
LDW280-23712-3
LDW280-28509
-Y81.00
3

SECTION E-E (ZONE 11E SH4)
NO SCALE


Ⓐ10
X196.000 (REF)
$1\frac{5}{8}$
$1\frac{1}{4}$
$\frac{3}{4}$
Ⓐ6
LDW280-18193-13
(ON-7)
MS20470DD4 (7)
1.0
1.0
$4\frac{5}{8}$
$\frac{3}{4}$
$\frac{1}{4}$
$\frac{7}{16}$
LDW280-17998-23(REF)
MS20470AD3 (4)
(.165-.171 (#19 DRILL)

Ⓐ6
SECTION J-J (ZONE 6D) 5 PLACES

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 106

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 117) = 29.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 7.5 SQ. FT.
PRINT TRIM LINE

LDW280-28657 A

LDW280-28657 A

03/03

NAS 9-1100

CODE IDENT NO. 26512

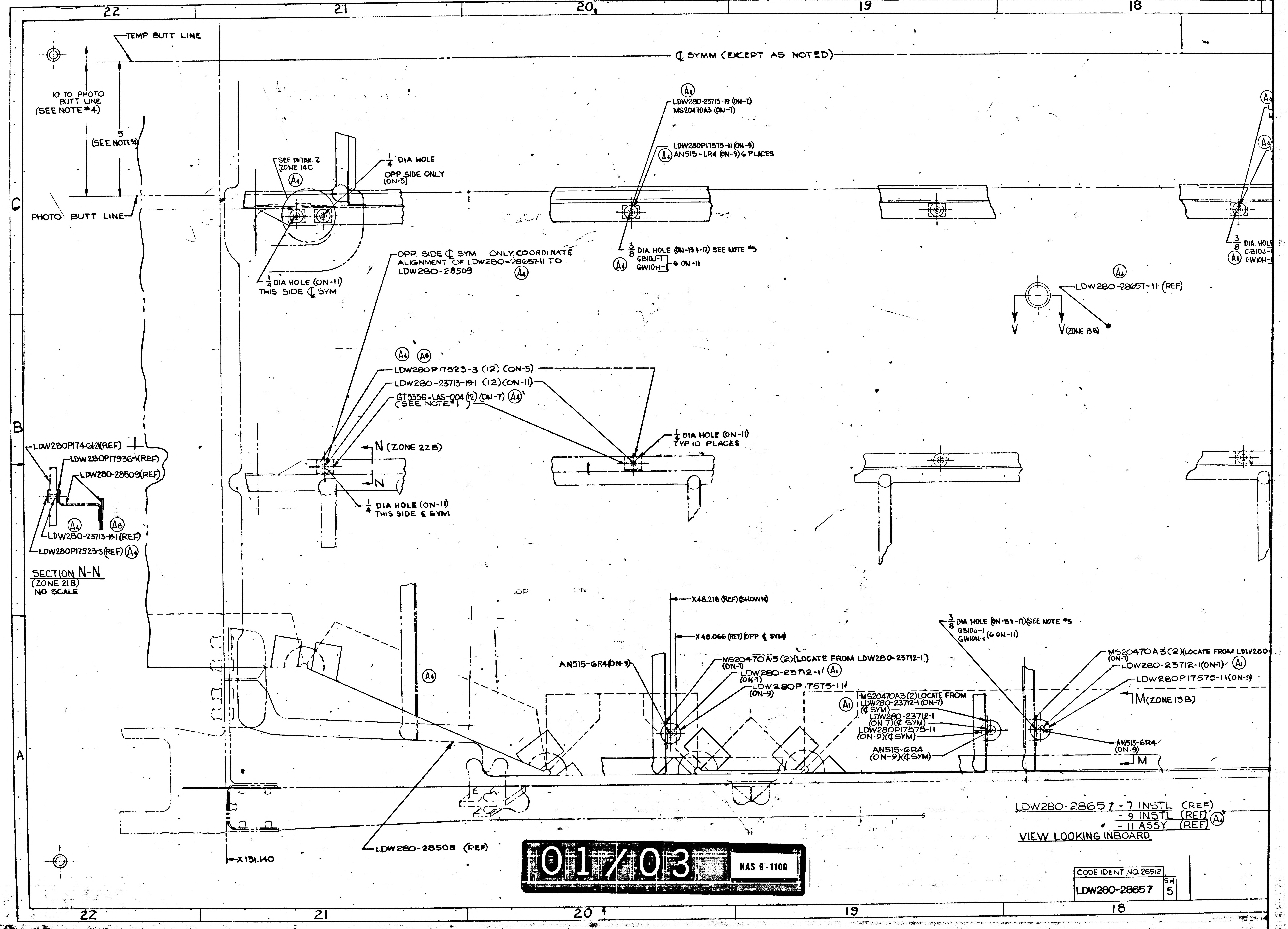
LDW280-28657	SH 4

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	J	26512	LDW280-28657	A
	SCALE FULL & NOTED		SHEET 4.00	

FOR PHOTO REPRODUCTION K2

LDW 280-28657 SH4


22
21
20
19
18
C
B
A
TEMP BUTT LINE
℄ SYMM (EXCEPT AS NOTED)
10 TO PHOTO BUTT LINE (SEE NOTE #4)
5 (SEE NOTE #4)
PHOTO BUTT LINE
SEE DETAIL Z ZONE 14C
A4
1/4 DIA HOLE OPP SIDE ONLY (ON-5)
1/4 DIA HOLE (ON-11) THIS SIDE ℄ SYM
A4
LDW280-23713-19 (ON-7)
MS20470A3 (ON-7)
LDW280P17575-11 (ON-9)
A4 AN515-LR4 (ON-9) 6 PLACES
3/8 DIA. HOLE (ON-13 & -17) SEE NOTE #5
A4 GB10J-1 GW10H-1 6 ON-11
OPP. SIDE ℄ SYM ONLY, COORDINATE ALIGNMENT OF LDW280-28657-11 TO LDW280-28509 A4
A4
LDW280-28657-11 (REF)
V
V (ZONE 13 B)
A4 A8
LDW280P17523-3 (12) (ON-5)
LDW280-23713-19-1 (12) (ON-11)
GT535G-LAS-004 (12) (ON-7) (SEE NOTE #1) A4
1/4 DIA HOLE (ON-11) TYP 10 PLACES
N (ZONE 22 B)
N
1/4 DIA HOLE (ON-11) THIS SIDE ℄ SYM
LDW280P174-GH2 (REF)
LDW280P17936-1 (REF)
LDW280-28509 (REF)
A4 A8
LDW280-23713-19-1 (REF)
LDW280P17523-3 (REF) A4
SECTION N-N (ZONE 21 B) NO SCALE
A4
X48.278 (REF) (SHOWN)
X48.066 (REF) (OPP ℄ SYM)
AN515-6R4 (ON-9)
MS20470A3 (2) (LOCATE FROM LDW280-23712-1.) (ON-7)
LDW280-23712-1 (ON-7) A1
LDW280P17575-11 (ON-9)
A1 MS20470A3 (2) LOCATE FROM LDW280-23712-1 (ON-7) (℄ SYM)
LDW280-23712-1 (ON-7) (℄ SYM)
LDW280P17575-11 (ON-9) (℄ SYM)
AN515-6R4 (ON-9) (℄ SYM)
3/8 DIA. HOLE (ON-13 & -17) (SEE NOTE #5
GB10J-1 GW10H-1 (6 ON-11)
MS20470A3 (2) (LOCATE FROM LDW280
(ON-7)
LDW280-23712-1 (ON-7) A1
LDW280P17575-11 (ON-9)
M (ZONE 13 B)
AN515-6R4 (ON-9)
M
LDW280-28509 (REF)
X131.140

LDW280-28657 -7 INSTL (REF)
-9 INSTL (REF)
-11 ASSY (REF) A4

VIEW LOOKING INBOARD

01/03 NAS 9-1100

CODE IDENT NO 26512	SH
LDW280-28657	5

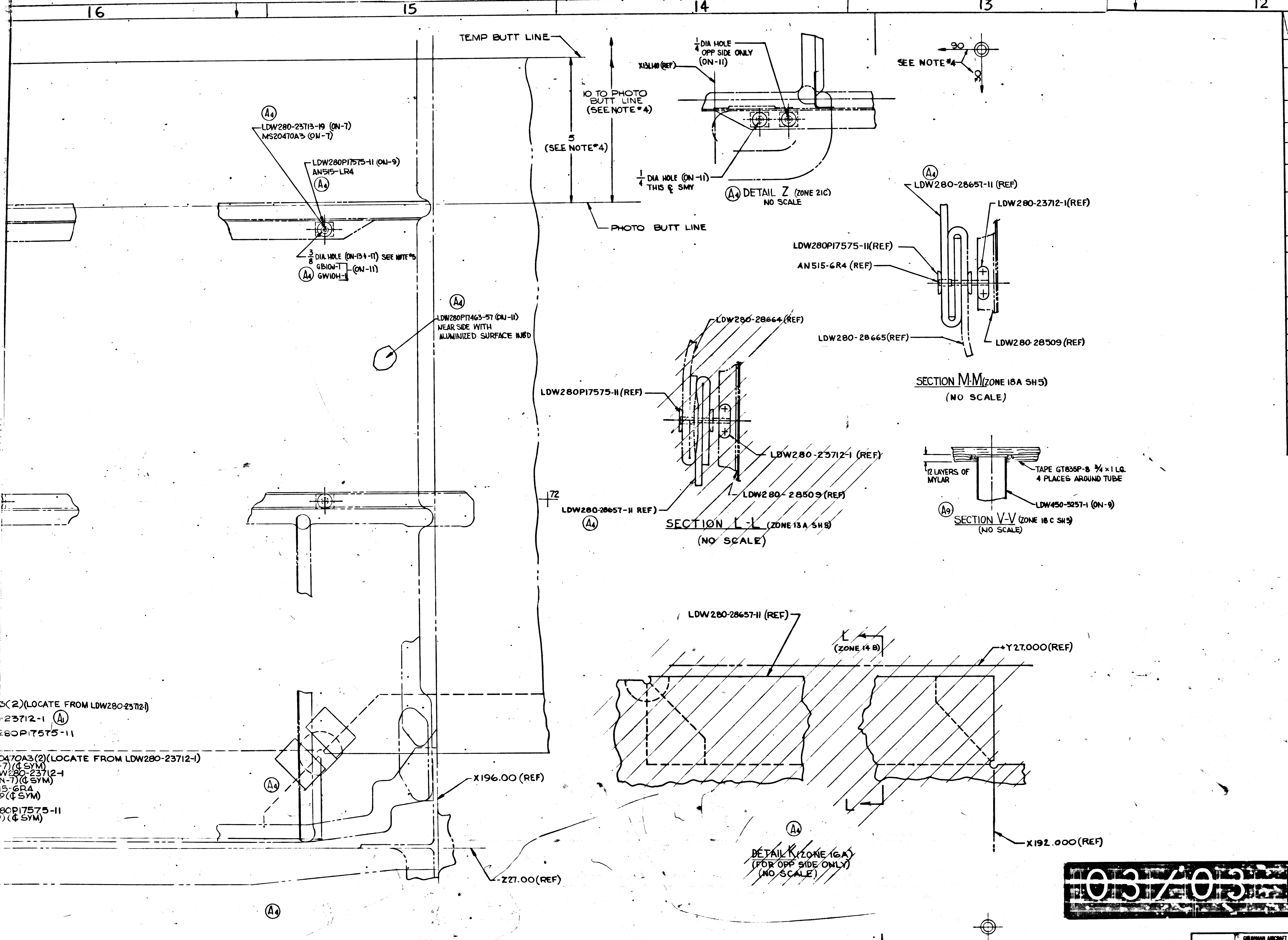
18
17
16
15
14
13
¢ SYM
TEMP BUTT LINE
10 TO PHOTO BUTT LINE (SEE NOTE #4)
5 (SEE NOTE #4)
PHOTO BUTT LINE
SEE NOTE #4
90
30
X131.40 (REF)
1/4 DIA HOLE OPP SIDE ONLY (ON-11)
1/4 DIA HOLE (ON-11) THIS ¢ SMY
A4 DETAIL Z (ZONE 21C)
NO SCALE
A4
LDW280-23713-19 (ON-7)
MS20470A3 (ON-7)
A4
LDW280P17575-11 (ON-9)
AN515-LR4 (ON-9)
3/8 DIA. HOLE (ON-13 & -17) SEE NOTE #5
A4
GB10J-1
GW10H-1
ON-11
A4
LDW280-23713-19 (ON-7)
MS20470A3 (ON-7)
LDW280P17575-11 (ON-9)
AN515-LR4
A4
3/8 DIA. HOLE (ON-13 & -17) SEE NOTE #5
GB10J-1
A4
GW10H-1
(ON-11)
A4
DW280-28657-11 (REF)
E 13B)
A4
LDW280P17463-57 (ON-11)
NEAR SIDE WITH
ALUMINIZED SURFACE INB'D
A4
LDW280-28657-11 (
LDW280P17575-11(REF)
AN515-6R4 (REF)
LDW280-28665(REF)
LI
SECTION M M(ZONE
(NO SCALE
LDW280-28664 (REF)
LDW280P17575-11(REF)
LDW280-23712-1 (REF)
LDW280-28509 (REF)
72
LDW280-28657-11 REF)
A4
SECTION L-L (ZONE 13A SH5)
(NO SCALE)
12 LAYERS OF MYLAR
A9
SECTION V
(NO S
LDW280-28657-11 (REF)
L
(ZONE 14 B)
L
A4
DETAIL K (ZONE 16A)
(FOR OPP SIDE ONLY)
(NO SCALE)
MS20470A3(2)(LOCATE FROM LDW280-23712-1)
(ON-7)
LDW280-23712-1(ON-7)
A1
LDW280P17575-11(ON-9)
M(ZONE 13 B)
AN515-6R4
(ON-9)
M
MS20470A3(2)(LOCATE FROM LDW280-23712-1)
(ON-7)
LDW280-23712-1
A1
(ON-7)
LDW280P17575-11
(ON-9)
AN515-6R4
(ON-9)
MS20470A3(2)(LOCATE FROM LDW280-23712-1)
(ON-7)(¢ SYM)
LDW280-23712-1
(ON-7)(¢ SYM)
AN515-6R4
(ON-9)(¢ SYM)
LDW280P17575-11
(ON-9)(¢ SYM)
A4
X196.00 (REF)
Z27.00(REF)
8657 -7 INSTL (REF)
-9 INSTL (REF)
-11 ASSY (REF)
A4
KING INBOARD
A4

CODE IDENT NO. 26512
LDW280-28657
SH 5

02/03

NAS 9-1100

CODE IDENT NO. 26512
LDW280-28657
SH 5


16
15
14
13
12
TEMP BUTT LINE
10 TO PHOTO BUTT LINE (SEE NOTE # 4)
5 (SEE NOTE # 4)
PHOTO BUTT LINE
A4
LDW280-23713-19 (ON-7)
MS20470A3 (ON-7)
LDW280P17575-11 (ON-9)
AN515-LR4
A4
3/8 DIA. HOLE (ON-13 & -17) SEE NOTE #5
GB10W-1
GW10H-1
(ON-11)
A4
A4
LDW280P17463-57 (ON-11)
NEAR SIDE WITH
ALUMINIZED SURFACE INBD
X131.140 (REF)
1/4 DIA HOLE
OPP SIDE ONLY
(ON-11)
1/4 DIA HOLE (ON-11)
THIS ℄ SMY
A4 DETAIL Z (ZONE 21C)
NO SCALE
SEE NOTE #4
90
30
A4
LDW280-28657-11 (REF)
LDW280-23712-1 (REF)
LDW280P17575-11 (REF)
AN515-6R4 (REF)
LDW280-28665 (REF)
LDW280-28509 (REF)
SECTION M-M (ZONE 18A SH5)
(NO SCALE)
LDW280-28664 (REF)
LDW280P17575-11 (REF)
LDW280-23712-1 (REF)
LDW280-28509 (REF)
LDW280-28657-11 REF)
A4
SECTION L-L (ZONE 13A SH5)
(NO SCALE)
72
12 LAYERS OF MYLAR
TAPE GT835P-8 3/4 × 1 LG.
4 PLACES AROUND TUBE
LDW450-5257-1 (ON-9)
A9
SECTION V-V (ZONE 18C SH5)
(NO SCALE)
LDW280-28657-11 (REF)
L
(ZONE 14 B)
Y27.000 (REF)
L
X192.000 (REF)
A4
DETAIL K (ZONE 16A)
(FOR OPP SIDE ONLY)
(NO SCALE)
3(2)(LOCATE FROM LDW280-23712-1)
1-23712-1
A1
E80P17575-11
D470A3(2)(LOCATE FROM LDW280-23712-1)
-7)(℄ SYM)
W280-23712-1
N-7)(℄ SYM)
15-6R4
9(℄ SYM)
80P17575-11
)(℄ SYM)
A4
X196.00 (REF)
Z27.00 (REF)
A4
C
B
A
LDW280-28657 A
LDW280-28657 A

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ☒
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP THDS.
BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003 MIN.
TO .0005 MAX. MIN. THICKNESS TO
BE .0002 ON THREADED AREAS.
NO ALLOWANCE FOR PLATING IN
HOLES

125 √ SURFACE ROUGHNESS
INCLUDING REAMED HOLES
PER MIL-STD-10

250 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE
TO BE MACHINED

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY
RIVETS SHORTER THAN 1 INCH ARE
NOT SPECIFIED.

TOLERANCE ON LOFTED
DELINEATIONS IS

DWG SIZE 34 X106

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 106) 27 SQ FT
1/2 SIZE SHEET AREA (1/4 OF FULL) 6.75 SQ FT

PRINT TRIM LINE

03/03

NAS 9-1100

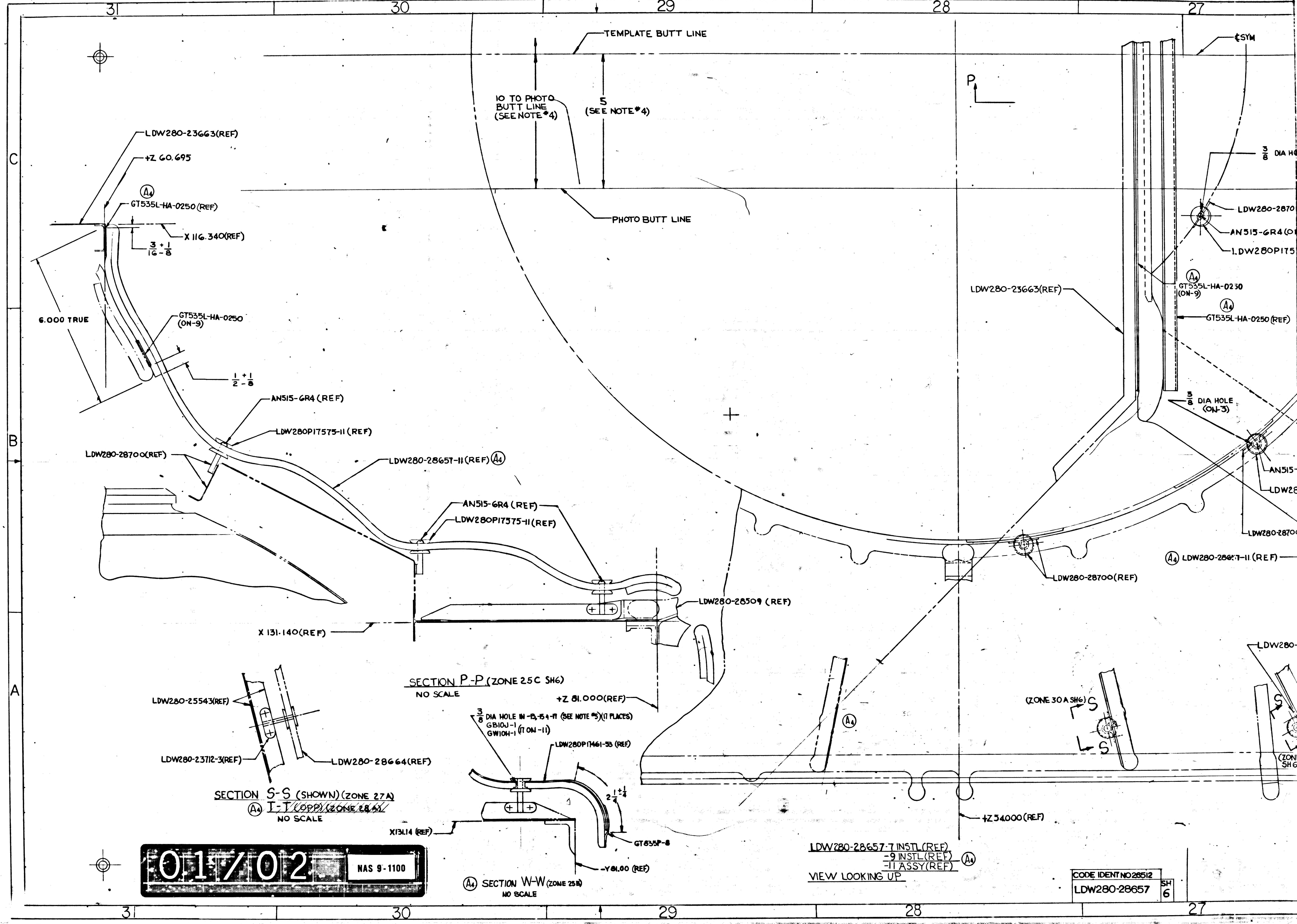
CODE IDENT NO. 26512
LDW280-28657 SH 5

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LEM	SIZE J	CODE IDENT NO. 26512	LDW280-28657	A
MODEL OR END ITEM	SCALE FULL/NOTED		SHEET 5.00	

3 FR

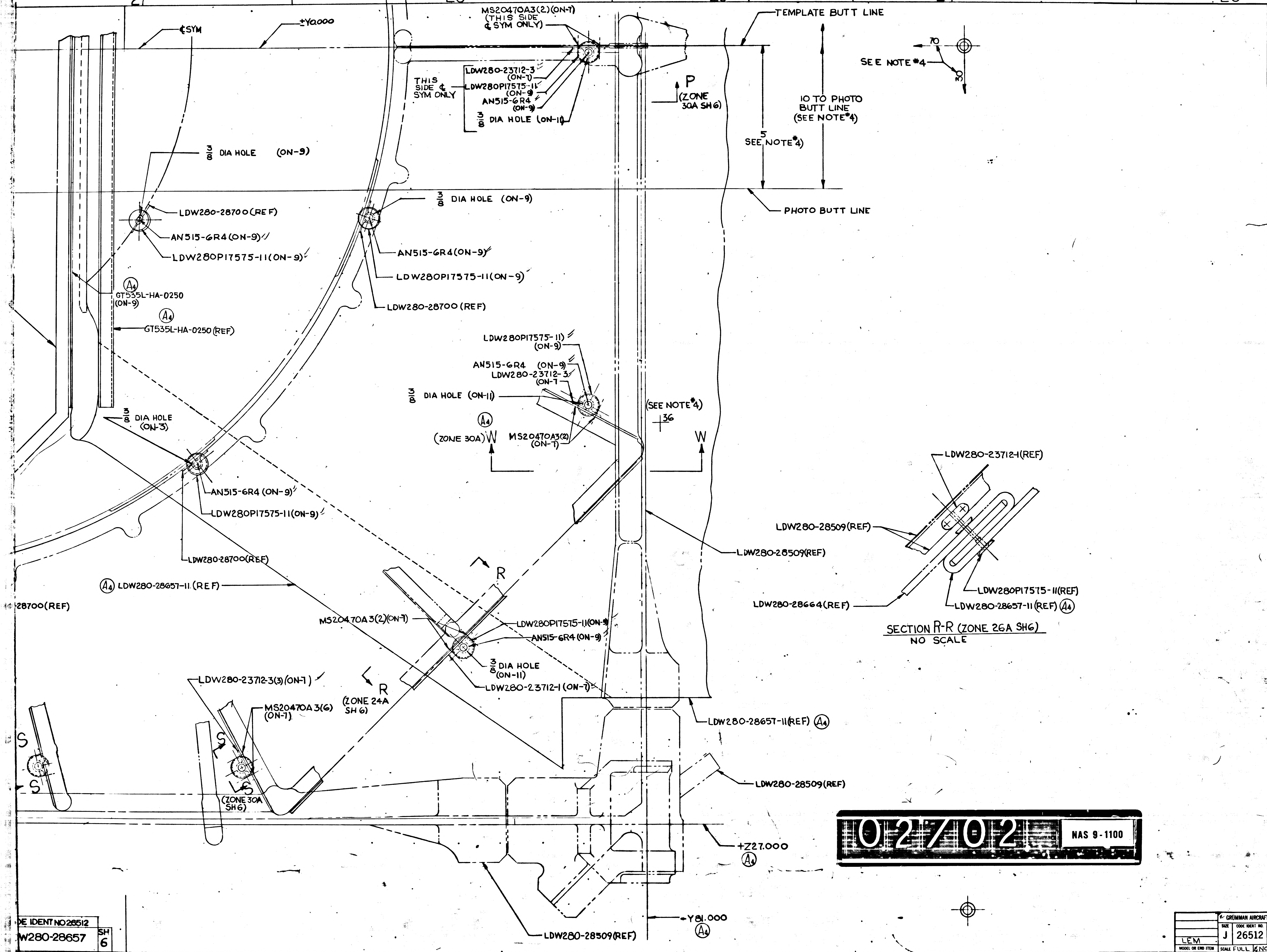
THIS IS AN ORIGINAL DRAWING
FOR PHOTO REPRODUCTION


31
30
29
28
27
C
B
A
TEMPLATE BUTT LINE
℄ SYM
10 TO PHOTO BUTT LINE (SEE NOTE #4)
5 (SEE NOTE #4)
PHOTO BUTT LINE
P
LDW280-23663(REF)
+Z 60.695
A4
GT535L-HA-0250(REF)
X 116.340(REF)
3/16 +1/-8
6.000 TRUE
GT535L-HA-0250 (ON-9)
1/2 +1/-8
AN515-6R4 (REF)
LDW280P17575-11 (REF)
LDW280-28700(REF)
LDW280-28657-11 (REF) A4
AN515-6R4 (REF)
LDW280P17575-11 (REF)
LDW280-28509 (REF)
X 131.140(REF)
SECTION P-P (ZONE 25C SH6)
NO SCALE
+Z 81.000(REF)
LDW280-25543(REF)
LDW280-23712-3(REF)
LDW280-28664(REF)
SECTION S-S (SHOWN) (ZONE 27A)
A4 ~~T-T (OPP) (ZONE 28A)~~
NO SCALE
3/8 DIA HOLE IN -13, -15 & -17 (SEE NOTE #5)(17 PLACES)
GB10J-1
GW10H-1 (17 ON -11)
LDW280P17461-53 (REF)
2 1/4 ±1/4
X131.14 (REF)
GT835P-8
-Y81.00 (REF)
A4 SECTION W-W (ZONE 25B)
NO SCALE
3/8 DIA HO
LDW280-2870
AN515-6R4(O
LDW280P175
LDW280-23663(REF)
A4
GT535L-HA-0250 (ON-9)
A4
GT535L-HA-0250 (REF)
3/8 DIA HOLE (ON-3)
AN515-
LDW28
LDW280-2870C
A4 LDW280-28657-11 (REF)
LDW280-28700(REF)
LDW280-2
A4
(ZONE 30A SH6)
S
S
S
(ZONE SH6)
+Z 54.000 (REF)
LDW280-28657-7 INSTL (REF)
-9 INSTL (REF) A4
-11 ASSY (REF)
VIEW LOOKING UP

LDW280-28657 SH 6

01/02 NAS 9-1100

CODE IDENT NO 28512	SH
LDW280-28657	6


27
26
25
24
23
¢SYM
±Y0.000
MS20470A3(2)(ON-7) (THIS SIDE ¢ SYM ONLY)
LDW280-23712-3 (ON-7)
THIS SIDE ¢ SYM ONLY
LDW280P17575-11 (ON-9)
AN515-6R4 (ON-9)
3/8 DIA HOLE (ON-11)
P (ZONE 30A SH6)
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE (SEE NOTE*4)
5 SEE NOTE*4)
PHOTO BUTT LINE
SEE NOTE*4
70
30
3/8 DIA HOLE (ON-9)
LDW280-28700(REF)
AN515-6R4(ON-9)
LDW280P17575-11(ON-9)
3/8 DIA HOLE (ON-9)
AN515-6R4(ON-9)
LDW280P17575-11(ON-9)
LDW280-28700 (REF)
A4 GT535L-HA-0250 (ON-9)
A4 GT535L-HA-0250 (REF)
LDW280P17575-11) (ON-9)
AN515-6R4 (ON-9)
LDW280-23712-3 (ON-7)
3/8 DIA HOLE (ON-11)
A4
(ZONE 30A) W
MS20470A3(2) (ON-7)
(SEE NOTE*4)
36
W
3/8 DIA HOLE (ON-3)
AN515-6R4 (ON-9)
LDW280P17575-11(ON-9)
LDW280-28700(REF)
LDW280-28509(REF)
A4 LDW280-28657-11 (REF)
-28700(REF)
R
MS20470A3(2)(ON-7)
LDW280P17575-11(ON-9)
AN515-6R4 (ON-9)
3/8 DIA HOLE (ON-11)
LDW280-23712-1 (ON-7)
LDW280-23712-3(3)(ON-7)
R (ZONE 24A SH 6)
MS20470A3(6) (ON-7)
S
S
S
S
(ZONE 30A SH6)
LDW280-28657-11(REF) A4
LDW280-28509(REF)
+Z27.000 A4
-Y81.000 A4
LDW280-28509(REF)
LDW280-23712-1(REF)
LDW280-28509(REF)
LDW280-28664(REF)
LDW280P17575-11(REF)
LDW280-28657-11 (REF) A4
SECTION R-R (ZONE 26A SH6)
NO SCALE
C
B
A
LDW280-28657 A
LDW280-28657 A
LDW280-28657

02/02

NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP THDS.
BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003 MIN.
TO .0005 MAX. MIN. THICKNESS TO
BE .0002 ON THREADED AREAS.
NO ALLOWANCE FOR PLATING IN
HOLES

125 SURFACE ROUGHNESS
INCLUDING REAMED HOLES
PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE
TO BE MACHINED

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY
RIVETS SHORTER THAN 1 INCH ARE
NOT SPECIFIED.

TOLERANCE ON LOFTED
DELINEATIONS IS

DWG SIZE 34 X 88
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 x 90)= 22.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 5.6 SQ. FT.
PRINT TRIM LINE

DE IDENT NO 26512
W280-28657
SH 6

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	J	26512	LDW280-28657	A
	SCALE FULL & NOTED			SHEET 6.00

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THIS IS AN ORIGINAL DRAWING K2

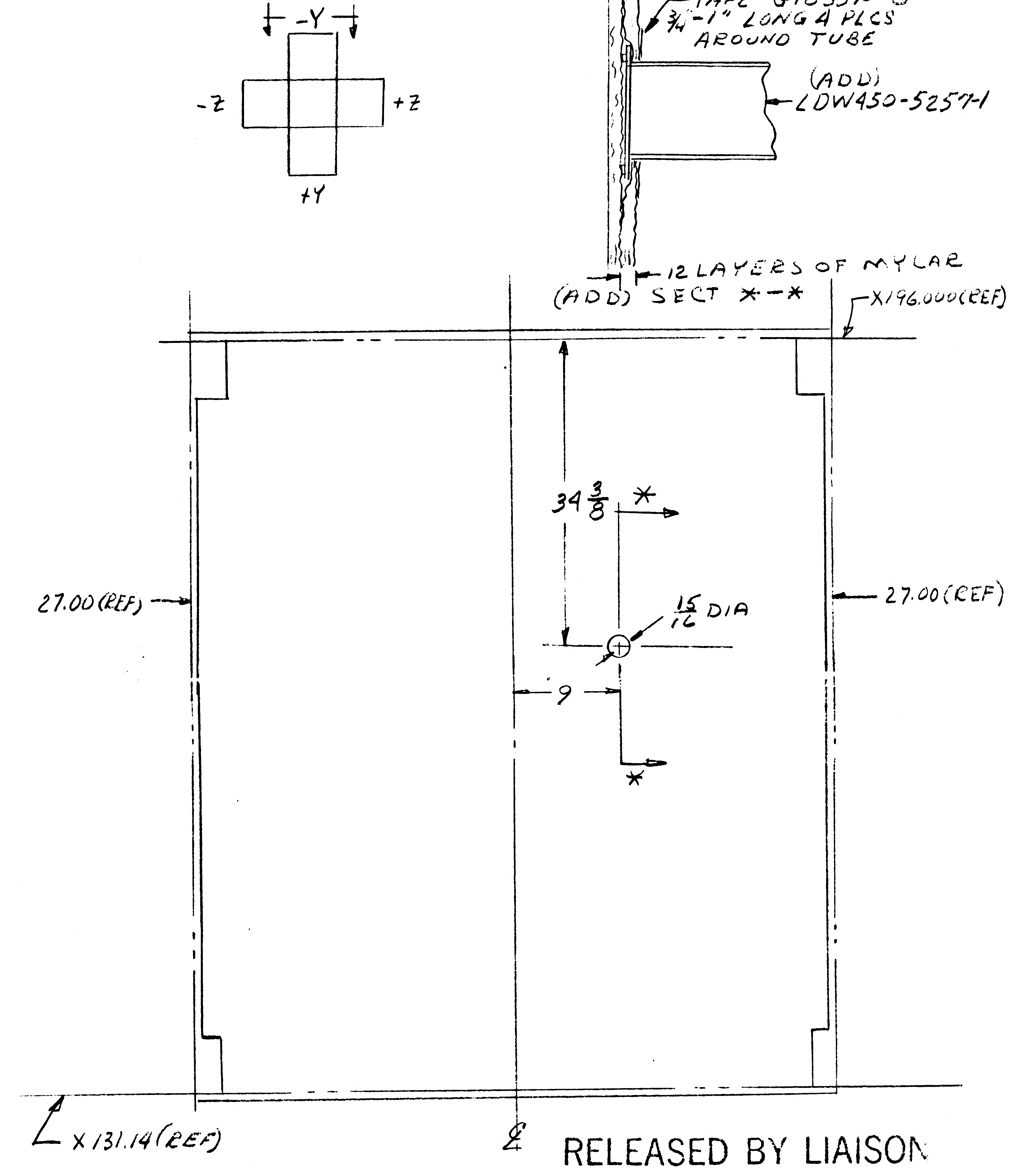
b

NG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28867	EO NO. A9
CONTROL INFO NO. LM-5-12279	

IN F/D & B/M FOR -9 INSTL



-Y
-Z
+Z
+Y
TAPE GT835P-8
3/4-1" LONG 4 PLCS
AROUND TUBE
(ADD)
LDW450-5257-1
12 LAYERS OF MYLAR
(ADD) SECT *-*
X196.000(REF)
27.00(REF)
27.00(REF)
34 3/8
*
15/16 DIA
9
*
X 131.14(REF)
℄

RELEASED BY LIAISON

* = NEXT AVAILABLE DASH NUMBER

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG									
REASON FOR EO INSTALLATION OF ION DETECTOR				DESCRIPTION OF EO ADDED, SECT *-* 15/16 DIA LDW450-5257-1									GAEC C EO RELEASE G
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT ALW			—	1/4
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		✓		DATE	1/30			—	1-30-67
LM		LTA-8(18)		REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP

RMC(E)					
2-3-67	13				
LIAISON ENGRG	PROJ ENGRG	GOVT			
PRIORITY C	STANDOFF INSTL DRAWING TITLE DESCENT STAGE - LM - THERMAL	DRAWING NO. LDW280-28867	EO NO. A1		

ISSUED BY H. [illegible]

SECTION [illegible]

GROUP NO. —

PL 5

01
NAS 9-1100

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-28657		EO NO. A2
CONTROL INFO NO. LDW280- 9960		

IN F/D & B/M REMOVE LDW280P17572-13 & REPLACE WITH LDW280P17572-23

QTY PER ASSY	PART NO	I&T	NOMENCLATURE
4 (FOR-1)	LDW280P17572-23	E	STANDOFF

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	2

REASON FOR EO: NEW THERMAL SHIELDING REQ'MTS

DESCRIPTION OF EO: ON-1 REMOVED LDW280P17572-13 & ADDED LDW280P17572-23

GAEC C [illegible] EO RELEASE: FR 9/14/66

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA8(18) LEM1(31)	
		LEM2(32) LEM3(33)	
		LEM4(34) LEM5(35)	LEM6(36)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY		LBG	AB for		WJH		RMC Ⓔ	
DATE	9/7/66	9/19/66	10/8 THERMO		9/7/66		9-14	9/13/66
	VDI	~~SUPPORT~~ UTS	[illegible]	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTL DESCENT STAGE - L.H. THERMAL	LDW280-28657	A2

ED BY GRIECO / STRAKOSCH SECTION VDI GROUP NO. 335 PL 35

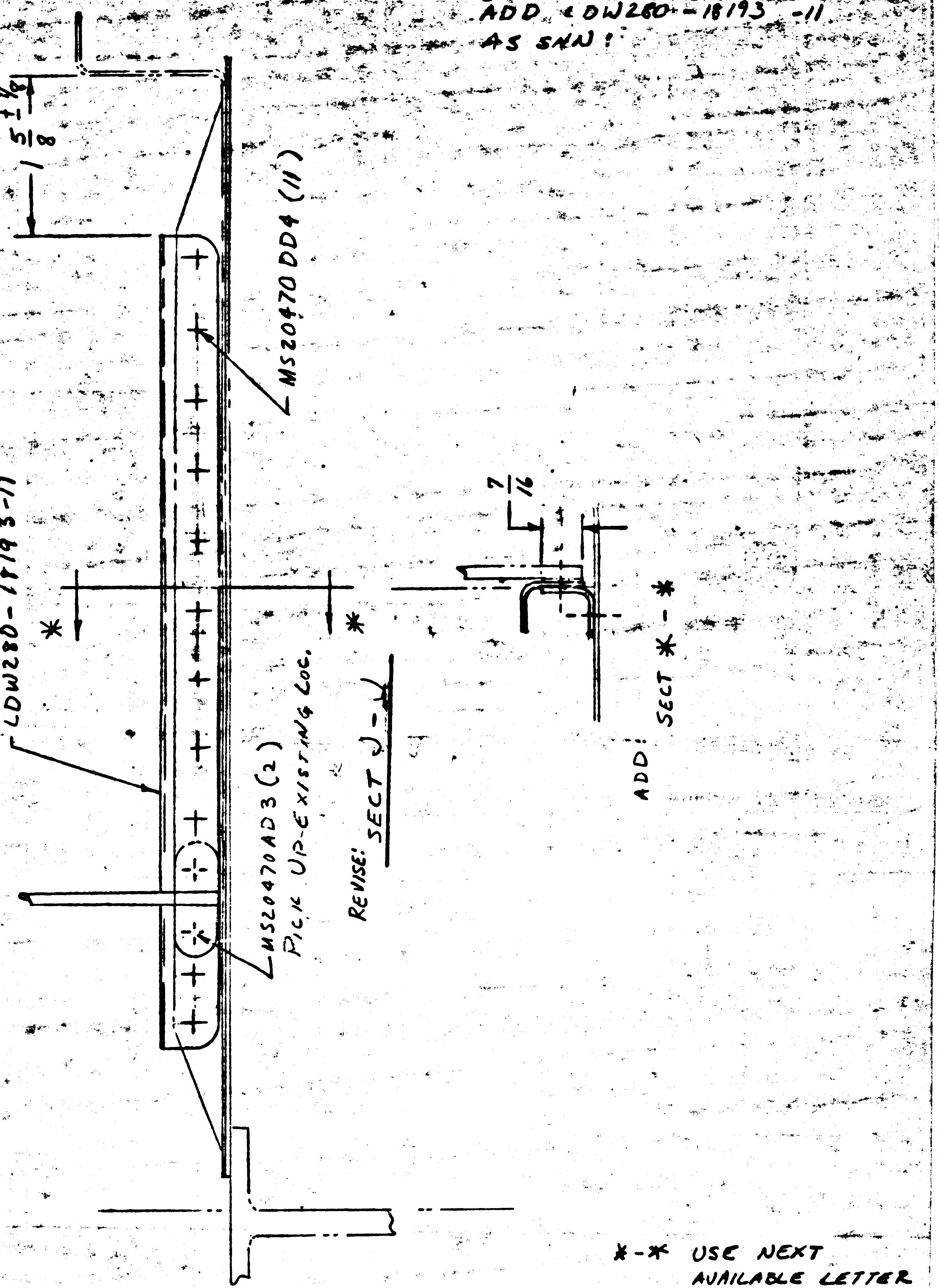
01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280 28652	ED NO.	A3
CONTROL INFO NO.	LM 5-11068		

ON -7 INSTL
ADD LDW280-18193-11
AS SHN:



- USE NEXT AVAILABLE LETTER

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDITIONAL SUPT REQD FOR COLD PLATE	ON -7 INSTL: ADDED LDW280-18193-11 ADDED SECT *-*	R ✓

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM	—	LTA8 (18)	—

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	GHS				NM	DV	RWC	Bott
DATE	11/11/66				11/11/66	11/11	11-21-66	11-12-66
5	11/11/66							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTL D/S - THERMAL	LDW280-28657	43

ISSUED BY D. RAGAS X6454 SECTION VDI GROUP NO. 335 PL 5

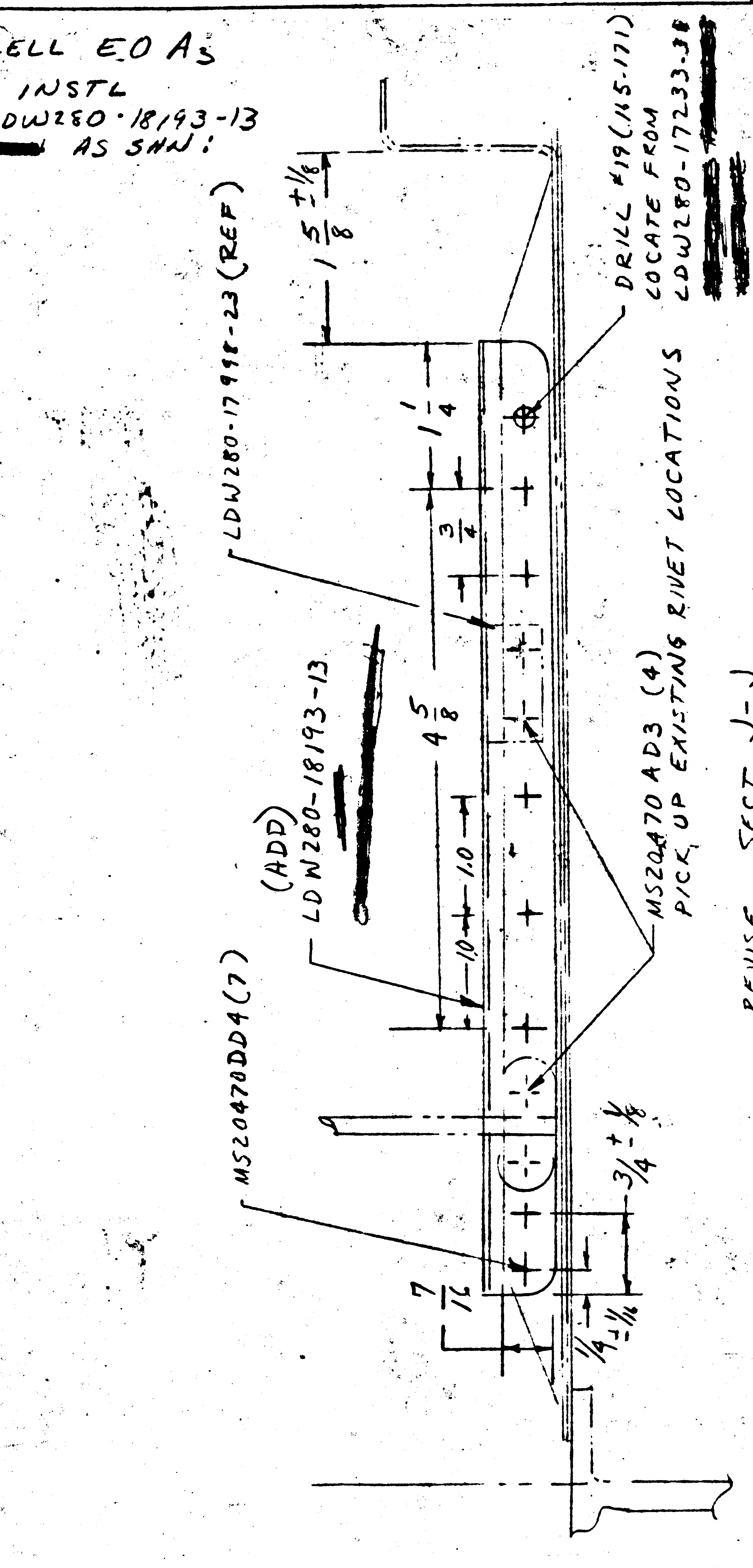
01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-28657
EO NO. A6
CONTROL INFO NO. LM 5-11222

CANCELL EO A3
ON-7 INSTL
ADD LDW280-18193-13
[redacted] AS SHN:



DRILL #19 (.145-.171)
LOCATE FROM
LDW280-17233-3 [redacted]
1 5/8 ± 1/16
LDW280-17998-23 (REF)
1 1/4
3/4
4 5/8
(ADD)
LDW280-18193-13 [redacted]
.10
1.0
1.0
MS20470 AD3 (4)
PICK UP EXISTING RIVET LOCATIONS
MS20470DD4 (7)
3/4 + 1/8
7/16
1/4 ± 1/16

REVISE SECT J-J

5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO FACILITATE INSTL WITH SUPPORT STRUT. FOR COLD PLATE

CANCELLED EO A3

DESCRIPTION OF EO: ON-7 INSTL ADDED LDW280-18193-13 [redacted] & MS20470 DD4 (7)

GAEC EO RELEASE: ®

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (15)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
REVISE DWG	RECORD EO	REWORK	SCRAP									
✓		✓										
				APPROVED BY	WT			—	RH	CH	RMC	JRT
				DATE	11/28/66			—	11-28-66	11-28-66	11-30-66	11/29/66
				5	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: STANDOFF INSTL
O/S - RH - THERMAL

DRAWING NO.: LDW280-28657

EO NO.: A6

ISSUED BY RAGAS / T BAT X6054 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28657
EO NO. A7
CONTROL INFO NO. LDW280A-4305

ON -11 REMOVE LDW280P17524-1

ON-9 LDW280P17964-1 WAS LDW280P17964-5 ; 3 PLCS

THERMAL SHLD.
2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO MAKE DWG AGREE WITH TEMPLATE

DESCRIPTION OF EO: ON-11 REMOVE LDW280P17524-1
ON-9 LDW280P17964-1 WAS LDW280P17964-5.
(3 PLCS)

GAEC EO RELEASE: FR 12/13/66

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	REQ'D
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY		V.J.D.						
DATE	12/13/66	12/13		12/13/66	12/13/66		12/13	12-13-66
1	VD1	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INST'L D/S L.H. THERMAL	LDW280-28657	A7

ISSUED BY T. AMBROSIO/STRAKOSCH X1153
SECTION V.D.1.
GROUP NO. 335
PL 35

ENG 22.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 28657			EO NO. A8
CONTROL INFO NO. LM5-11539			

FOR -7 INSTL

ADDED LDW280-23713-19-1(6) WHICH REPLACE -19 ASSY(6)

RELEASED BY LIAISON

(SHOP NOTE ONLY)

"ALL EXTRANEOUS HOLES TO BE PLUGED WITH MS20470AD" "

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE C
TO SUPT HEATER SKINS	IN F/D/BM ON-7 ADDED LDW280-23713-19-1(6) WAS -19(6)	K

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
				APPROVED BY	WT			~	CW	DV		
✓		✓		DATE	1/3/67			~	1/3/67	1/3/67	1-6-67	1/4/67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTL D/S L.H - THERMAL	LDW280-28657	A8

ISSUED BY RAGAS X6454 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28657 | EO NO. B1
CONTROL INFO NO. LDW280B1151

IN B/M ON-7 INSTL ADD LDW280-18193-13 ANGLE (1)REQ'D/MOD

DETAIL SPEC REQ	✓	CL II ENGRG CHG		CL I ENGRG CHG		5

REASON FOR EO: EO A6 INCORP INCORRECTLY (CDR LIST)

DESCRIPTION OF EO: IN B/M ON-7 INSTL ADDED LDW280-18193-13 (1) REQ'D/MOD

GAEC EO RELEASE: H.F 2/9/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQ'D	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~
APPROVED BY				RSX	wjH			
DATE	1/18/68			1-18-68	1-19-68	1/18/68	1/18/68	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E	STANDOFF INSTL-D.S.-L.H. THERMAL	LDW280-28657	B1

ISSUED BY R. STOBE/P. THORJUSEN (EXT 1154) SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28658 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA-8(18)	1
PART NO. LDW280-28658-9		GAEC SCH NO. 52-15 SH-3	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28509	LTA-8(18)	1
PART NO. LDW280-28658-7		GAEC SCH NO. 52-15 SH-3	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	2.01	3.00	4.00	5.00	6.00	
REV	A	A	A	A	A	A	A	A	
SHEET		1.11							
REV		A							
SHEET									
REV									

LAST SECT LTR USED: V

LAST DASH NO. USED: -15

GRUMMAN REF INFO A

PRIM NO.	SK(001)	
207	MP-16	A-8/17/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM II 1

DOCUMENTATION TYPE II

DRAWN BY	J. PAWLITZ M. MULLER 6/22/66	WEIGHTS	7-19
LAYOUT BY	H. PALLMEYER	RELIABILITY	
CHECKED BY	EG 6-28-66	THERMO	
GR. LEADER	7/7/66		
VEH DES INT	7/7		
STRUCTURE	7/8	PROJ ENGR	7-22
STRUCTURE	Hildesman 7/9	REL GROUP	7-26-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STANDOFF INSTALLATION
DESCENT STAGE-AFT-THERMAL

SIZE B | CODE IDENT NO. 26512 | LDW280-28658 | A (A)

SCALE NONE | SHEET 1.00 OF 9

IG 77.1 12-65

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.10, 5.00 3.00	17A TO 20A					EO-A1	RELOCATED STANDOFFS & ADDED INFO TO NOTE 1. ADDED SHEET 1.10	LTA8	✓		J. LEE 7-24-68		
	2	2.00, 3.00	3B				✓	EO-A2	ON -1 ASSY IN FLD OF DWG & B/M REMOVED LDW280P17572-13, ADDED LDW280P17572-23	LTA8 & LM1 THRU LM6					
	3	2.00, 4.00	3D 9D					EO-A3	CANCELLED BY EOA6	LTA8					
	4	1.00, 2.00 2.01, 3.00 4.00, 5.00 6.00	ALL				✓	EO-A4	REMOVED -1, -3, & -5; ADDED -7, -9, -11, -13, & -15; REMOVED DETAIL F, SECT. H-H & D-D; ADDED SECT. S-S, T-T, U-U, V-V & DETAIL ✱; REMOVED NOTE 4 & ADDED NOTE 9 & 10; REVISED NOTE 2 & 3: IN NOTE 2 REPLACED BOND WITH FASTEN, LDW280P17700-7 WITH -17, & (AS SHOWN WITH EPON 934 PER LSP-14-22500) WITH (PER LSP 280-14). IN NOTE 3 REMOVED LDW280P17936-43 & -51, REPLACED LDW280P17936-29 WITH GT535L-HA-0250 & LDW280P17462 WITH -11. (-7 & -9 MAY BE MADE BY REWORKING -1 & -3). (REPLACED NOTES 2 & 3 WITH NOTES 7 & 8).		NOTED	-5			
	5	3.00,	1B				✓	LEO280-374	ON DWG NO. LDW280-28658 ADDED GENERAL NOTE NO. 11		✓				
	6	2.00, 4.00 2.01	3D 9D					EO-A6	CANCELLED EO-A3, ON -7 INSTL ADDED LDW280-18193-13 & MS20470DD4 (8)						
	7	2.00, 5.00 6.00	26A 30C 21A					EO-A7	ON -11, REMOVED LDW280P17524-1; 6 PLACES (DETAIL ✱)		NOT	REQD			
	8	2.00, 5.00	15C					EO-A8	IN FLD OF DWG & B/M ON -7 ADDED LDW280-23713-19-1 (6) WAS -19 (6)		✓				
	9	4.00	9D				✓	EOA9 LCD-1338	IN SECTION M-M 2 3/8 WAS 2 7/8 & 2 WAS 2 1/2	LTA-8	✓		RMS WIEBER 7-25-68		

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS
A					

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28658	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	10			0			✓		REF EOA2: EFF LTA-8, LM-1 THRU LM-6 S/B LTA-8. ADDED SH1.11	LTA-8	✓		WIEBER 7-25-68	[illegible] 7-25-68	

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28658	A Ⓐ
SCALE	NONE		SHEET 1.11

ENG 77.3 5-66

01

NAS 9-1100

		-15	-13	-11	-9	-7	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				28				LDW280P17700-17	E	STANDOFF ASSY	SEE DWG						3B
					46			LDW280P17575-11	↑	RETAINER	↑						6F
						4		LDW280P17572-23		STANDOFF							3B
				28				LDW280P17523-3		CAP							3B
						1		LDW280-18193-13		ANGLE							9D
						1		LDW280M17659-1		FITTING							8D
					1			LDW280M17649-1		FITTING							6D
						3		LDW280-18102-17		CLIP							6F
			1					LDW280P17462-49		SKIN							4B
						6		LDW280-23713-19-1		STANDOFF ASSY							15C
						6		LDW280-23713-15		STANDOFF ASSY							10E
						12		LDW280-23712-3		STANDOFF ASSY							7E
						12		LDW280-23712-1		STANDOFF ASSY							16A
						4		LDW280-28721-1		STANDOFF ASSY							6F
		1						LDW280P17462-35		BLANKET ASSY	↓						25B
			1					LDW280P17462-27		↑	SEE DWG						4B
				1				LDW280-28658-15							NOTE 7&8	NONE	4A
				1				↑ -13		↓					NOTE 7&8	NONE	4A
					1			-11		BLANKET ASSY					NOTE 9	NONE	4A
								↓ -9	↓	BLANKET INSTL					NONE	NONE	4A
								LDW280-28658-7	E	STANDOFF INSTL					NOTE 1	NONE	4A

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
							BONDING	LPC280-14
							STITCHING	FED STD 751a

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28658	A

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

-15	-13	-11	-9	-7	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	A/R	A/R				GT535B-2-1.00	E	TAPE	GRUMMAN STD						
		A/R		A/R		GT835M-8		TAPE							
	A/R	A/R				GT835P-8		TAPE							
		A/R				GS577A-1		STAPLE							
			46			GW10H-1		WASHER							
			46			GB10J-1		BUSHING							
		2				GT535L-HA-0250		TAPE							
				28		GT535G-LAS-0004		TAPE	GRUMMAN STD						
						MS20470DD4		RIVET	STD PART						
						MS20470AD4		RIVET							
						MS20470AD3		RIVET							
						MS20470A 3		RIVET							
			46			AN515-6R4	E	SCREW	STD PART						

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28658	A

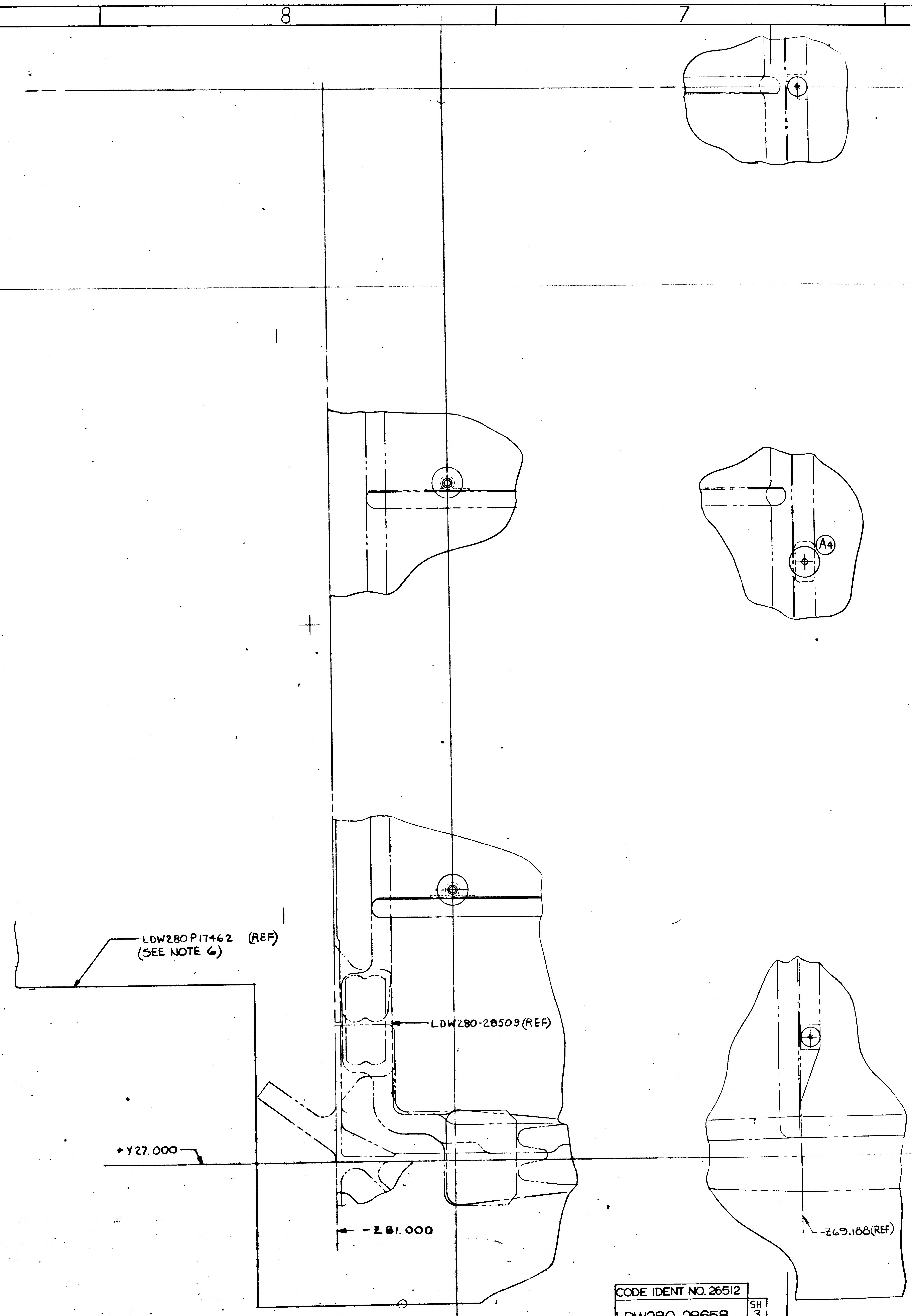
SCALE NONE

SHEET 2.01

ENG 77.2 7-65

01

NAS 9-1100



A4
LDW280P17462 (REF)
(SEE NOTE 6)
LDW280-28509(REF)
+Y27.000
-Z81.000
-Z69.188(REF)

CODE IDENT NO. 26512

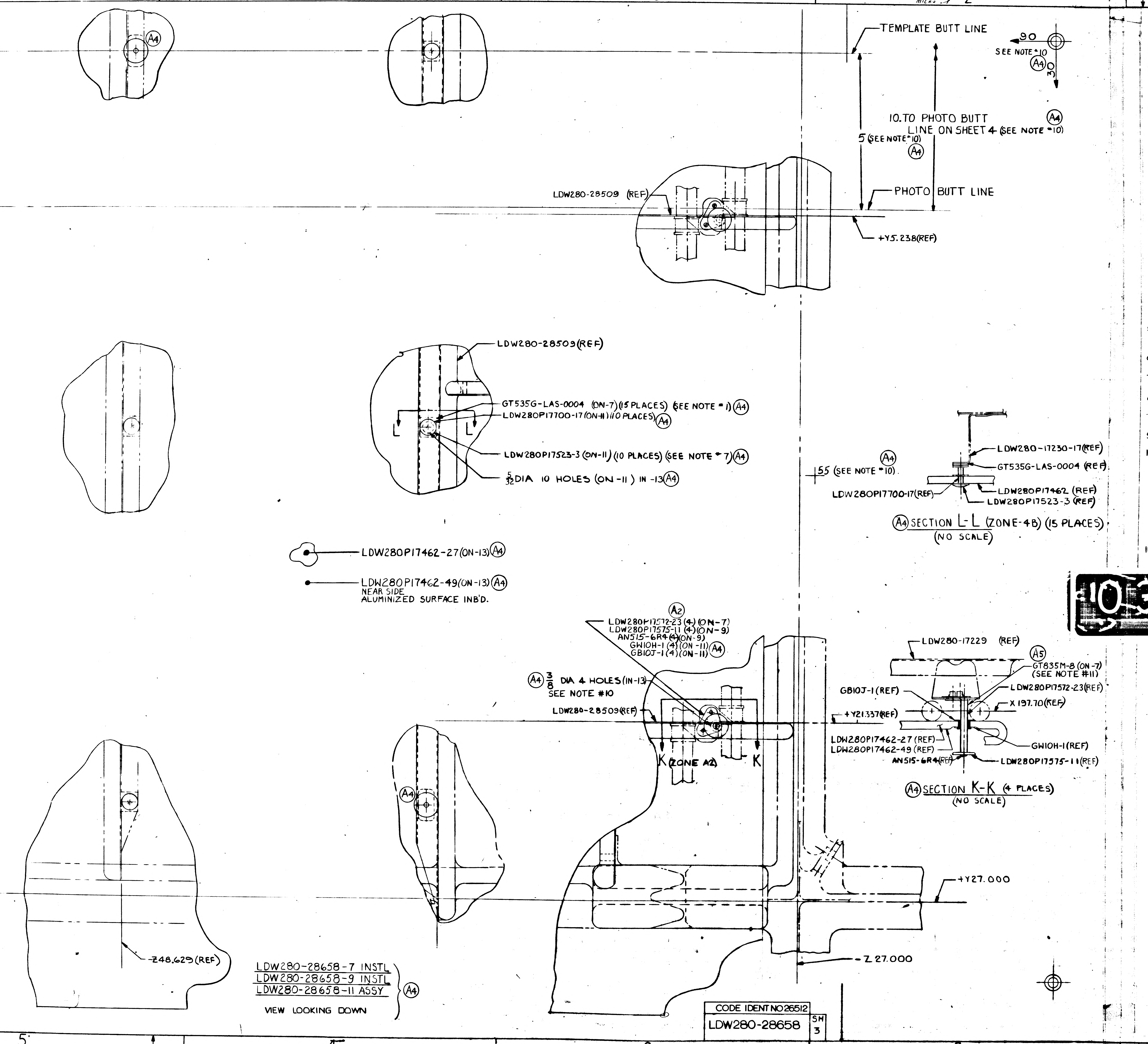
LDW280-28658

SH
3

01/03 NAS 9-1100

7
6
5
4
3
TEMPLATE BUTT
10.TO PHOTO
LINE ON S
5 (SEE NOTE 10)
A4
PHOTO BUTT
LDW280-28509 (REF)
+Y5.238(REF)
A4
LDW280-28509(REF)
GT535G-LAS-0004 (ON-7)(15 PLACES) (SEE NOTE * 1) A4
LDW280P17700-17(ON-11)(10 PLACES) A4
L
L
LDW280P17523-3 (ON-11) (10 PLACES) (SEE NOTE * 7) A4
5/32 DIA 10 HOLES (ON-11) IN -13 A4
A4
.55 (SEE NOTE * 10)
LDW280P17700-17(REF)
A4 SECTION
(NO
LDW280P17462-27(ON-13) A4
LDW280P17462-49(ON-13) A4
NEAR SIDE
ALUMINIZED SURFACE INB'D.
A2
LDW280P17572-23 (4) (ON-7)
LDW280P17575-11 (4) (ON-9)
AN515-6R4 (4) (ON-9)
GW10H-1 (4) (ON-11)
GB10J-1 (4) (ON-11) A4
A4 3/8 DIA 4 HOLES (IN-13)
SEE NOTE #10
LDW280-28509(REF)
K (ZONE A2)
K
LDW280
GB10J-1 (REF)
+Y21.337(REF)
LDW280P17462-27 (REF)
LDW280P17462-49 (REF)
AN515-6R4(REF)
A4 SECTION
A4
A4
A4
A4
-Z69.188(REF)
-Z59.371 (REF)
-Z48.629 (REF)
-Z 27.000
LDW280-28658-7 INSTL
LDW280-28658-9 INSTL
LDW280-28658-11 ASSY
A4
VIEW LOOKING DOWN
CODE IDENT NO 26512
LDW280-28658
SH 3
CODE IDENT NO 26512
LDW280-28658
SH 3
7
6
5
4
3

02/03/1 NAS 9-1100



TREG
TEMPLATE BUTT LINE
90
SEE NOTE #10
A4
30
10. TO PHOTO BUTT LINE ON SHEET 4 (SEE NOTE #10)
5 (SEE NOTE #10)
PHOTO BUTT LINE
+Y5.238(REF)
LDW280-28509 (REF)
LDW280-28509(REF)
GT535G-LAS-0004 (ON-7) (15 PLACES) (SEE NOTE #1) A4
LDW280P17700-17 (ON-11) (10 PLACES) A4
L
L
LDW280P17523-3 (ON-11) (10 PLACES) (SEE NOTE #7) A4
5/32 DIA 10 HOLES (ON-11) IN -13 A4
LDW280P17462-27 (ON-13) A4
LDW280P17462-49 (ON-13) A4
NEAR SIDE
ALUMINIZED SURFACE INB'D.
A4
LDW280-17230-17(REF)
55 (SEE NOTE #10)
GT535G-LAS-0004 (REF)
LDW280P17700-17(REF)
LDW280P17462 (REF)
LDW280P17523-3 (REF)
A4 SECTION L-L (ZONE-4B) (15 PLACES)
(NO SCALE)
A2
LDW280P17572-23 (4) (ON-7)
LDW280P17575-11 (4) (ON-9)
AN515-6R4 (4) (ON-9)
GW10H-1 (4) (ON-11)
GB10J-1 (4) (ON-11) A4
A4 3/8 DIA 4 HOLES (IN-13)
SEE NOTE #10
LDW280-28509(REF)
K (ZONE A2)
K
LDW280-17229 (REF)
A5
GT835M-8 (ON-7)
(SEE NOTE #11)
GB10J-1 (REF)
LDW280P17572-23(REF)
+Y21.337(REF)
X 197.70(REF)
LDW280P17462-27 (REF)
LDW280P17462-49 (REF)
GW10H-1(REF)
AN515-6R4(REF)
LDW280P17575-11(REF)
A4 SECTION K-K (4 PLACES)
(NO SCALE)
+Y27.000
Z48.629 (REF)
-Z 27.000
LDW280-28658-7 INSTL
LDW280-28658-9 INSTL
LDW280-28658-11 ASSY
A4
VIEW LOOKING DOWN
5
4
3
2
1

NOTES: GT535G-LAS-0004

1. BOND ~~LDW280P17936-13~~ TO STRUCTURE AS SHOWN WITH EPON934 PER LSP14-22500. CURE RANGE I OR ROOM TEMP CURE FOR 7 DAYS PERMITTED.
2. ~~BOND LDW280P17523-3 TO LDW280P17700-7 AS SHOWN WITH EPON 934 PER LSP14-22500~~
3. ~~LDW280P17936-29-43&-51 SEW TO LDW280P17462 AT 3/16 ± 1/16 FROM EDGES OF LDW280P17936-29-43&51 IN ACCORDANCE WITH FED STD #751a & STITCH TYP 301.~~
4. ~~-5 ASSY. SHOWN ON THIS DRAWING HAS BEEN DRAWN TO PROJECTED DIMS. THIS ASSY SHALL BE MADE TO EXPANDED DIMENSIONS BY MAKING A PHOTO LOFT TO THE EXPANDED TRAMMEL POINT DIMENSIONS INDICATED BELOW. THE EXPANSION RATIO .030 IN/IN~~

~~TRAMMEL POINT~~		~~SHOWN~~	~~EXPANDED~~
~~SHEET 3~~	~~LENGTH~~	~~90.0~~	~~92.700~~
~~3~~	~~WIDTH~~	~~30.0~~	~~30.900~~
~~SHEET 4~~	~~LENGTH~~	~~90.0~~	~~92.700~~
~~4~~	~~WIDTH~~	~~30.0~~	~~30.900~~
~~SHEET 5~~	~~LENGTH~~	~~90.0~~	~~92.700~~
~~5~~	~~WIDTH~~	~~30.0~~	~~30.900~~
~~SHEET 6~~	~~LENGTH~~	~~70.0~~	~~72.100~~
~~6~~	~~WIDTH~~	~~30.0~~	~~30.900~~
~~CONTROL POINTS~~			
~~SHEET 3~~		~~55.0~~	~~56.650~~
~~SHEET 4~~		~~55.0~~	~~56.650~~
~~SHEET 5~~		~~72.0~~	~~74.160~~
~~SHEET 6~~		~~36.0~~	~~37.080~~
~~PHOTO BUTT (ALL)~~		~~10.0~~	~~10.300~~
~~TEMP BUTT (ALL)~~		~~5.0~~	~~5.150~~

5. INSTALL FASTENERS PER LSP14-15302
6. TOLERANCE ON TRIM OF BLANKETS IS ± 1/2
7. FASTEN LDW280P17523-3 TO LDW280P17700-17 PER LPC280-14.
8. SEW GT535L-HA-0250 TO -11 AT 3/16 ± 1/16 FROM EDGES OF GT535L-HA-0250 IN ACCORDANCE WITH FED STD #751A & STITCH TYPE 301.
9. FABRICATE -11 BLANKET ASSY PER LPC280-1.
10. ALL ALUMINIZED MYLAR PARTS SHALL HAVE HOLE PATTERNS LOCATED WITH EXPANDED DIMS. THE EXPANSION RATIO IS TO BE .050 IN/IN (E.G. 10.000 SHOWN EXPANDS TO 10.500)
ALL ALUMINIZED POLYIMIDE PARTS SHALL HAVE HOLE PATTERNS LOCATED WITH EXPANDED DIMS. THE EXPANSION RATIO TO BE .070 IN/IN (E.G. 10.000 SHOWN EXPANDS TO 10.700), EXCEPT LDW280P17462-49 WHICH SHALL HAVE AN EXPANSION RATIO OF .050 IN/IN.
11. WRAP STEMS OF ALL STANDOFFS WHICH ARE RIVETED TO STRUCTURE WITH 1 LAYER OF GT835M-8 ON -7 STANDOFF INSTL

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL f DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

EXCEPT AS NOTED

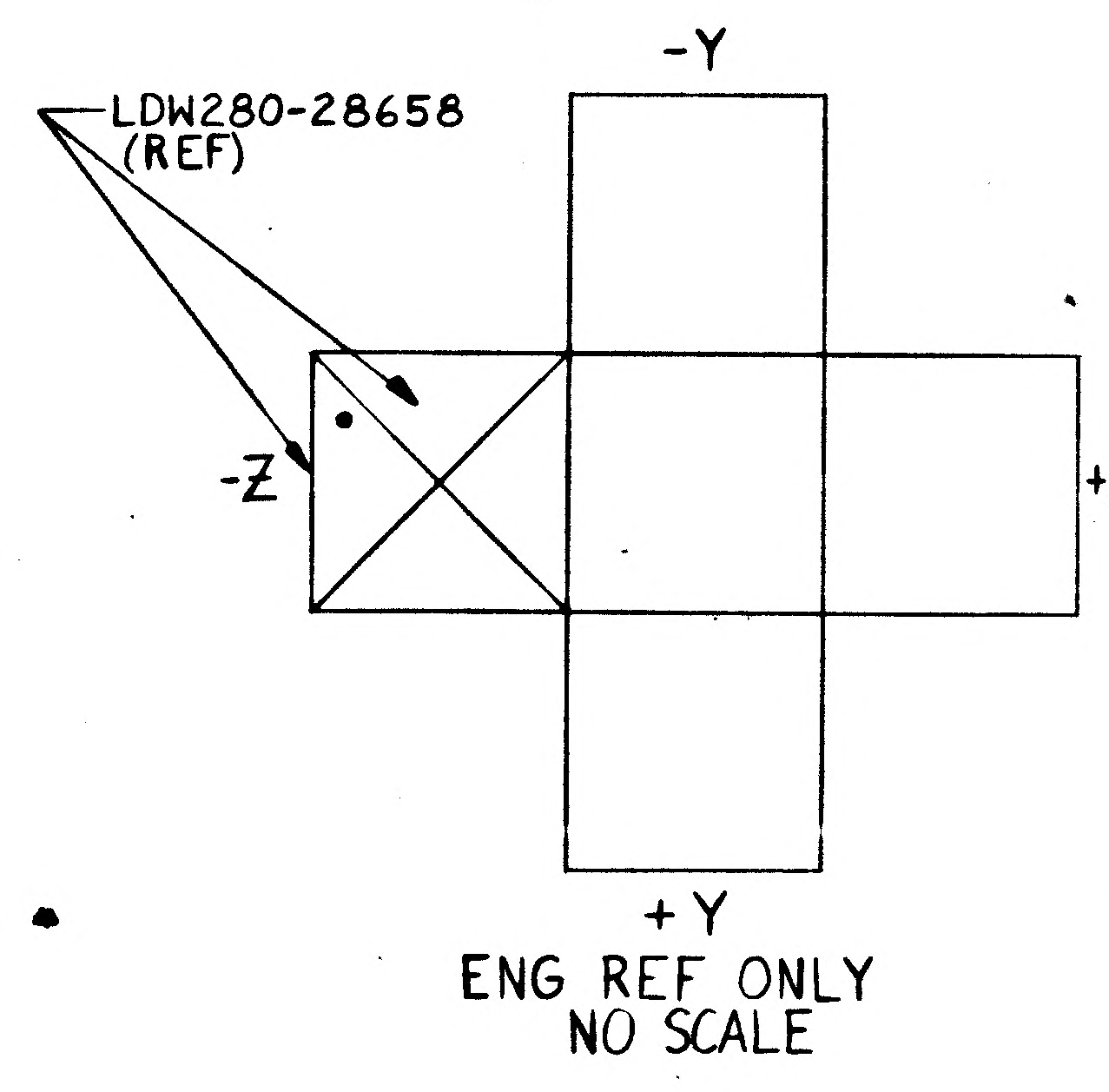
DWG SIZE 34 X 106

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 108) = 27 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6 3/4 SQ. FT.

PRINT TRIM LINE

03/03

NAS 9-1100



LDW280-28658
(REF)
-Y
-Z
+Z
FWD
+Y

ENG REF ONLY
NO SCALE

LDW280-28658 A

CODE IDENT NO 26512
LDW280-28658 SH 3

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LEM MODEL OR END ITEM	SIZE J	CODE IDENT NO. 26512	LDW280-28658	A
	SCALE FULL			SHEET 3.00

FOR PHOTO REPRODUCTION

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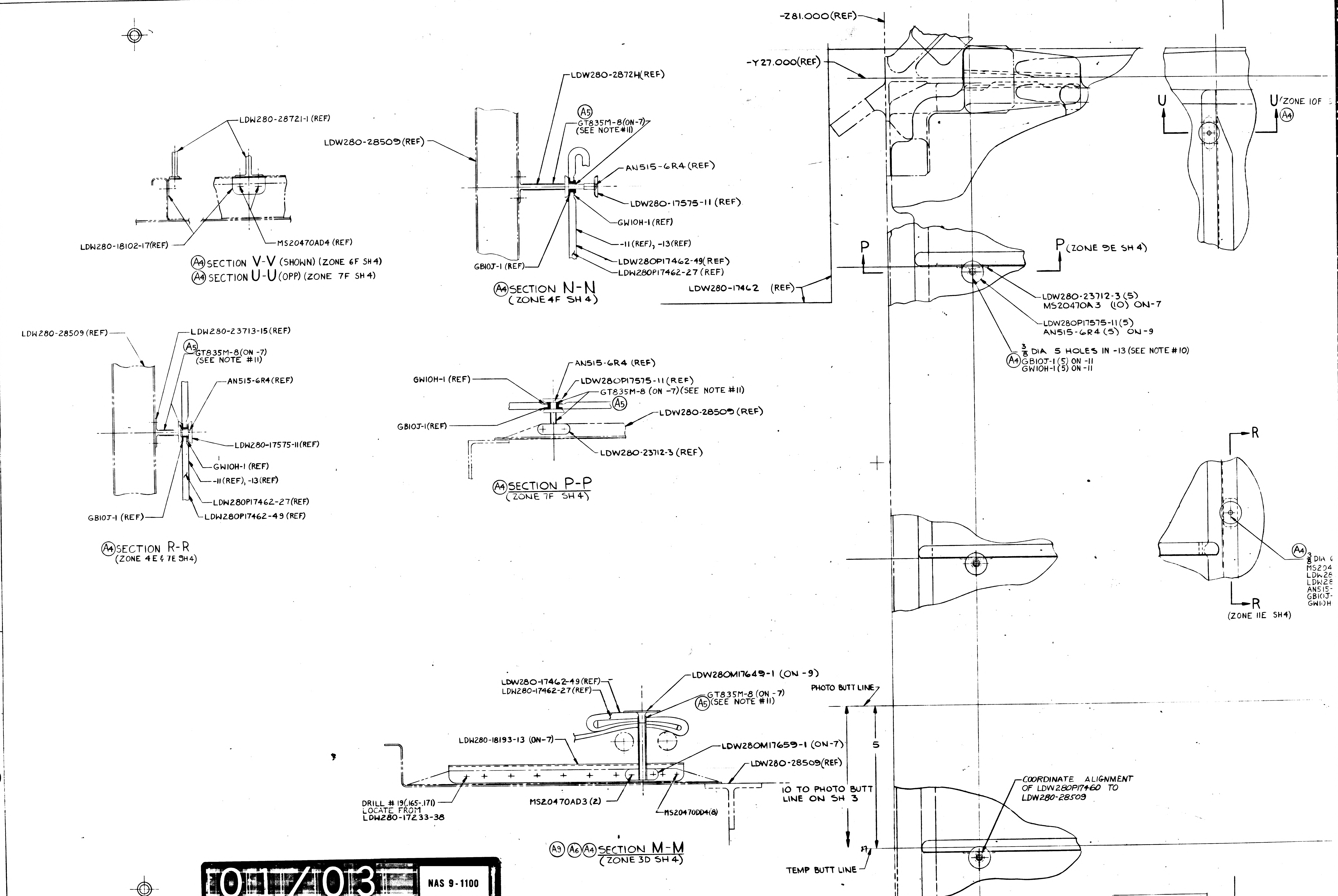


Ⓐ4 SECTION V-V (SHOWN) (ZONE 6F SH 4)
Ⓐ4 SECTION U-U (OPP) (ZONE 7F SH 4)

Ⓐ4 SECTION N-N
(ZONE 4F SH 4)

Ⓐ4 SECTION R-R
(ZONE 4E & 7E SH4)

Ⓐ4 SECTION P-P
(ZONE 7F SH 4)

Ⓐ9 Ⓐ6 Ⓐ4 SECTION M-M
(ZONE 3D SH 4)

11
10
9
8
7
F
E
D
LDW280-28721-1 (REF)
LDW280-18102-17(REF)
MS20470AD4 (REF)
LDW280-2872H(REF)
Ⓐ5
GT835M-8(ON-7)
(SEE NOTE #11)
LDW280-28509(REF)
AN515-6R4 (REF)
LDW280-17575-11 (REF)
GW10H-1 (REF)
-11 (REF), -13(REF)
LDW280P17462-49(REF)
LDW280P17462-27 (REF)
GB10J-1 (REF)
-Z81.000(REF)
-Y27.000(REF)
LDW280-17462 (REF)
U
U
ZONE 10F
Ⓐ4
P
P (ZONE 9E SH 4)
LDW280-23712-3 (5)
MS20470A3 (10) ON-7
LDW280P17575-11(5)
AN515-6R4 (5) ON-9
Ⓐ4 3/8 DIA 5 HOLES IN -13 (SEE NOTE #10)
GB10J-1 (5) ON -11
GW10H-1 (5) ON -11
LDW280-28509 (REF)
LDW280-23713-15(REF)
Ⓐ5 GT835M-8(ON -7)
(SEE NOTE #11)
AN515-6R4(REF)
LDW280-17575-11(REF)
GW10H-1 (REF)
-11 (REF), -13 (REF)
LDW280P17462-27(REF)
LDW280P17462-49 (REF)
GB10J-1 (REF)
AN515-6R4 (REF)
GW10H-1 (REF)
LDW280P17575-11 (REF)
GT835M-8 (ON -7)(SEE NOTE #11)
Ⓐ5
GB10J-1(REF)
LDW280-28509 (REF)
LDW280-23712-3 (REF)
R
R
(ZONE 11E SH4)
Ⓐ4 3/8 DIA
MS204
LDW28
LDW28
AN515-
GB10J-
GW10H
LDW280-17462-49 (REF)
LDW280-17462-27 (REF)
LDW280M17649-1 (ON -9)
GT835M-8 (ON -7)
Ⓐ5 (SEE NOTE #11)
PHOTO BUTT LINE
LDW280-18193-13 (ON-7)
LDW280M17659-1 (ON-7)
5
LDW280-28509(REF)
10 TO PHOTO BUTT LINE ON SH 3
DRILL # 19(.165-.171)
LOCATE FROM
LDW280-17233-38
MS20470AD3 (2)
MS20470DD4(8)
27
TEMP BUTT LINE
COORDINATE ALIGNMENT
OF LDW280P17460 TO
LDW280-28509

01/03

NAS 9-1100

3/3

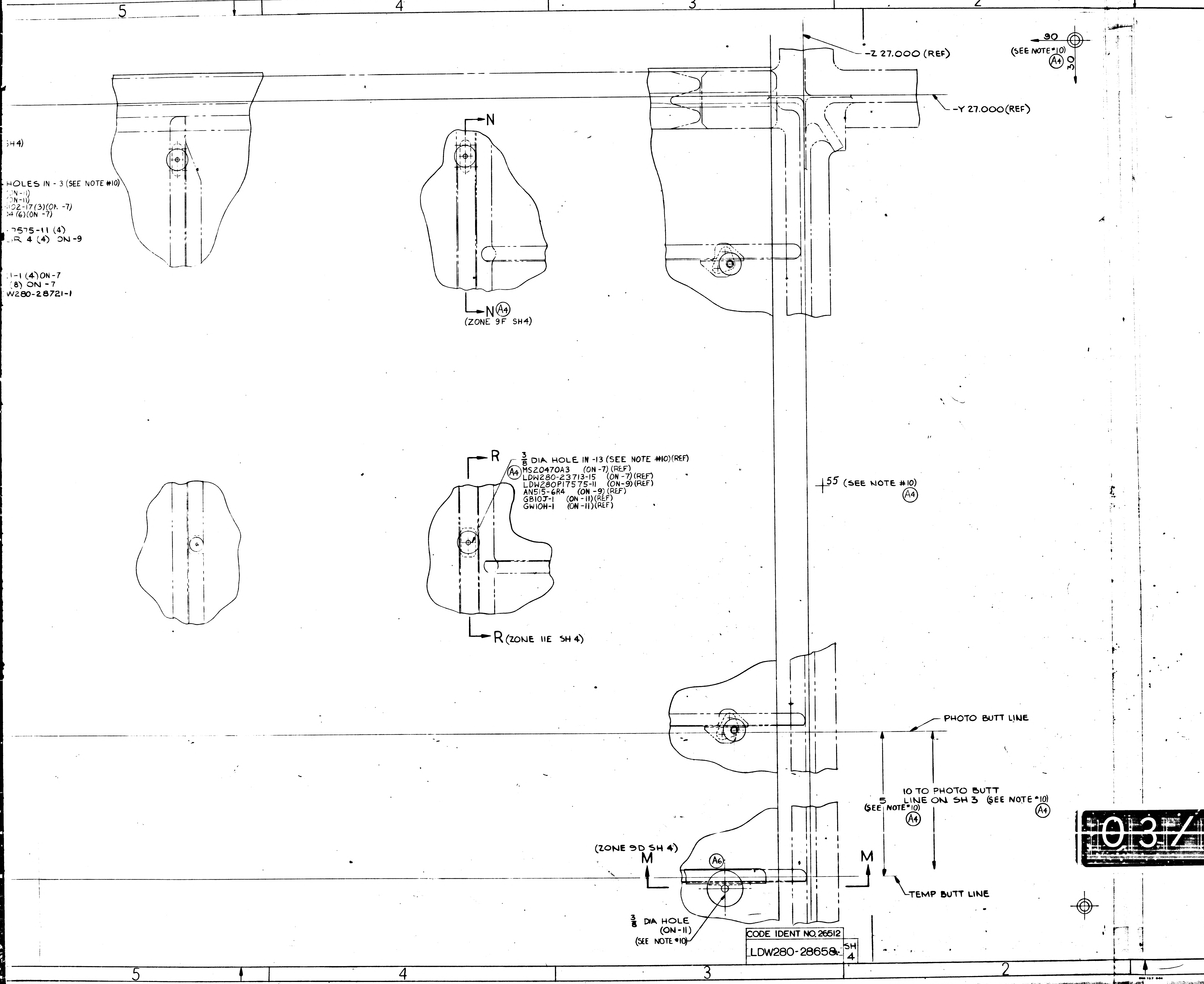
CODE IDENT NO. 26512	
LDW280-28658	SH 4

7
6
5
4
3
-Z 27.000 (REF)
-Y 2
U
U (ZONE 10F SH 4)
A4
V
A4
V (ZONE 10F SH4)
3/8 DIA 4 HOLES IN -13 (SEE NOTE #10)
A4
GB10J-1 (4) (ON-11)
GW10H-1 (4) (ON-11)
LDW280-18102-17 (3) (ON -7)
MS20470AD4 (6) (ON -7)
LDW280-17575-11 (4)
AN515-6R 4 (4) ON-9
LDW280-28721-1 (4) ON-7
MS20470A3 (8) ON-7
LOCATE FROM LDW280-28721-1
N
N A4
(ZONE 9F SH4)
SH 4)
(5)
) ON-7
(5)
ON-9
3 (SEE NOTE #10)
R
R
(ZONE 11E SH4)
A4
3/8 DIA 6 HOLES IN -13 (SEE NOTE #10)
MS20470A3 (12) (ON-7)
LDW280-23713-15 (6) (ON-7)
LDW280P17575-11 (6) (ON-9)
AN515-6R4 (6) (ON -9)
GB10J-1 (6) (ON -11)
GW10H-1 (6) (ON -11)
R
3/8 DIA HOLE IN -13 (SEE NOTE #10) (REF)
A4
MS20470A3 (ON -7) (REF)
LDW280-23713-15 (ON -7) (REF)
LDW280P17575-11 (ON-9) (REF)
AN515-6R4 (ON -9) (REF)
GB10J-1 (ON -11) (REF)
GW10H-1 (ON -11) (REF)
R (ZONE 11E SH 4)
.55 (SEE NOTE #10)
A4
PHOT
10 TO PHOTO
LINE ON SH 3
5
(SEE NOTE #10)
A4
(ZONE 9D SH 4)
M
M
A6
TEMP BUTT L
3/8 DIA HOLE
(ON-11)
(SEE NOTE #10)
NT

CODE IDENT NO. 26512
LDW280-28658 SH 4

CODE IDENT NO. 26512
LDW280-28658 SH 4

02/03 NAS 9-1100


5
4
3
2
-Z 27.000 (REF)
-Y 27.000 (REF)
90
(SEE NOTE #10) (A4)
30
SH 4)
HOLES IN - 3 (SEE NOTE #10)
ON-11)
ON-11)
102-17 (3) (ON -7)
4 (6) (ON -7)
7575-11 (4)
R 4 (4) ON -9
1-1 (4) ON -7
(8) ON -7
W280-28721-1
N
N (A4)
(ZONE 9F SH4)
R
3/8 DIA HOLE IN -13 (SEE NOTE #10) (REF)
(A4) MS20470A3 (ON -7) (REF)
LDW280-23713-15 (ON -7) (REF)
LDW280P17575-11 (ON-9) (REF)
AN515-6R4 (ON -9) (REF)
GB10J-1 (ON -11) (REF)
GW10H-1 (ON -11) (REF)
R (ZONE 11E SH 4)
55 (SEE NOTE #10) (A4)
PHOTO BUTT LINE
5 (SEE NOTE #10) (A4)
10 TO PHOTO BUTT LINE ON SH 3 (SEE NOTE #10) (A4)
TEMP BUTT LINE
(ZONE 9D SH 4)
M
M
(A6)
3/8 DIA HOLE (ON-11) (SEE NOTE #10)
CODE IDENT NO. 26512
LDW280-28658
SH 4
3
2

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10
200 FOR ALL DRILLED HOLES
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS
SYMBOL √ DENOTES SURFACE TO BE MACHINED
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.
TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 106

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 108) = 27 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6 3/4 SQ. FT.

PRINT TRIM LINE

F

E

D

LDW280-28658 A

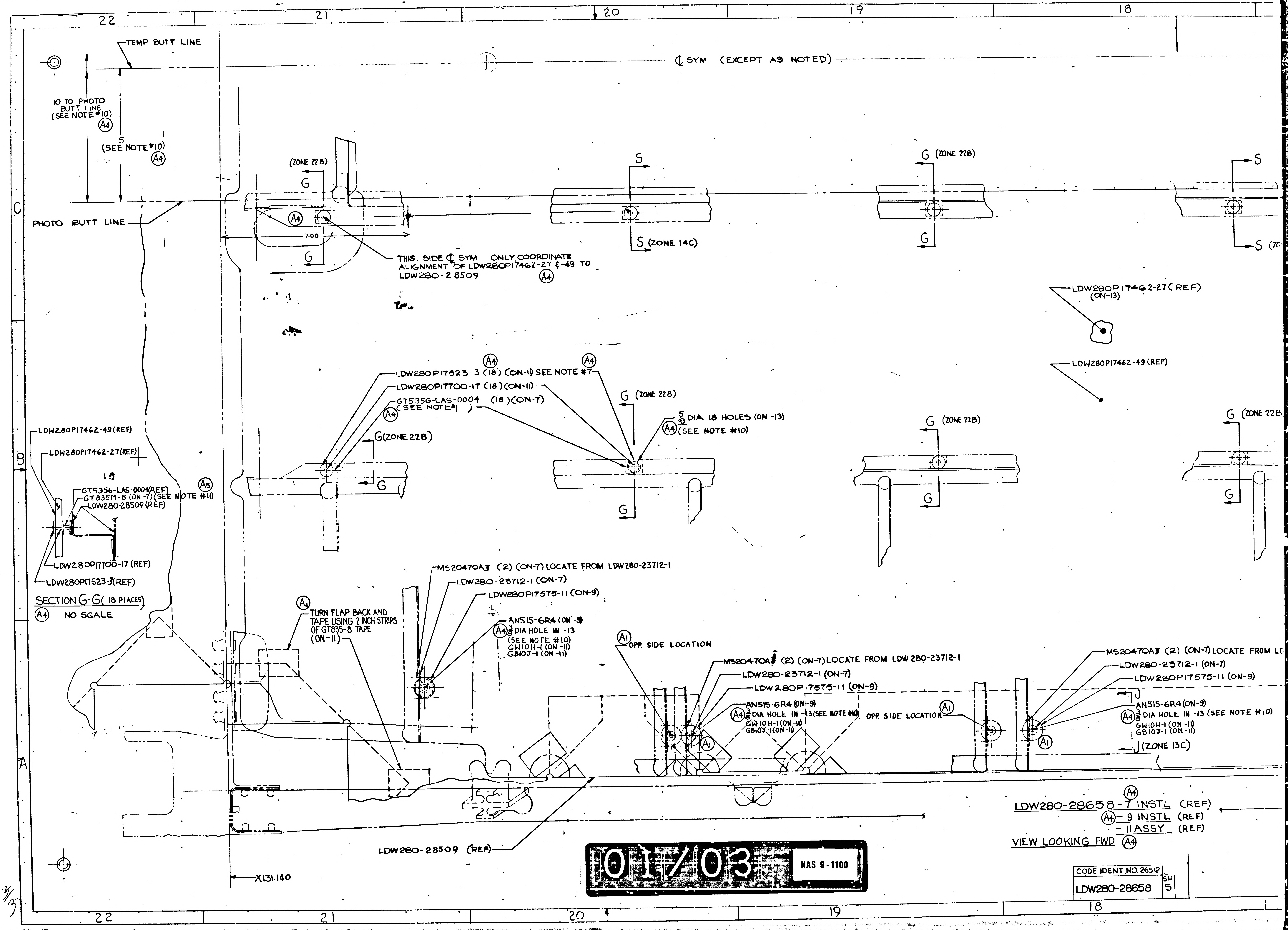
LDW280-28658 A

03/03

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-28658	A (A)
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

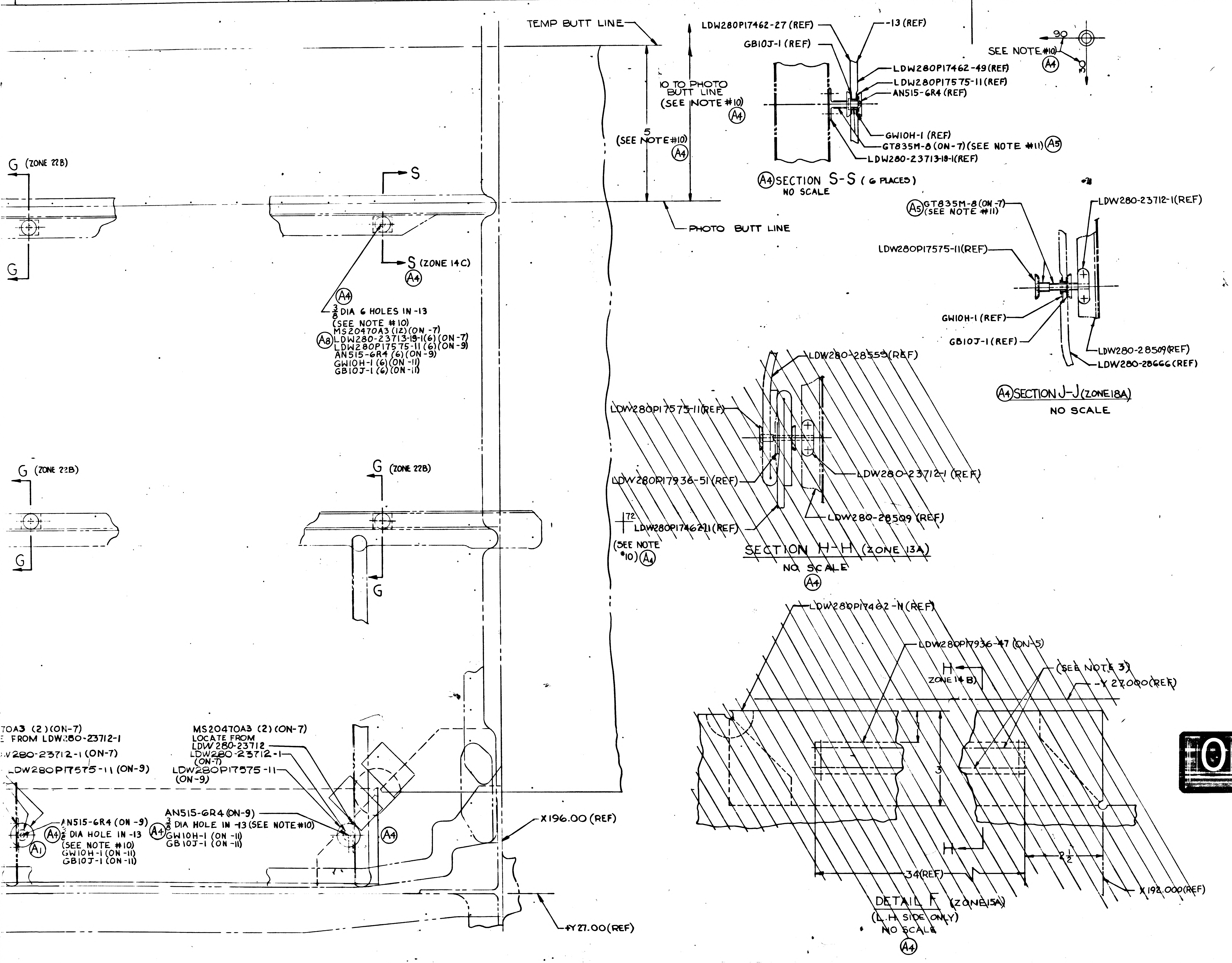
FOR PHOTO REPRODUCTION


22
21
20
19
18
C
B
A
TEMP BUTT LINE
℄ SYM (EXCEPT AS NOTED)
10 TO PHOTO BUTT LINE (SEE NOTE #10) (A4)
5 (SEE NOTE #10) (A4)
PHOTO BUTT LINE
(ZONE 22B)
G
S
S (ZONE 14C)
G (ZONE 22B)
7.00
(A4)
THIS SIDE ℄ SYM ONLY COORDINATE ALIGNMENT OF LDW280P17462-27 & -49 TO LDW280-28509 (A4)
LDW280P17462-27 (REF) (ON-13)
LDW280P17462-49 (REF)
(A4) LDW280P17523-3 (18) (ON-11) SEE NOTE #7 (A4)
LDW280P17700-17 (18) (ON-11)
(A4) GT535G-LAS-0004 (18) (ON-7) (SEE NOTE #1)
G (ZONE 22B)
$\frac{5}{32}$ DIA 18 HOLES (ON -13) (A4) (SEE NOTE #10)
LDW280P17462-49 (REF)
LDW280P17462-27 (REF)
GT535G-LAS-0004 (REF)
GT835M-8 (ON -7) (SEE NOTE #11) (A5)
LDW280-28509 (REF)
LDW280P17700-17 (REF)
LDW280P17523-3 (REF)
SECTION G-G (18 PLACES)
(A4) NO SCALE
MS20470A3 (2) (ON-7) LOCATE FROM LDW280-23712-1
LDW280-23712-1 (ON-7)
LDW280P17575-11 (ON-9)
AN515-6R4 (ON-9)
(A4) $\frac{3}{8}$ DIA HOLE IN -13 (SEE NOTE #10)
GW10H-1 (ON -11)
GB10J-1 (ON -11)
(A4) TURN FLAP BACK AND TAPE USING 2 INCH STRIPS OF GT835-8 TAPE (ON-11)
(A1) OPP. SIDE LOCATION
MS20470A3 (2) (ON-7) LOCATE FROM LDW 280-23712-1
LDW280-23712-1 (ON-7)
LDW280P17575-11 (ON-9)
AN515-6R4 (ON-9)
(A4) $\frac{3}{8}$ DIA HOLE IN -13 (SEE NOTE #10)
GW10H-1 (ON -11)
GB10J-1 (ON -11)
OPP. SIDE LOCATION (A1)
(A1)
MS20470A3 (2) (ON-7) LOCATE FROM LD
LDW280-23712-1 (ON-7)
LDW280P17575-11 (ON-9)
J
AN515-6R4 (ON-9)
(A4) $\frac{3}{8}$ DIA HOLE IN -13 (SEE NOTE #10)
GW10H-1 (ON -11)
GB10J-1 (ON -11)
J (ZONE 13C)
LDW280-28509 (REF)
X131.140
(A4) LDW280-28658-7 INSTL (REF)
(A4) -9 INSTL (REF)
-11 ASSY (REF)
VIEW LOOKING FWD (A4)

01/03 NAS 9-1100

CODE IDENT NO. 26512
LDW280-28658
SH 5

18
17
16
15
14
13
TEMP BUTT LINE
LDW280P17462-27 (REF)
-13 (REF)
GB10J-1 (REF)
SEE NOTE #10
A4
LDW280P17462-49(REF)
LDW280P17575-11(REF)
AN515-6R4 (REF)
10 TO PHOTO BUTT LINE (SEE NOTE #10) A4
5 (SEE NOTE #10) A4
GW10H-1 (REF)
GT835M-8 (ON-7)(SEE NOTE #11) A5
LDW280-23713-18-1(REF)
A4 SECTION S-S (6 PLACES)
NO SCALE
PHOTO BUTT LINE
A5 GT835M-8 (ON-7) (SEE NOTE #11)
LDW280P17575-11(REF)
GW10H-1 (REF)
GB10J-1 (REF)
A4 SECTION J-J (Z
NO SCA
S
S (ZONE 14C)
G (ZONE 22B)
G
S
S (ZONE 14C) A4
A4 3/8 DIA 6 HOLES IN -13 (SEE NOTE #10)
MS20470A3 (12) (ON-7)
A8 LDW280-23713-19-1 (6) (ON-7)
LDW280P17575-11 (6) (ON-9)
AN515-6R4 (6) (ON-9)
GW10H-1 (6) (ON-11)
GB10J-1 (6) (ON-11)
W280P17462-27 (REF) (ON-13)
W280P17462-43 (REF)
G (ZONE 22B)
G
G (ZONE 22B)
G
G (ZONE 22B)
G
LDW280-28559 (REF)
LDW280P17575-11(REF)
LDW280-23712-1 (REF)
LDW280P17936-51 (REF)
72 LDW280P17462-21 (REF)
(SEE NOTE #10) A4
LDW280-28509 (REF)
SECTION H-H (ZONE 13A)
NO SCALE
A4
LDW280P17462-11 (REF)
LDW280P17936-47 (ON-5)
(SEE N
H ZONE 14B
3
H
2 1/2
34(REF)
DETAIL F (ZONE 15A)
(L.H SIDE ONLY)
NO SCALE
A4
MS20470A3 (2) (ON-7) LOCATE FROM LDW280-23712-1
LDW280-23712-1 (ON-7)
LDW280P17575-11 (ON-9)
J
AN515-6R4 (ON-9)
A4 3/8 DIA HOLE IN -13 (SEE NOTE #10)
GW10H-1 (ON-11)
GB10J-1 (ON-11)
J (ZONE 13C)
MS20470A3 (2) (ON-7)
LOCATE FROM LDW280-23712-1
LDW280-23712-1 (ON-7)
LDW280P17575-11 (ON-9)
OPP. SIDE LOCATION A1
A1
AN515-6R4 (ON-9)
A4 3/8 DIA HOLE IN -13 (SEE NOTE #10)
GW10H-1 (ON-11)
GB10J-1 (ON-11)
MS20470A3 (2) (ON-7)
LOCATE FROM LDW280-23712
LDW280-23712-1
(ON-7)
LDW280P17575-11
(ON-9)
AN515-6R4 (ON-9)
A4 3/8 DIA HOLE IN -13 (SEE NOTE #10)
GW10H-1 (ON-11)
GB10J-1 (ON-11)
A4
X196.00 (REF)
Y27.00 (REF)
A4
658-7 INSTL (REF)
A4 -9 INSTL (REF)
-11 ASSY (REF)
G FWD A4
DE IDENT NO 26512
W280-28658 SH 5
CODE IDENT NO. 26512
LDW280-28658 SH 5
02/03
NAS 9-1100
18
17
16
15
14


16
15
14
13
12
TEMP BUTT LINE
10 TO PHOTO BUTT LINE (SEE NOTE #10) (A4)
5 (SEE NOTE #10) (A4)
PHOTO BUTT LINE
G (ZONE 22B)
G
S
S (ZONE 14C) (A4)
(A4)
3/8 DIA 6 HOLES IN -13
(SEE NOTE #10)
MS20470A3 (12) (ON -7)
(A8) LDW280-23713-19-1 (6) (ON -7)
LDW280P17575-11 (6) (ON -9)
AN515-6R4 (6) (ON -9)
GW10H-1 (6) (ON -11)
GB10J-1 (6) (ON -11)
LDW280P17462-27 (REF)
GB10J-1 (REF)
-13 (REF)
LDW280P17462-49 (REF)
LDW280P17575-11 (REF)
AN515-6R4 (REF)
GW10H-1 (REF)
GT835M-8 (ON -7) (SEE NOTE #11) (A5)
LDW280-23713-19-1 (REF)
(A4) SECTION S-S (6 PLACES)
NO SCALE
90
30
SEE NOTE #10) (A4)
(A5) GT835M-8 (ON -7) (SEE NOTE #11)
LDW280P17575-11 (REF)
LDW280-23712-1 (REF)
GW10H-1 (REF)
GB10J-1 (REF)
LDW280-28509 (REF)
LDW280-28666 (REF)
(A4) SECTION J-J (ZONE 18A)
NO SCALE
LDW280-28559 (REF)
LDW280P17575-11 (REF)
LDW280P17936-51 (REF)
72
LDW280P17462-11 (REF)
(SEE NOTE #10) (A4)
LDW280-23712-1 (REF)
LDW280-28509 (REF)
SECTION H-H (ZONE 13A)
NO SCALE
(A4)
LDW280P17462-11 (REF)
LDW280P17936-47 (ON -5)
H
ZONE 14 B
(SEE NOTE 3)
-Y 27.000 (REF)
3
H
34 (REF)
2 1/2
X 192.000 (REF)
DETAIL F (ZONE 15A)
(L.H. SIDE ONLY)
NO SCALE
(A4)
70A3 (2) (ON-7)
FROM LDW280-23712-1
W280-23712-1 (ON-7)
LDW280P17575-11 (ON-9)
AN515-6R4 (ON -9)
(A4) 3/8 DIA HOLE IN -13
(SEE NOTE #10)
GW10H-1 (ON -11)
GB10J-1 (ON -11)
(A1)
MS20470A3 (2) (ON-7)
LOCATE FROM
LDW 280-23712
LDW280-23712-1 (ON-7)
LDW280P17575-11 (ON-9)
AN515-6R4 (ON-9)
(A4) 3/8 DIA HOLE IN -13 (SEE NOTE #10)
GW10H-1 (ON -11)
GB10J-1 (ON -11)
(A4)
X196.00 (REF)
+Y27.00 (REF)

~~MANUFACTURING OPERATIONS~~

~~UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.~~

~~PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.~~

~~FILLET AND INSIDE CORNER RADII TOLERANCES~~
~~.016R TO .062R ± .000~~
~~.063R TO .250R ± .015~~
~~OVER .250R ± .030~~

~~DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.~~

~~EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.~~

~~DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.~~

~~MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.~~

~~DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING~~

~~HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.~~

~~ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES~~

~~125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10~~

~~250 FOR ALL DRILLED HOLES~~

~~REMOVE ALL BURRS. BREAK ALL EDGES .015-.000~~

~~INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS~~

~~SYMBOL √ DENOTES SURFACE TO BE MACHINED~~

~~UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32~~

~~LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.~~

~~TOLERANCE ON LOFTED DELINEATIONS IS~~

DWG SIZE 34 X 106

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 106)= 36.0 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 9.0 SQ. FT.

PRINT TRIM LINE

C

B

A

LDW280-28658 A

LDW280-28658 A

03/03 NAS 9-1100

CODE IDENT NO. 26512
LDW280-28658 SH 5

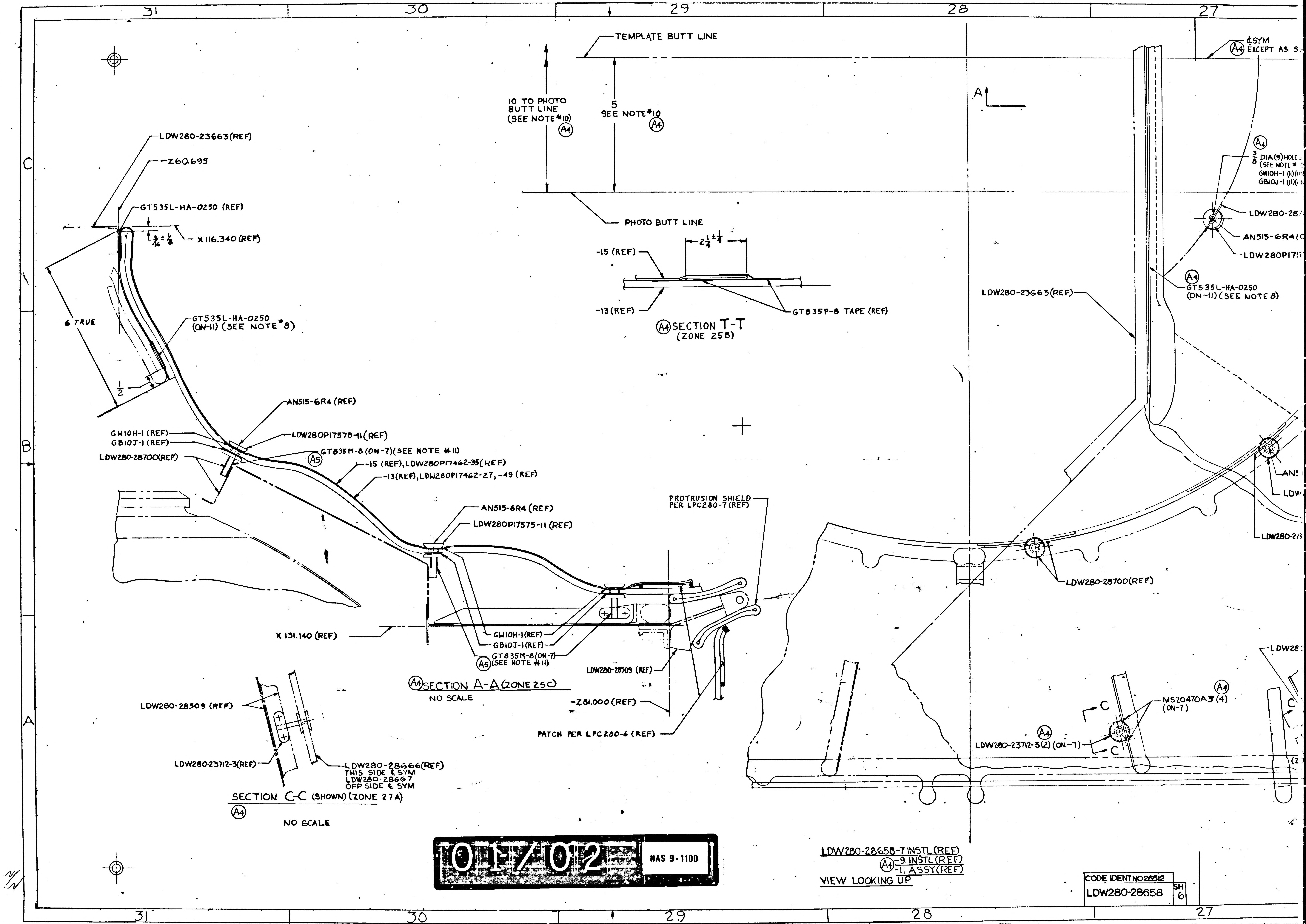
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L.I., NEW YORK

SIZE	CODE IDENT NO.		
J	26512	LDW280-28658	A

MODEL OR END ITEM: LEM.
SCALE: FULL & NOTED
SHEET: 5.00

FOR PHOTO REPRODUCTION

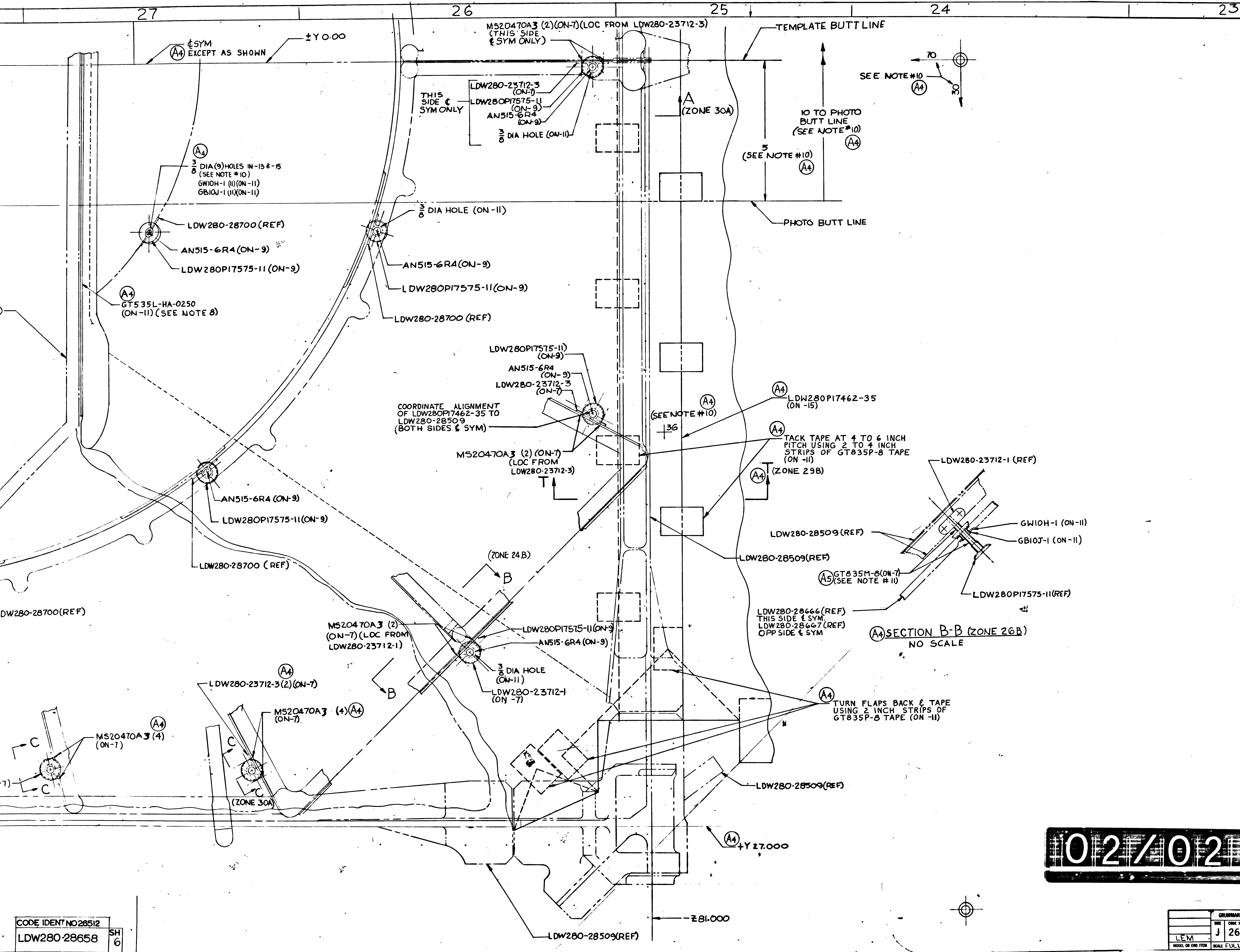
THIS IS AN ORIGINAL DRAWING


31
30
29
28
27
C
B
A
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE (SEE NOTE #10) (A4)
5 SEE NOTE #10 (A4)
PHOTO BUTT LINE
LDW280-23663(REF)
Z60.695
GT535L-HA-0250 (REF)
1/16 ± 1/8
X 116.340 (REF)
6 TRUE
GT535L-HA-0250 (ON-11) (SEE NOTE #8)
1/2
AN515-6R4 (REF)
GW10H-1 (REF)
GB10J-1 (REF)
LDW280P17575-11 (REF)
LDW280-28700(REF)
GT835M-8 (ON-7)(SEE NOTE #11) (A5)
-15 (REF), LDW280P17462-35(REF)
-13(REF), LDW280P17462-27, -49 (REF)
AN515-6R4 (REF)
LDW280P17575-11 (REF)
-15 (REF)
2 1/4 ± 1/4
-13(REF)
GT835P-8 TAPE (REF)
(A4) SECTION T-T (ZONE 25B)
PROTRUSION SHIELD PER LPC280-7 (REF)
X 131.140 (REF)
GW10H-1(REF)
GB10J-1(REF)
GT835M-8(ON-7) (A5) (SEE NOTE #11)
LDW280-28509 (REF)
(A4) SECTION A-A (ZONE 25C)
NO SCALE
Z81.000 (REF)
PATCH PER LPC280-6 (REF)
LDW280-28509 (REF)
LDW280-23712-3(REF)
LDW280-28666(REF) THIS SIDE ℄ SYM LDW280-28667 OPP SIDE ℄ SYM
SECTION C-C (SHOWN) (ZONE 27A)
(A4)
NO SCALE
A
℄ SYM (A4) EXCEPT AS SH
(A4) 3/8 DIA (9) HOLE (SEE NOTE # GW10H-1 (11) GB10J-1 (11)
LDW280-287
AN515-6R4 (
LDW280P175
(A4) GT535L-HA-0250 (ON-11) (SEE NOTE 8)
LDW280-23663(REF)
AN
LDW
LDW280-28
LDW280-28700(REF)
LDW28
C
C
(A4) MS20470A3 (4) (ON-7)
(A4) LDW280-23712-3(2) (ON-7)
C
(Z
LDW280-28658-7 INSTL (REF)
(A4) -9 INSTL (REF)
-11 ASSY (REF)
VIEW LOOKING UP

01/02 NAS 9-1100

CODE IDENT NO 26512
LDW280-28658 SH 6

LDW280-28658


27
26
25
24
23
℄ SYM
(A4) EXCEPT AS SHOWN
±Y 0.00
MS20470A3 (2)(ON-7)(LOC FROM LDW280-23712-3)
(THIS SIDE ℄ SYM ONLY)
THIS SIDE ℄ SYM ONLY
LDW280-23712-3 (ON-7)
LDW280P17575-11 (ON-9)
AN515-6R4 (ON-9)
3/8 DIA HOLE (ON-11)
A (ZONE 30A)
TEMPLATE BUTT LINE
10 TO PHOTO BUTT LINE (SEE NOTE #10) (A4)
5 (SEE NOTE #10) (A4)
PHOTO BUTT LINE
SEE NOTE #10 (A4)
70
30
(A4) 3/8 DIA (9) HOLES IN -13 & -15 (SEE NOTE #10)
GW10H-1 (11)(ON-11)
GB10J-1 (11)(ON-11)
LDW280-28700 (REF)
AN515-6R4 (ON-9)
LDW280P17575-11 (ON-9)
3/8 DIA HOLE (ON-11)
AN515-6R4 (ON-9)
LDW280P17575-11 (ON-9)
LDW280-28700 (REF)
(A4) GT535L-HA-0250 (ON-11) (SEE NOTE 8)
LDW280P17575-11) (ON-9)
AN515-6R4 (ON-9)
LDW280-23712-3 (ON-7)
COORDINATE ALIGNMENT OF LDW280P17462-35 TO LDW280-28509 (BOTH SIDES ℄ SYM)
MS20470A3 (2) (ON-7) (LOC FROM LDW280-23712-3)
T
(A4) (SEE NOTE #10)
36
(A4) LDW280P17462-35 (ON -15)
(A4) TACK TAPE AT 4 TO 6 INCH PITCH USING 2 TO 4 INCH STRIPS OF GT835P-8 TAPE (ON -11)
(A4) T (ZONE 29B)
AN515-6R4 (ON-9)
LDW280P17575-11 (ON-9)
LDW280-28700 (REF)
LDW280-28509 (REF)
LDW280-23712-1 (REF)
LDW280-28509 (REF)
GW10H-1 (ON-11)
GB10J-1 (ON-11)
(A5) GT835M-8 (ON-7) (SEE NOTE #11)
LDW280P17575-11 (REF)
LDW280-28666 (REF) THIS SIDE ℄ SYM.
LDW280-28667 (REF) OPP SIDE ℄ SYM
(A4) SECTION B-B (ZONE 26B)
NO SCALE
DW280-28700 (REF)
(ZONE 24B)
B
MS20470A3 (2) (ON-7) (LOC FROM LDW280-23712-1)
LDW280P17575-11 (ON-9)
AN515-6R4 (ON-9)
3/8 DIA HOLE (ON-11)
LDW280-23712-1 (ON -7)
B
(A4)
LDW280-23712-3 (2)(ON-7)
MS20470A3 (4) (A4) (ON-7)
(A4)
MS20470A3 (4) (ON-7)
C
C
C
C
-7)
(ZONE 30A)
(A4) TURN FLAPS BACK & TAPE USING 2 INCH STRIPS OF GT835P-8 TAPE (ON -11)
LDW280-28509 (REF)
(A4) +Y 27.000
Z81.000
LDW280-28509 (REF)
C
B
A
PRINT TRIM LINE
225 SQ FT
5.625 SQ FT
PRINTING INFO ONLY
FULL SIZE SHEET AREA (90 X 90) =
1/2 SIZE SHEET AREA (1/4 OF FULL) =
DWG SIZE 34 X 88
LDW280-28658 A
LDW280-28658 A

~~MANUFACTURING OPERATIONS~~
~~UNLESS OTHERWISE SPECIFIED~~
~~NOTES CHECKED √ APPLY TO THIS DWG.~~

~~PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.~~

~~FILLET AND INSIDE CORNER RADII TOLERANCES~~
~~.016R TO .062R ± .010~~
~~.063R TO .250R ± .015~~
~~OVER .250R ± .030~~

~~DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.~~

~~EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.~~

~~DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.~~

~~MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.~~

~~DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING~~

~~HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.~~

~~ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES~~

~~125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10~~

~~200 √ FOR ALL DRILLED HOLES~~

~~REMOVE ALL BURRS. BREAK ALL EDGES .015-.031~~

~~INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS~~

~~SYMBOL f DENOTES SURFACE TO BE MACHINED~~

~~UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32~~

~~LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.~~

~~TOLERANCE ON LOFTED DELINEATIONS IS~~

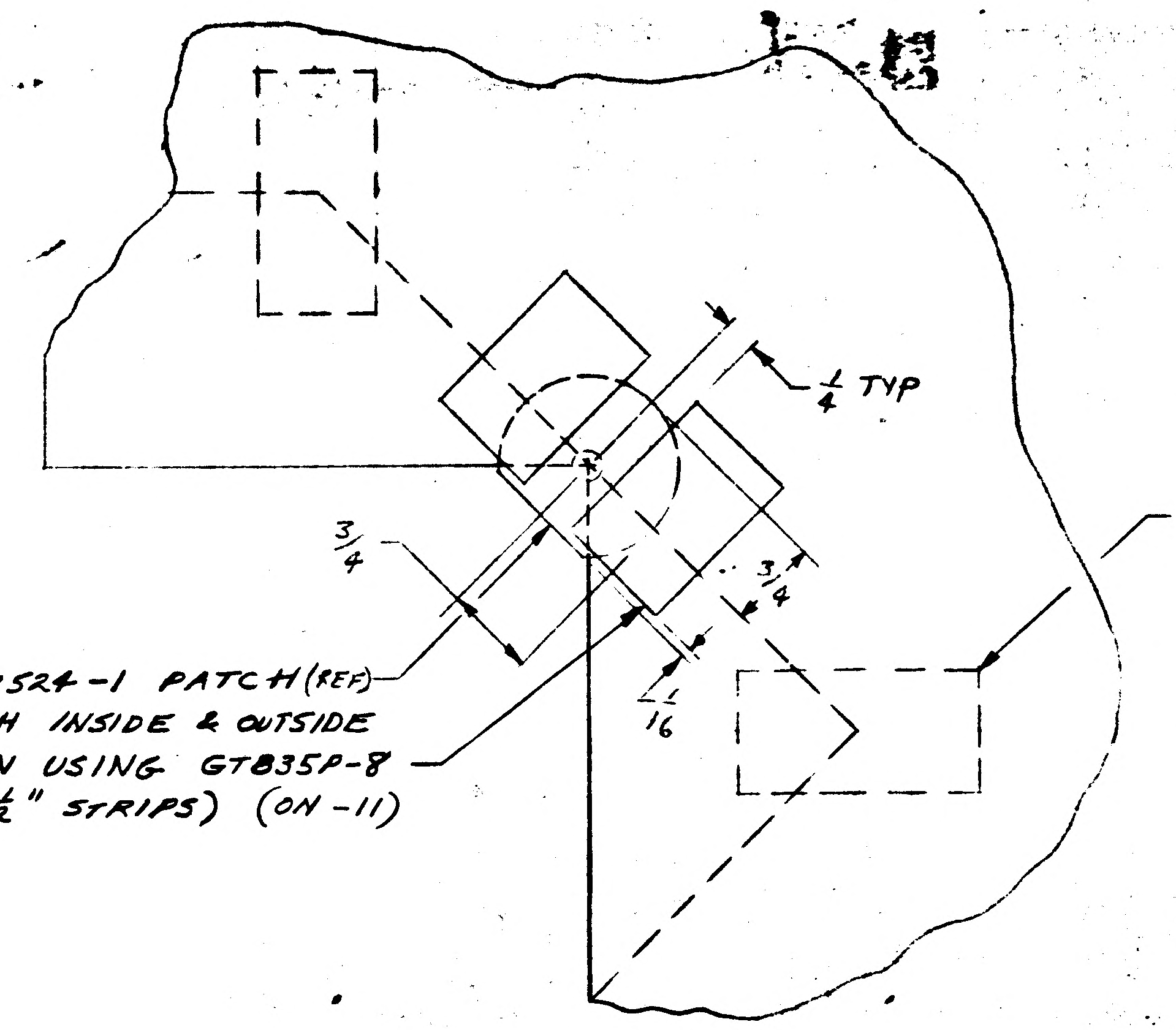
02/02 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-28658	A
MODEL OR END ITEM	SCALE FULL		SHEET 6.00	

23 FOR PHOTO REPRODUCTION

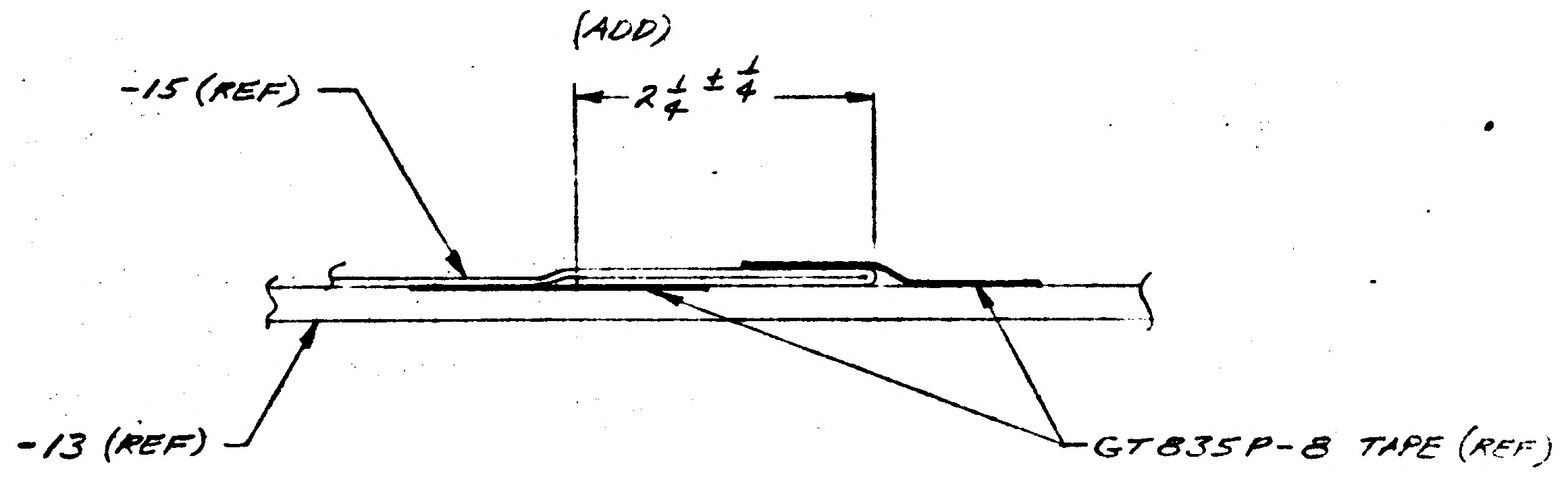
THIS IS AN ORIGINAL DRAWING K2

CODE IDENT NO 26512	
LDW280-28658	SH 6



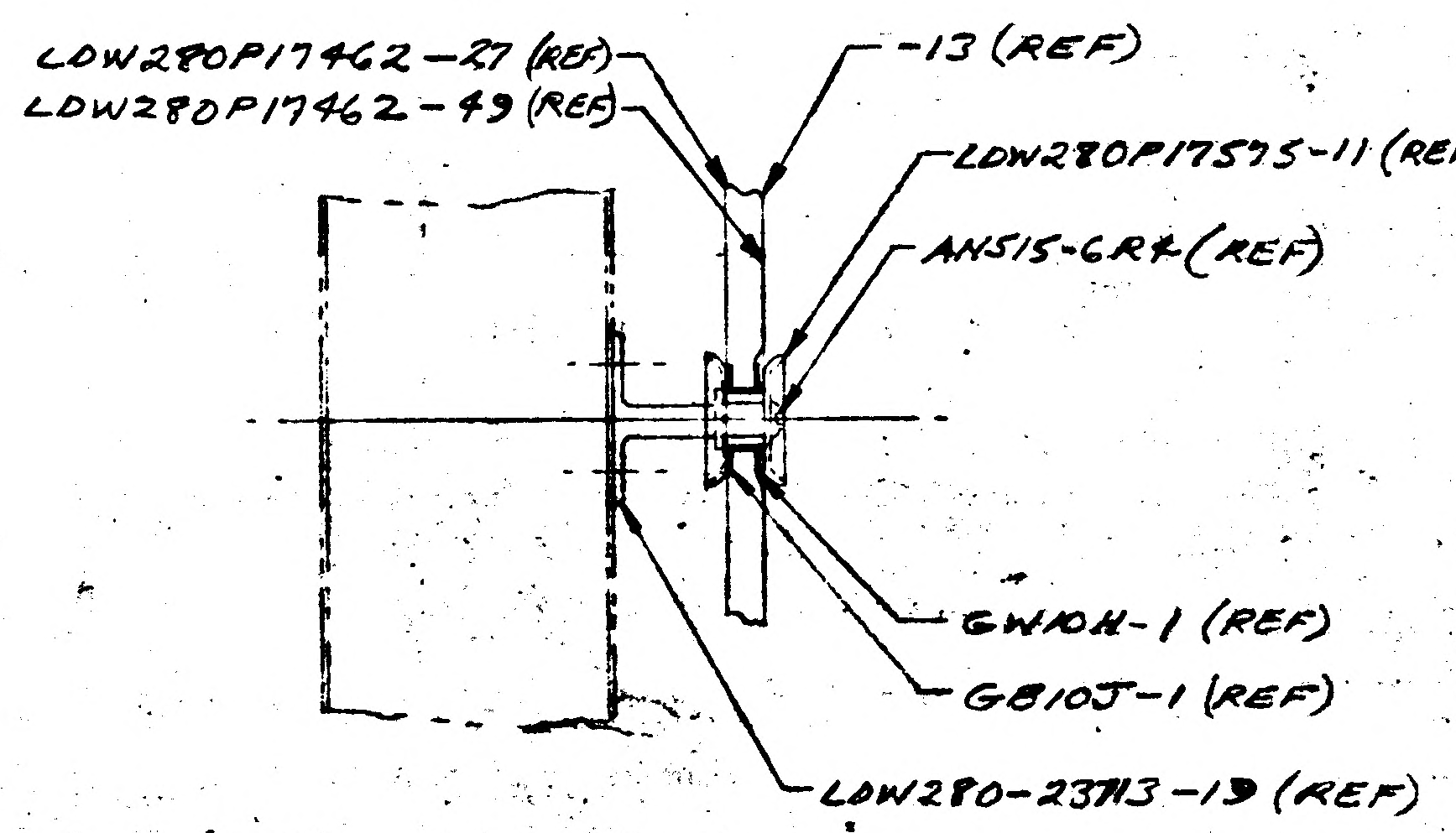
1/4 TYP
3/4
3/4
1/16
GT835 TAPE (REF)
LOW280P17524-1 PATCH (REF)
TAPE BOTH INSIDE & OUTSIDE
AS SHOWN USING GT835P-8
TAPE (1 1/2" STRIPS) (ON-11)

(ADD)
DETAIL Ω



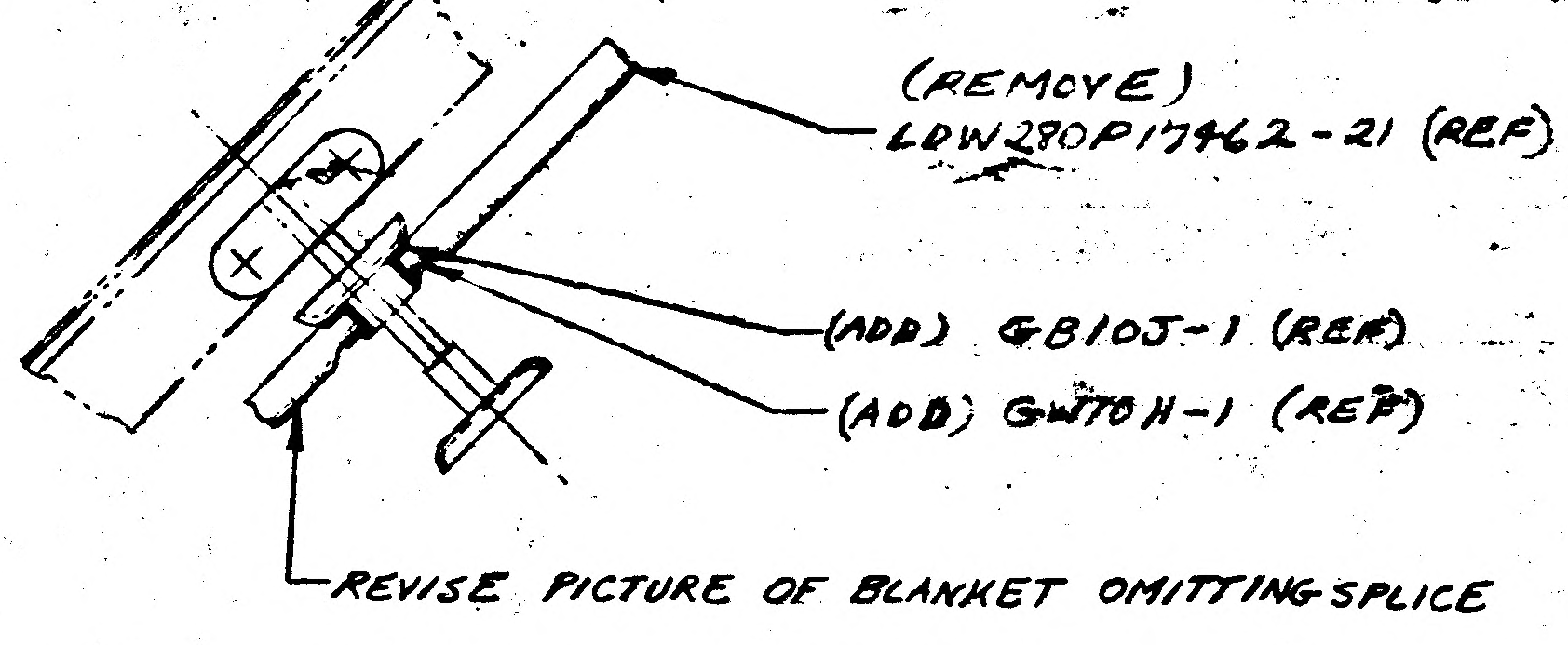
(ADD)
2 1/4 ± 1/4
-15 (REF)
-13 (REF)
GT835P-8 TAPE (REF)

(ADD)
SECTION *-*



LOW280P17462-27 (REF)
LOW280P17462-49 (REF)
-13 (REF)
LOW280P17575-11 (REF)
AN515-6R4 (REF)
GW10H-1 (REF)
GB10J-1 (REF)
LOW280-23713-13 (REF)

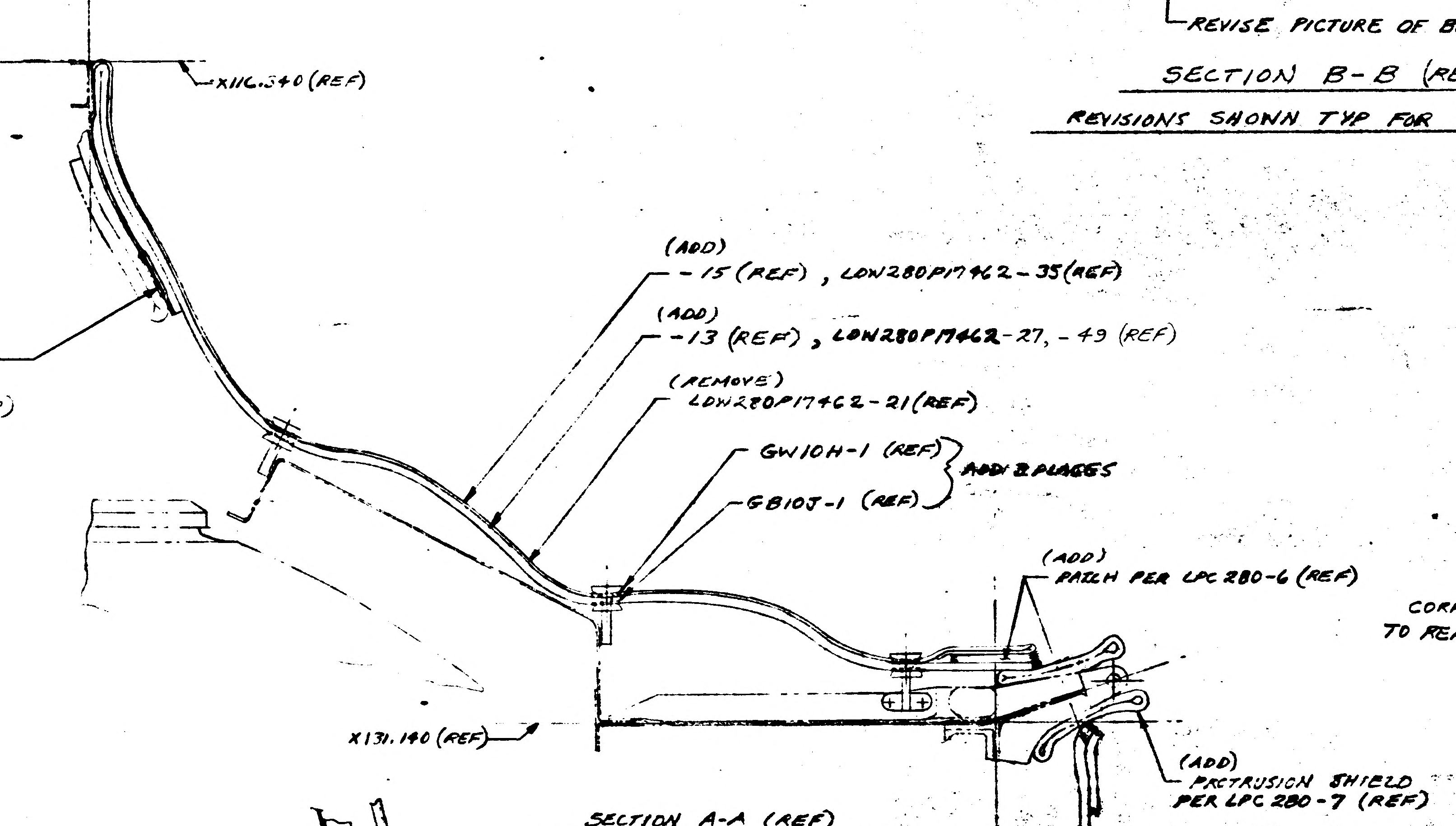
(ADD)
SECTION α-α



(REMOVE)
LOW280P17462-21 (REF)
(ADD) GB10J-1 (REF)
(ADD) GW10H-1 (REF)
REVISE PICTURE OF BLANKET OMITTING SPLICE

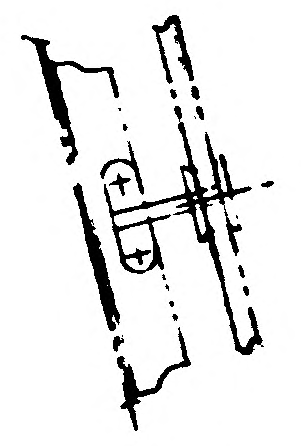
SECTION B-B (REF)

REVISIONS SHOWN TYP FOR SECT. J-J

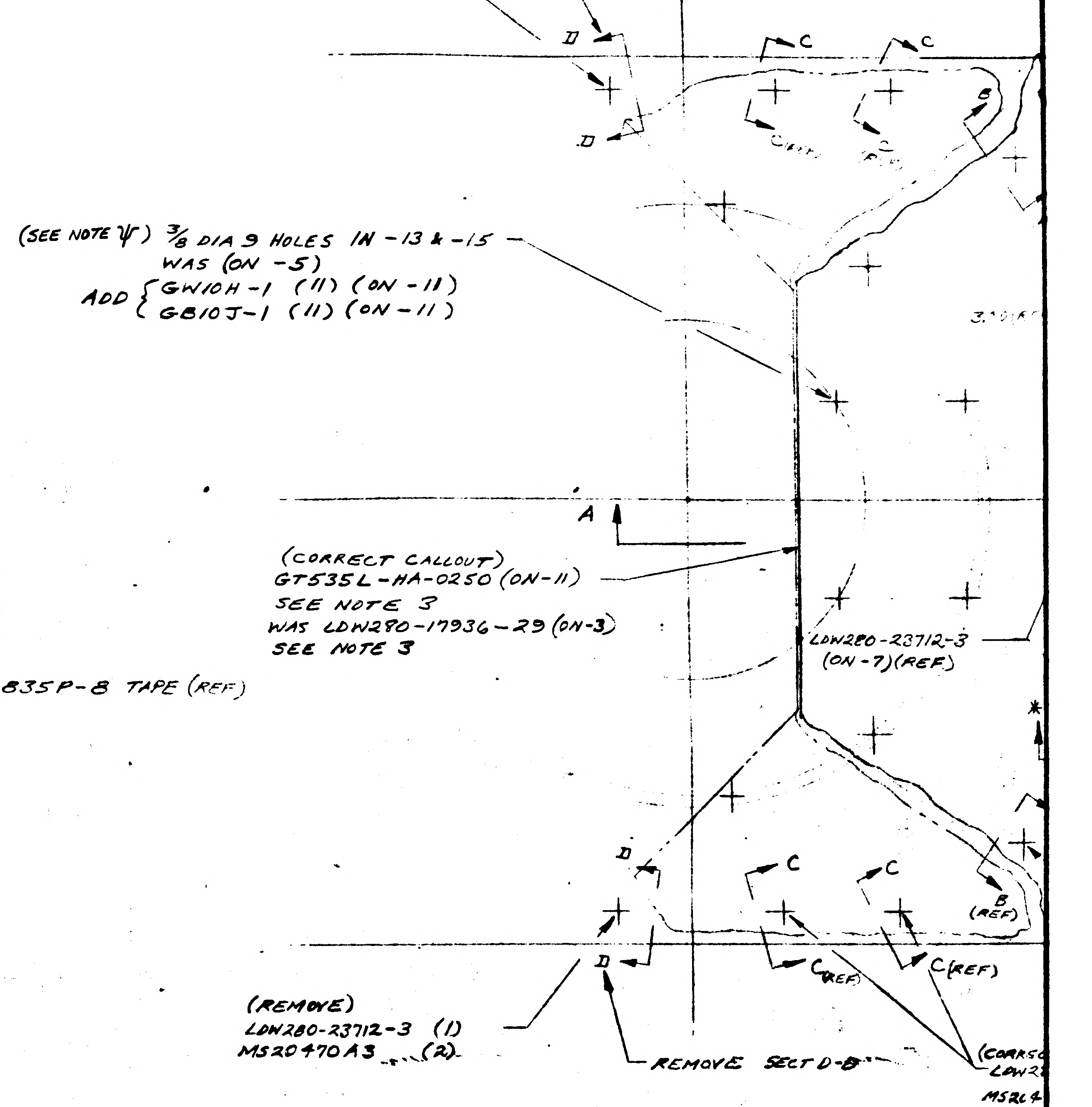


(CORRECT CALLOUT)
-Z 60.695 WAS -Y 60.695
X116.340 (REF)
(CORRECT CALLOUT)
GT535L-HA-0250 (ON-11)
SEE NOTE 3
WAS LOW280P17936-29 (ON-7)
SEE NOTE 3
(ADD)
-15 (REF), LOW280P17462-35 (REF)
(ADD)
-13 (REF), LOW280P17462-27, -49 (REF)
(REMOVE)
LOW280P17462-21 (REF)
GW10H-1 (REF)
GB10J-1 (REF)
ADD 2 PLACES
(ADD)
PATCH PER LPC 280-6 (REF)
X131.140 (REF)
(ADD)
PROTRUSION SHIELD
PER LPC 280-7 (REF)
(CORRECT CALLOUT)
-Z 81.00 (REF) WAS -Y 81.00 (REF)

SECTION A-A (REF)
REVISE AS SHOWN

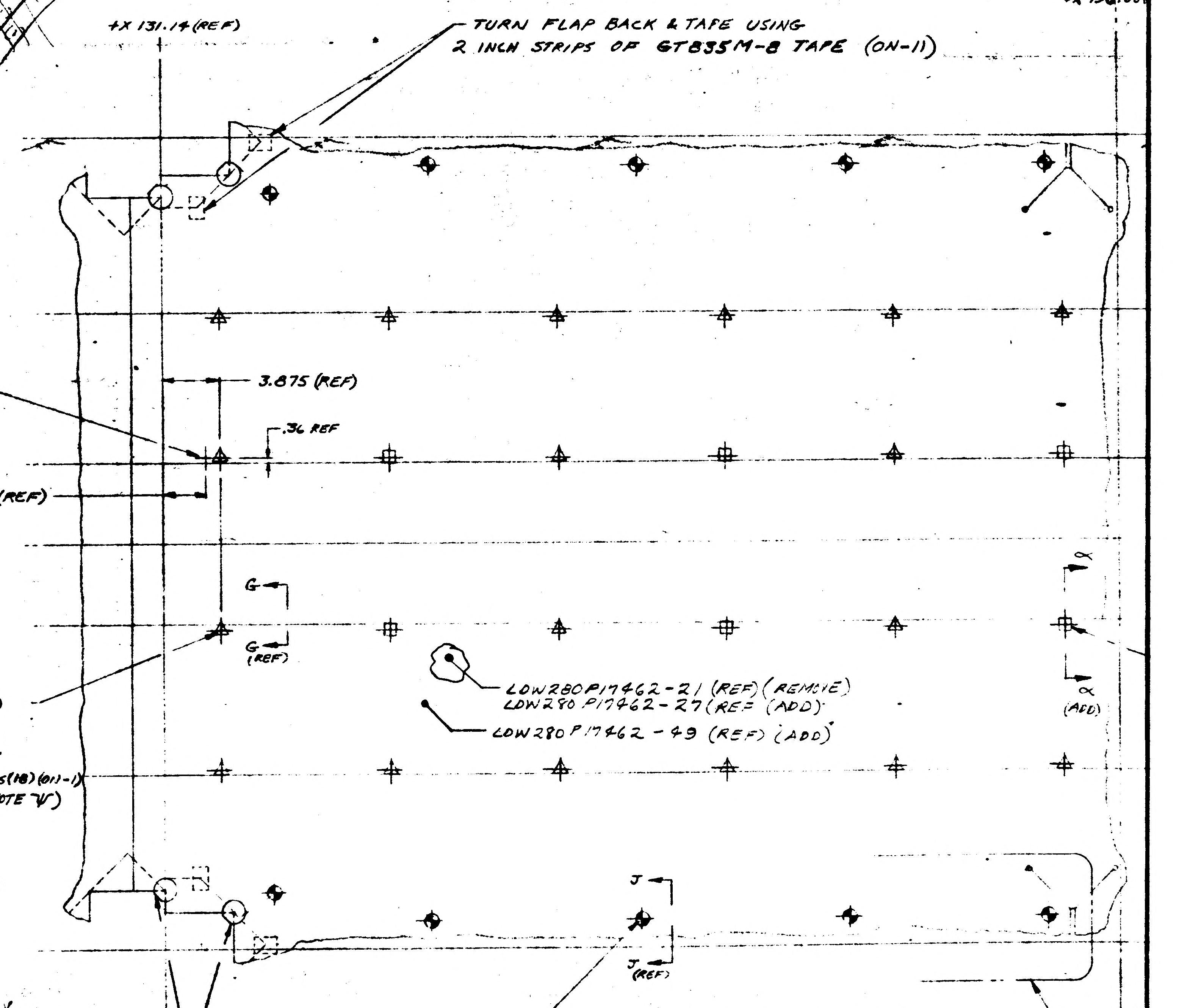


SECTION C-C (REF)
D-D (OPP) (ZONE 28A)
REMOVE



REMOVE SECT D-D
(REMOVE)
LOW280-23712-3 (1)
MS20470 A3 (2)
D
D
C
C
B
(SEE NOTE Ψ) 3/8 DIA 9 HOLES IN -13 & -15
WAS (ON -5)
ADD { GW10H-1 (11) (ON -11)
GB10J-1 (11) (ON -11)
A
(CORRECT CALLOUT)
GT535L-HA-0250 (ON-11)
SEE NOTE 3
WAS LOW280-17936-29 (ON-3)
SEE NOTE 3
LOW280-23712-3
(ON-7) (REF)
D
C
C
B (REF)
D
C (REF)
C (REF)
(REMOVE)
LOW280-23712-3 (1)
MS20470A3 (2)
REMOVE SECT D-D

VIEW LOOKING UP
SHT 6 (REF)



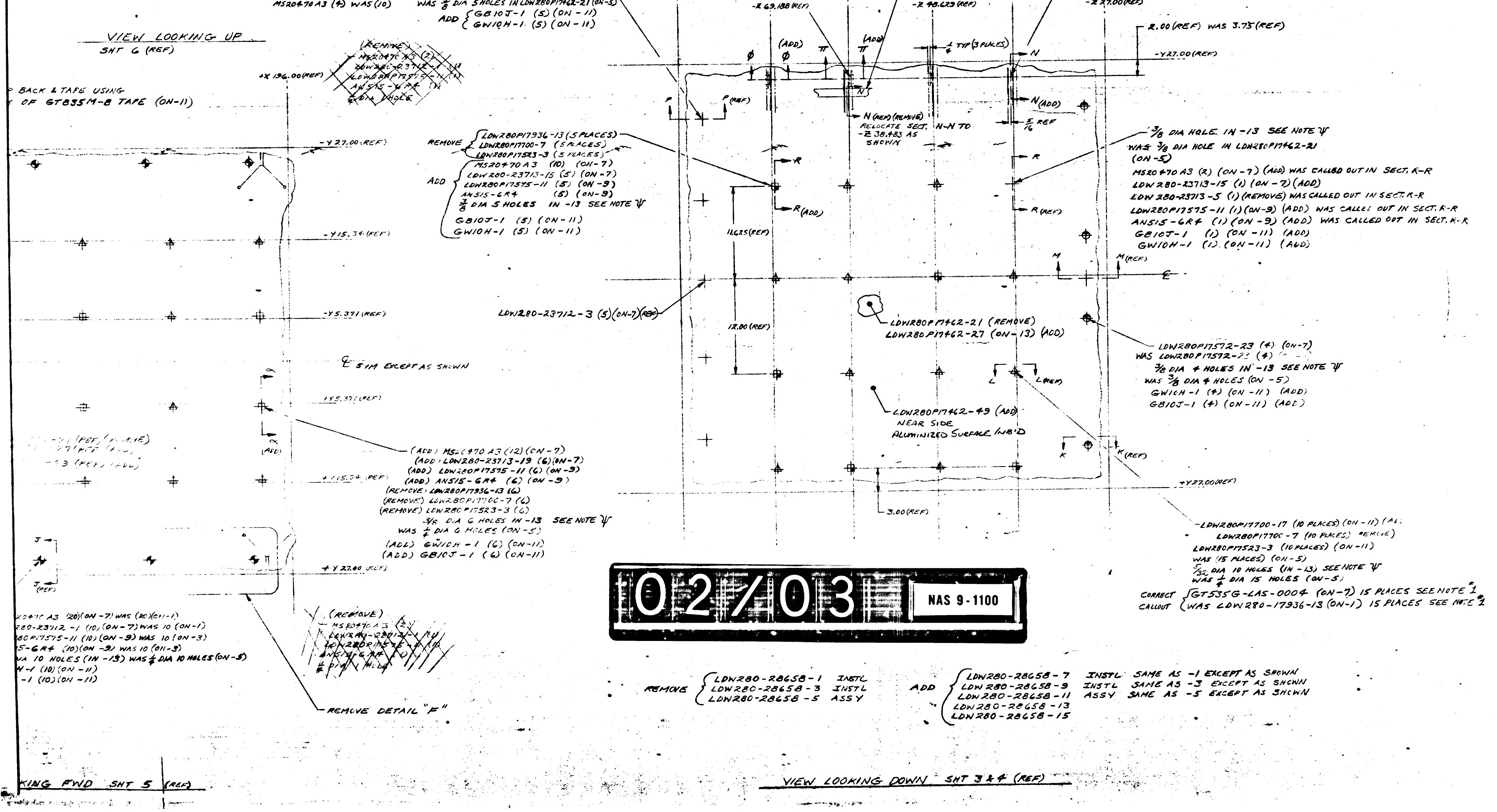
+X 131.14 (REF)
+X 196.00
TURN FLAP BACK & TAPE USING
2 INCH STRIPS OF GT835M-8 TAPE (ON-11)
5/32 DIA HOLE REF
WAS 1/4 DIA HOLE
RELOCATE TO 3.875 DIM
AS SHOWN
3.875 (REF)
.36 REF
2.875 (REF)
G
G (REF)
α
α (ADD)
(ADD) LOW280P17700-17 (18) (ON -11)
(REMOVE) LOW280P17700-7 (18)
LOW280P17523-3 (18) (ON - 11)
WAS (18) (ON - 5)
LOW280P17936-13 (18) (ON-7) WAS (18) (ON-1)
5/32 DIA 18 HOLES (ON -13) (SEE NOTE Ψ)
WAS 1/4 DIA 18 HOLES (ON -5)
CORRECT CALLOUT
TO READ GT535G-LAS-0004
LOW280P17462-21 (REF) (REMOVE)
LOW280P17462-27 (REF) (ADD)
LOW280P17462-49 (REF) (ADD)
J
J (REF)
LOW280P17524-1 (4) (ON-11)
SEE DETAIL Ω
MS20470 A3 (20) (ON -7) WAS (20) (ON-1)
LOW280-23712-1 (10) (ON-7) WAS 10 (ON-1)
LOW280P17575-11 (10) (ON-9) WAS 10 (ON-3)
AN515-6R4 (10) (ON -9) WAS 10 (ON-3)
(SEE NOTE Ψ) (ADD) 3/8 DIA 10 HOLES (IN -13) WAS 1/4 DIA 10 HOLES (ON-5)
(ADD) GW10H-1 (10) (ON -11)
(ADD) GB10J-1 (10) (ON -11)

VIEW LOOKING FWD SHT 5 (REF)

01/03 NAS 9-1100

(ADD)
LDW280P17524-1 (2) (ON-11)
SEE DETAIL Ω
-Z 81.00(REF)
-Y27.00 REF
TURN FLAPS BACK & TAPE
USING 2 INCH STRIPS OF
GT835P-8 TAPE (ON-11)
A
A(REF)
℄ SYM
EXCEPT AS SHOWN
LDW280-23712-3
(ON-7)(REF)
(ADD)
LDW280P17462-35
(ON-15)
*(ADD)
(ADD)
TACK TAPE AT 4 TO 6 INCH
PITCH USING 2 TO 4 INCH STRIPS
OF GT835P-8 TAPE (ON-11)
(CORRECT CALLOUT)
+Y27.00 WAS -Y27.00
LDW280-23712-1 (ON-7)(REF)
REMOVE SECT D-D
(CORRECT CALLOUT)
LDW280-23712-3 (2) WAS (5)
MS20470A3 (4) WAS (10)
3.00(REF)
7936-29 (ON-3)
(ADD)
GW10H-1(REF)
(ADD) LDW280P17462-49(REF)
LDW280P17462-27(REF)
WAS LDW280P17462-21 (REF)
REVISE PICTURE OF
BLANKET AS SHOWN
OMITTING SPLICE
(ADD)
GB10J-1(REF)
(REVISE)
SECTION M-M (REF)
REVISIONS SHOWN ABOVE TYP FOR SECT. K-K
(ADD) LDW280P17462-49 (REF)
LDW280P17462-27 (REF)
WAS LDW280P17462-21 (REF)
(ADD) -11 REF, -13 REF
ANS15-6R4 (REF)
WAS ANS15-6R4 (ON-3)
LDW280-23713-15 (REF)
WAS LDW280-23713-5
MS20470A3 (2) (ON-1)
LDW280P17575-11 (REF)
WAS LDW280P17575-11
(ON-3)
(ADD) GB10J-1 (REF)
(ADD) GW10H-1 (REF)
(REVISE)
SECTION R-R (REF)
LDW280P17700-17(REF)
WAS LDW280P17700-7 (REF)
LDW280P17523-3 (REF)
(REVISE)
SECTION L-L
REVISIONS SHOWN ABOVE
TYP FOR SECT. G-G
REVISE PICTURE
OF BLANKET
AS SHOWN OMITTING SPLICE
(ADD)
GB10J-1 (REF)
(ADD)
GW10H-1 (REF)
(ADD) -11 REF, -13 REF
(ADD) LDW280P17462-49 (REF)
LDW280P17462-27 (REF)
WAS -21 (REF)
(REVISE)
SECTION N-N (REF)
(ADD) GW10H-1 (REF)
(ADD) GB10J-1 (REF)
(REVISE)
SECTION P-P
LDW280-28721-1 (REF)
LDW280-18102-17 (REF)
MS20470AD4
(REF)
(ADD)
SECTION Π-Π (SHOWN)
SECTION Φ-Φ (OPP)

VIEW LOOKING UP
SHT 6 (REF)


(SEE NOTE Ψ) 3/8 DIA 5 HOLES IN -13
WAS 3/8 DIA 5 HOLES IN LDW280P17462-21 (ON-5)
ADD GB10J-1 (5) (ON-11)
GW10H-1 (5) (ON-11)
BACK & TAPE USING
OF GT835M-8 TAPE (ON-11)
+X 196.00(REF)
-Y27.00 (REF)
-Y15.34 (REF)
-Y5.371 (REF)
+Y5.371 (REF)
+Y15.34 (REF)
+Y27.00 (REF)
℄ SIM EXCEPT AS SHOWN
3/8 DIA 4 HOLES IN -13 SEE NOTE Ψ
WAS 3/8 DIA 4 HOLES IN LDW280P17462-21 (ON-5)
ADD GB10J-1 (4) (ON-11)
GW10H-1 (4) (ON-11)
ADD LDW280-18102-17 (3) (ON-7)
MS20470AD4 (6) (ON-7)
(REMOVE)
LDW280P17936-43
RELOCATE LDW280-28721-1 (4) TO 2" DIM
AS SHOWN NOT NECESSARY TO PLUG
EXISTING HOLES
-Z 81.00(REF)
-Z 69.188(REF)
-Z 59.371(REF)
-Z 48.623(REF)
-Z 38.483(REF)
-Z 27.00(REF)
2.00(REF) WAS 3.75(REF)
-Y27.00(REF)
1/4 TYP (3 PLACES)
N
N(REF)(REMOVE)
RELOCATE SECT. N-N TO
-Z 38.483 AS
SHOWN
N(ADD)
5/16 REF
P
P(REF)
REMOVE LDW280P17936-13 (5 PLACES)
LDW280P17700-7 (5 PLACES)
LDW280P17523-3 (5 PLACES)
ADD MS20470A3 (10) (ON-7)
LDW280-23713-15 (5) (ON-7)
LDW280P17575-11 (5) (ON-9)
ANS15-6R4 (5) (ON-9)
3/8 DIA 5 HOLES IN -13 SEE NOTE Ψ
GB10J-1 (5) (ON-11)
GW10H-1 (5) (ON-11)
R
R(ADD)
R(REF)
3/8 DIA HOLE IN -13 SEE NOTE Ψ
WAS 3/8 DIA HOLE IN LDW280P17462-21
(ON-5)
MS20470A3 (2) (ON-7) (ADD) WAS CALLED OUT IN SECT. R-R
LDW280-23713-15 (1) (ON-7) (ADD)
LDW280-23713-5 (1) (REMOVE) WAS CALLED OUT IN SECT. R-R
LDW280P17575-11 (1) (ON-9) (ADD) WAS CALLED OUT IN SECT. R-R
ANS15-6R4 (1) (ON-9) (ADD) WAS CALLED OUT IN SECT. R-R
GB10J-1 (1) (ON-11) (ADD)
GW10H-1 (1) (ON-11) (ADD)
11.625(REF)
12.00(REF)
M
M(REF)
LDW280-23712-3 (5) (ON-7) (REF)
LDW280P17462-21 (REMOVE)
LDW280P17462-27 (ON-13) (ADD)
LDW280P17572-23 (4) (ON-7)
WAS LDW280P17572-23 (4)
3/8 DIA 4 HOLES IN -13 SEE NOTE Ψ
WAS 3/8 DIA 4 HOLES (ON-5)
GW10H-1 (4) (ON-11) (ADD)
GB10J-1 (4) (ON-11) (ADD)
L
L(REF)
LDW280P17462-49 (ADD)
NEAR SIDE
ALUMINIZED SURFACE INB'D
K
K(REF)
3.00(REF)
LDW280P17700-17 (10 PLACES) (ON-11)
LDW280P17700-7 (10 PLACES) REMOVE
LDW280P17523-3 (10 PLACES) (ON-11)
WAS (15 PLACES) (ON-5)
5/32 DIA 10 HOLES (IN -13) SEE NOTE Ψ
WAS 1/4 DIA 15 HOLES (ON-5)
CORRECT CALLOUT GT535G-LAS-0004 (ON-7) 15 PLACES SEE NOTE #1
WAS LDW280-17936-13 (ON-1) 15 PLACES SEE NOTE #2
(ADD) MS20470A3 (12) (ON-7)
(ADD) LDW280-23713-19 (6) (ON-7)
(ADD) LDW280P17575-11 (6) (ON-9)
(ADD) ANS15-6R4 (6) (ON-9)
(REMOVE) LDW280P17936-13 (6)
(REMOVE) LDW280P17700-7 (6)
(REMOVE) LDW280P17523-3 (6)
3/8 DIA 6 HOLES IN -13 SEE NOTE Ψ
WAS 1/4 DIA 6 HOLES (ON-5)
(ADD) GW10H-1 (6) (ON-11)
(ADD) GB10J-1 (6) (ON-11)
α
(ADD)
J
J(REF)
20470A3 (20) (ON-7) WAS (20) (ON-1)
280-23712-1 (10) (ON-7) WAS 10 (ON-1)
80P17575-11 (10) (ON-9) WAS 10 (ON-3)
15-6R4 (10) (ON-9) WAS 10 (ON-3)
DIA 10 HOLES (IN -13) WAS 1/4 DIA 10 HOLES (ON-5)
H-1 (10) (ON-11)
-1 (10) (ON-11)
REMOVE DETAIL "F"
KING FWD SHT 5 (REF)

02/03 NAS 9-1100

REMOVE { LDW280-28658-1 INSTL
LDW280-28658-3 INSTL
LDW280-28658-5 ASSY

ADD { LDW280-28658-7 INSTL SAME AS -1 EXCEPT AS SHOWN
LDW280-28658-9 INSTL SAME AS -3 EXCEPT AS SHOWN
LDW280-28658-11 ASSY SAME AS -5 EXCEPT AS SHOWN
LDW280-28658-13
LDW280-28658-15

VIEW LOOKING DOWN SHT 3 & 4 (REF)

1.) CREATE -7, -9, -11, -13, & -15 I&T EXEMPT
2.) IN B/M ADD GS577A-1 STAPLE, GT835P-8, GT835M-8, & GT535B-2-1.00 TAPE (AS REQ'D)(ON-11)
3.) IN F/D & B/M REMOVE LDW280P17936-43 & -47 TAPE
4.) IN F/D REMOVE DETAIL "F" & SECTION H-H
5.) IN F/D & B/M REPLACE -1, -3, & -5 WITH -7, -9, & -11 RESPECTIVELY UNLESS OTHERWISE SHOWN
6.) IN F/D & B/M REMOVE LDW280P17462-21 & ADD LDW280P17462-27 & -35
7.) IN F/D & B/M CORRECT CALLOUT FOR VELCRO TAPE GT535G-LAS-0004 REPLACES LDW280P17936-13 & GT535L-HA-0250 REPLACES LDW280P17936-29 (NOTE: INSTALLED PARTS ARE NOT TO BE REMOVED)

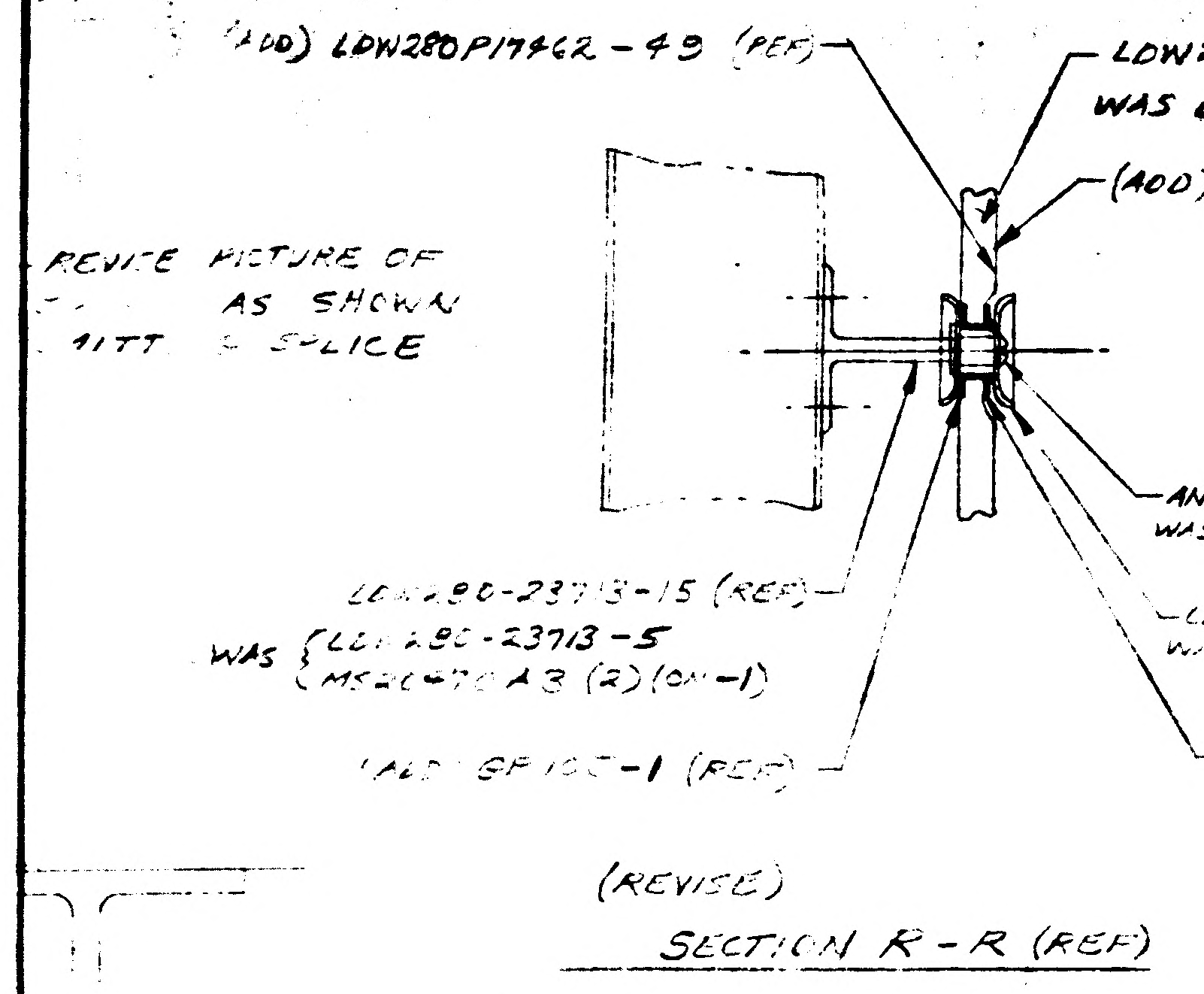
8.) BREAK BLANKET PICTURE AT EDGES OMITTING PICTURE OF SPLICE. DETAILS OF SPLICE TO BE SHOWN ON MATING BLANKETS

9.) REVISE NOTE #2 TO READ: BOND LDW280P17523-3 TO LDW280P17700-17 PER LPC 280-14
10.) REVISE NOTE #3 TO READ: SEW GT535L-HA-0250 TO -11 AT 3/16 ± 1/16 FROM EDGES OF GT535L-HA-0250 IN ACCORDANCE WITH FED STD #751a & STITCH TYPE 301
11.) REMOVE NOTE #4
12.) ADD NOTE δ FABRICATE -11 BLANKET ASSY PER LPC 280-[illegible]
13.) ADD NOTE Ψ ALL ALUMINIZED MYLAR PARTS SHALL HAVE HOLE PATTERNS LOCATED [illegible] EXPANDED DIMS. THE EXPANSION RATIO IS TO BE .050 [illegible] (e.g. 10.000 SHOWN EXPANDS TO 10.500) ALL ALUMINIZED POLYIMIDE PARTS SHALL HAVE HOLE PATTERNS LOCATED WITH EXPANDED DIMS. THE EXPANSION RATIO TO BE .070 [illegible] (e.g. 10.000 SHOWN EXPANDS TO 10.700), EXCEPT [illegible] -2-49 WHICH SHALL HAVE AN EXPANSION RATIO OF .050 [illegible].

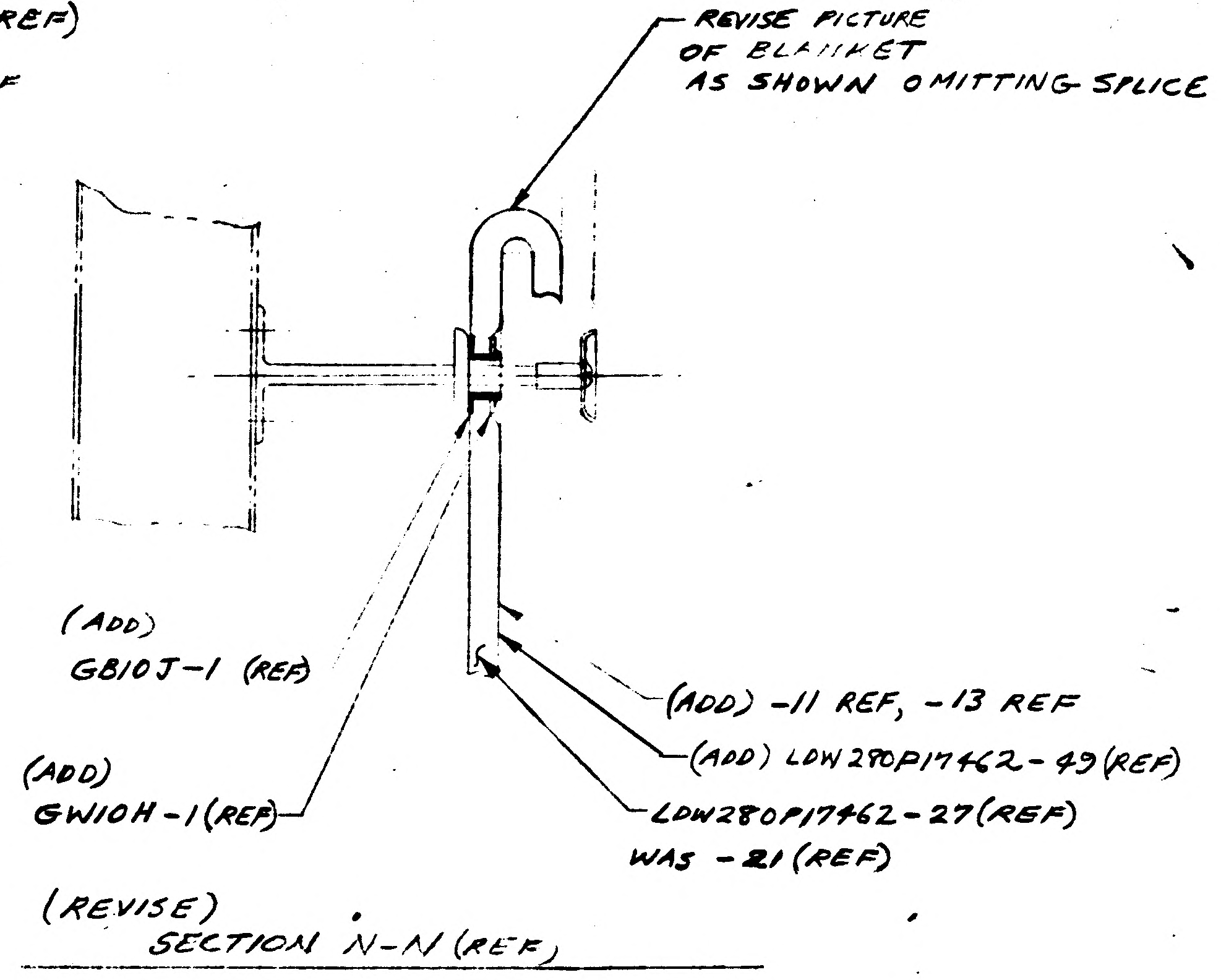
δ, Ψ — USE NEXT AVAILABLE NOTE NO.

α-α, *-*, Φ-Φ, Π-Π, Ω, — USE NEXT [illegible] SECTION LETTER

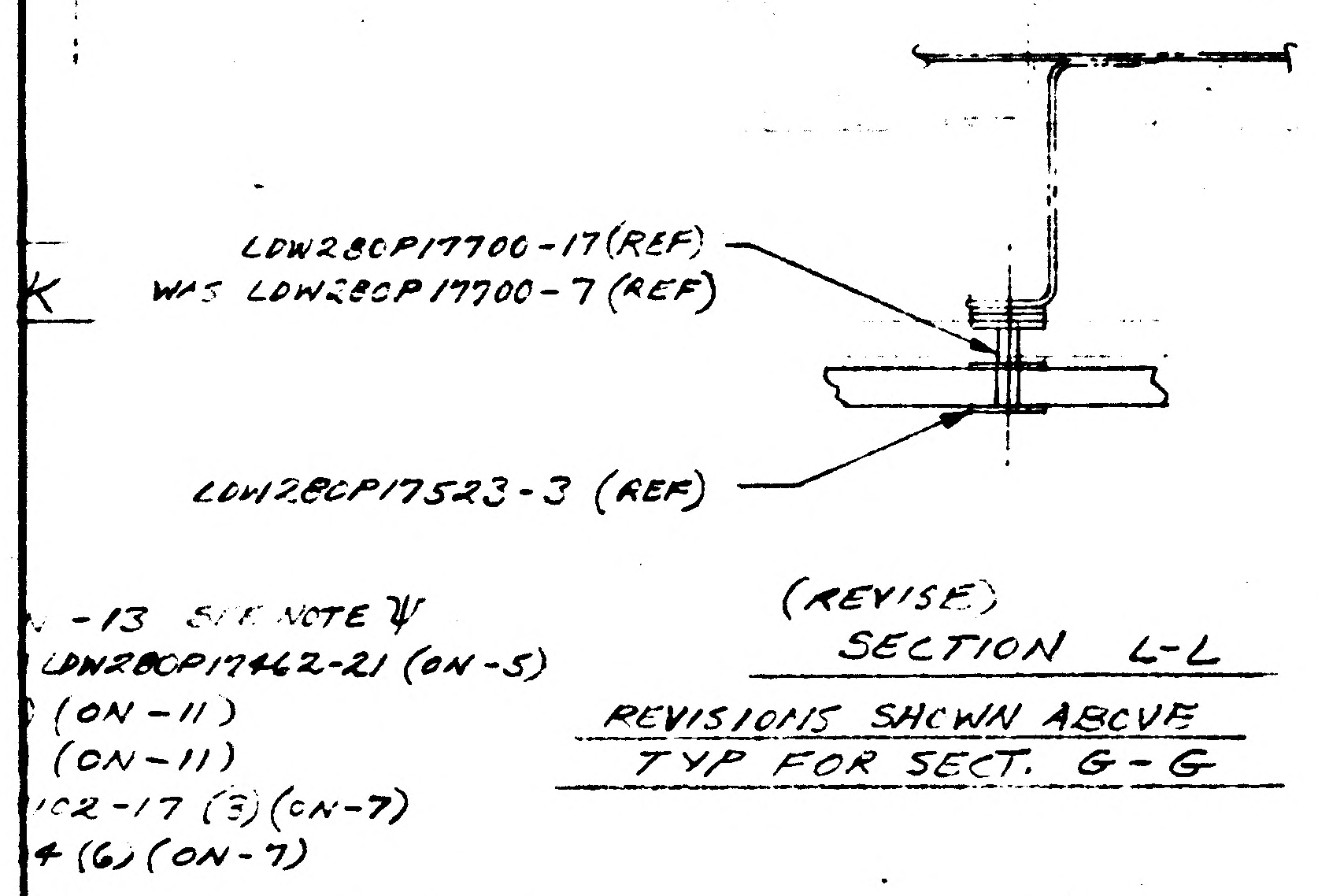
⌖, ⌖, ⌖, ⌖, ⌖ — THESE SYMBOLS ARE FOR I.D. [illegible] OF STANDOFF TYPE ON E.O. [illegible] ADD TO DWG.


(ADD) LDW280P17462-49 (REF)
LDW280P17462-27 (REF)
WAS LDW280P17462-21 (REF)
(ADD) -11 REF, -13 REF
REVISE PICTURE OF
AS SHOWN
SPLICE
AN515-6R4 (REF)
WAS AN515-6R4 (ON-3)
LDW280-23713-15 (REF)
WAS {LDW280-23713-5
MS20470A3 (2) (ON-1)
LDW280P17575-11 (REF)
WAS LDW280P17575-11 (ON-3)
(ADD) GB10J-1 (REF)
(ADD) GW10H-1 (REF)

(REVISE)
SECTION R-R (REF)

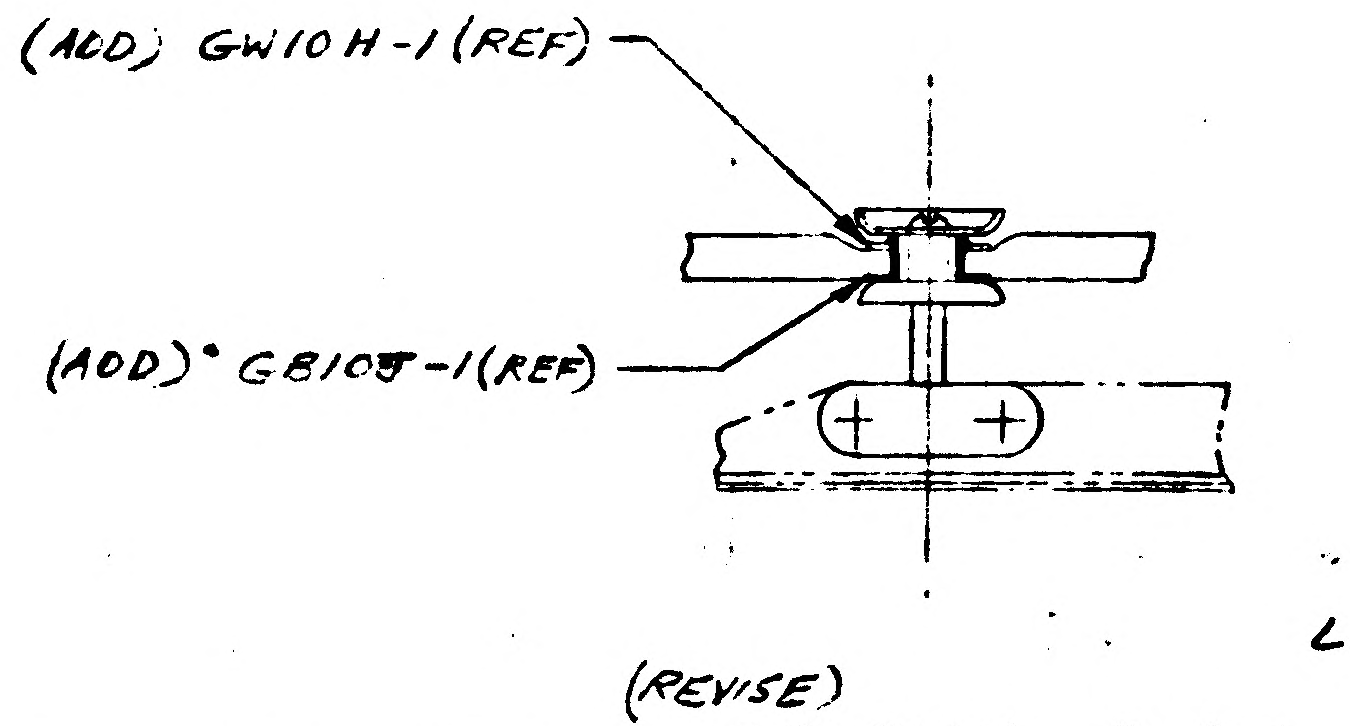

REVISE PICTURE
OF BLANKET
AS SHOWN OMITTING SPLICE
(ADD)
GB10J-1 (REF)
(ADD)
GW10H-1 (REF)
(ADD) -11 REF, -13 REF
(ADD) LDW280P17462-49 (REF)
LDW280P17462-27 (REF)
WAS -21 (REF)

(REVISE)
SECTION N-N (REF)

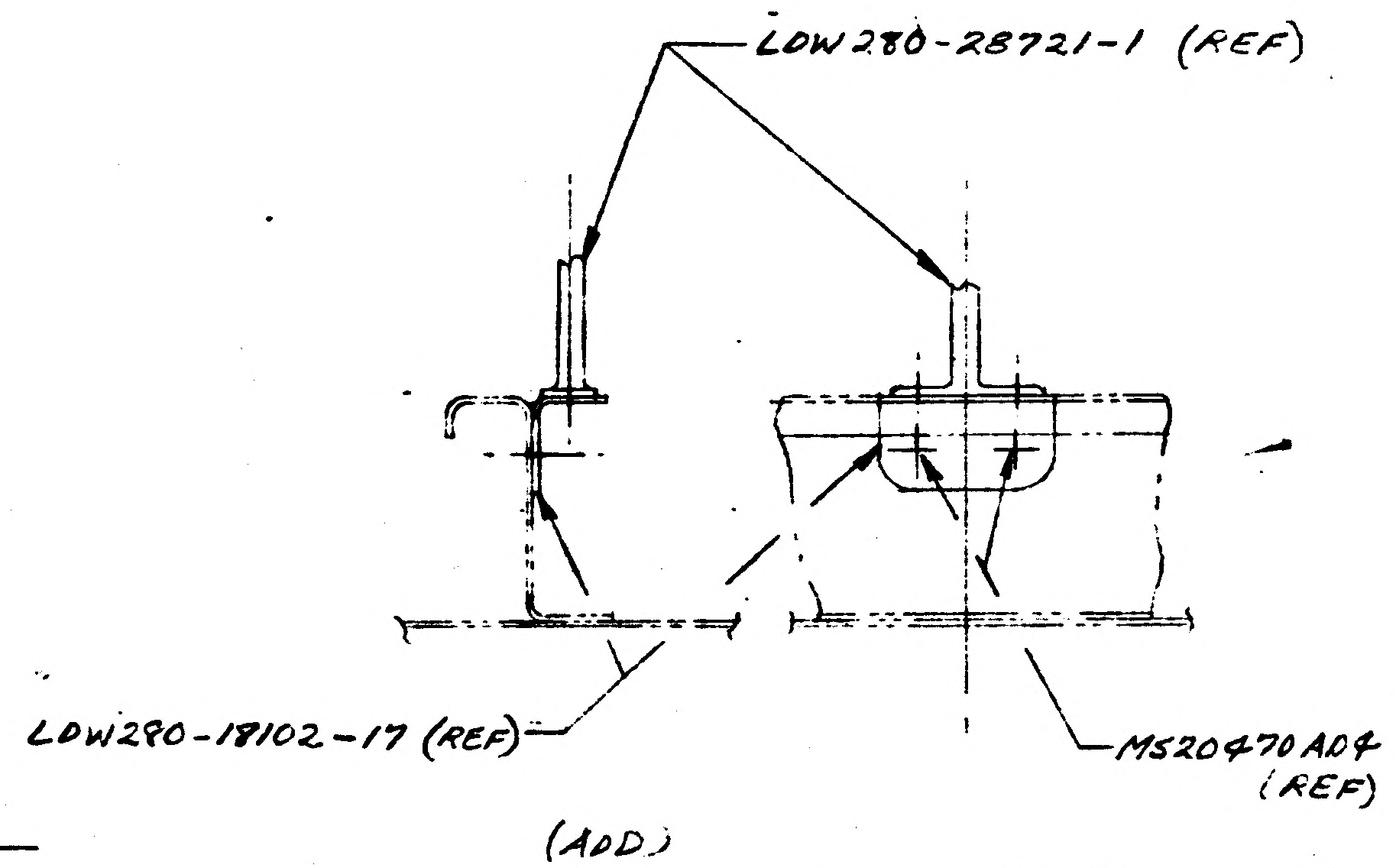

LDW280P17700-17 (REF)
WAS LDW280P17700-7 (REF)
LDW280P17523-3 (REF)
-13 SEE NOTE ψ
LDW280P17462-21 (ON-5)
(ON-11)
(ON-11)
02-17 (3) (ON-7)
4 (6) (ON-7)

(REVISE)
SECTION L-L

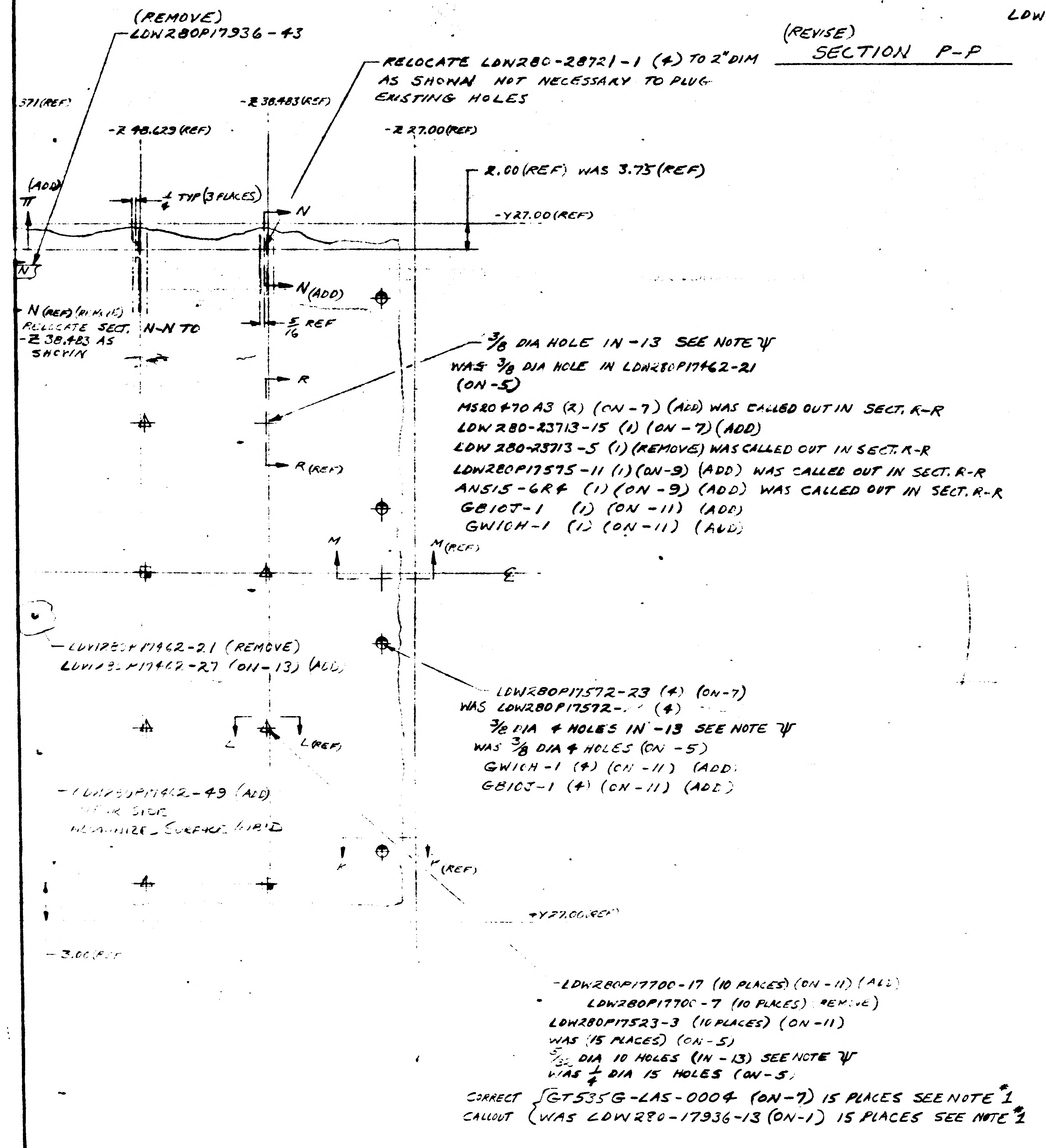
REVISIONS SHOWN ABOVE
TYP FOR SECT. G-G


(ADD) GW10H-1 (REF)
(ADD) GB10J-1 (REF)

(REVISE)
SECTION P-P


LDW280-28721-1 (REF)
LDW280-18102-17 (REF)
MS20470AD4 (REF)

(ADD)
SECTION π-π (SHOWN)
SECTION ϕ-ϕ (OPP)


(REMOVE)
LDW280P17936-43
RELOCATE LDW280-28721-1 (4) TO 2" DIM
AS SHOWN NOT NECESSARY TO PLUG
EXISTING HOLES
371 (REF)
-Z 48.629 (REF)
-Z 38.483 (REF)
-Z 27.00 (REF)
2.00 (REF) WAS 3.75 (REF)
(ADD) π
1/4 TYP (3 PLACES)
N
-Y27.00 (REF)
N
N (ADD)
N (REF) (REMOVE)
RELOCATE SECT. N-N TO
-Z 38.483 AS
SHOWN
5/16 REF
3/8 DIA HOLE IN -13 SEE NOTE ψ
WAS 3/8 DIA HOLE IN LDW280P17462-21
(ON-5)
MS20470A3 (2) (ON-7) (ADD) WAS CALLED OUT IN SECT. R-R
LDW280-23713-15 (1) (ON-7) (ADD)
LDW280-23713-5 (1) (REMOVE) WAS CALLED OUT IN SECT. R-R
LDW280P17575-11 (1) (ON-9) (ADD) WAS CALLED OUT IN SECT. R-R
AN515-6R4 (1) (ON-9) (ADD) WAS CALLED OUT IN SECT. R-R
GB10J-1 (1) (ON-11) (ADD)
GW10H-1 (1) (ON-11) (ADD)
R
R (REF)
M
M (REF)
℄
LDW280P17462-21 (REMOVE)
LDW280P17462-27 (ON-13) (ADD)
LDW280P17572-23 (4) (ON-7)
WAS LDW280P17572- (4)
3/8 DIA 4 HOLES IN -13 SEE NOTE ψ
WAS 3/8 DIA 4 HOLES (ON -5)
GW10H-1 (4) (ON -11) (ADD)
GB10J-1 (4) (ON -11) (ADD)
L
L (REF)
LDW280P17462-49 (ADD)
SIDE
ALUMINIZE SURFACE
K
K (REF)
+Y27.00 (REF)
-3.00 (REF)
LDW280P17700-17 (10 PLACES) (ON-11) (ADD)
LDW280P17700-7 (10 PLACES) (REMOVE)
LDW280P17523-3 (10 PLACES) (ON-11)
WAS (15 PLACES) (ON-5)
5/32 DIA 10 HOLES (IN-13) SEE NOTE ψ
WAS 1/4 DIA 15 HOLES (ON-5)
CORRECT CALLOUT {GT535G-LAS-0004 (ON-7) 15 PLACES SEE NOTE #1
WAS LDW280-17936-13 (ON-1) 15 PLACES SEE NOTE #1

ADD {
LDW280-28658-7 INSTL SAME AS -1 EXCEPT AS SHOWN
LDW280-28658-9 INSTL SAME AS -3 EXCEPT AS SHOWN
LDW280-28658-11 ASSY SAME AS -5 EXCEPT AS SHOWN
LDW280-28658-13
LDW280-28658-15

G DOWN SHT 3 & 4 (REF)

1.) CREATE -7, -9, -11, -13, & -15 I&T EXEMPT
2.) IN B/M ADD GS577A-1 STAPLE, ~~GT835P-8~~, GT835M-8, & GT535B-2-1.00 TAPE (AS REQ'D) (ON-11)
3.) IN F/D & B/M REMOVE LDW280P17936-43 & -47 TAPE
4.) IN F/D REMOVE DETAIL "F" & SECTION H-H
5.) IN F/D & B/M REPLACE -1, -3, & -5 WITH -7, -9, & -11 RESPECTIVELY UNLESS OTHERWISE SHOWN
6.) IN F/D & B/M REMOVE LDW280P17462-21 & ADD LDW280P17462-27 & -35
7.) IN F/D & B/M CORRECT CALLOUT FOR VELCRO TAPE GT535G-LAS-0004 REPLACES LDW280P17936-13 & GT535L-HA-0250 REPLACES LDW280P17936-29 (NOTE: INSTALLED PARTS ARE NOT TO BE REMOVED)

8.) BREAK BLANKET PICTURE AT EDGES OMITTING PICTURE OF SPLICE. DETAILS OF SPLICE TO BE SHOWN ON MATING BLANKETS

9.) REVISE NOTE #2 TO READ: BOND LDW280P17523-3 TO LDW280P17700-17 PER LPC 280-14
10.) REVISE NOTE #3 TO READ: SEW GT535L-HA-0250 TO -11 AT 3/16 ± 1/16 FROM EDGES OF GT535L-HA-0250 IN ACCORDANCE WITH FED STD #751a & STITCH TYPE 301
11.) REMOVE NOTE #4
12.) ADD NOTE δ FABRICATE -11 BLANKET ASSY PER LPC 280-1
13.) ADD NOTE ψ ALL ALUMINIZED MYLAR PARTS SHALL HAVE HOLE PATTERNS LOCATED WITH EXPANDED DIMS. THE EXPANSION RATIO IS TO BE .050 IN/IN (e.g. 10.000 SHOWN EXPANDS TO 10.500)
ALL ALUMINIZED POLYIMIDE PARTS SHALL HAVE HOLE PATTERNS LOCATED WITH EXPANDED DIMS. THE EXPANSION RATIO TO BE .070 IN/IN (e.g. 10.000 SHOWN EXPANDS TO 10.700), EXCEPT LDW280P17462-49 WHICH SHALL HAVE AN EXPANSION RATIO OF .050 IN/IN.

δ, ψ —— USE NEXT AVAILABLE NOTE NO.

α-α, *-*, ϕ-ϕ, π-π, Ω, —— USE NEXT AVAILABLE SECTION LETTER

⌖, ⊕, ⊕, ⊕, ⊕ —— THESE SYMBOLS ARE FOR IDENTIFICATION OF STANDOFF TYPE ON E.O. ONLY; DO NOT ADD TO DWG.

		-15	-13	-11	-9	-7	CODE IDENT	PART NO	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			AS REQ'D	AS REQ'D				GT535B-2-1.00		TAPE							
				AS REQ'D				GT835M-8		TAPE							
			AS REQ'D	AS REQ'D				GT835P-8		TAPE							
				AS REQ'D				GS577A-1		STAPLE							
					46			GW10H-1		WASHER							
					46			GB10J-1		BUSHING							
				2				GT535L-HA-0250		TAPE							
						28		GT535G-LAS-0004		TAPE							
						6		MS20470AD4		RIVET							
						2		MS20470AD3		RIVET							
						88		MS20470A3		RIVET							
					46			AN515-6R4		SCREW							
				6				LDW280P17524-1		PATCH							
					46			LDW280P17575-11		RETAINER							
				28	•			LDW280P17523-3		CAP.							
				28				LDW280P17700-17		STANDOFF ASSY							
					1			LDW280M17649-1		FITTING							
						1		LDW280M17659-1		FITTING							
						4		LDW280P17572-23		STANDOFF							
						6		LDW280-23713-19		STANDOFF ASSY							
						6		LDW280-23713-15		↕							
						12		LDW280-23712-3									
						12		LDW280-23712-1									
						4		LDW280-28721-1		STANDOFF ASSY							
						3		LDW280-18102-17		CLIP							
			1					LDW280P17462-49		SKIN							
		1						LDW280P17462-35		BLANKET ASSY							
			1					LDW280P17462-27		BLANKET ASSY							
				1				LDW280-28658-15		BLANKET ASSY							
				1				-13		BLANKET ASSY							
					1			-11		BLANKET ASSY							
								-9		BLANKET INSTL							
								LDW280-28658-7		STANDOFF INSTL							
		QTY PER ASSEMBLY															

REVISE B/M AS SHOWN ABOVE TO AGREE WITH CHANGES SHOWN IN FIELD OF E.O.

LM	LDW280-28553	LTA-8(18)	1	LM	LDW280-28509	LTA-8 (18)	1
MODEL	NEXT ASSY	MODULE NO.	REQ'D PER MODULE	MODEL	NEXT ASSY	MODULE NO.	REQ'D PER MODULE
PART NO. LDW280-28658-9				PART NO. LDW280-28658-7			

REVISE M/B AS SHOWN ABOVE TO AGREE WITH CHANGES SHOWN IN FIELD OF E.O.

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DESCRIPTION CONT'D: (AS SHOWN WITH EPON 934 PER LSP-14-22500) WITH (PER LSP280-14). IN NOTE 3 REMOVED LDW280P17936-43 & -51, REPLACED LDW280P17936-29 WITH GT535L-HA-0250 & LDW280P17462 WITH -11

NOTE: -7 & -9 MAY BE MADE BY REWORKING -1 & -3

THIS IS AN ORIGINAL E.O.

E.O. LDW280-28658

DETAIL SPEC REQD		CLASS II ENGRG CHG	✓	CLASS I ENGRG CHG		CONTROL INFO NO. LDW280A-0162

REASON FOR EO: ADDITIONAL THERMAL SHIELDING REQUIREMENTS.

DESCRIPTION OF EO: REMOVED -1, -3, & -5
ADDED -7, -9, -11, -13, & -15
REMOVED DETAIL F, SECT. H-H & D-D; ADDED SECT. α-α, *-*, ϕ-ϕ, π-π, & DETAIL Ω
REMOVED NOTE 4 & ADDED NOTE δ & ψ; REVISED NOTE 2 & 3: IN NOTE 2,
REPLACED BOND WITH FASTEN, LDW280P17700-7 WITH -17, & (CONT'D ABOVE)

GRUMMAN EO RELEASE: FR 11/17/6

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-8 (18)	-	

DRAWING REVISION REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

BY	JAP						
DATE	11/2/66	11/5/66		11/1/66		11-8-66	-7-66
	I.D.I.	~~SUBSECT~~ THERMO	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR

PRIORITY: C

DRAWING TITLE: STANDOFF INSTL D.S.-AFT-THERMAL

ENGINEERING ORDER
DRAWING NO. LDW280-28658
EO NO. A

ISSUED BY J. BUKOWSKI EXT 1153 SECTION V.D.I. GROUP NO. 335 PL 35
CODE IDENT NO. 26512
GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

THIS IS AN ORIGINAL E.O.

*

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28658 | EO NO. A2
CONTROL INFO NO. LDW280-9961

IN F/D & B/M REMOVE LDW280P17572-13 & REPLACE WITH LDW280P17572-23

QTY PER ASSY	PART NO	I&T	NOMENCLATURE
4 (FOR-1)	LDW280P17572-23	E	STANDOFF

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

2

REASON FOR EO: NEW THERMAL SHIELDING REQ'MTS

DESCRIPTION OF EO: ON-1 ASSY IN F/D & B/M REMOVED LDW280P17572-13 ADDED LDW280P17572-23

(R) GAEC EO RELEASE: EK 9/14/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA8(18) LEM1(31)	
		LEM2(32) LEM3(33) LEM4(34)	
		LEM5(35) LEM6(36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	JJS	LBG	PB PER MT		NJH		RMC (E)		
DATE	9/7/66	9/19/66	10/18 THERMAL		9/7/66		9-14	9/13/66	
	VDI	~~SUPPORT~~ WTS	~~RELIAB. GROUP~~	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~	

PRIORITY: C
DRAWING TITLE: STANDOFF INSTL DESCENT STAGE - AFT THERMAL
DRAWING NO.: LDW280-28658
EO NO.: A2

ISSUED BY GRIECO / STRAKOSCH SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

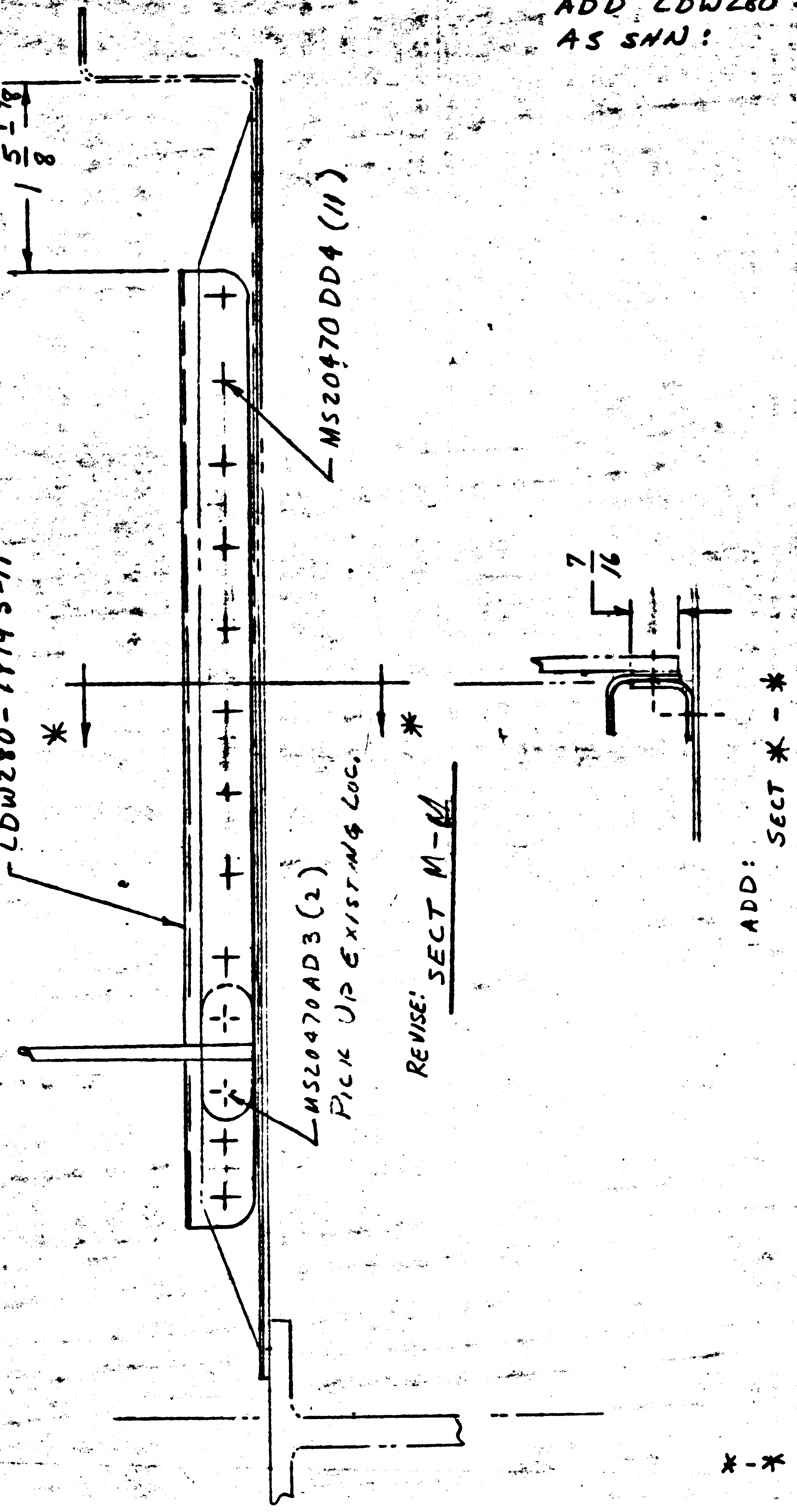
ENGINEERING ORDER

DWG. NO. LDW 280 28658

EO NO. A3

CONTROL INFO NO. LM 5-11069

ON -1 INSTL
ADD LDW280 - 18193 -11
AS SHN:


1 5/8 ± 1/8
MS20470DD4 (11)
LDW280-18193-11
MS20470AD3 (2)
Pick Up Existing Loc.
*
*
REVISE: SECT M-M
7/16
ADD: SECT * - *

- USE NEXT AVAILABLE LETTER

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG												
REASON FOR EO				DESCRIPTION OF EO											GAEC EO RELEASE	
ADDITIONAL SUPT REQD FOR COLD PLATE				ON -1 INSTL: ADDED LDW280-18193 -11 ADDED SECT *-*												
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JHS				NM	DV		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		✓		DATE	11/11/66				11/11/66	11/11	11-21-66	11-12-66
LM		LTA8 (18)		REVISE DWG	RECORD EO	REWORK	SCRAP	5	11/11/66	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
				PRIORITY	DRAWING TITLE						DRAWING NO.				EO NO.	
				C	STANDOFF INSTL D/S -THERMAL						LDW280-28658				A3	

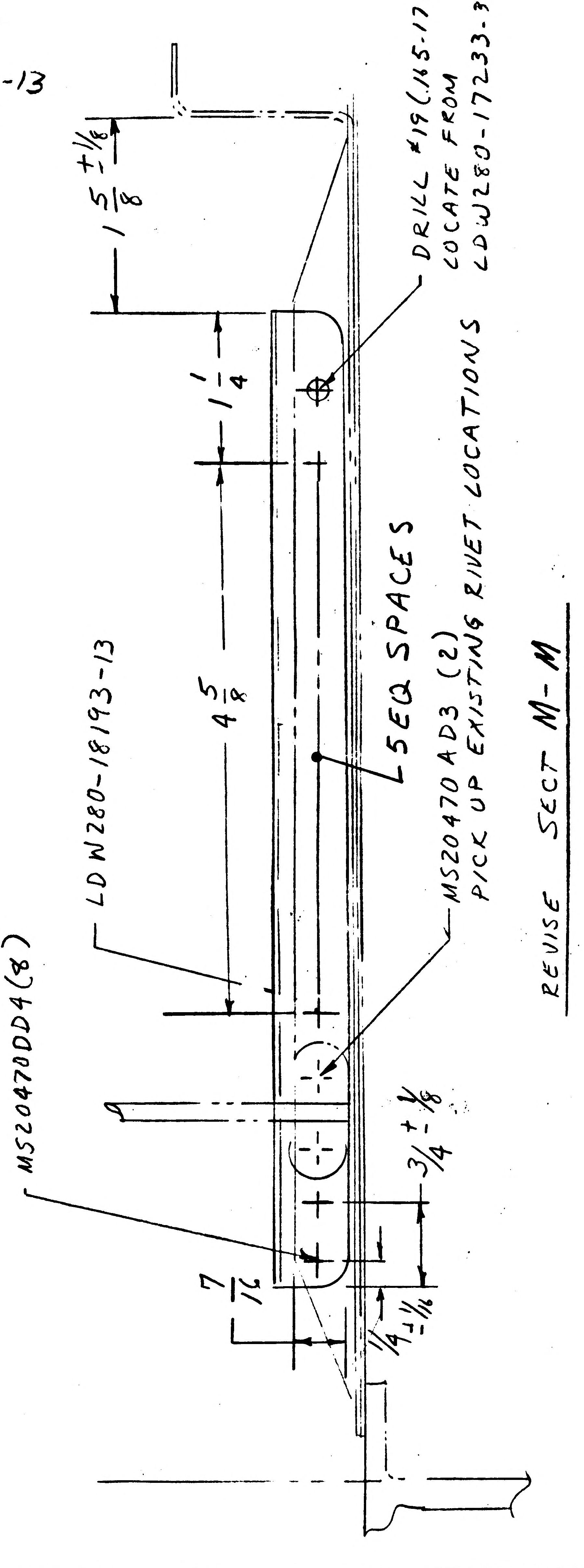
ISSUED BY D. RAGAS X6454 SECTION VDI GROUP NO. 335 PL. 5

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 2?? -2?658		EO NO. A6
CONTROL INFO NO. LM5-11223		

CANCELL EO A_3
ON-7 INSTL
ADD LDW280-18193-13
AS SHN:



DRILL #19 (.165-.171)
LOCATE FROM
LDW280-17233-38
$1\frac{5}{8} \pm \frac{1}{16}$
$1\frac{1}{4}$
$4\frac{5}{8}$
5 EQ SPACES
MS20470 AD3 (2)
PICK UP EXISTING RIVET LOCATIONS
LDW280-18193-13
MS20470DD4(8)
$\frac{3}{4} \pm \frac{1}{8}$
$\frac{7}{16}$
$\frac{1}{4} \pm \frac{1}{16}$

REVISE SECT M-M

6

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO FACILITATE INSTL WITH SUPPORT STRUT. FOR COLD PLATE

DESCRIPTION OF EO: CANCELLED EO A_3 ON-7 INSTL ADDED LDW280-18193-13 & MS20470 DD4 (8)

GAEC EO RELEASE: K

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	WT			~	RH	CH	RMC	RP
DATE	11/28/66			~	11.28.66	11-28	11-30-66	11/29/66
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTL C/S - AFT - THERMAL	LDW280-28658	A6

ISSUED BY RAY [illegible] x6050 SECTION VDI GROUP NO. 335 PL 5

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28658
EO NO. A7
CONTROL INFO NO. LDW280A4306

ON-11 REMOVE LDW280P17524-1; 6 PLCS

THERMAL SHLD
2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO MAKE DWG. AGREE WITH TEMPLATE

DESCRIPTION OF EO: ON-11 REMOVED LDW280P17524-1; 6PLCS

GAEC EO RELEASE: FR 12/13/66

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(10)	

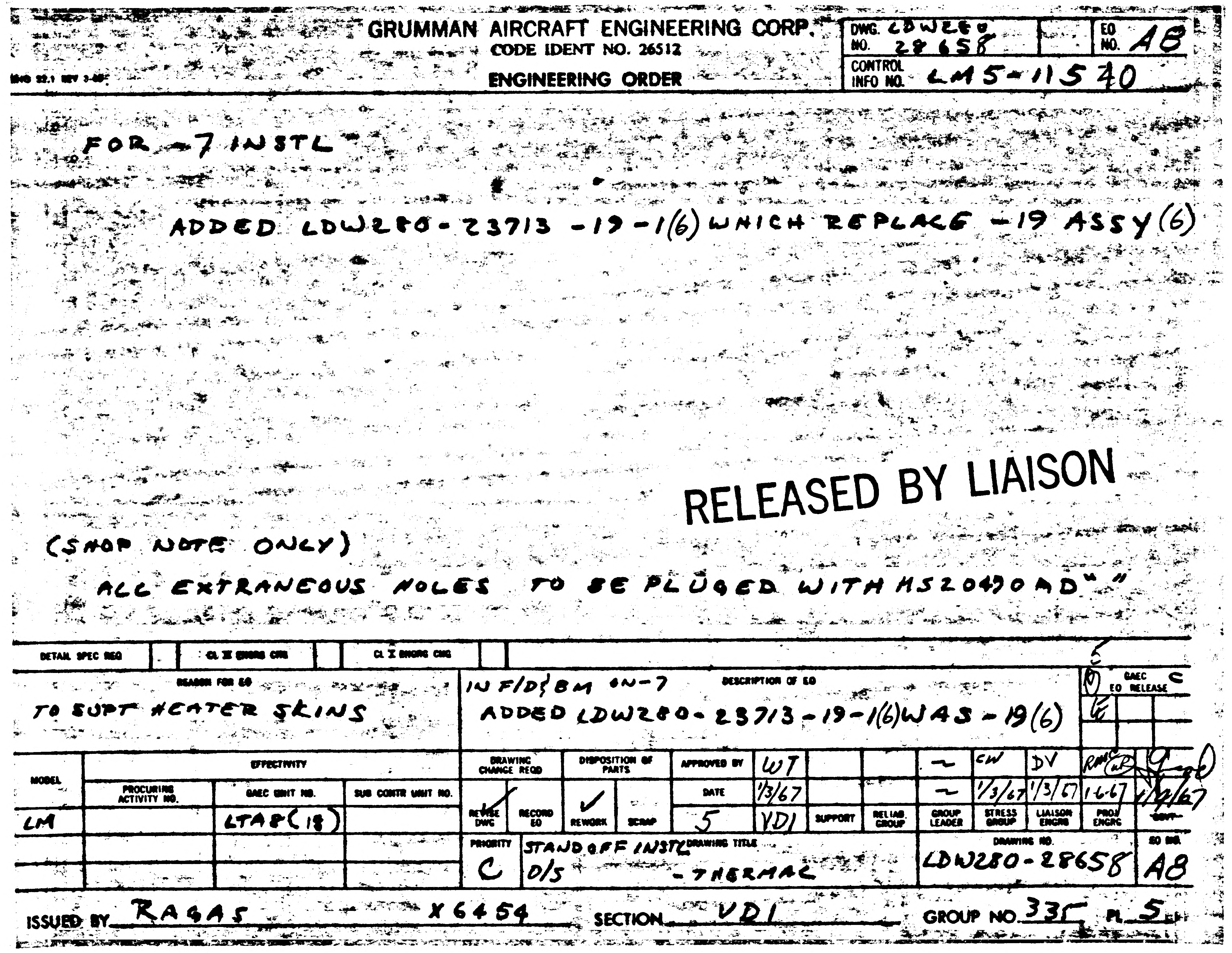
DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: NOT REWORK	REQ'D SCRAP
✓			

APPROVED BY								
DATE	12/13/66	12/13		12/13/66	12/13/66		12/13	12/13/66
1	VDI	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: STAND OFF INSTALLATION D/S - AFT- THERMAL
DRAWING NO. LDW280-28658
EO NO. A7

ISSUED BY T. AMBROSIO / STRAKOSCH 1153 SECTION VDI GROUP NO. 335 PL. 35

01 NAS 9-1100



GMG 22.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 28658
EO NO. A8
CONTROL INFO NO. LM5-11540

FOR -7 INSTL

ADDED LDW280-23713-19-1(6) WHICH REPLACE -19 ASSY (6)

RELEASED BY LIAISON

(SHOP NOTE ONLY)

ALL EXTRANEOUS HOLES TO BE PLUGED WITH MS20470AD" "

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: TO SUPT HEATER SKINS

DESCRIPTION OF EO: IN F/D & BM ON-7 ADDED LDW280-23713-19-1(6) WAS -19(6)

GAEC EO RELEASE: 5 E C

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	WT				~	CW	DV	RMS	
DATE	1/3/67				~	1/3/67	1/3/67	1-6-67	1/12/67
5	VDI								

PRIORITY: C

DRAWING TITLE: STANDOFF INSTL D/S - THERMAL

DRAWING NO.: LDW280-28658

EO NO.: A8

ISSUED BY RAGAS X6454 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

LDW280-28659 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28553	LTA-8 (18)	1
PART NO. LDW280-28659-9		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28509	LTA-8 (18)	1
PART NO. LDW280-28659-7		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	1.11	2.00	2.01	3.00	4.00	5.00	6.00
REV	A	A	A	A	A	A	A	A	A
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	P-P	GRUMMAN REL INFO	
		PRIM NO.	JK(001)
LAST DASH NO. USED	-17	207	MP-16A-12/27/

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ±0°-30'

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	D. DAGOSTA J. GARDELLA 6-21-66	RELIABILITY	
LAYOUT BY	J. EVAN	THERMO	AB 1/9/67
CHECKED BY	W.W. 7-16-66		
GP LDR	7/9/66		
VEH DES INT	7/19/66	PROJ ENGR	1-9-67
STRUCTURES	7/19	REL GROUP	Botti 1-9-67
STRUCTURES	Halderman 7/19		
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BLANKET INSTALLATION-
DESCENT STAGE- +Y THERMAL SHIELD

SIZE	CODE IDENT NO.		
B	26512	LDW280-28659	A
SCALE	NONE	SHEET 1.00 OF 9	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	5.00 1.10 3.00	5G					E.O. A1	RELOCATED STANDOFF & ADDED INFORMATION TO NOTE #1 ADDED SH. 1.10	LTA-8					
	2	3.00 2.00	7B					E.O. A2	ON-5 IN FLD & B/M REMOVED LDW280P17463-21 AND ADDED LDW280P17463-27						
	3	3.00, 2.00	3B					EO A3	CANCELLED BY EO A6						
	4	1.00 2.00 2.01 3.00 4.00 5.00 6.00	10J 10G 6D 9F 2D 4A 6B 10A 15H 16J 19G				✓	EO A4	IN FLD & B/M ADDED: LDW280-28659-7,-9 INSTL AND -11,-13,-15,&-17 ASSY, LDW280P17463-41, LDW280-23713-19, LDW280P17523-3, LDW280-17463-53, LDW280P17524-1 & LDW280P17964-7. IN FLD ADDED NOTE 7, SHOWED REVISED LOCATIONS OF SEAMS & SEAM DETAILS. IN FLD & B/M REMOVED: LDW280-28659-1&-3 INSTL & -5 ASSY, LDW280P17463-21, LDW280P17700-7, LDW280P17523-1 & LDW280P17936-47. IN FLD REMOVED NOTE #4, DELETED LDW280P17936-47 FROM NOTE #3. IN FLD ADDED SECT M-M, N-N [redacted]. REMOVE STANDOFFS LDW280P17523-1(3) LDW280P23712-1(4) LDW280P23712-3(2) IN NOTE #3 GT535L-HA-0250 WAS LDW280P17936-29 ADDED GT15C-1, GT835P-8. NOTE 2 WAS "BOND LDW280P17523-1 TO LDW280P17700-7 AS SHOWN WITH EPON 934 PER LSP14-22500". GT535G-LAS-0004 WAS LDW280P17936-13 IN NOTE #1. 5/32 HOLES WERE 1/4 DIA HOLES. ADDED: GW10H-1 & GB10J-1. ADDED SH 2.01		✓		ART STERNBERG 12-6-67 J. LEE		
	5	3.00	1B				✓	LEO 280-374	ADDED GENERAL NOTE 8						
	6	3.00 2.00	3B					EO A6	CANCELLED EO A3. ON-7 INSTL ADDED LDW280-18193-15 & -17 & MS20470DD4(10) & GR500A-4C WAS MS20470DD4.						
	7		3J 7H					EO A7	ADDED SECT P-P, 5/16 DIA LDW450-5257-1, GT835P-8 AND GT535B-2-1.00 TAPE ON-9				H.D.	WC	

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO				
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28659	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
A	8	2.00,5.00 3.00	8A 5G					EO A 8	ON -11 REMOVED LDW280P17524-1 ON-9 (ADDED SH1.11) LDW280P17964-1 WAS LDW280P17964-7(3) PLACES	LTA-8(18)	NOT	REQD	A.STERNBERG J. LEE 12-16-67		
	9	2.00 3.00	5B					EO A 9	IN FLD & B/M ON-7 ADDED LDW280-23713-19-1(10) WAS -19 (10)		✓				
	10	3.00	3B				✓	EO A 10 LCD 1338	IN FLD SECT "B-B" SHEET 3 REVISED PICTURE OF LDW280M17659-1, 23/8 (WAS 27/8)						
	11	6.00	19G				✓	Ⓑ	REF EO A4 SECT [redacted]-[redacted] NOT REQD HO WC					F. Zu[illegible] 12-21-67	

CHG APPROVED												
LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHT	RELIABILITY	THERMO					
A												

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28659	A
SCALE NONE		SHEET 1.11	

Ⓐ

ENG 77.16 3-66

01

NAS 9-1100

-17	-15	-13	-11	-9	-7	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			33			GW10H-1	E		WASHER	GRUMMAN STD						5B
			33			GB10J-1	↕		BUSHING	↕						5B
			AR			GT835P-8	↕		TAPE	↕						
			AR			GT535B-2	↕		TAPE	↕						
				AR		GT535L-HA-0250	↕		TAPE	↕						7J
					AR	GT535G-LAS-0004	↕		TAPE	GRUMMAN STD						10C
				1		LDW450-5257-1	↕		TUBE ASSY	SEE DWG						
							↕									7A
					1	LDW280M17659-1	↕		FITTING	SEE DWG						7A
				1		LDW280M17649-1	↕		FITTING	↕						8A
				3		LDW280P17964-1	↕		COVER	↕						10C
			35			LDW280P17700-17	↕		STANDOFF ASSY	↕						10A
				42		LDW280P17575-1	↕		RETAINER	↕						10C
			35			LDW280P17523-3	↕		CAP	↕						3B
					1	LDW280-18193-17	↕		CLIP	↕						3B
					1	LDW280-18193-15	↕		ANGLE	↕						5B
					10	LDW280-23713-19-1	↕		STANDOFF ASSY	↕						8F
					12	LDW280-23712-3	↕		STANDOFF	↕						10F
					12	LDW280-23712-1	↕		STANDOFF	SEE DWG						
							↕			↕						7B
1						LDW280P17463-59	↕		SKIN	↕						15H
	1					LDW280P17463-53	↕		BLANKET ASSY	↕						7B
		1				LDW280P17463-41	↕		BLANKET ASSY	SEE DWG						
							↕							NONE	NONE	6A
			1			LDW280-28659-17	↕		SKIN ASSY					NONE	NONE	↕
			1			-15	↕		BLANKET ASSY					NONE	NONE	↕
			1			-13	↕		BLANKET ASSY					NONE	NONE	↕
				1		-11	↕		BLANKET ASSY					NONE	NONE	↕
						-9	↕		BLANKET INSTL					NONE	NONE	6A
						LDW280-28659-7	E		STANDOFF INSTL							

QTY PER ASSEMBLY

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28659	A Ⓐ
SCALE NONE		SHEET 2.00	

ENG 77.2 5-64

01

NAS 9-1100

				QTY PER ASSEMBLY -17	-15	-13	-11	-9	-7	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
										NOTE 1 & 2	E		CEMENT							
										MS20470A3	E		RIVET	STD PART						
										MS20470AD3	↓		RIVET	STD PART						
										MS20470DD4	↓		RIVET	STD PART						
									A/R	GR500A-4C	↓		RIVET	GRUMMAN STD						3B
								42		AN515-6R4	↓		SCREW	↕						5B
							24			GW10H-3	↓		WASHER	↕						8A
							24			GR11B-1	E		RETAINER	↕						8A
							A/R			GT15C-1	E		TAPE	GRUMMAN STD						10A
							A/R			GS577A-1	E		STAPLE	GRUMMAN STD						

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28659	A

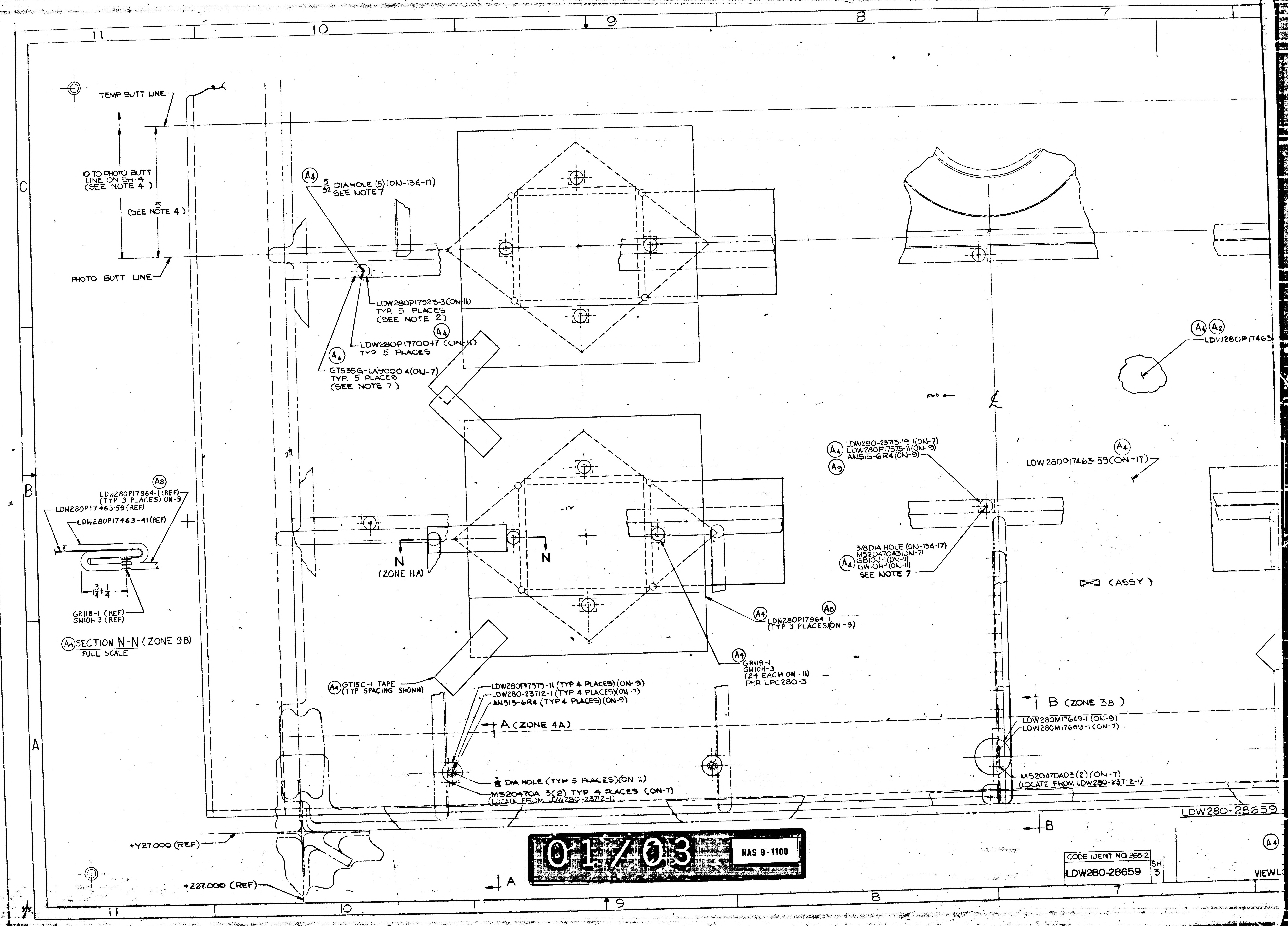
SCALE NONE

SHEET 2[illegible]

ENG 77.2 5-64

01

NAS 9-1100


11
10
9
8
7
C
B
A
TEMP BUTT LINE
10 TO PHOTO BUTT LINE ON SH 4 (SEE NOTE 4)
5 (SEE NOTE 4)
PHOTO BUTT LINE
A4 5/32 DIAHOLE (5) (ON-13&-17) SEE NOTE 7
LDW280P17523-3 (ON-11) TYP. 5 PLACES (SEE NOTE 2)
A4 LDW280P17700-17 (ON-11) TYP 5 PLACES
A4 GT535G-LA9000 4 (ON-7) TYP. 5 PLACES (SEE NOTE 7)
A4 A2 LDW280P17463
FWD ←
℄
A4 LDW280-23713-19-1 (ON-7)
LDW280P17575-11 (ON-9)
AN515-6R4 (ON-9)
A9
A4 LDW280P17463-59 (ON-17)
A4 3/8 DIA HOLE (ON-13&-17)
MS20470A3 (ON-7)
GB10J-1 (ON-11)
GW10H-1 (ON-11)
SEE NOTE 7
☒ (ASSY)
A8
LDW280P17964-1 (REF) (TYP 3 PLACES) ON-9
LDW280P17463-59 (REF)
LDW280P17463-41 (REF)
1 3/4 ± 1/4
GR11B-1 (REF)
GW10H-3 (REF)
A4 SECTION N-N (ZONE 9B)
FULL SCALE
N (ZONE 11A)
N
A4 A8 LDW280P17964-1 (TYP 3 PLACES) (ON-9)
A4 GR11B-1
GW10H-3
(24 EACH ON -11)
PER LPC 280-3
A4 GT15C-1 TAPE (TYP SPACING SHOWN)
LDW280P17575-11 (TYP 4 PLACES) (ON-9)
LDW280-23712-1 (TYP 4 PLACES) (ON-7)
AN515-6R4 (TYP 4 PLACES) (ON-9)
A (ZONE 4A)
3/8 DIA HOLE (TYP 5 PLACES) (ON-11)
MS20470A 3(2) TYP 4 PLACES (ON-7)
(LOCATE FROM LDW280-23712-1)
B (ZONE 3B)
LDW280M17649-1 (ON-9)
LDW280M17659-1 (ON-7)
MS20470AD3(2) (ON-7)
(LOCATE FROM LDW280-23712-1)
LDW280-28659
B
+Y27.000 (REF)
+Z27.000 (REF)
A
01/03
NAS 9-1100
A4
CODE IDENT NO 26512
LDW280-28659
SH 3
VIEW L

7
6
5
4
3
2
TEMP BUTT LINE
5 (SEE NOTE 4)
10 TO PHOTO BUTT LINE ON SH 4 (SEE NOTE 4)
PHOTO BUTT LINE
C (ZONE 3B)
C
80
SEE NOTE 4
80
A4 A2 LDW280P17463-41(ON-13)
A9 A4 LDW280-23713-19-1(ON-7)
LDW280P17575-11(ON-9)
AN515-6R4(ON-9)
A4 3/8 DIA HOLE (ON-13&-17)
MS20470A3 (ON-7)
GB10J-1 (ON-11)
GW10J-1 (ON-11)
SEE NOTE 7
A4
80P17463-59(ON-17)
(ASSY)
(ZONE 3B)
17649-1 (ON-9)
17659-1 (ON-7)
D3(2)(ON-7)
OM LDW230-23712-1)
162 (SEE NOTE 4)
LDW280-28509(REF)
+Y27.000 (REF)
-Z27.000 (REF)
-Z 27.00 (REF)
LDW280-28509 (REF)
LDW280P17463-41 (REF)
LDW280P17700-17(REF)
GT535G-LAS-0004
GR11B-1 (REF)
GW10H-3 (REF)
X196.00(REF)
LDW280P17463-59(REF)
LDW280-28666 (REF)
LDW280P17700-17(REF)
LDW280P17523-3(REF)
A4 SECT C-C (ZONE 5C)
LDW280P17463-41 (REF)
LDW280P17463-59(REF)
LDW280-18193-15 (ON -7)
MS20470DD4 (10) ON -7 A6
LDW280M17659-1 (REF)
1 5/8 ± 1/8
A6 9 EQUAL SPACES
6 3/4
3/16 MIN
7/16
GB10J-1 (1) ON -11 A10
GW10H-1 (1) ON -11
LDW280-18193-17 (ON -7)
GR500A-4C (ON -7) A6
+Y27.00(REF)
1/4
5/16
LDW280M17649-1(REF) A10
2 3/8
LDW280-28509(REF)
LDW280-28560(REF)
X196.00(REF)
A4 SECT B-B (ZONE 7A)
LDW280P17463-59(REF)
LDW280P17463-41(REF)
LDW280P17575-11(REF)
LDW280-23712-1(REF)
2 3/4 ± 1/8 (REF)
GB10J-1(4)
GW10H-1(4)
(ON-11)
+Y27.00 (REF)
LDW280-28560(REF)
LDW280-28509 (REF)
X196.00 (REF)
A4 SECT A-A (ZONE 9A)
+Z FWD
+Y END BLKHD (R
-Y
+Y
+Z27
-Z27
+Y
-Z
LDW280-28659 (UPPER DECK)
ENGRG REF ONLY
NO SCALE

LDW280-28659 -7 INSTL
-9 INSTL
-11 ASSY
A4 -13 ASSY
-15 ASSY
-17 ASSY

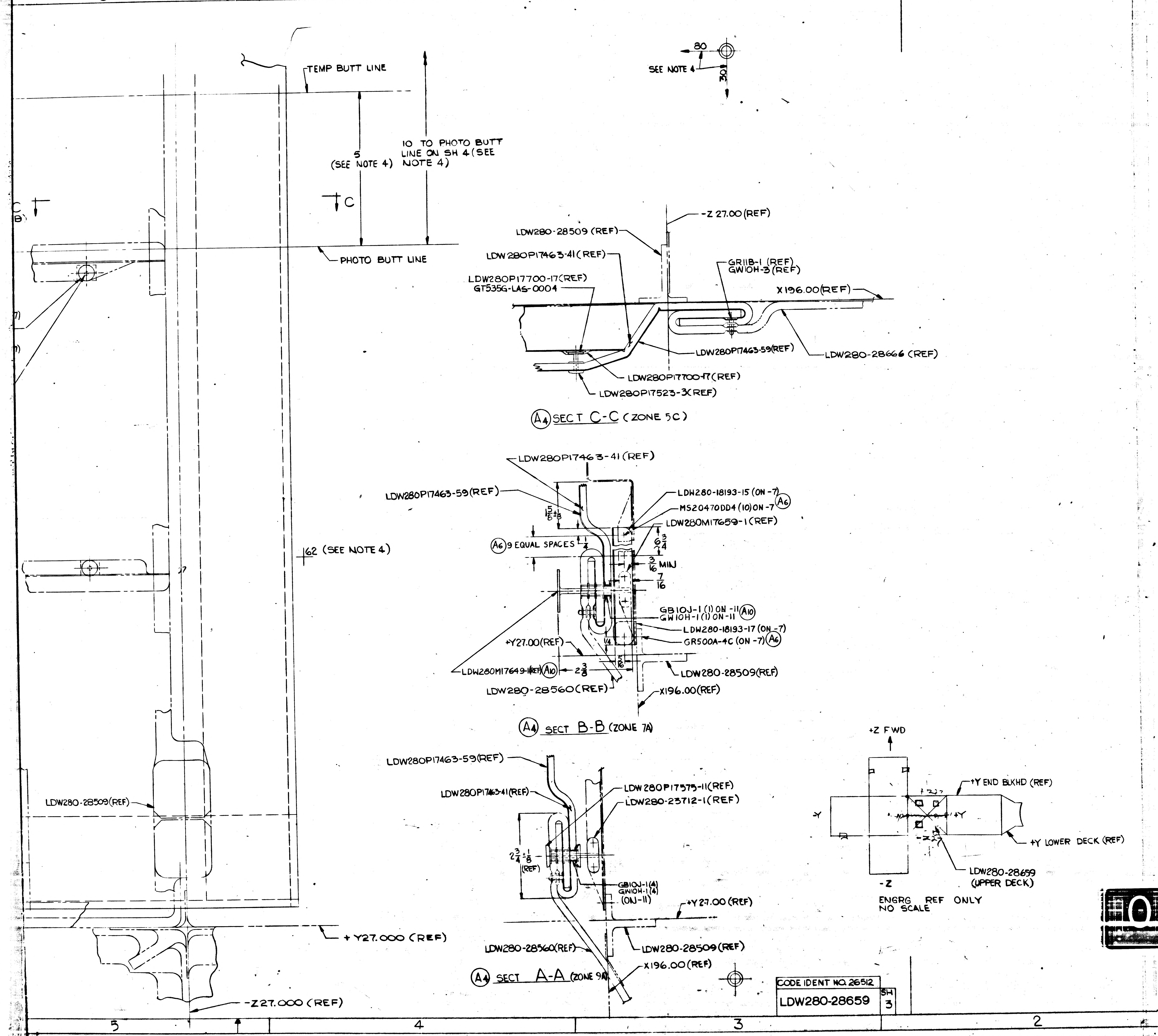
VIEW LOOKING DOWN

02/03

NAS 9-1100

CODE IDENT NO. 26512	
LDW280-28659	SH 3

CODE IDENT NO. 26512	
LDW280-28659	SH 3


5
4
3
2
TEMP BUTT LINE
5
(SEE NOTE 4)
10 TO PHOTO BUTT LINE ON SH 4 (SEE NOTE 4)
C
PHOTO BUTT LINE
162 (SEE NOTE 4)
LDW280-28509 (REF)
+ Y27.000 (REF)
-Z27.000 (REF)
80
30
SEE NOTE 4
-Z 27.00 (REF)
LDW280-28509 (REF)
LDW280P17463-41 (REF)
GR11B-1 (REF)
GW10H-3 (REF)
LDW280P17700-17 (REF)
GT535G-LAS-0004
X196.00 (REF)
LDW280P17463-59 (REF)
LDW280-28666 (REF)
LDW280P17700-17 (REF)
LDW280P17523-3 (REF)
A4 SECT C-C (ZONE 5C)
LDW280P17463-41 (REF)
LDW280P17463-59 (REF)
LDW280-18193-15 (ON -7)
MS20470DD4 (10) ON -7 A6
LDW280M17659-1 (REF)
1 5/8 ± 1/8
A6 9 EQUAL SPACES
6 3/4
3/16 MIN
7/16
GB10J-1 (1) ON -11 A10
GW10H-1 (1) ON -11
LDW280-18193-17 (ON -7)
+Y27.00 (REF)
GR500A-4C (ON -7) A6
LDW280M17649-1 (REF) A10
2 3/8
LDW280-28509 (REF)
LDW280-28560 (REF)
X196.00 (REF)
A4 SECT B-B (ZONE 7A)
LDW280P17463-59 (REF)
LDW280P17463-41 (REF)
LDW280P17575-11 (REF)
LDW280-23712-1 (REF)
2 3/4 ± 1/8 (REF)
GB10J-1 (4)
GW10H-1 (4)
(ON-11)
+Y27.00 (REF)
LDW280-28560 (REF)
LDW280-28509 (REF)
X196.00 (REF)
A4 SECT A-A (ZONE 9A)
+Z FWD
+Y END BLKHD (REF)
-Y
+Y
+Y LOWER DECK (REF)
-Z
LDW280-28659 (UPPER DECK)
ENGRG REF ONLY
NO SCALE

CODE IDENT NO. 26512
LDW280-28659 SH 3

NOTES:

1. BOND GT535G-LAS-0004 TO STRUCTURE AS SHOWN WITH EPON 934 PER LSP14-22500. CURE RANGE I OR ROOM TEMP CURU 7DAIS PERMITTED.
2. BOND LDW280P17523-3 TO LDW280P17700-17 AS SHOWN WITH EPON 934 PER LPC 280-14
3. GT535L-HA-0250 SEW TO LDW280P17463-21 AT 3/16 ± 1/16 FROM EDGES OF GT535L-HA-0250 IN ACCORDANCE WITH FED STD #751a & STITCH TYP 301.
4. ~~LDW280-28659-5 ASSY, SHOWN ON THIS DRAWING HAS BEEN DRAWN TO PROJECTED DIMENSIONS. THIS ASSEMBLY SHALL BE MADE TO EXPANDED DIMENSIONS BY MAKING A PHOTO LOFT TO THE EXPANDED TRAMMEL POINT DIMENSIONS INDICATED BELOW. THE EXPANSION RATIO IS .030 IN/IN~~

TRAMMEL POINT		SHOWN	EXPANDED
SH 3	LENGTH	80.0	82.400
3	WIDTH	30.0	30.900
SH 4	LENGTH	90.0	92.700
4	WIDTH	30.0	30.900
SH 5	LENGTH	90.0	92.700
5	WIDTH	30.0	30.900
SH 6	LENGTH	70.0	72.100
SH6	WIDTH	30.0	30.900
CONTROL POINT			
SH 3		62.0	63.860
SH 4		62.0	63860
SH5		72.0	74.160
SH6		36.0	37.080
PHOTO BUTT (ALL)		10.0	10.300
TEMP BUTT (ALL)		5.0	5.150

5. NO TOOLING HOLES PERMITTED IN PARTS.
6. TOLERANCE ON INSTL LOCATION OF BLANKET TRIM LINES IS ± 1/2
7. ALL ALUMINIZED MYLAR PARTS SHALL BE MADE WITH EXPANDED DIMS. THE EXPANSION RATIO IS TO BE .50 IN/IN e.g. 10.000 SHOWN EXPANDS TO 10.500. ALL ALUMINIZED POLYIMIDE PARTS SALL BE MADE WITH EXPANDED DIMS. THE EXPANSION RATIO IS TO BE .070 IN/IN. e.g. 10.000 SHOWN EXPANDS TO 10.700.
8. WRAP STEMS OF ALL STANDOFFS WHICH ARE RIVETED TO STRUCTURE WITH 1 LAYER OF GT835M-8 TAPE ON -7 STANDFFS INSTL.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

UNLESS OTHERWISE NOTED

DWG SIZE 34 X 106

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 117) = 29.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 7.5 SQ. FT.

PRINT TRIM LINE

C

B

A

LDW280-28659 A

LDW280-28659A

03/03

NAS 9-1100

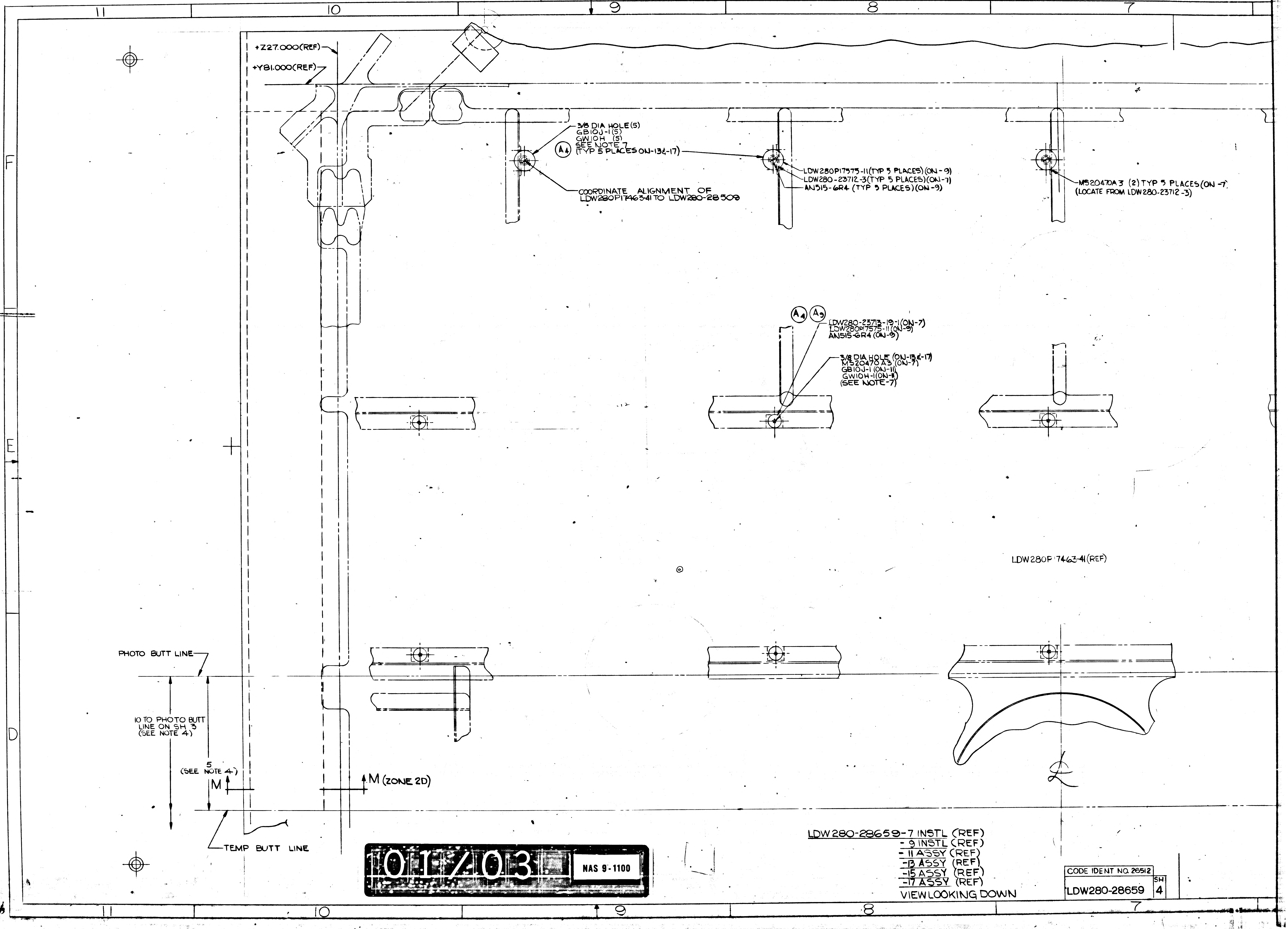
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	J	26512	LDW280-28659	A
	SCALE FULL		SHEET 3.00	

FOR PHOTO REPRODUCTION

3FR K2

SH 3
LDW280-28659


11
10
9
8
7
F
E
D
+Z27.000(REF)
+Y81.000(REF)
3/8 DIA HOLE(5)
GB10J-1(5)
GW10H (5)
SEE NOTE 7
A4
(TYP 5 PLACES ON-13&-17)
COORDINATE ALIGNMENT OF
LDW280P17463-41 TO LDW280-28509
LDW280P17575-11(TYP 5 PLACES)(ON-9)
LDW280-23712-3(TYP 5 PLACES)(ON-7)
AN515-6R4 (TYP 5 PLACES)(ON-9)
MS20470A3 (2) TYP 5 PLACES(ON-7)
(LOCATE FROM LDW280-23712-3)
A4
A9
LDW280-23713-19-1(ON-7)
LDW280P17575-11(ON-9)
AN515-6R4 (ON-9)
3/8 DIA HOLE (ON-13&-17)
MS20470A3 (ON-7)
GB10J-1 (ON-11)
GW10H-1(ON-11)
(SEE NOTE-7)
LDW280P17463-41(REF)
PHOTO BUTT LINE
10 TO PHOTO BUTT LINE ON SH. 3 (SEE NOTE 4)
5 (SEE NOTE 4)
M
M (ZONE 2D)
TEMP BUTT LINE
℄

01/03

NAS 9-1100

LDW280-28659-7 INSTL (REF)
-9 INSTL (REF)
-11 ASSY (REF)
-13 ASSY (REF)
-15 ASSY (REF)
-17 ASSY (REF)
VIEW LOOKING DOWN

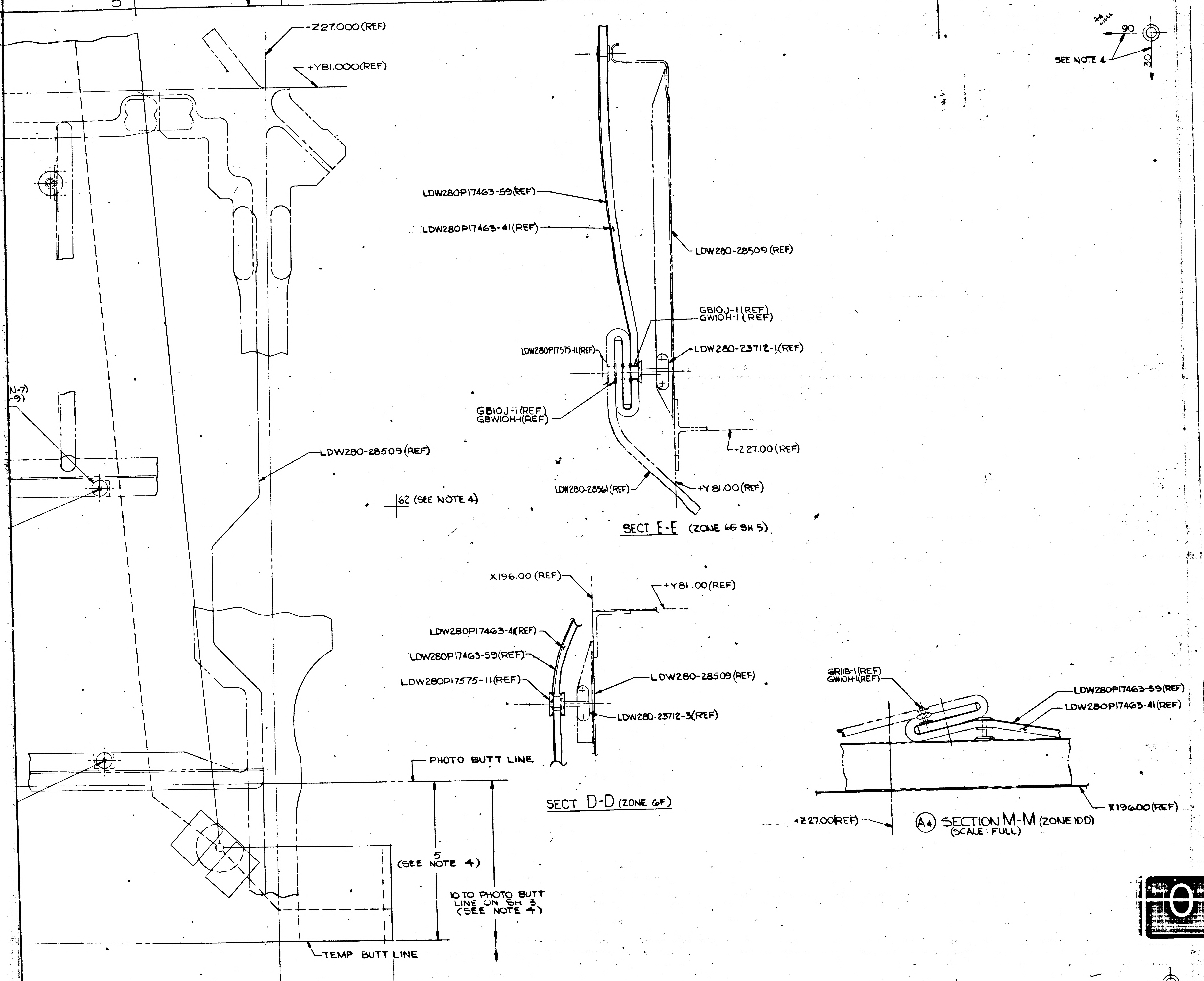
CODE IDENT NO. 26512
LDW280-28659 SH 4

7
6
5
4
3
2
Z27.000 (REF)
+Y81.000 (REF)
D
SEE
470A3 (2) TYP 5 PLACES (ON -7)
E FROM LDW280-23712-3)
D (ZONE 3D)
LDW280P17463-59 (REF)
LDW280P17463-41 (REF)
LDW280-28509 (REF)
GB10J-1 (REF)
GW10H-1 (REF)
LDW280P17575-11 (REF)
LDW280-23712-1 (REF)
GB10J-1 (REF)
GBW10H-1 (REF)
+Z27.00 (REF)
LDW280-28561 (REF)
+Y81.00 (REF)
SECT E-E (ZONE 6G SH 5)
A4 A9 LDW280-23713-19-1 (ON-7)
LDW280P17575-11 (ON-9)
AN515-6R4 (ON-9)
LDW280-28509 (REF)
3/8 DIA HOLE (ON-13&-17)
MS20470A3 (ON-7)
A4 GB10J-1 (ON-11)
GW10H-1 (ON-11)
SEE NOTE 7
.62 (SEE NOTE 4)
X136.00 (REF)
+Y81.00 (REF)
LDW280P17463-41 (REF)
LDW280P17463-59 (REF)
LDW280P17575-11 (REF)
LDW280-28509 (REF)
LDW280-23712-3 (REF)
F)
LDW280P17700-17(8) (ON-11) A4
LDW280P17523-3(8) (ON-11)
GT535G-LAS-0004 (ON -7) A4
TYP 8 PLACES
(SEE NOTE 2)
A4 5/32 DIA HOLE (TYP 8 PLACES) (ON-13&17)
(SEE NOTE 7)
GR11B-1 (REF)
GW10H-1 (REF)
L
LD
PHOTO BUTT LINE
SECT D-D (ZONE 6F)
+Z27.00 (REF)
A4 SECTION M-M (ZONE 1
(SCALE: FULL)
5 (SEE NOTE 4)
10 TO PHOTO BUTT LINE ON SH 3 (SEE NOTE 4)
TEMP BUTT LINE

02/03 NAS 9-1100

DENT NO. 26512
80-28659 SH 4

CODE IDENT NO. 26512
LDW280-28659 SH 4



Z27.000(REF)
+Y81.000(REF)
N-7)
-9)
LDW280-28509(REF)
62 (SEE NOTE 4)
PHOTO BUTT LINE
5 (SEE NOTE 4)
10 TO PHOTO BUTT LINE ON SH 3 (SEE NOTE 4)
TEMP BUTT LINE
LDW280P17463-59(REF)
LDW280P17463-41(REF)
LDW280-28509(REF)
GB10J-1(REF)
GW10H-1(REF)
LDW280P17575-11(REF)
LDW280-23712-1(REF)
GB10J-1(REF)
GBW10H-1(REF)
+Z27.00(REF)
LDW280-28561(REF)
+Y81.00(REF)
SECT E-E (ZONE 6G SH 5)
X196.00(REF)
+Y81.00(REF)
LDW280P17463-41(REF)
LDW280P17463-59(REF)
LDW280P17575-11(REF)
LDW280-28509(REF)
LDW280-23712-3(REF)
SECT D-D (ZONE 6F)
SEE NOTE 4
90
30
GR11B-1(REF)
GW10H-1(REF)
LDW280P17463-59(REF)
LDW280P17463-41(REF)
X196.00(REF)
+Z27.00(REF)
(A4) SECTION M-M (ZONE 10D)
(SCALE: FULL)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

- PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.
- FILLET AND INSIDE CORNER RADII TOLERANCES
  - .016R TO .062R ± .010
  - .063R TO .250R ± .015
  - OVER .250R ± .030
- DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.
- EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.
- DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.
- MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.
- DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING
- HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.
- ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES
- 125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10
- 250 FOR ALL DRILLED HOLES
- REMOVE ALL BURRS. BREAK ALL EDGES .015-.031
- INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS
- SYMBOL √ DENOTES SURFACE TO BE MACHINED
- UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32
- LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.
- TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 106

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 117) = 29.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 7.5 SQ. FT.

PRINT TRIM LINE

LDW280-28659A

LDW280-28659A

03/03 NAS 9-1100

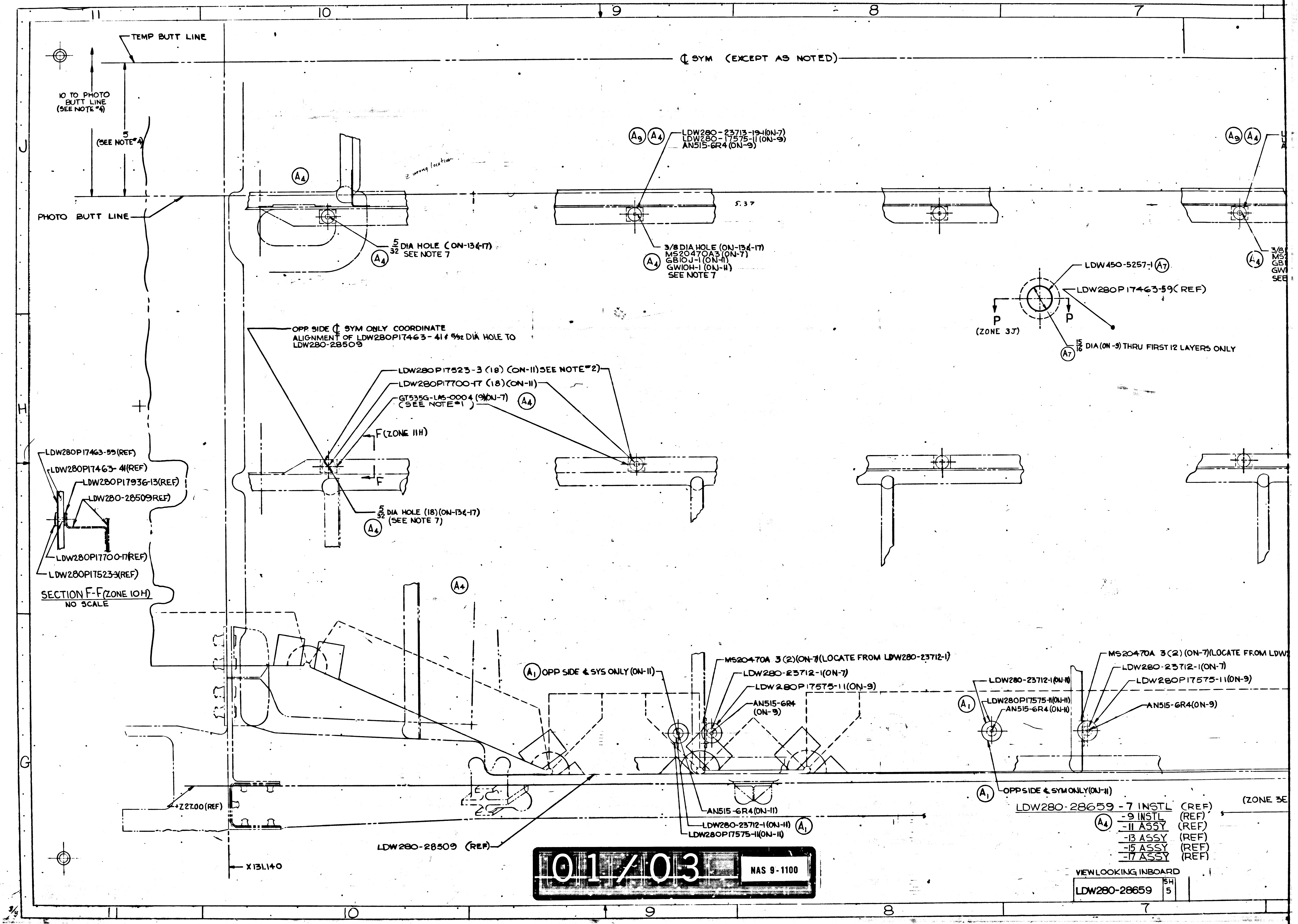
CODE IDENT NO. 26512
LDW280-28659 SH 4

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	J	26512	LDW280-28659	A
	SCALE FULL			SHEET 4.00

FOR PHOTO REPRODUCTION K2

3FR

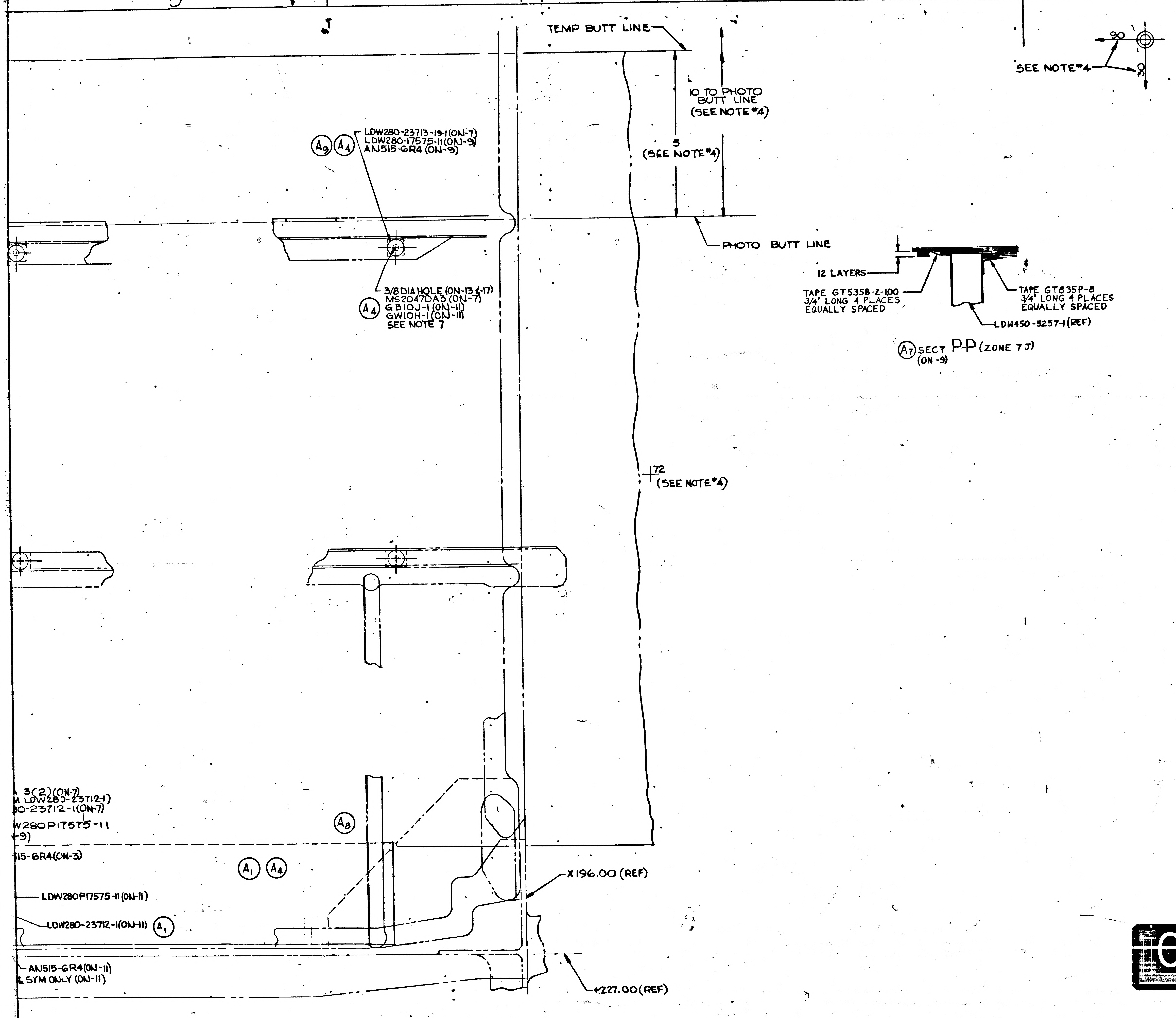

11
10
9
8
7
J
H
G
TEMP BUTT LINE
℄ SYM (EXCEPT AS NOTED)
10 TO PHOTO BUTT LINE (SEE NOTE #4)
5 (SEE NOTE #4)
PHOTO BUTT LINE
A4
z wrong location
A9 A4 LDW280-23713-19-1(ON-7) LDW280-17575-11(ON-9) AN515-6R4(ON-9)
5.37
5/32 DIA HOLE (ON-13&-17) SEE NOTE 7
A4
A4 3/8 DIA HOLE (ON-13&-17) MS20470A3(ON-7) GB10J-1(ON-11) GW10H-1(ON-11) SEE NOTE 7
A9 A4
A4 3/8 MS GB GW SEE
LDW450-5257-1 A7
LDW280P17463-59(REF)
P P (ZONE 3J)
A7 15/16 DIA (ON-9) THRU FIRST 12 LAYERS ONLY
OPP SIDE ℄ SYM ONLY COORDINATE ALIGNMENT OF LDW280P17463-41 & 5/32 DIA HOLE TO LDW280-28509
LDW280P17523-3 (18) (ON-11) SEE NOTE #2)
LDW280P17700-17 (18) (ON-11)
GT535G-LA5-0004 (9)(ON-7) (SEE NOTE #1)
A4
F (ZONE 11H)
F
5/32 DIA HOLE (18) (ON-13&-17) (SEE NOTE 7)
A4
LDW280P17463-59(REF)
LDW280P17463-41(REF)
LDW280P17936-13(REF)
LDW280-28509REF)
LDW280P17700-17(REF)
LDW280P17523-3(REF)
SECTION F-F (ZONE 10H)
NO SCALE
A4
A1 OPP SIDE ℄ SYS ONLY (ON-11)
MS20470A 3 (2)(ON-7)(LOCATE FROM LDW280-23712-1)
LDW280-23712-1(ON-7)
LDW280P17575-11(ON-9)
AN515-6R4 (ON-9)
LDW280-23712-1(ON-11)
A1 LDW280P17575-11(ON-11)
AN515-6R4(ON-11)
MS20470A 3 (2) (ON-7)(LOCATE FROM LDW
LDW280-23712-1(ON-7)
LDW280P17575-11(ON-9)
AN515-6R4(ON-9)
A1 OPP SIDE ℄ SYM ONLY(ON-11)
+Z27.00(REF)
AN515-6R4(ON-11)
LDW280-23712-1(ON-11) A1
LDW280P17575-11(ON-11)
LDW280-28509 (REF)
X131.140
(ZONE 3E
LDW280-28659 -7 INSTL (REF)
A4 -9 INSTL (REF)
-11 ASSY (REF)
-13 ASSY (REF)
-15 ASSY (REF)
-17 ASSY (REF)
VIEW LOOKING INBOARD
LDW280-28659 SH 5
3/3

01/03 NAS 9-1100

7
6
5
4
3
2
TEMP BUTT LINE
10 TO PHOTO BUTT LINE (SEE NOTE*4)
5 (SEE NOTE*4)
PHOTO BUTT LINE
SEE NOTE*4
90
30
A9 A4 LDW280-23713-19-1(ON-7) LDW280-17575-11(ON-9) AN515-6R4(ON-9)
A9 A4 LDW280-23713-19-1(ON-7) LDW280-17575-11(ON-9) AN515-6R4 (ON-9)
A4 3/8 DIA HOLE (ON-13 & -17) MS20470A3 (ON-7) GB10J-1 (ON-11) GW10H-1 (ON-11) SEE NOTE 7
A4 3/8 DIA HOLE (ON-13 & -17) MS20470A3 (ON-7) GB10J-1 (ON-11) GW10H-1 (ON-11) SEE NOTE 7
DW450-5257-1 A7
280P17463-59 (REF)
A (ON-9) THRU FIRST 12 LAYERS ONLY
12 LAYERS
TAPE GT535B-Z-100 3/4" LONG 4 PLACES EQUALLY SPACED
TAPE GT835P-8 3/4" LONG 4 PLACES EQUALLY SPACED
LDW450-5257-1(REF)
A7 SECT P-P (ZONE 7J) (ON-9)
72 (SEE NOTE*4)
MS20470A 3(2) (ON-7)(LOCATE FROM LDW280-23712-1)
LDW280-23712-1(ON-7)
LDW280P17575-11(ON-9)
AN515-6R4(ON-9)
E
MS20470A 3(2)(ON-7) (LOCATE FROM LDW280-23712-1)
LDW280-23712-1(ON-7)
LDW280P17575-11 (ON-9)
AN515-6R4(ON-3)
LDW280P17575-11(ON-11)
LDW280-23712-1(ON-11) A1
A1 AN515-6R4(ON-11)
-OPP SIDE & SYM ONLY (ON-11)
A8
A1 A4
X196.00 (REF)
X227.00(REF)
(ZONE 3E SH 4) E
ON-11)
659-7 INSTL (REF)
A4 -9 INSTL (REF)
-11 ASSY (REF)
-13 ASSY (REF)
-15 ASSY (REF)
-17 ASSY (REF)
N LOOKING INBOARD
W280-28659 SH 5

02/03 NAS 9-1100

CODE IDENT NO. 26512
LDW280-28659 SH 5


TEMP BUTT LINE
10 TO PHOTO BUTT LINE (SEE NOTE #4)
5 (SEE NOTE #4)
PHOTO BUTT LINE
SEE NOTE #4
90
30
(A9) (A4) LDW280-23713-19-1(ON-7)
LDW280-17575-11(ON-9)
AN515-6R4 (ON-9)
3/8 DIA HOLE (ON-13 & -17)
(A4) MS20470A3 (ON-7)
GB10J-1 (ON-11)
GW10H-1 (ON-11)
SEE NOTE 7
12 LAYERS
TAPE GT535B-2-100
3/4" LONG 4 PLACES
EQUALLY SPACED
TAPE GT835P-8
3/4" LONG 4 PLACES
EQUALLY SPACED
LDW450-5257-1(REF)
(A7) SECT P-P (ZONE 7J)
(ON -9)
72 (SEE NOTE #4)
3(2)(ON-7)
M LDW280-23712-1)
30-23712-1(ON-7)
W280P17575-11
-9)
515-6R4(ON-3)
(A8)
(A1) (A4)
LDW280P17575-11 (ON-11)
LDW280-23712-1(ON-11) (A1)
AN515-6R4(ON-11)
℄ SYM ONLY (ON-11)
X196.00 (REF)
X227.00(REF)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ⊠
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .000
.063R TO .250R ± .005
OVER .250R ± .000

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP THDS.
BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003 MIN.
TO .0005 MAX. MIN. THICKNESS TO
BE .0002 ON THREADED AREAS.
NO ALLOWANCE FOR PLATING IN
HOLES

125√ SURFACE ROUGHNESS
INCLUDING REAMED HOLES
PER MIL-STD-10

250√ FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE
TO BE MACHINED

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY
RIVETS SHORTER THAN 1 INCH ARE
NOT SPECIFIED.

TOLERANCE ON LOFTED
DELINEATIONS IS

DWG SIZE 34 X 106

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 108) 27 SQ FT
1/2 SIZE SHEET AREA (1/4 OF FULL) 6.75 SQ FT

PRINT TRIM LINE

LDW280-28659 A

03/03 NAS 9-1100

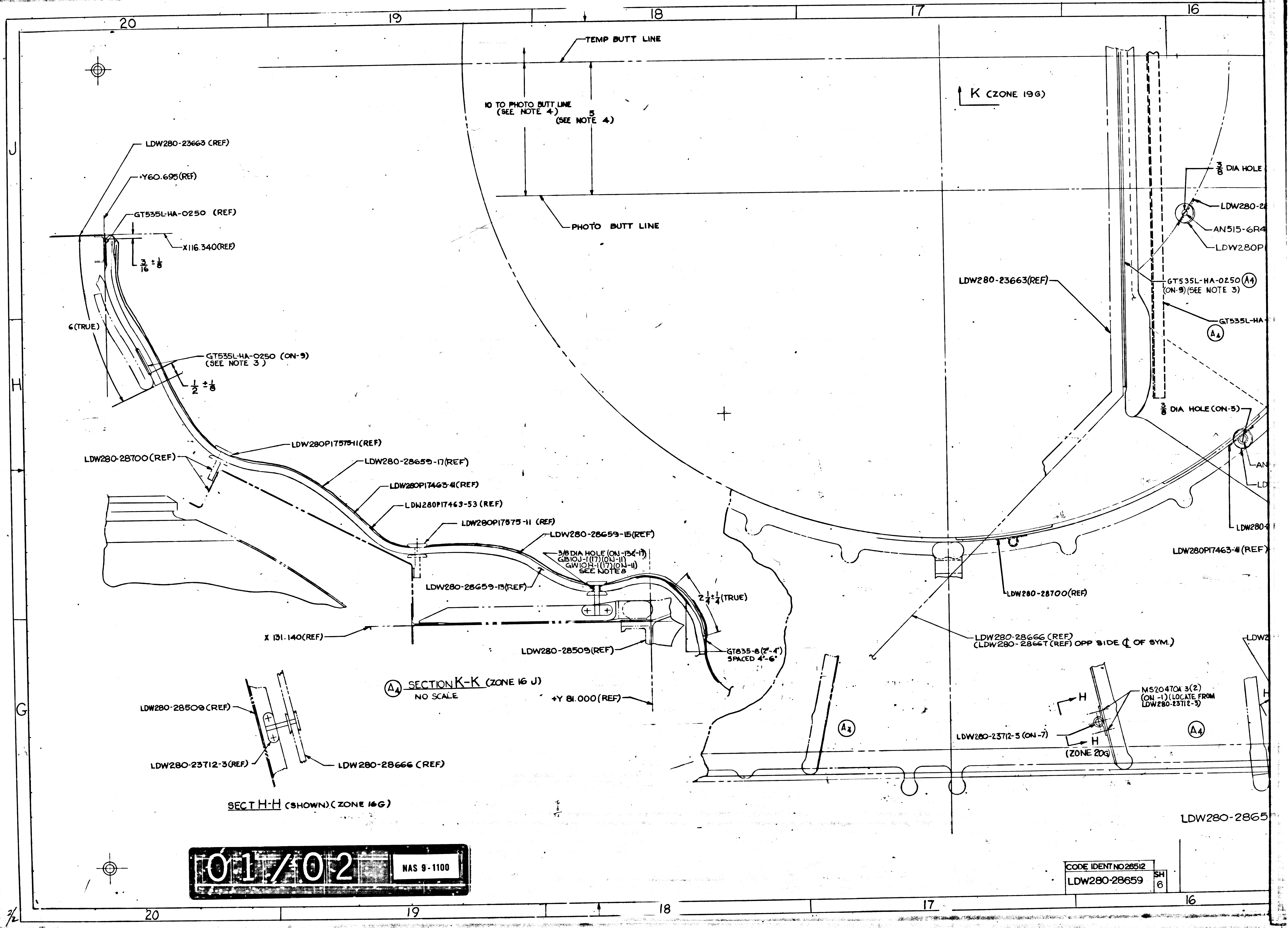
ZONE 3C ...

CODE IDENT NO. 26512
LDW280-28659 SH 5

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK				
SIZE J	CODE IDENT NO. 26512	LDW280-28659	A	
LEM MODEL OR END ITEM	SCALE FULL		SHEET 5.00	

FOR PHOTO REPRODUCTION 3FR

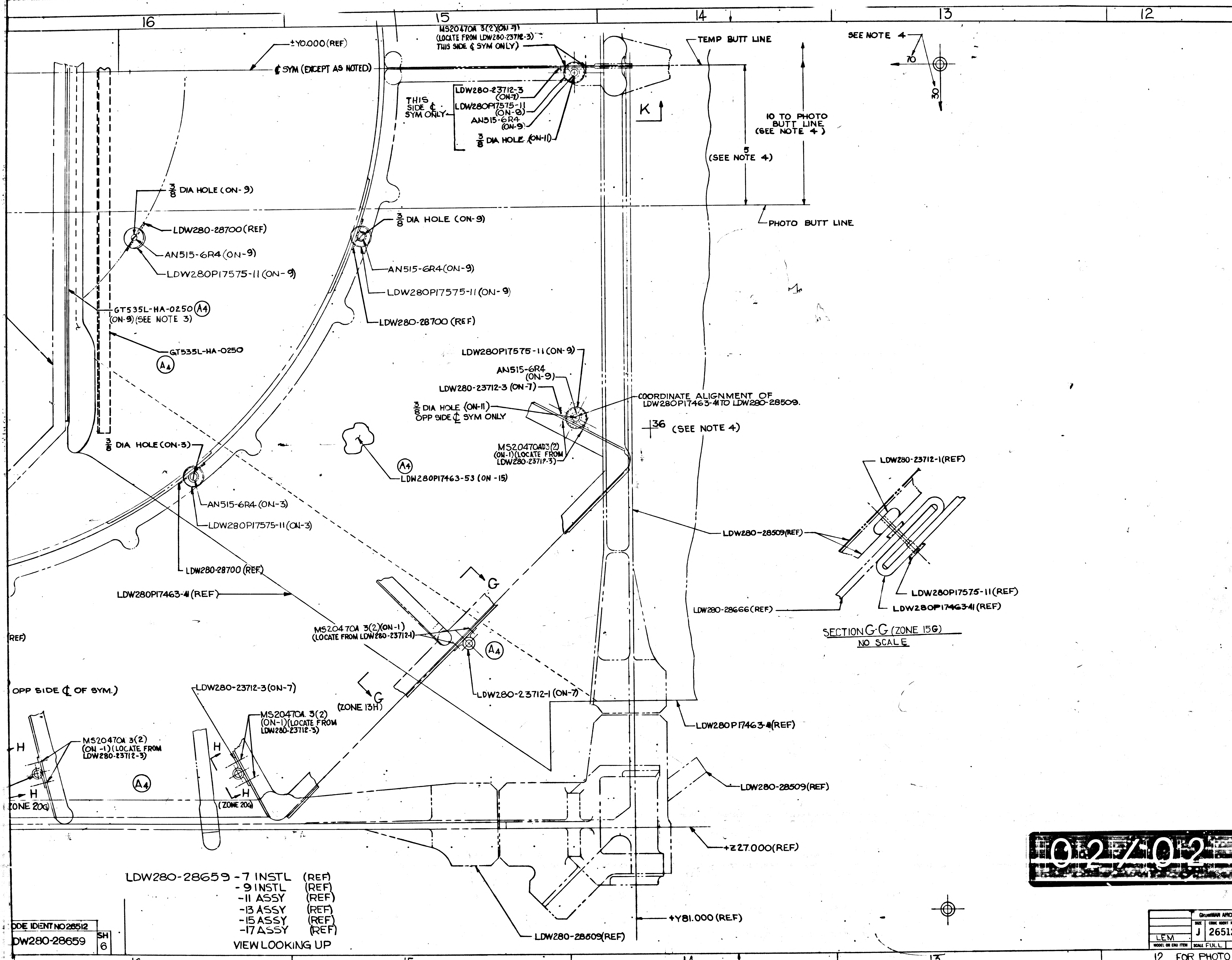
THIS IS AN ORIGINAL DRAWING



TEMP BUTT LINE
10 TO PHOTO BUTT LINE (SEE NOTE 4)
5 (SEE NOTE 4)
PHOTO BUTT LINE
K (ZONE 19G)
LDW280-23663 (REF)
+Y60.695(REF)
GT535L-HA-0250 (REF)
X116.340(REF)
3/16 ± 1/8
6(TRUE)
GT535L-HA-0250 (ON-9) (SEE NOTE 3)
1/2 ± 1/8
LDW280-28700(REF)
LDW280P17575-11(REF)
LDW280-28659-17(REF)
LDW280P17463-41(REF)
LDW280P17463-53 (REF)
LDW280P17575-11 (REF)
LDW280-28659-15(REF)
3/8 DIA HOLE (ON-13&-17) GB10J-1(17)(ON-11) GW10H-1(17)(ON-11) SEE NOTE 8
LDW280-28659-13(REF)
2 1/4 ± 1/4 (TRUE)
X 131.140(REF)
LDW280-28509(REF)
GT835-8(2"-4") SPACED 4"-6"
+Y 81.000(REF)
A4 SECTION K-K (ZONE 16 J) NO SCALE
LDW280-28509(REF)
LDW280-23712-3(REF)
LDW280-28666 (REF)
SECT H-H (SHOWN) (ZONE 16G)
3/8 DIA HOLE
LDW280-2
AN515-6R4
LDW280P
LDW280-23663(REF)
GT535L-HA-0250 (A4) (ON-9) (SEE NOTE 3)
GT535L-HA
A4
3/8 DIA HOLE (ON-3)
AN
LD
LDW280-
LDW280P17463-41 (REF)
LDW280-28700(REF)
LDW280-28666 (REF) (LDW280-28667 (REF) OPP SIDE ℄ OF SYM.)
LDW2
MS20470A 3(2) (ON -1) (LOCATE FROM LDW280-23712-5)
H
H
LDW280-23712-3 (ON -7)
(ZONE 20G)
A4
A4
LDW280-2865
20
19
18
17
16
J
H
G

01/02 NAS 9-1100

CODE IDENT NO 26512
LDW280-28659 SH 6


16
15
14
13
12
±Y0.000 (REF)
℄ SYM (EXCEPT AS NOTED)
MS20470A 3(2)(ON-7)
(LOCATE FROM LDW280-23712-3)
THIS SIDE & SYM ONLY)
LDW280-23712-3 (ON-7)
LDW280P17575-11 (ON-9)
AN515-6R4 (ON-9)
3/8 DIA HOLE (ON-11)
THIS SIDE ℄ SYM ONLY
TEMP BUTT LINE
K
10 TO PHOTO BUTT LINE (SEE NOTE 4)
5 (SEE NOTE 4)
PHOTO BUTT LINE
SEE NOTE 4
70
30
3/8 DIA HOLE (ON-9)
LDW280-28700 (REF)
AN515-6R4 (ON-9)
LDW280P17575-11 (ON-9)
3/8 DIA HOLE (ON-9)
AN515-6R4 (ON-9)
LDW280P17575-11 (ON-9)
LDW280-28700 (REF)
GT535L-HA-0250 (A4) (ON-9) (SEE NOTE 3)
GT535L-HA-0250
A4
LDW280P17575-11 (ON-9)
AN515-6R4 (ON-9)
LDW280-23712-3 (ON-7)
3/8 DIA HOLE (ON-11) OPP SIDE ℄ SYM ONLY
COORDINATE ALIGNMENT OF LDW280P17463-41 TO LDW280-28509.
36 (SEE NOTE 4)
MS20470AD3(2) (ON-1) (LOCATE FROM LDW280-23712-3)
3/8 DIA HOLE (ON-3)
A4
LDW280P17463-53 (ON -15)
AN515-6R4 (ON-3)
LDW280P17575-11 (ON-3)
LDW280-28700 (REF)
LDW280P17463-41 (REF)
LDW280-28509 (REF)
G
G
MS20470A 3(2)(ON-1) (LOCATE FROM LDW280-23712-1)
A4
LDW280-23712-1 (ON-7)
(ZONE 13H)
LDW280-28666 (REF)
LDW280P17463-41 (REF)
(REF)
OPP SIDE ℄ OF SYM.)
LDW280-23712-3 (ON-7)
MS20470A 3(2) (ON-1) (LOCATE FROM LDW280-23712-3)
MS20470A 3(2) (ON -1) (LOCATE FROM LDW280-23712-3)
H
H
H
H
A4
ZONE 20G)
(ZONE 20G)
LDW280-28509 (REF)
+Z27.000 (REF)
+Y81.000 (REF)
LDW280-28509 (REF)
LDW280-23712-1 (REF)
LDW280P17575-11 (REF)
LDW280P17463-41 (REF)
SECTION G-G (ZONE 15G)
NO SCALE

LDW280-28659 -7 INSTL (REF)
-9 INSTL (REF)
-11 ASSY (REF)
-13 ASSY (REF)
-15 ASSY (REF)
-17 ASSY (REF)

VIEW LOOKING UP

ODE IDENT NO 28512
DW280-28659
SH 6

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PRINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 88
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 x 96) = 24 SQ.FT.
1/2 SIZE SHEET AREA (% OF FULL) = 6 SQ.FT.
PRINT TRIM LINE

J
H
G
LDW280-28659 A
LDW280-28659 A
LDW280-28659 A

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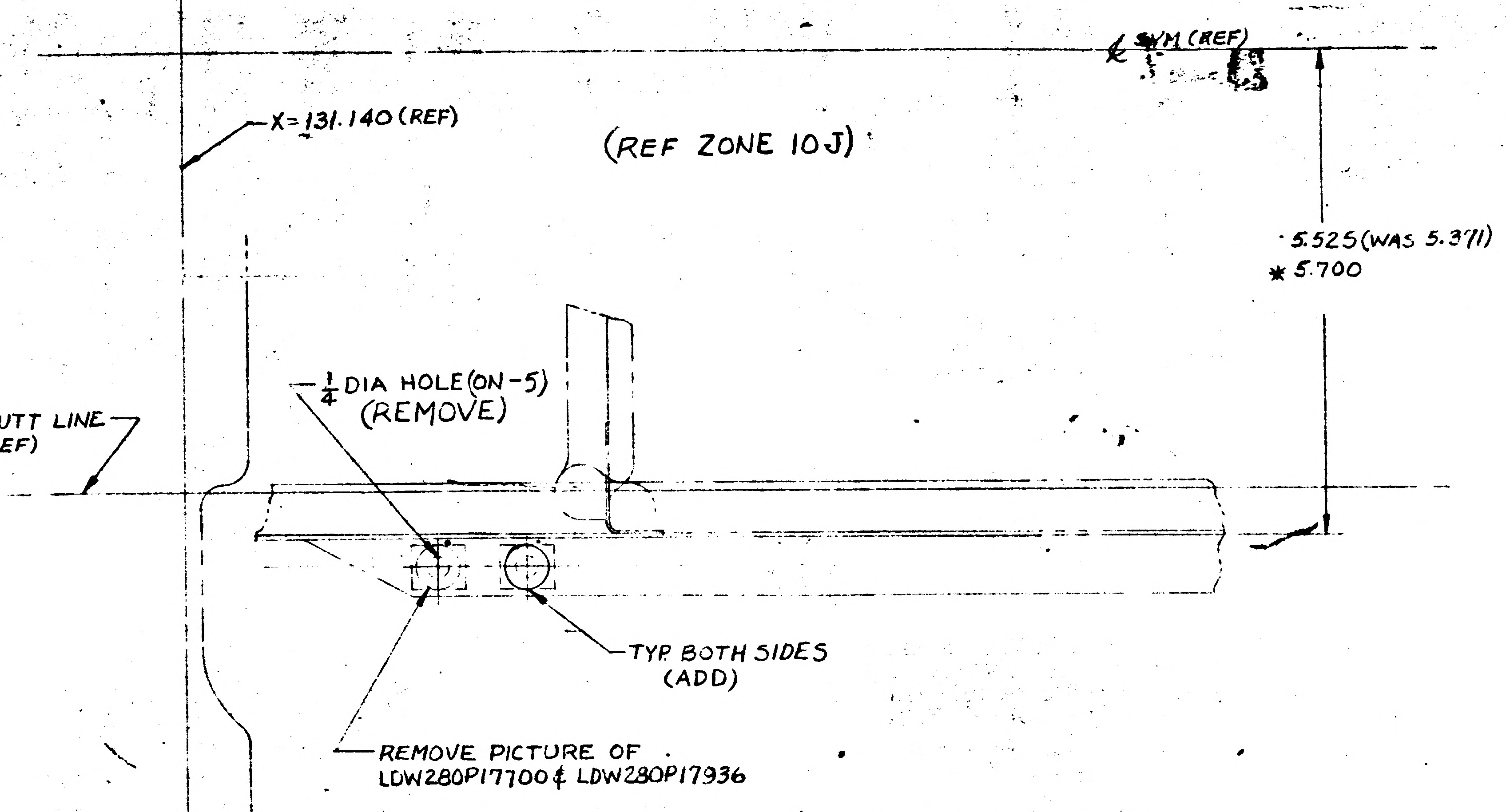
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LEM	SIZE J	CODE IDENT NO. 26512	LDW280-28659	A
MODEL OR END ITEM	SCALE FULL		SHEET 6.00	

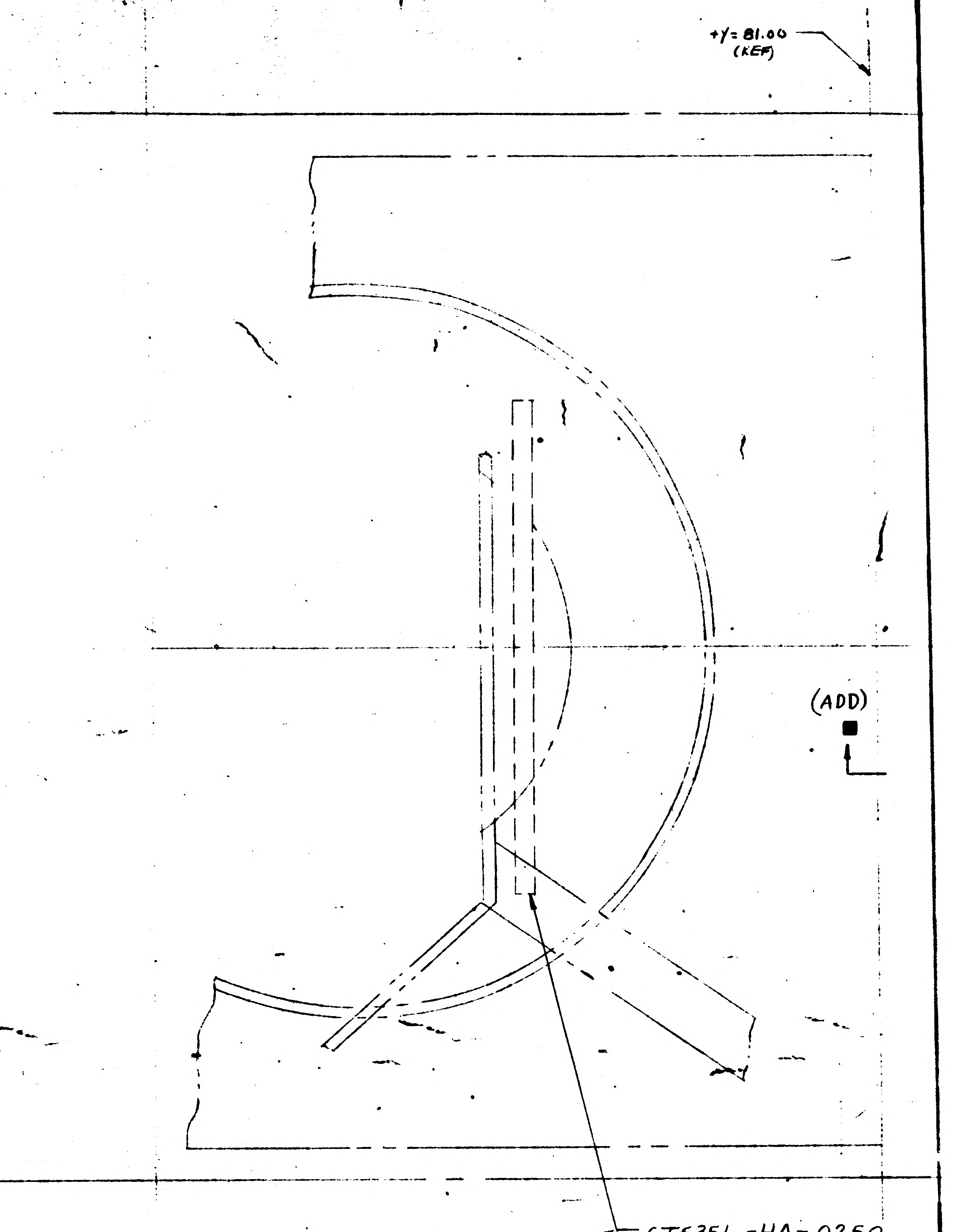
2

12 FOR PHOTO REPRODUCTION 2FR

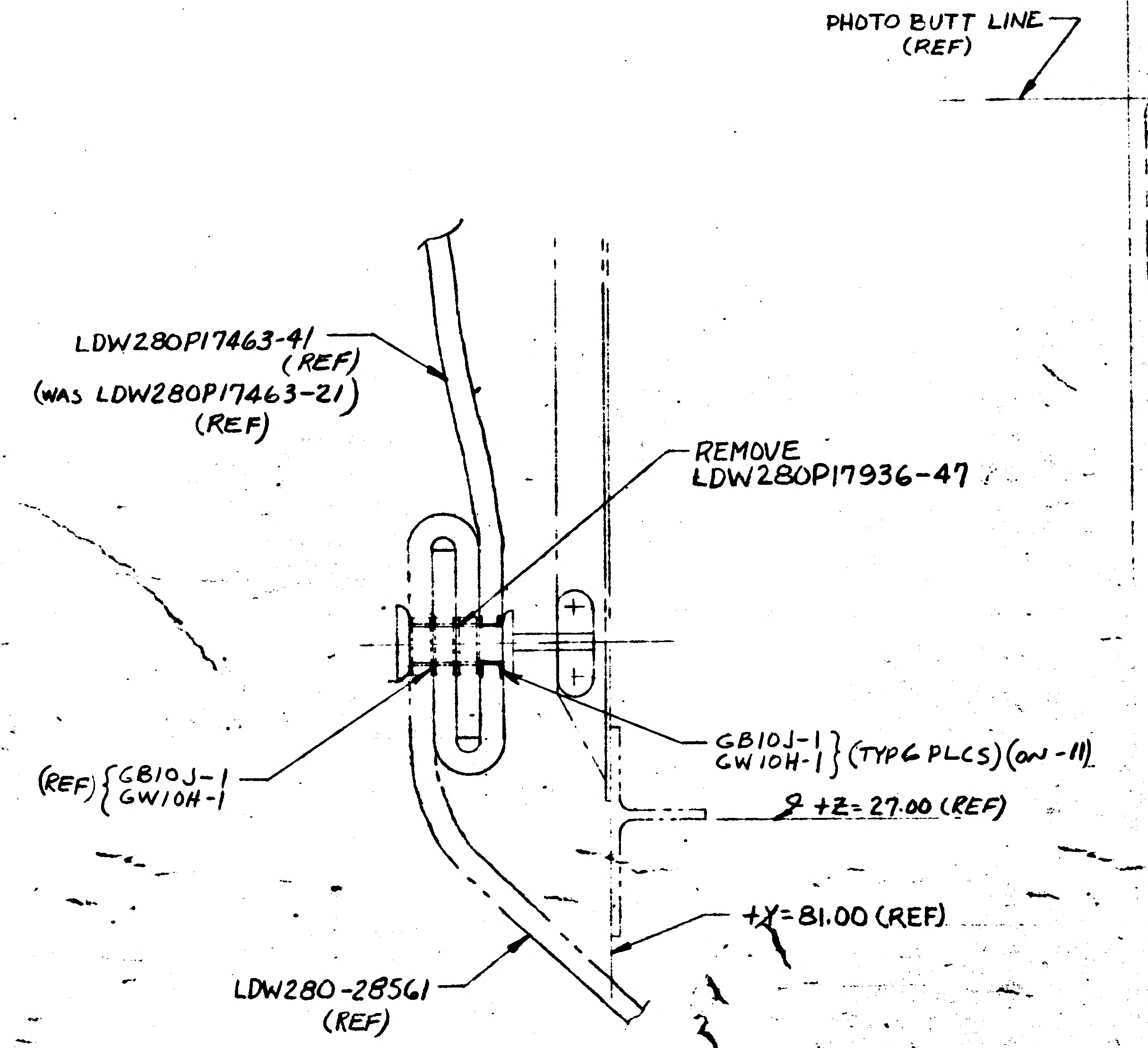
THIS IS AN ORIGINAL DRAWING


℄ SVM (REF)
X=131.140 (REF)
(REF ZONE 10J)
5.525 (WAS 5.371)
* 5.700
PHOTO BUTT LINE (REF)
1/4 DIA HOLE (ON -5) (REMOVE)
TYP BOTH SIDES (ADD)
REMOVE PICTURE OF LDW280P17700 & LDW280P17936

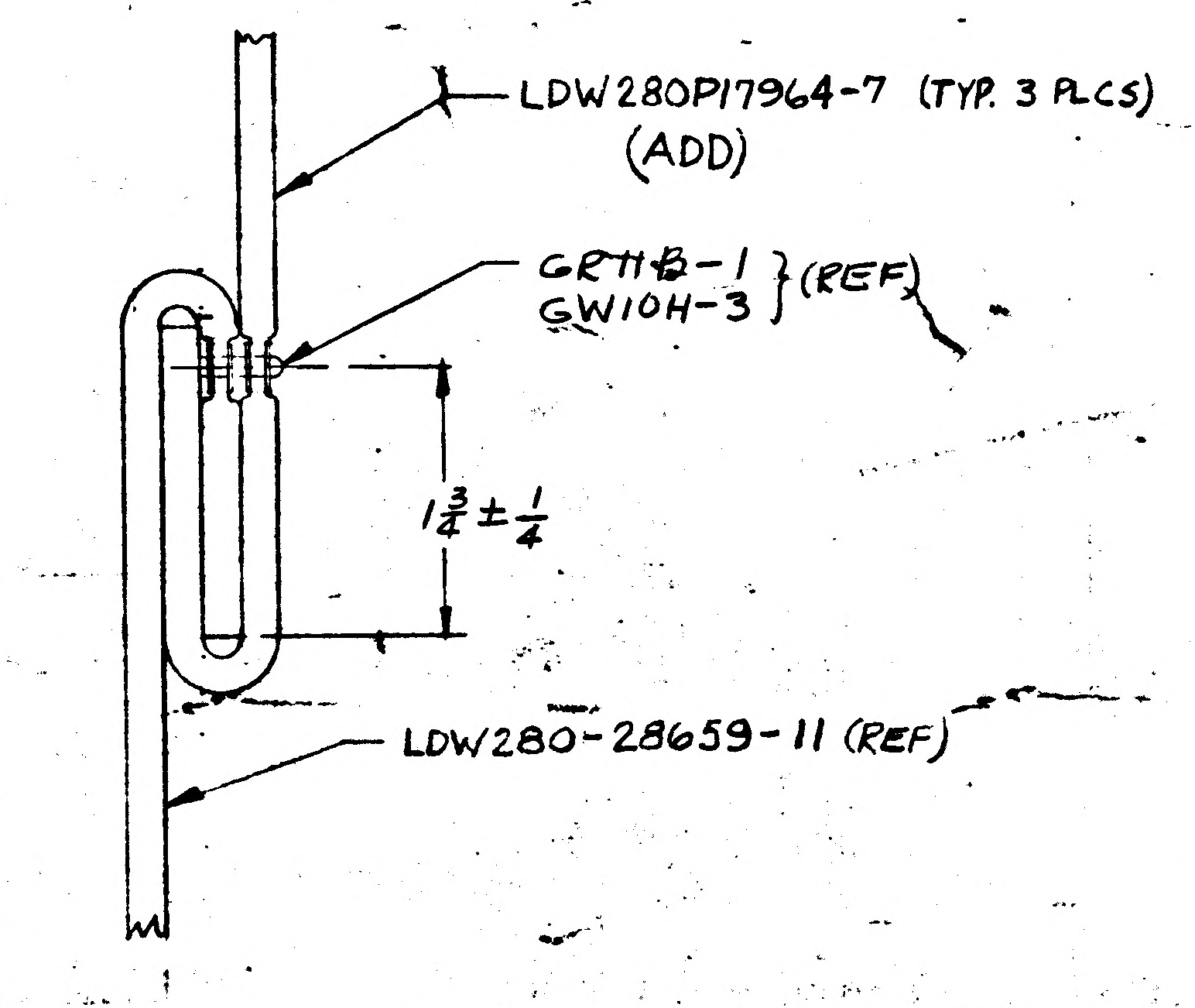
DETAIL X
(THIS E.O.)
FULL SIZE


+Y=81.00 (REF)
(ADD)
■
GT535L-HA-0250
(WAS LDW280P17936-29 (REF))
(CORRECTED CALLOUT)

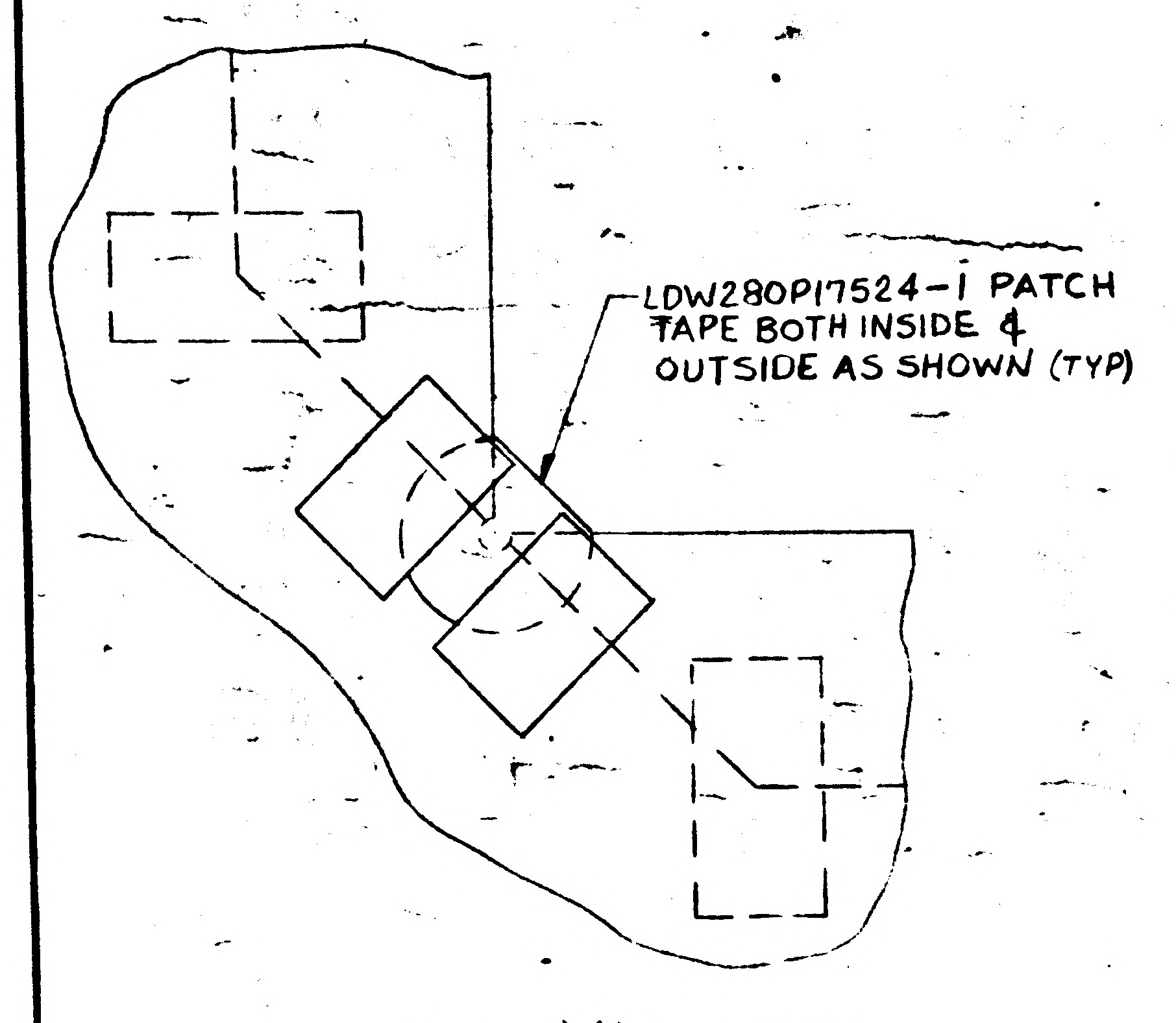
BOTTOM DECK
SHEET 6 (REF)


LDW280P17463-41 (REF)
(WAS LDW280P17463-21) (REF)
REMOVE LDW280P17936-47
(REF) {GB10J-1 GW10H-1
GB10J-1 GW10H-1 } (TYP 6 PLCS) (ON -11)
℄ +Z=27.00 (REF)
+Y=81.00 (REF)
LDW280-28561 (REF)

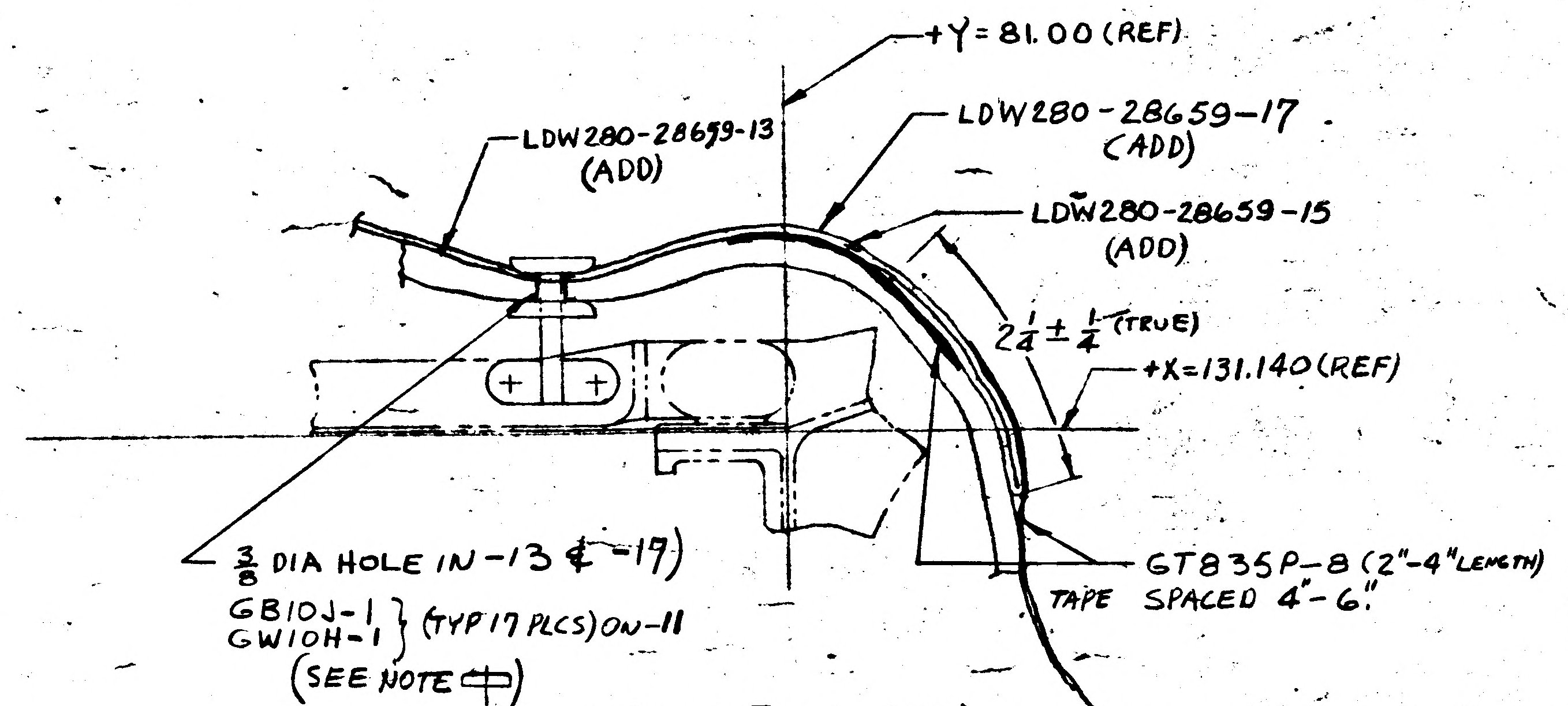
SECT E-E (REF)
(REVISE AS SHN)


LDW280P17964-7 (TYP. 3 PLCS) (ADD)
GR11B-1 GW10H-3 } (REF)
$1\frac{3}{4} \pm \frac{1}{4}$
LDW280-28659-11 (REF)

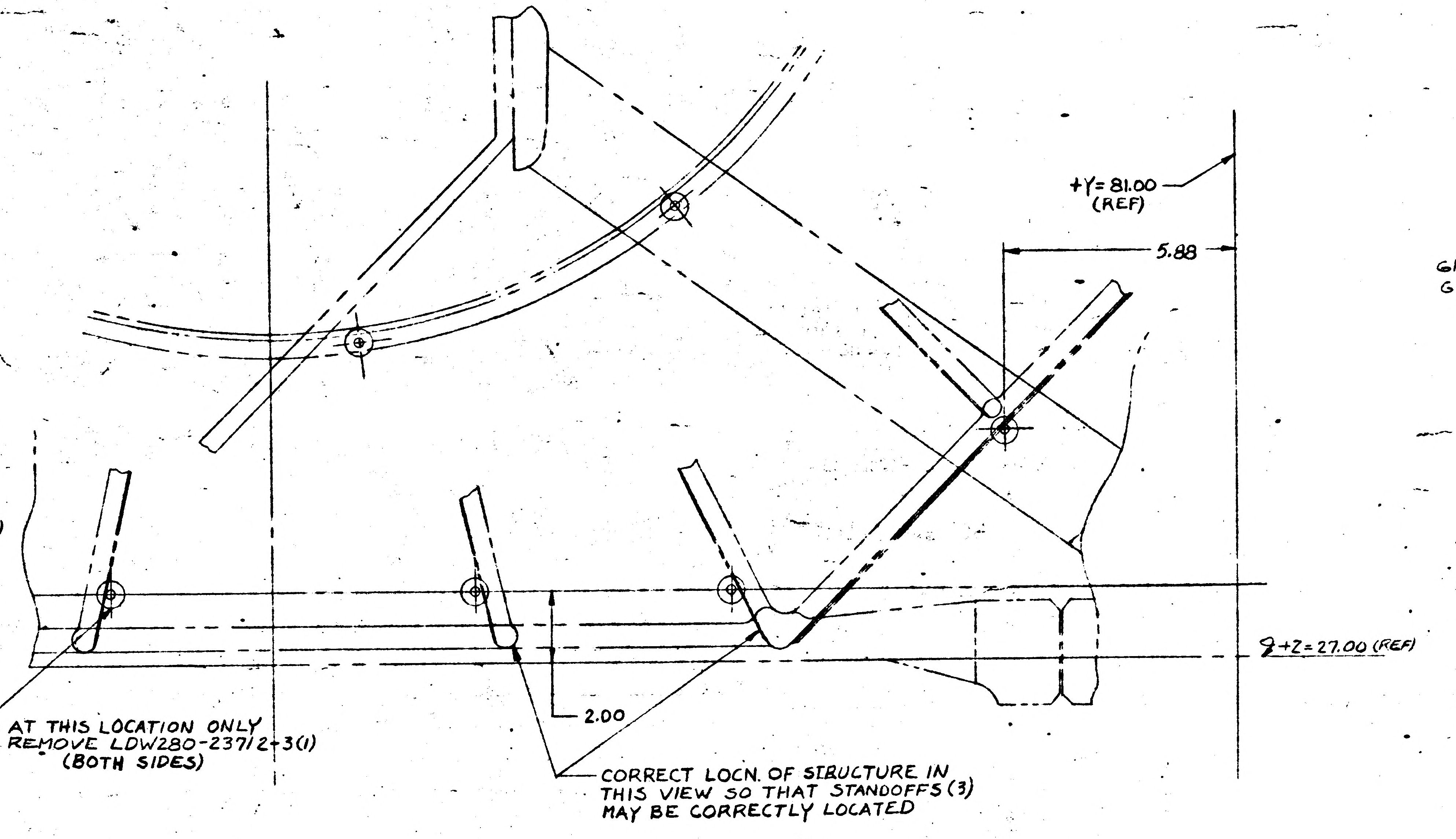
SECT. ▲-▲ (ADD)
FULL SIZE


LDW280P17524-1 PATCH TAPE BOTH INSIDE & OUTSIDE AS SHOWN (TYP)

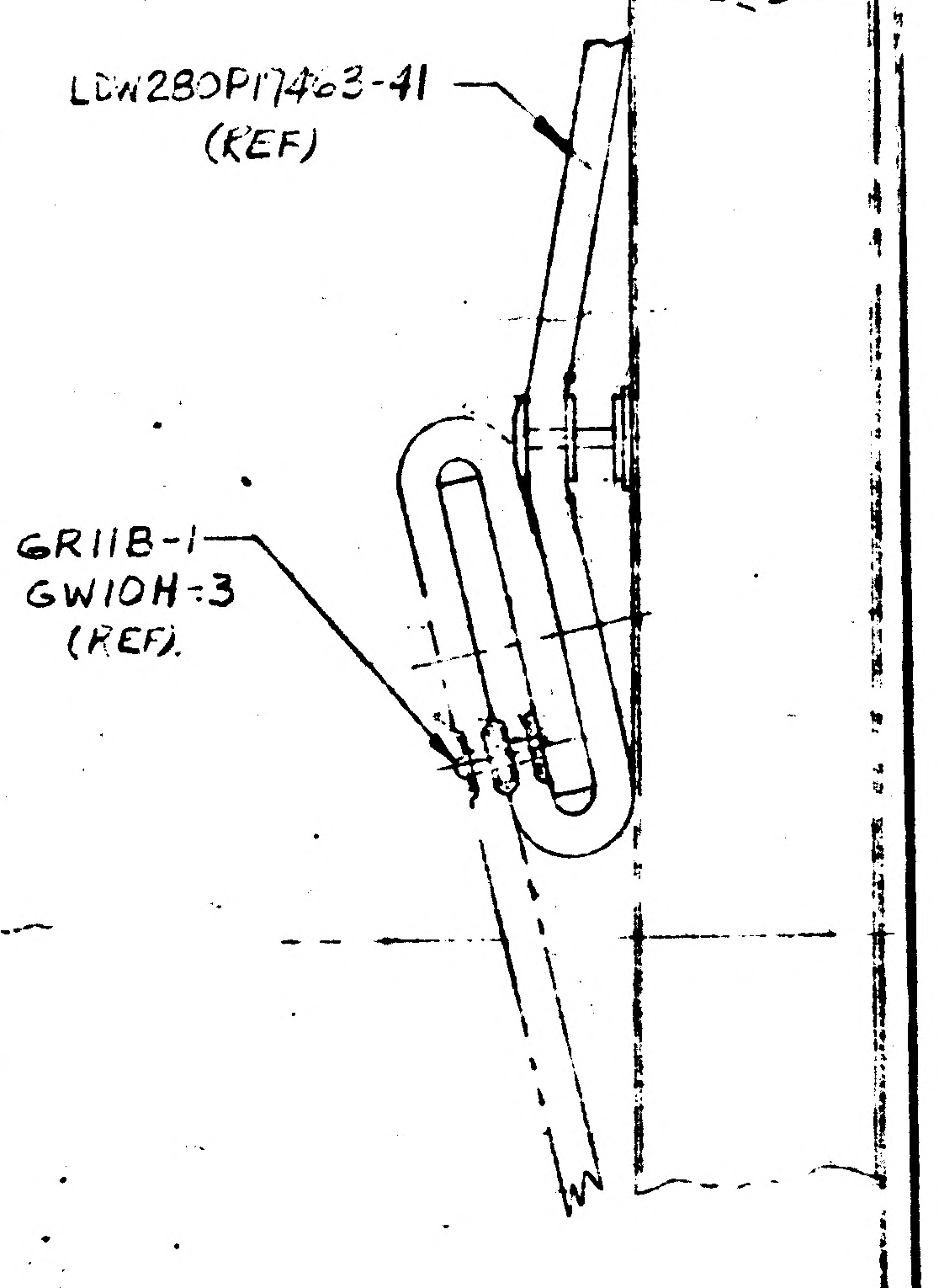
DETAIL Y (THIS E.O.)
(FULL SIZE)


+Y=81.00 (REF)
LDW280-28659-13 (ADD)
LDW280-28659-17 (ADD)
LDW280-28659-15 (ADD)
$2\frac{1}{4} \pm \frac{1}{4}$ (TRUE)
+X=131.140 (REF)
3/8 DIA HOLE IN -13 & -17)
GB10J-1 GW10H-1 } (TYP 17 PLCS) ON-11
(SEE NOTE ⊕)
GT835P-8 (2"-4" LENGTH) TAPE SPACED 4"-6"

SECT ■-■ (ADD)
(FULL SIZE)


+Y=81.00 (REF)
5.88
℄ +Z=27.00 (REF)
2.00
AT THIS LOCATION ONLY REMOVE LDW280-23712+3(1) (BOTH SIDES)
CORRECT LOCN. OF STRUCTURE IN THIS VIEW SO THAT STANDOFFS (3) MAY BE CORRECTLY LOCATED

VIEW LOOKING UP
(ZONE 17G) (REF)
(NO SCALE)
(REVISE AS SHN


LDW280P17463-41 (REF)
GR11B-1 GW10H-3 (REF)

SECT. ●-●
FULL SIZ

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+Y=81.00 (REF)
+X=131.14 (REF)
LDW280P17523-3 (18)(ON -11) (SEE NOTE 2)
LDW280P17700-17 (18)(ON -11)
(WAS) LDW280P17936-13 (18)(ON -7) (SEE NOTE 1)
(NOW) GT535G-LAS-0004 (9)(ON -7) (SEE NOTE #1 (CORRECTED CALLOUT)
WAS LDW280P17523-1 (12)(ON -5) (SEE NOTE 2)
LDW280P17700-7 (12)(ON -5) (ON -1) (SEE NOTE 2)
(INSTL PER LPC 280-14.
+X=196.00 (REF)
+Y=81.00 (REF)
-Z=27.00 (REF)
LDW280-23713-19 ON -7
(WAS LDW280P17700-7 ON -5)
LDW280P17575-11 ON -9
(WAS LDW280P17523-1 ON -5)
AN515-6R4 ON -9 (4 PLCS SHN)
3/8 DIA HOLE (4 PLCS ON -13 & -17)
MS20470A3 (4) (ON -7)
GB10J-1 (4)
GW10H-1 (4) (ON -11)
(SEE NOTE)
C (REF)
C
+Y=27.00 (REF)
REMOV
2 3/4 ± 1/4 (TYP)
A (REF)
A
B (REF)
B
3/8 DIA HOLE (TYP 5 PLCS ON -13 & -17)
(WAS 3/8 DIA HOLE TYP 4 PLCS ON -5) (SHT 4)
GB10J-1 GW10H-1 (TYP 5 PLCS) (SEE NOTE)
LDW280P17700-17 (ON -11)
LDW280P17523-3 (ON -11) TYP 8 PLCS (SEE NOTE 2)
(WAS) LDW280P17936-13 (ON -7) TYP 8 PLCS
(NOW) GT535G-LAS-0004 (ON -7) TYP 8 PLCS (CORRECTED CALLOUT)
WAS LDW280P17700-7 (ON -5)
LDW280P17523-1 (ON -5) TYP 10 PLCS (SEE NOTE 2)
(ON -1) TYP 10 PLCS
±Z=0.00 (REF)
℄ SYMM
LDW280P17463-59 (ON -17) NEAR SIDE WITH ALUMINIZED SURFACE INB'D
GR11B-1 GW10H-3 (24 EA ON) PER LPC 280-3
GT15C-1 TAPE (TYP SPACING SHN)
(ADD)
DETAIL X (THIS E.O.)
5/32 DIA. HOLE ON -13 & -17 (WAS 1/4 DIA HOLE (ON -5) OPP SIDE ℄ SYM. ONLY) (SEE NOTE)
5/32 DIA HOLE THIS SIDE ℄ SYM ONLY (ON -13 & -17) (WAS 1/4 DIA HOLE THIS SIDE ℄ SYM. ONLY (ON -5) (SEE NOTE)
E
E (REF)
+Z=27.00 (REF)
GT535L-HA-0250 (WAS LDW280P17936-29 (REF)) (CORRECTED CALLOUT)
BOTTOM DECK SHEET 6 (REF)
LDW280-23713-19 ON -9
(WAS LDW280P17700-7 ON -5)
LDW280P17575-11 ON -9
(WAS LDW280P17523-1 ON -5)
AN515-6R4 ON -9 (6 PLCS AS SHN)
3/8 DIA HOLE (6 PLCS ON -13 & -17)
MS20470A3 (ON -7)
GB10J-1 GW10H-1 6 PLCS (ON -11)
(SEE NOTE)
5/32 DIA HOLE (TYP 18 PLCS ON -13 & -17) (WAS 1/4 DIA HOLE) (SEE NOTE)
END BLKH'D SHEET 5 (REF)
REMOVE LDW280-23712-1 LDW280P17575-11 MS20470A3 AN515-6R4 (4 PLCS)
DETAIL Y (THIS E.O.)
5/32 DIA HOLE (TYP 13 PLCS ON -13 & -17) (WAS 1/4 DIA HOLE (SHT 4) (SEE NOTE)
(ADD)
UPPER DECK SHTS 3 & 4 (REF)
LDW280P17523-3 (ON -11) TYP 5 PLCS (SEE NOTE 2)
LDW280P17700-17 (ON -11) TYP 5 PLCS
(WAS) LDW280P17936-13 (ON -7) TYP 5 PLCS (SEE NOTE 1)
(NOW) GT535G-LAS-0004 ON -7 TYP 5 PLCS (SEE NOTE)
WAS LDW280P17523-1 (ON TYP 10 PLCS (SEE
LDW280P17700-7 (TYP 10 PLCS (ON -1) TYP 10 PLCS
(INSTL PER LPC 280-4
LDW280-28659-11 ASSY (SAME AS -5 EXCEPT AS SHN)
LDW280-28659-9 INSTL (SAME AS -3 EXCEPT AS SHN)
LDW280-28659-7 INSTL (SAME AS -1 EXCEPT AS SHN)
LDW280P17463-41 (REF)
GR11B-1 GW10H-3 (REF)
5.88
+Z=27.0 (REF)
+Z=27.00 (REF)
SECT. ●-● (ADD) FULL SIZE
LDW280-28666 (REF)
GR11B-1 GW10H-3 (REF)
LDW280P17463-41 (REF)
-Z=27.0 (REF)
LDW280P17700-17 GT535G-LAS-0004 (CORRECTED CALLOUT) (REF)
LDW280P17523-3 (REF)
LDW280P17700-17 (REF)
SECT. C-C (ZONE 5C) (REF) FULL SIZE (REVISE AS SHN)
GB10J-1 GW10H-1 (REF)
GR11B-1 GW10H-3 (REF)
+Y=27.00 (REF)
LDW280P17463-41 (REF)
LDW280-28560 (REF)
+X=196.00 (REF)
GB10J-1 (1) ON -11 GW10H-1 (1) ON -11
SECT. B-B (ZONE A) (REF) FULL SIZE (REVISE AS SHN)
GB10J-1 GW10H-1 (REF)
2 3/4 ± 1/4 (REF)
+Y=27.00 (REF)
LDW280P17463-41 (REF)
LDW280-28560 (REF)
LDW280-28659-11 (ADD)
+X=196.00 (REF)
GB10J-1 GW10H-1 (TYP 4 PLCS) ON -11
SECT. A-A (ZONE 9A) (REF) FULL SIZE (REVISE AS SHN)

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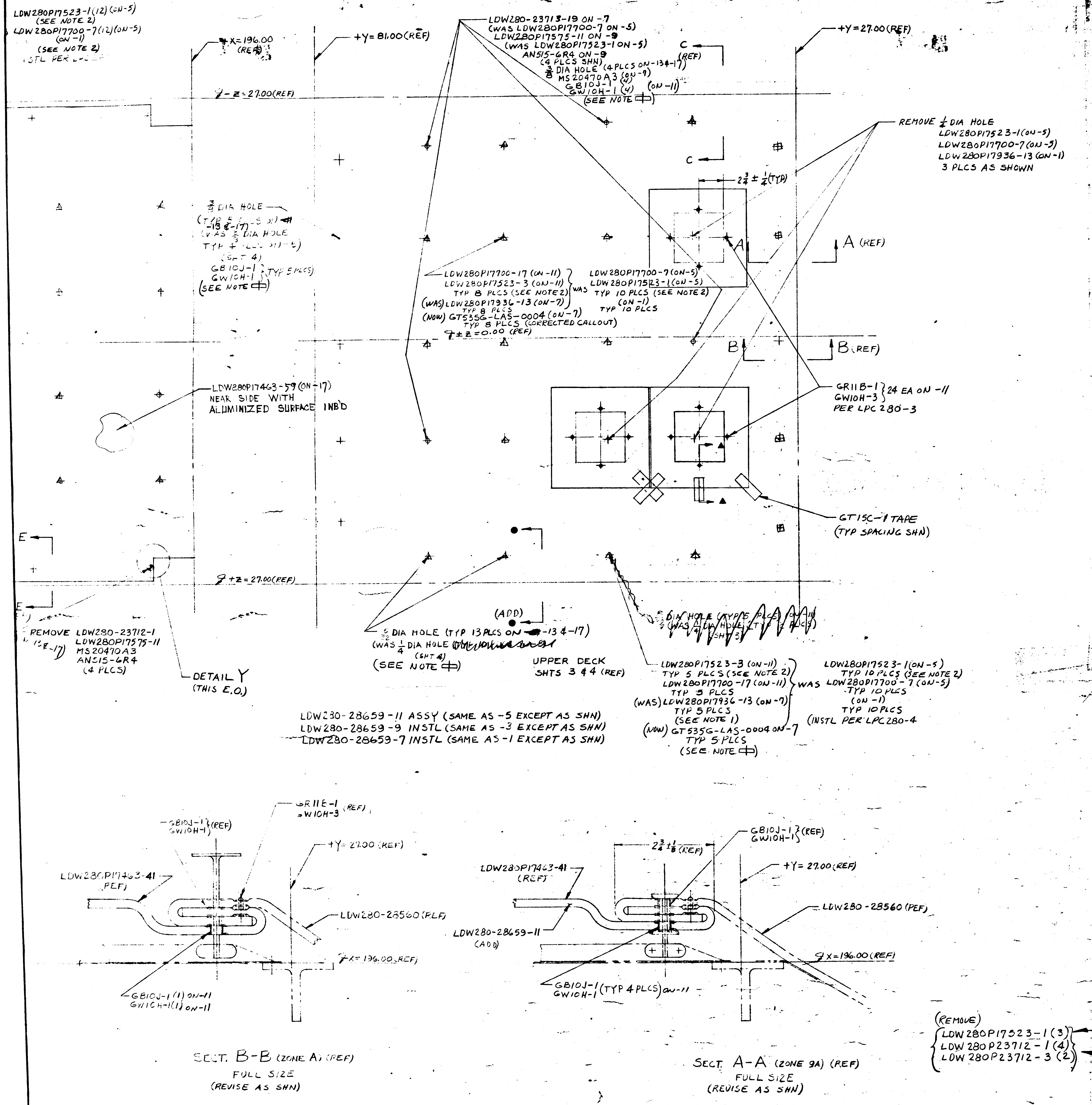

LDW280P17523-1(12)(ON-5)
(SEE NOTE 2)
LDW280P17700-7(12)(ON-5)
(ON-1)
(SEE NOTE 2)
INSTL PER LPC
X=196.00
(REF)
+Y=81.00(REF)
LDW280-23713-19 ON -7
(WAS LDW280P17700-7 ON -5)
LDW280P17575-11 ON -9
(WAS LDW280P17523-1 ON -5)
AN515-6R4 ON -9
(4 PLCS SHN)
3/8 DIA HOLE (4 PLCS ON -13 & -17)
MS20470A3 (ON -9)
GB10J-1 (4)
GW10H-1 (4) (ON -11)
(SEE NOTE ⌱)
C
(REF)
C
+Y=27.00(REF)
- Z=27.00(REF)
REMOVE 1/4 DIA HOLE
LDW280P17523-1(ON-5)
LDW280P17700-7(ON-5)
LDW280P17936-13(ON-1)
3 PLCS AS SHOWN
2 3/4 ± 1/4 (TYP)
3/8 DIA HOLE
(TYP 5 PLCS ON -13 & -17)
(WAS 3/8 DIA HOLE
TYP 4 PLCS ON -5)
(SHT 4)
GB10J-1
GW10H-1
TYP 5 PLCS
(SEE NOTE ⌱)
A
A (REF)
LDW280P17700-17 (ON -11)
LDW280P17523-3 (ON-11)
TYP 8 PLCS (SEE NOTE 2)
(WAS) LDW280P17936-13 (ON-7)
TYP 8 PLCS
(NOW) GT535G-LAS-0004 (ON-7)
TYP 8 PLCS (CORRECTED CALLOUT)
WAS
LDW280P17700-7(ON-5)
LDW280P17523-1(ON-5)
TYP 10 PLCS (SEE NOTE 2)
(ON -1)
TYP 10 PLCS
± Z=0.00 (REF)
B
B (REF)
LDW280P17463-59 (ON-17)
NEAR SIDE WITH
ALUMINIZED SURFACE INB'D
GR11B-1
GW10H-3
24 EA ON -11
PER LPC 280-3
GT15C-1 TAPE
(TYP SPACING SHN)
E
E
+Z=27.00(REF)
REMOVE LDW280-23712-1
LDW280P17575-11
MS20470A3
AN515-6R4
(4 PLCS)
13 & -17)
DETAIL Y
(THIS E.O.)
5/32 DIA HOLE (TYP 13 PLCS ON -13 & -17)
(WAS 1/4 DIA HOLE
(SHT 4)
(SEE NOTE ⌱)
(ADD)
UPPER DECK
SHTS 3 & 4 (REF)
5/32 DIA HOLE (TYP 5 PLCS) (ON -11)
(WAS 1/4 DIA HOLE (TYP 12 PLCS)
(SHT 3)
LDW280P17523-3 (ON-11)
TYP 5 PLCS (SEE NOTE 2)
LDW280P17700-17 (ON-11)
TYP 5 PLCS
(WAS) LDW280P17936-13 (ON-7)
TYP 5 PLCS
(SEE NOTE 1)
(NOW) GT535G-LAS-0004 ON-7
TYP 5 PLCS
(SEE NOTE ⌱)
WAS
LDW280P17523-1(ON-5)
TYP 10 PLCS (SEE NOTE 2)
LDW280P17700-7 (ON-5)
TYP 10 PLCS
(ON -1)
TYP 10 PLCS
(INSTL PER LPC280-4
LDW280-28659-11 ASSY (SAME AS -5 EXCEPT AS SHN)
LDW280-28659-9 INSTL (SAME AS -3 EXCEPT AS SHN)
LDW280-28659-7 INSTL (SAME AS -1 EXCEPT AS SHN)
GR11E-1
GW10H-3 (REF)
GB10J-1 (REF)
GW10H-1
+Y=27.00 (REF)
LDW280P17463-41
(REF)
LDW280-28560 (REF)
X=196.00 (REF)
GB10J-1 (1) ON-11
GW10H-1 (1) ON-11
SECT. B-B (ZONE A) (REF)
FULL SIZE
(REVISE AS SHN)
2 3/4 ± 1/4 (REF)
GB10J-1 (REF)
GW10H-1 (REF)
+Y=27.00 (REF)
LDW280P17463-41
(REF)
LDW280-28659-11
(ADD)
LDW280-28560 (REF)
X=196.00 (REF)
GB10J-1
GW10H-1 (TYP 4 PLCS) ON-11
SECT. A-A (ZONE 9A) (REF)
FULL SIZE
(REVISE AS SHN)
(REMOVE)
LDW280P17523-1 (3)
LDW280P23712-1 (4)
LDW280P23712-3 (2)

QTY PER ASSEMBLY	CODE IDENT	PART NO.		NOMENCLATURE OR DESCRIPTION	MATERIAL
33		GW10H-1	E	WASHER	STD PART
33		GB10J-1	E	BUSHING	STD PART
		~~GB10J~~		~~BUSHING~~	
		~~GW10H-1~~		~~WASHER~~	
		~~[illegible]~~		~~RETAINER~~	
✓		~~MS20470AD3~~		~~RIVET~~	STD PART
✓		MS20470A3		RIVET	
24		GR11B-1		RETAINER	
✓		GS577A-1		STAPLES	
24		GW10H-3		WASHER	
		AN515-6R4		SCREW	STD PART
2		GT535L-HA-0250		TAPE	STD PART
X		~~LDW280P17936-29~~		~~TAPE~~	SEE DWG
		~~[illegible]~~		~~TAPE~~	
		~~[illegible]~~		~~STANDOFF ASSY~~	
42		LDW280P17575-11		RETAINER	
35		LDW280P17700-17		STANDOFF ASSY	
35		LDW280P17523-3		CAP	
✓		LDW280P17524-1		PATCH	
31		GT535G-LAS-0004		TAPE	
1		LDW280M176-2-1		FITTING	
1		LDW280M17659-1		FITTING	
		~~[illegible]~~		STANDOFF ASSY	
10		LDW280-23713-19			
12		LDW280-23712-3			
12		LDW280-23712-1	E	STANDOFF ASSY	SEE DWG

-17	-15	-13	-11	-9	-7	CODE IDENT	PART NO.		NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH SYM	ZONE
				✓			GT15C-1		TAPE	STD PART						
				✓			GT835P-8		TAPE	STD PART						
1							LDW280P17463-59	E	SKIN	SEE DWG						
	1						LDW280P17463-53	E	BLANKET ASSY	SEE DWG						
		1					LDW280P17463-41		BLANKET ASSY	SEE DWG						
				3			LDW280P17964-7		COVER	SEE DWG						
			1				LDW280-28659-17		SKIN (ASSY)							
			1				LDW280-28659-15		BLANKET ASSY							
			1				-13		BLANKET ASSY							
				1			-11		BLANKET ASSY							
							-9		BLANKET INSTL							
							LDW280-28659-7	E	STANDOFF INSTL							

REVISE B/M AS SHOWN ABOVE.

EFFECTIVITY SHOULD READ AS BELOW:

PART NO	NEXT ASSY	NO REQD/ASSY
LDW280-28659-7	LDW280-28559	1
LDW280-28659-9	LDW280-28553	1

IN F/D

(A) REVISE NOTE #2 TO READ AS FOLLOWS: BOND LDW280P17523-3 TO LDW280P17700-17 PER LPC 280-14.

(B) FROM NOTE #3 REMOVE LDW280P17936-47 (2 PLCS) & (REPLACE LDW280P17936-29 WITH GT535L-HA-0250)

~~REMOVE NOTE #4.~~ IN NOTE #1 REPLACE LDW280P17936-13 WITH GT535G-LAS-0004.

(C) ADD NOTE [redacted] ⌱ **

ALL ALUMINIZED MYLAR PARTS SHALL BE MADE WITH EXPANDED DIMS. THE EXPANSION RATIO IS TO BE .050 IN/IN.

e.g. 10.000 SHN EXPANDS TO 10.500

ALL ALUMINIZED POLYIMIDE PARTS SHALL BE MADE WITH EXPANDED DIMS. THE EXPANSION RATIO IS TO BE .070 IN/IN.

e.g. 10.000 SHN EXPANDS TO 10.700.

(D) IN F/L & B/M:

REMOVE -1 INSTL, -3 INSTL, & -5 ASSY & REPLACE WITH -7, -9, & -11 RESPECT.

REMOVE LDW280P17463-21 & REPLACE WITH LDW280P17463-41.

REMOVE LDW280P17700-7 & REPLACE WITH LDW280P17700-17

REMOVE LDW280P17523-1 & REPLACE WITH LDW280P17523-3.

ADD -13 & -15 BLKT ASSYS & -17 (ASSY)

REMOVE LDW280P17936-47

ADD LDW280P17463-53, LDW280P17524-1, LDW280P17964-7.

REPLACE LDW280P17936-13 WITH GT535G-LAS-0004 (CORRECTED CALLOUT)

(E) IN F/D ADD: SECT. ●-●, ▲-▲, ■-■. *

ADD TAPE TO -11 ASSY AS SHOWN

CORRECT LOCN OF ZEE MEMBER (DET. X) ON END BLKT

REVISE LOCNS OF BLKT SEAMS & CORRECT PICTURES OF SEAMS. REPLACE 1/4 DIA HOLES WITH 5/32 DIA HOLE

REMOVE STANDOFFS & ATTACH [illegible] WHERE NOTED

ADD GW10H-1 & GB10J-1 REPLACE 1/4 HOLES WITH 3/8 AS SHN.

DIMS SHN. ARE LOFTED DIMS. & ARE NOT TO BE ADDED TO DWG.

* USE NEXT AVAILABLE SECT. LETTER.

** USE NEXT AVAILABLE NOTE NUMBER.

IN NOTE #3 GT535L-HA-0250 WAS LDW280P17936-29

ADDED GT15C-1, GT835P-8. NOTE #2 WAS "BOND LDW280P17523-1 TO LDW280P17700-7 AS SHN WITH [illegible] PER LSP14-2 [illegible]"

GT535G-LAS-0004 WAS LDW280P17936-13 IN NOTE #1.

5/32 DIA HOLES WERE 1/4 DIA HOLES. ADDED GW10H-1 & GB10J-1.

REMOVED STANDOFFS AS NOTED

DESCRIPTION OF EO: IN F/L ADDED SECT. ●-● ▲-▲ ■-■ -17,

IN F/D & B/M ADDED: -7, -9, -11, -13, -15, LDW280P17463-41, LDW280-23713-19, LDW280P17523-3, LDW280P17463-53, LDW280P17524-1, & LDW280P17964-7.

IN F/D: ADDED NOTE ⌱, SHOWED REVISED LOCNS OF SEAMS & SEAM DETAILS.

IN F/D & B/M REMOVED: -1, -3, -5, LDW280P17463-21, LDW280P17700-7, LDW280P17523-1, & LDW280P17936-47. IN F/D REMOVED NOTE #4, DELETED LDW280P17936-47 FROM NOTE #3

DETAIL SPEC REQD		CLASS II ENGRG CHG	✓	CLASS I ENGRG CHG	

CONTROL INFO NO. LDW280A0163

GRUMMAN EO RELEASE: LE 11/19/

REASON FOR EO: ADDITIONAL THERMAL SHIELDING REQUIREMENTS

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	BY	THERMS SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR
✓		✓		5	VDI	A.					RMS

PRIORITY: C

DRAWING TITLE: BLANKET INSTALLATION DESCENT STAGE- +Y THERMAL SHIELD

ENGINEERING ORDER

DRAWING NO. LDW280-28659

ISSUED BY J. Evan / STRAKOSCH SECTION VDI GROUP NO. 335 PL 35

CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 32 3 REV 3-66 X1441

THIS IS AN ORIGINAL E.O.

03/03

NAS 9-1100

ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28659	EO NO. A2
CONTROL INFO NO. LDW280-9773	

IN F/D & B/M REMOVE LDW280P17463-21 & REPLACE WITH LDW280P17463-27

QTY PER ASSY	PART NO	I&T	NOMENCLATURE
1 (FOR-5)	LDW280P17463-27	E	BLANKET ASSY

5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
NEW THERMAL SHIELDING REQMTS	ON-5 IN F/D & B/M REMOVED LDW280P17463-21 & ADDED LDW280P17463-27	8.31

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA 8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP

APPROVED BY								
DATE		9-15			8/27/66		8-30-66	8-29-66
	VD1	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTL-DESCENT STAGE RH THERMAL	LDW280-28659	A2

ISSUED BY L.M. GRIECO/J. STRAKOSCH SECTION V D 1 GROUP NO. 335 PL 35

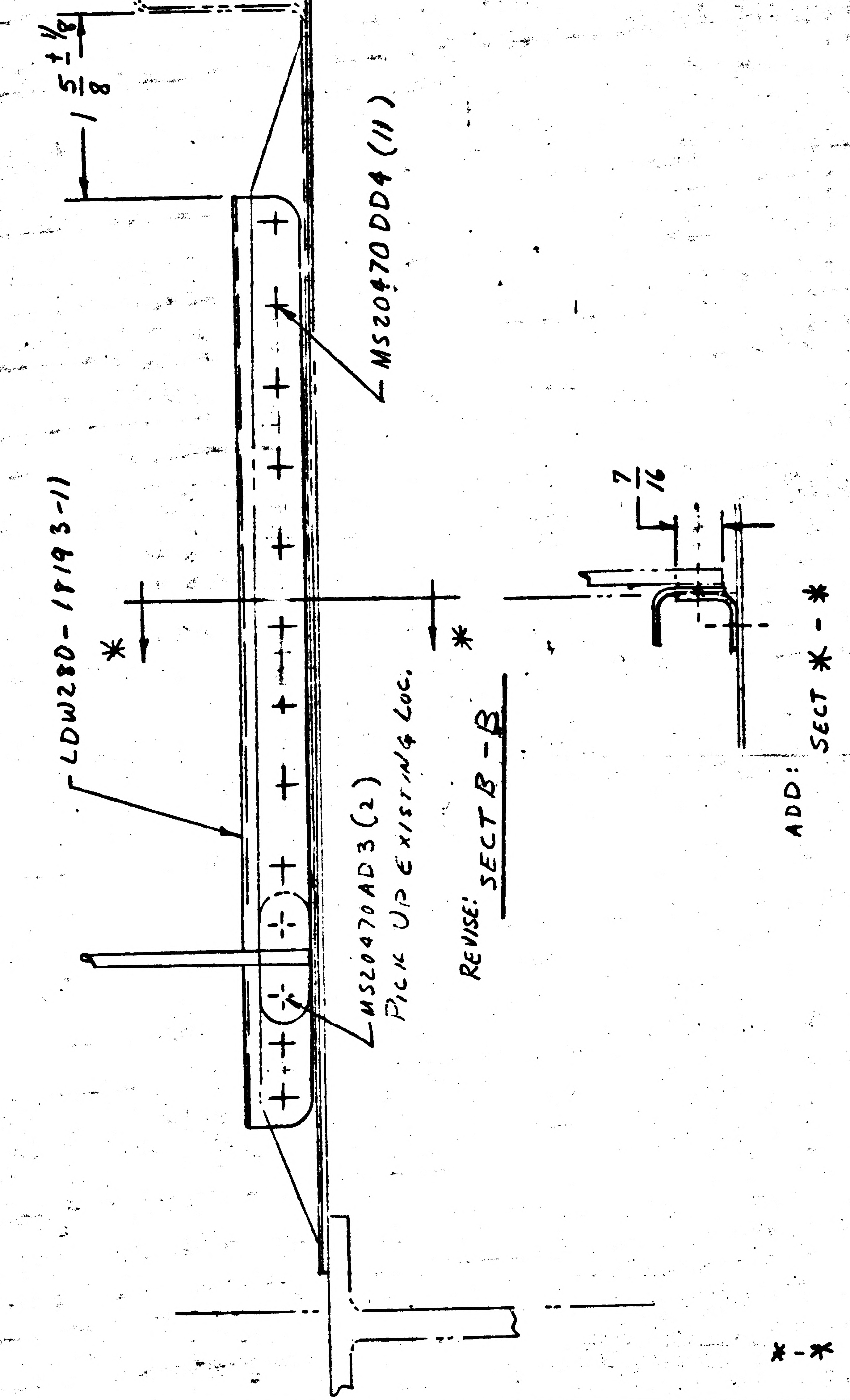
01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280 28659		EO NO. A3	
CONTROL INFO NO. LM 5-11070			

ON -7 INSTL
ADD LDW280-18193-11
AS SHN:


1 5/8 ± 1/8
MS20470DD4 (11)
LDW280-18193-11
MS20470AD3 (2)
PICK UP EXISTING LOC.
REVISE: SECT B-B
7/16
ADD: SECT * - *
*

- USE NEXT AVAILABLE LETTER

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDITIONAL SUPT REQD FOR COLD PLATE	ON -7/INSTL: ADDED LDW280-18193-11 ADDED SECT *-*	R C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	

DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY		SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
REVISE DWG ✓	REWORK ✓	DATE	11/1/66				M.S. NM 11/1/66	DV 11/1	RMC 11-21-66	11-12-66
RECORD EO	SCRAP	5	11/1/66							

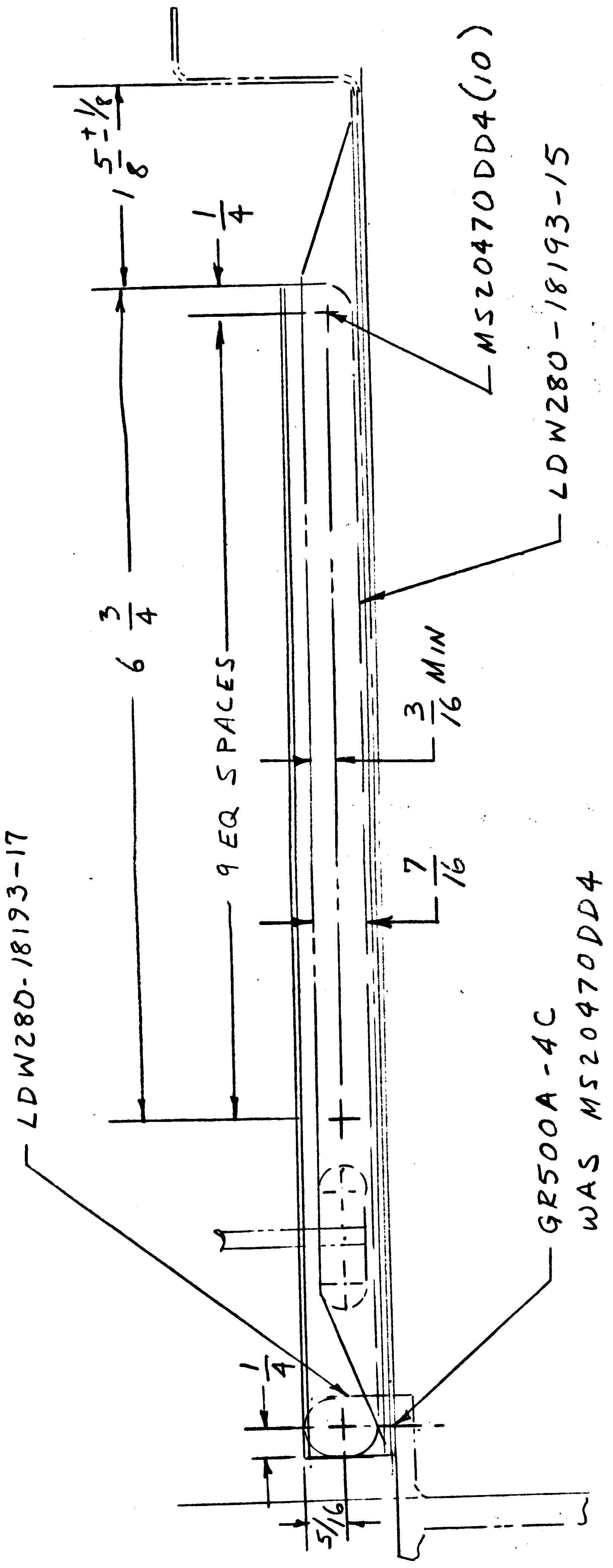
PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTL D/S - THERMAL	LDW280-28659	A3

ISSUED BY D. RAGAS X6454 SECTION VD1 GROUP NO. 335 PL 5

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 28659
EO NO. A6
CONTROL INFO NO. LM 5-11224



MS20470DD4(10)
LDW280-18193-15
$1\frac{5}{8}\pm\frac{1}{16}$
$\frac{1}{4}$
$6\frac{3}{4}$
9 EQ SPACES
$\frac{3}{16}$ MIN
$\frac{7}{16}$
LDW280-18193-17
GR500A-4C
WAS MS20470DD4
$\frac{1}{4}$
$\frac{5}{16}$

REVISE SECT B-B

CANCELL EO A3
ON -7 INSTL ADD LDW280-18193-15 & -17

5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: TO FACILITATE INSTL WITH SUPPORT STRUCT FOR COLD PLATE

DESCRIPTION OF EO: CANCELLED EO A3 ON -7 INSTL ADDED LDW280-18193-15 & -17 & MS20470DD4(10) & GR500A-4C WAS MS20470DD4

GAEC EO RELEASE: VE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	WT			—	RH	CH	RMc	JFP
DATE	11/28/66			—	11-28-66	11-28-66	11-30-66	11/29/66
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTL D/S LH THERMAL	LDW280-28659	A6

ISSUED BY Ramos SECTION VDI GROUP NO. 335 PL 5

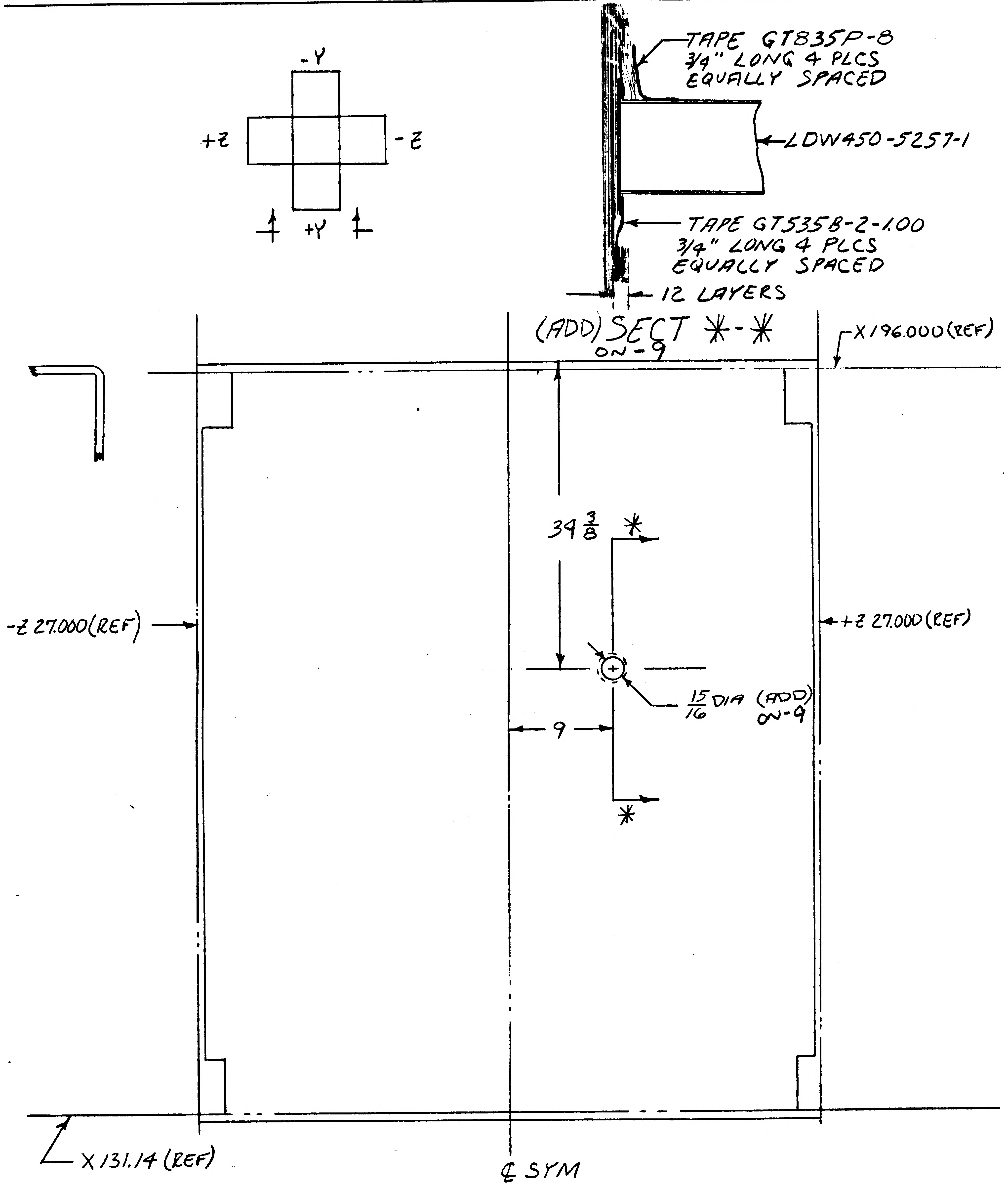
01 NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28659		EO NO. A7	
CONTROL INFO NO. LDW280A-3518			


-Y
+Z
-Z
+Y
TAPE GT835P-8 3/4" LONG 4 PLCS EQUALLY SPACED
LDW450-5257-1
TAPE GT5358-2-1.00 3/4" LONG 4 PLCS EQUALLY SPACED
12 LAYERS
(ADD) SECT ✱-✱ ON-9
X196.000 (REF)
-Z 27.000 (REF)
+Z 27.000 (REF)
34 3/8
9
15/16 DIA (ADD) ON-9
X131.14 (REF)
℄ SYM

✱-USE NEXT AVAILABLE SECTION LETTER

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
INST'L OF ION DETECTOR	ADDED: SECT ✱-✱, 15/16 DIA, LDW450-5257-1 GT835P-8 & GT5358-2-1.00 TAPE ON-9	LE 12/3

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTAB (18)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP			SUPPORT ENGRG	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
✓		✓		APPROVED BY	JAP	AB		JRB	WJH		RM	
				DATE	11/19/66	11/30/66		11/19/66	12/1/66		12-3-66	12-3-66
				5	VD							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLANKET INST'L D/S +Y THERMAL SHIELD	LDW280-28659	A7

ISSUED BY AMBROSIO / STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28659
EO NO. A8
CONTROL INFO NO. LDW280A-4307

ON-11 REMOVE LDW280P17524-1

ON-9 LDW280P17969-1 WAS LDW280P17969-7 ; 3 PLCS

THERMAL SHLD

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO MAKE DWG AGREE WITH TEMPLATE

DESCRIPTION OF EO: ON-11 REMOVED LDW280P17524-1
ON-9 LDW280P17964-1 WAS LDW2[illegible]17964-7 (3 PLCS)

GAEC EO RELEASE: ① FR 12/13/6

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT	REQ'D	DATE	12/13/66	12/13		12/12/66	12/13/66		12/13	12/13/66
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLANKET INST'L D/S +Y THERMAL SHIELD	LDW280-28659	A8

ISSUED BY T. AMBROSIO / STRAKOSCH 1153 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

GMG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280 28659
EO NO. A9
CONTROL INFO NO. LM5-11541

FOR -7 INSTL

ADDED LDW280-23713-19-1(10) WHICH REPLACE -19 ASSY(10)

RELEASED BY LIAISON

(SHOP NOTE ONLY)
"ALL EXTRANEOUS HOLES TO BE PLUGED WITH MS20470AD" "
5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO SUPT HEATER SKINS

DESCRIPTION OF EO: IN F/D & BM ON -7
ADDED LDW280-23713-19-1(10) WAS -19(10)

GAEC EO RELEASE: ⑩ E

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO
DISPOSITION OF PARTS: REWORK ✓ / SCRAP

APPROVED BY	WT			~	CW	DV	RMcC	[illegible]
DATE	1/3/67			~	1/3/67	1/3/67	1-6-67	1/4/67
5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	[illegible]

PRIORITY: C
DRAWING TITLE: STANDOFF INSTL D/S - THERMAL
DRAWING NO.: LDW280-28659
EO NO.: A9

ISSUED BY RAGAS X6454 SECTION VD1 GROUP NO. 335 PL 5

01 NAS 9-1100

LDW280-28660 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51509	LEM 1 (31)	1
LEM	LDW280-28509	LTA 8 (18)	1

PART NO. LDW280-28660-1

GAEC SCH NO. 50-3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00	1.01	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED C

LAST DASH NO. USED -1

GRUMMAN REL INFO

PRIM NO. VE(001)

207 MP-A 6-30-66

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/16 ±.010 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM 1

DOCUMENTATION TYPE II

DRAWN BY	L. Michael Grieco 5-27-66	RELIABILITY	
LAYOUT BY		THERMO	[illegible] 8-2-66
CHECKED BY		MAT'LS	G Kenyon 8/12/66
GR LDR	[illegible] 5/31/66		
VDI	[illegible] 5/31		
STRUCT	[illegible] 6/1	PROJ ENGR	[illegible] 9 Jun 66
STRUCT	[illegible] 6/1	REL GROUP	[illegible] 8-12-66
WTS	[illegible] 6/6		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STANDOFF INSTALLATION
DESCENT STAGE-THERMAL
SHIELD-QUADS-LOWER

SIZE B

CODE IDENT NO. 26512

LDW280-28660 A

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00	B/M				✓		② ~~N/A~~ ON-1 CHANGE: LDW280-51509-LEM1(31) WAS LDW280-28509-LEM1(31)	LEM1(31)	NOT	REQ'D	[illegible] 6-9-66	[illegible]	[illegible] ③

FOR CONTINUATION OF REVISIONS SEE SHEET ________

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28660	A
SCALE NONE			SHEET 1.01

ENG 77.3 5-66

01

NAS 9-1100

						✓				ADHESIVE		EPON 934					
						✓		MS20470B3		RIVET							
						12		LDW280P17936-27	E	TAPE-PILE	(SEE DWG)						
						12		LDW280-23713-1	E	STANDOFF ASSY	(SEE DWG)						
						8		LDW280-23712-3	E	STANDOFF ASSY	(SEE DWG)						
								LDW280-28660-1	E								
QTY PER ASSEMBLY						-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

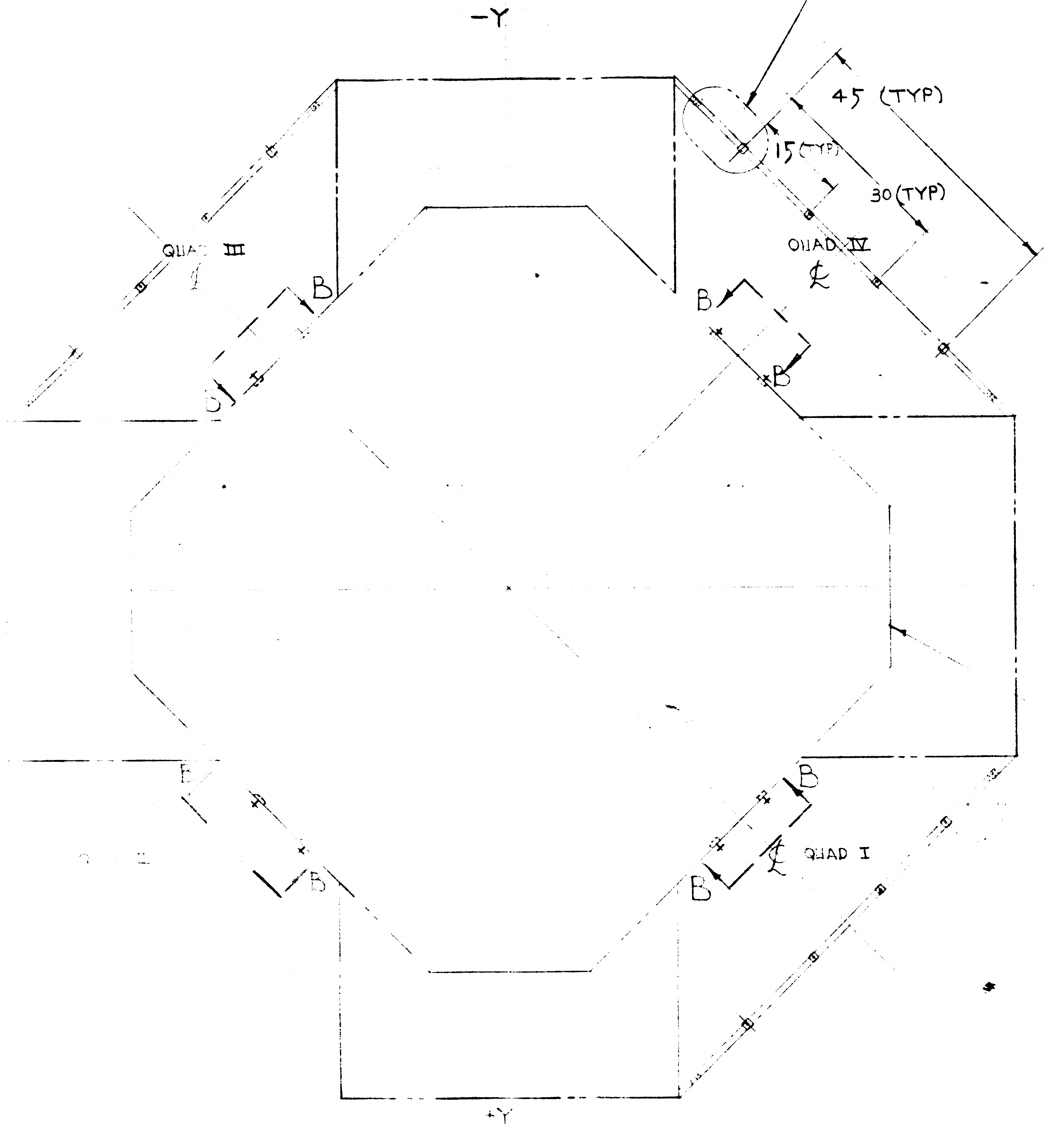
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28660	A
SCALE NONE		SHEET 2.00	

ENG 77.2 7-65

01

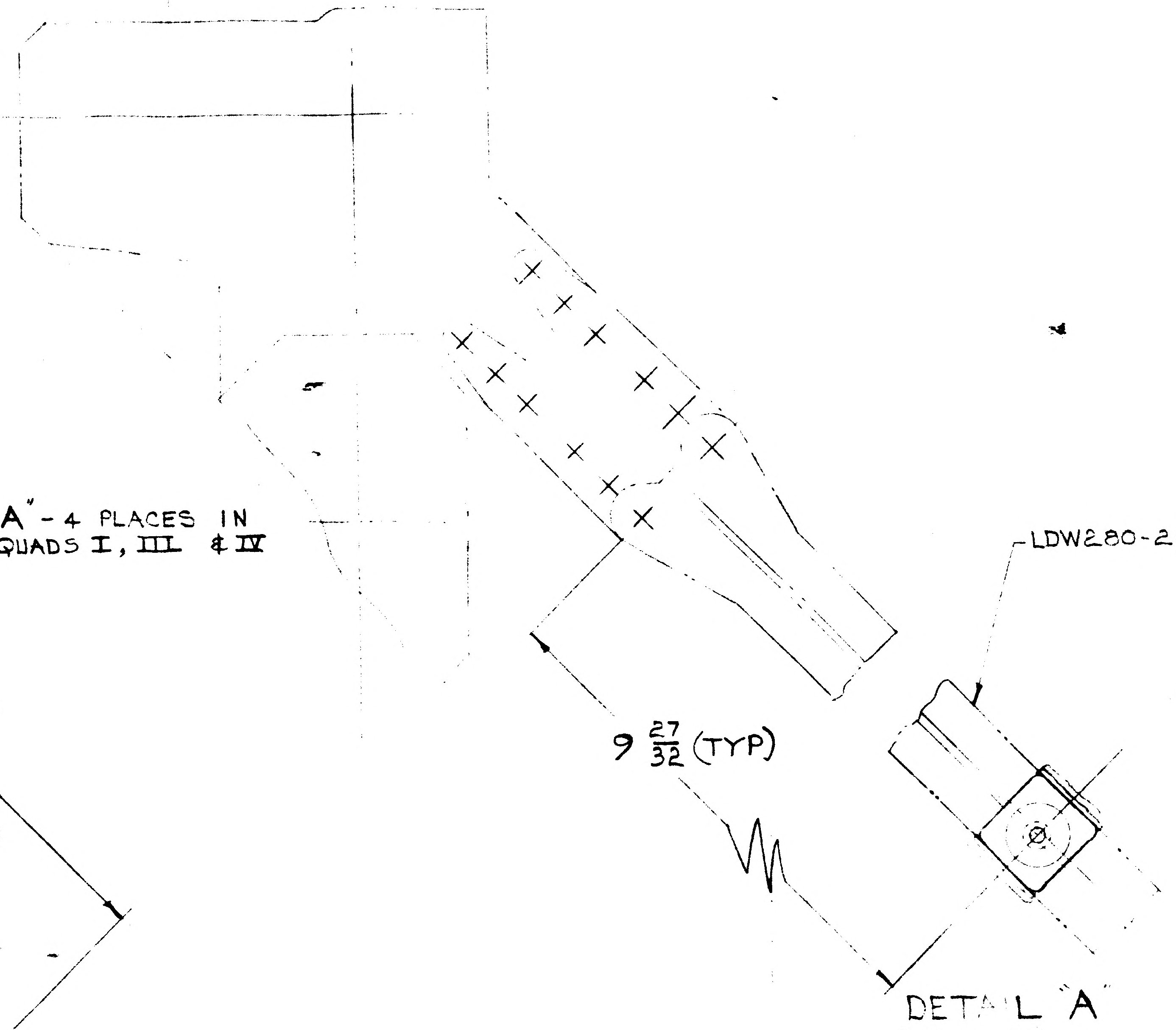
NAS 9-1100



DETAIL "A" - 4 PLACES IN QUADS I, III & IV
-Y
45 (TYP)
15 (TYP)
30 (TYP)
QUAD IV
℄
QUAD III
℄
B
B
B
B
B
B
B
B
QUAD I
℄
-Z
+Z
FWD
LDW280-25661 (REF)
+Y

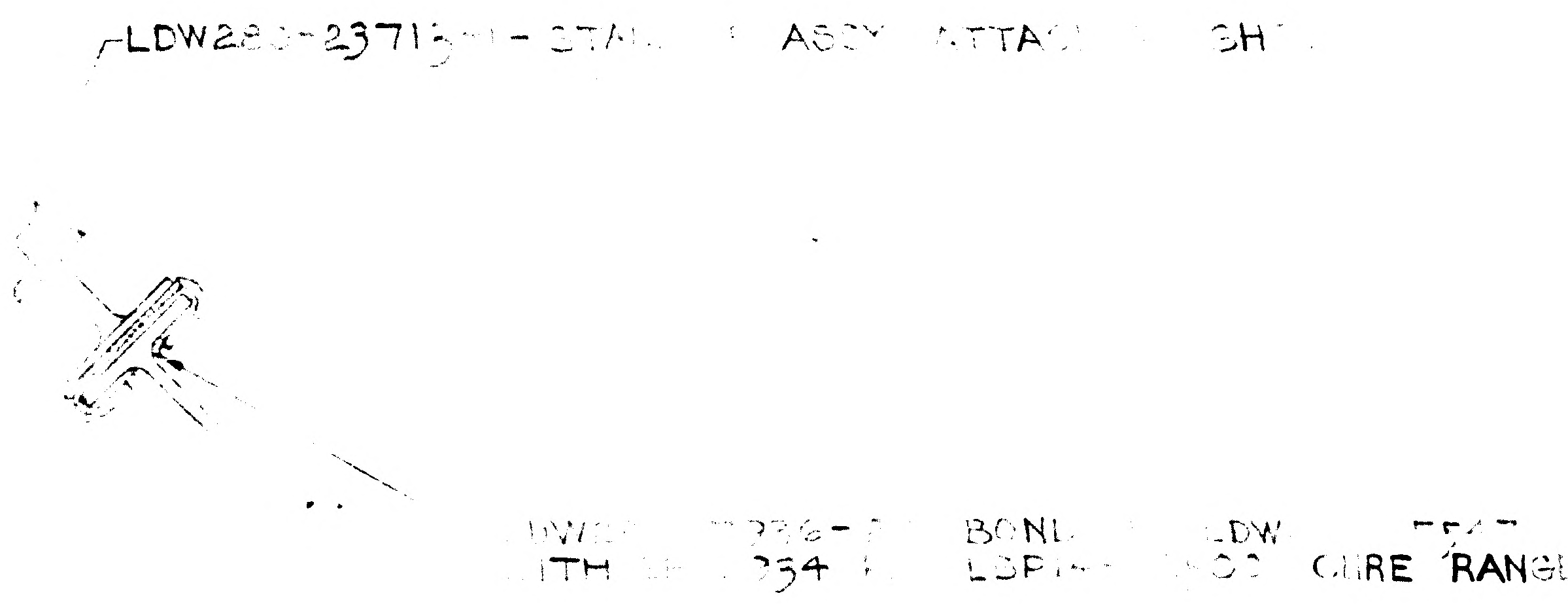
LDW280-28660-1 INSTL

VIEW LKG UP
(SCALE: 1/10)

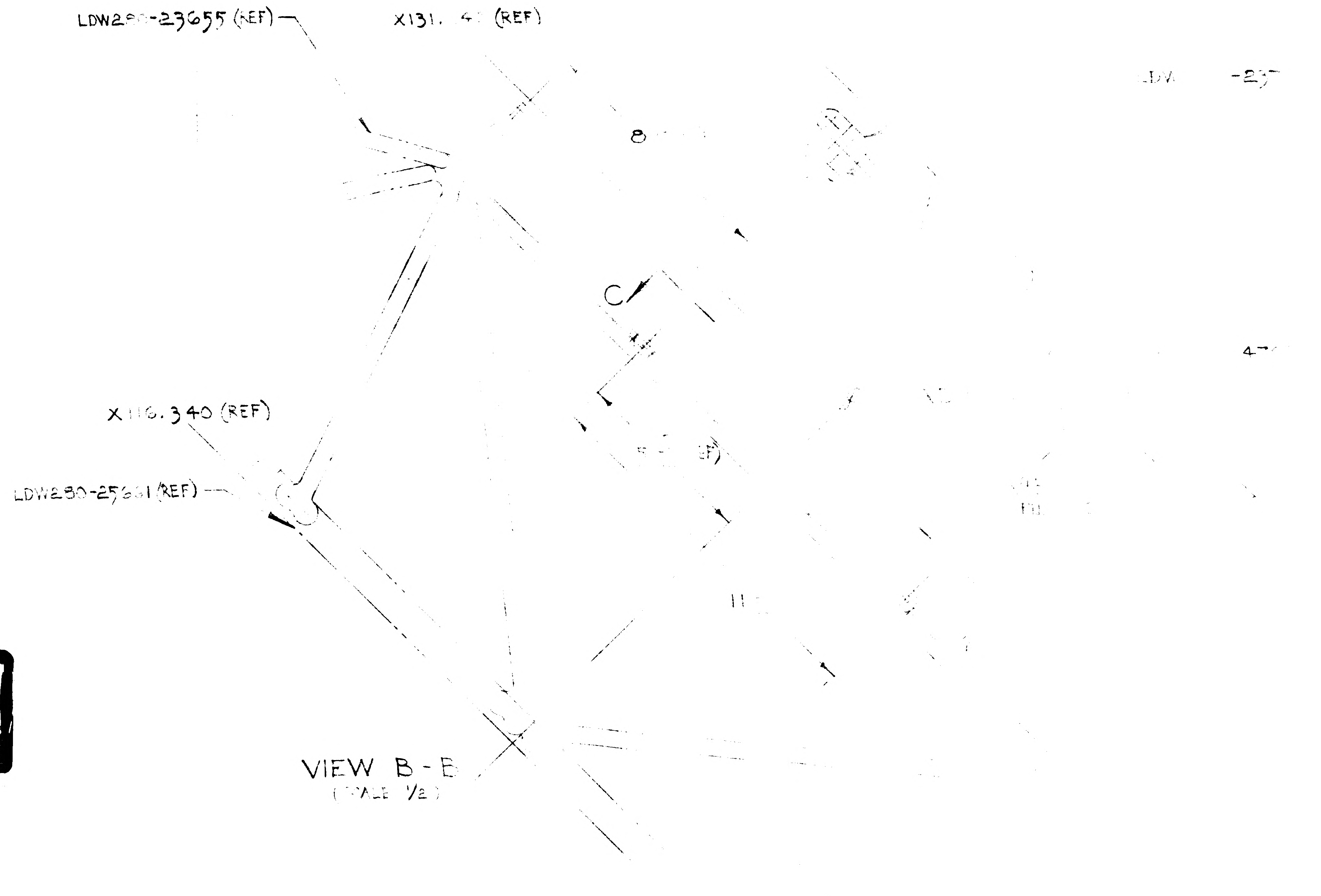


LDW280-25547 (REF)
9 27/32 (TYP)

DETAIL "A"
(FULL SIZE)



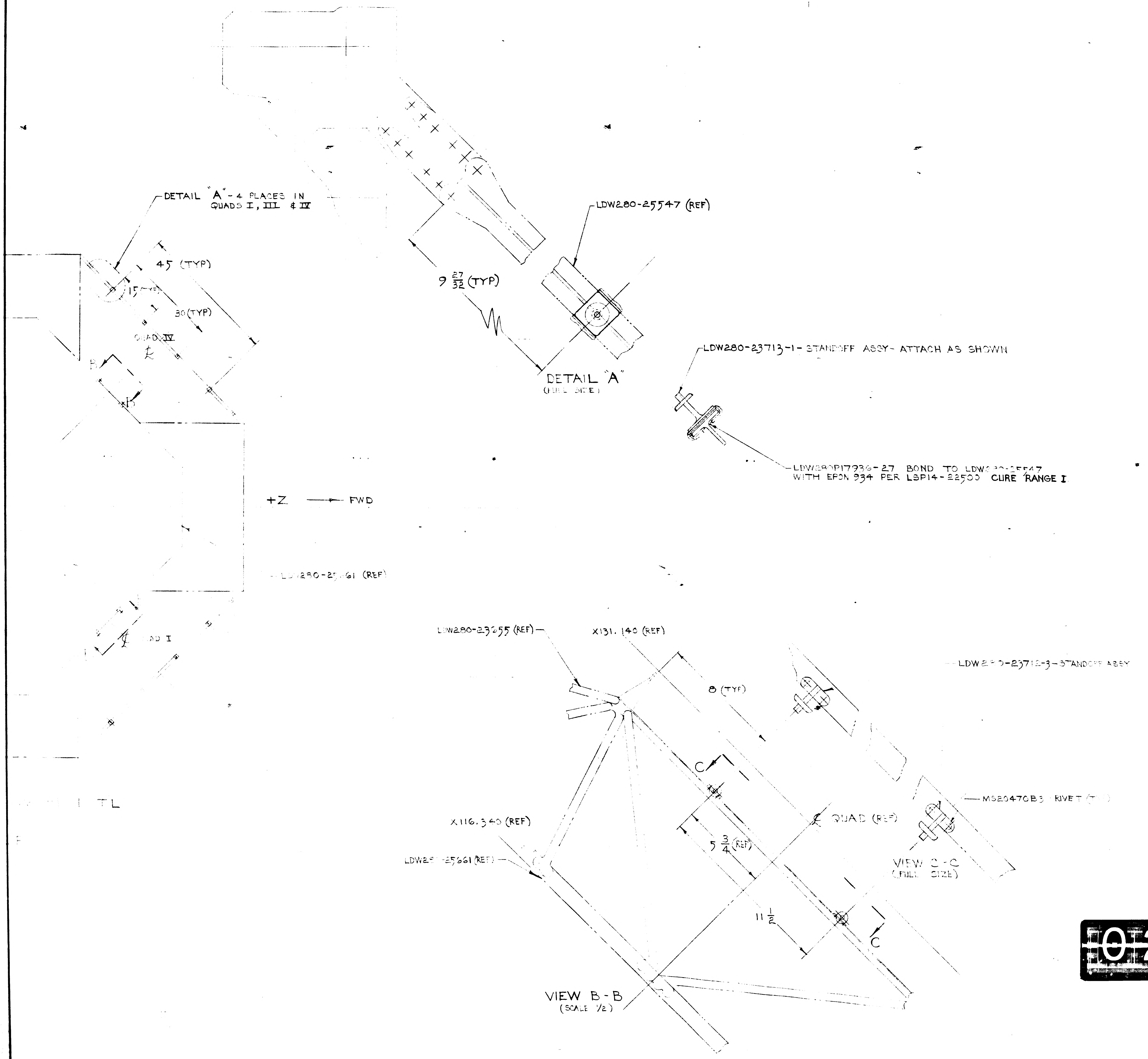
LDW280-23713-1 - STA... ASSY ATTACH... RIGHT
...BOND... LDW...
...ITH ...254... LSP... CURE RANGE



LDW280-23655 (REF)
X131.4 (REF)
8
C
X116.340 (REF)
LDW280-25661 (REF)

VIEW B-B
(SCALE 1/2)

01702 NAS 9-1100


DETAIL "A" - 4 PLACES IN QUADS I, III & IV
45 (TYP)
15 (TYP)
30 (TYP)
QUAD IV
℄
B
B
+Z → FWD
LDW280-25_61 (REF)
℄ QUAD I
TL
LDW280-25547 (REF)
9 27/32 (TYP)
DETAIL "A"
(FULL SIZE)
LDW280-23713-1- STANDOFF ASSY- ATTACH AS SHOWN
LDW280P17936-27 BOND TO LDW280-25547
WITH EPON 934 PER LSP14-22500 CURE RANGE I
LDW280-23255 (REF)
X131.140 (REF)
8 (TYP)
LDW280-23712-3-STANDOFF ASSY
C
C
MS20470B3 RIVET (TYP)
℄ QUAD (REF)
5 3/4 (REF)
VIEW C-C
(FULL SIZE)
X116.340 (REF)
LDW280-25661 (REF)
11 1/2
VIEW B-B
(SCALE 1/2)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED [illegible] USE BOTH SIDES IF NECESSARY

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES [illegible] FULL THDS. [illegible] BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE [illegible] HOLES OR SURFACES MARKED WITH [illegible] ASTERISK.

MISMATCH STEP OF ± [illegible] PERMISSIBLE DUE TO CHANGE OF [illegible] AT INSIDE INTERSECTING SURFACES

DIAMETERS MARKED MUST BE CONCENTRIC [illegible] FULL [illegible] READING

HOLES MUST BE KEPT [illegible] CHROME PLATING SOLUTION

ALL DIMENSIONS SHOWN [illegible] MET [illegible] CADMIUM PLAT [illegible] THICKNESS OF PLATE [illegible] MAX. MIN [illegible] TO [illegible] ON THREADED [illegible] ALLOWANCE FOR PLAT[illegible] IN [illegible]

SURFACE ROUGHNESS [illegible] INCLUDING [illegible] PER MIL-STD-[illegible]

[illegible] FOR ALL DRI[illegible]

REMOVE ALL BURRS [illegible] ALL EDGES [illegible]

[illegible] INFORMATION [illegible] PERMISSIBLE [illegible] EDGE DISTANCE [illegible] IS

SYMBOL [illegible] DENOTES [illegible] MACHINED

UNLESS OTHERWISE [illegible] ON FLAN[illegible] ± 1/32

[illegible] OF AN [illegible] SHORTER [illegible] SPECIFIED.

[illegible] ON [illegible] ATIONS IS

DWG SIZE [illegible]

PRINTING INFO ONLY

THIS IS AN ORIGINAL DWG & ALSO A LAYOUT RELEASE TO BE REDRAWN ON PROD FORMAT

02702 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE, L.I. NEW YORK	
J	26512 LDW280-28660A
MODEL [illegible]	SCALE [illegible] SHEET 3.00

THIS IS AN ORIG DWG

ENG 32.1 REV 3-65

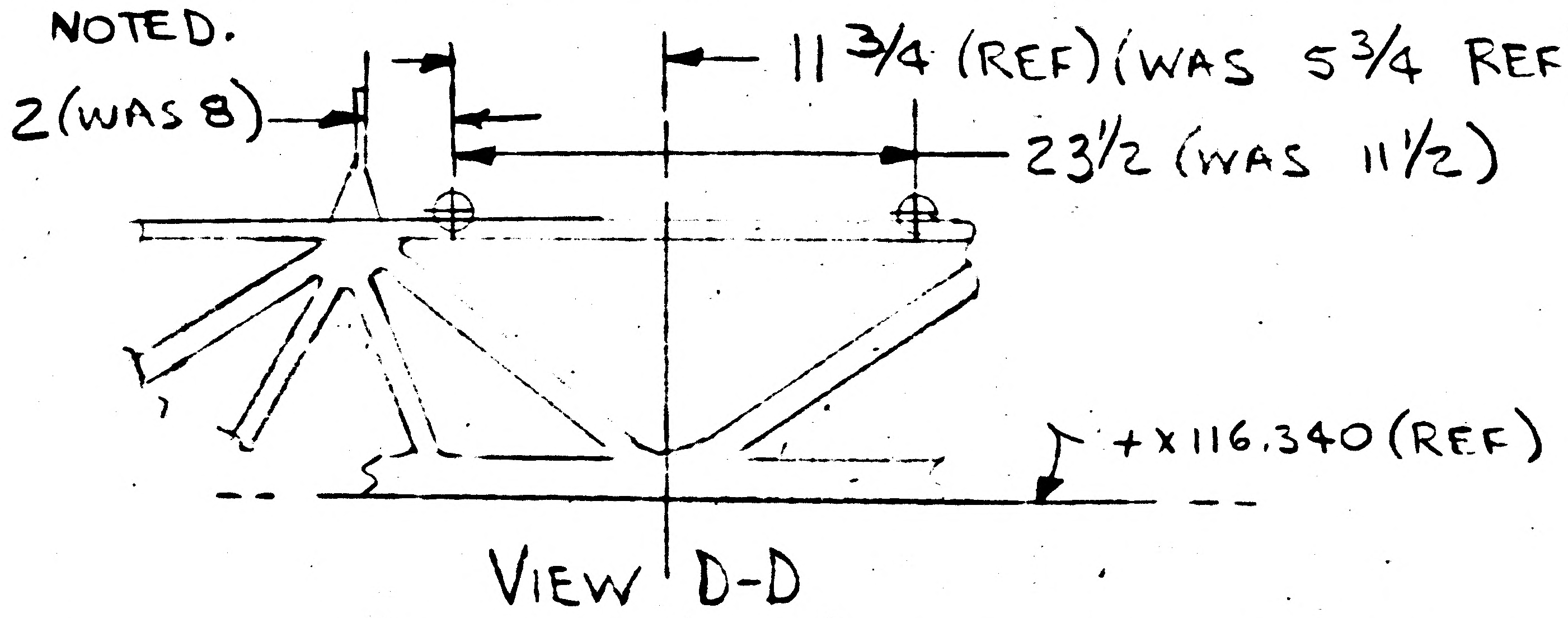
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG NO LDW230-28660 | EO NO. B1
CONTROL INFO NO. LDW230A0303

IN FIELD OF DRAWING ON -1 ADD VIEW D-D & REVISE VIEW C-C

VIEW D-D IS FOR QUAD III ONLY AND IS IDENTICAL TO VIEW B-B EXCEPT AS NOTED.



VIEW D-D
(QUAD III ONLY)

THIS IS AN ORIGINAL E.O.

VIEW C-C
MS20470A3 WAS MS20470B3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐	✓

REASON FOR EO: REDESIGN OF THERMAL DOOR FOR FUEL FILL & DRAIN ACCESS

DESCRIPTION OF EO: ADDED VIEW D-D FOR -1 INSTL IN VIEW B-B MS20470A3 WAS MS20470B3

GAEC EO RELEASE: 10.8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO	SUB CONTR UNIT NO
LM		LTA-8 (18)	
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

			RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	10-7-66	10-13-66			10/7/66		10-8-66	10/8/66
	VLI							

PRIORITY: C
DRAWING TITLE: STANDOFF INSTL - DESCENT STAGE THERMAL SHIELD QUADS LOWER
DRAWING NO: LDW280-28660
EO NO.: B1

ISSUED BY F MARZELLA \ J. STRAKOSCH 9-28-66 1153 SECTION VEHICLE DES. & INT. GROUP NO. 335 PL 35

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
								RETRACED~NO CHANGE~LAST REV'A'~ADDED SHEET 2.04~REMOVED SH6~R.SVOBODA-2-20-67							
B	1	1.00.1.10 & 2.02						EO B1	IN B/M ONLY. ON -15 ASSY REMOVED -21, ADDED -35. ON SH 1.00 LAST DASH NO. -35 WAS -33.	NOT REQD	NOT	REQD	R. SVOBODA 2-20-67		
	2	1.00,1.10, 2.00,2.03, 3.00,4.00 & 5.00	3A 5B 1A 7A 11D 11A 22C					EO B2	ON -11,-13,-15 & -17 ASSY'S REMOVED MS35206-226 (85) & MS35206-229(21). ADDED GS20D-06-8(32), GS20D-06-14 (21) & MS51957-26(53). REMOVED NOTE #1 ADDED NOTE #8.	LTA-8 LM-1 LM-2 LM-3	✓				
	3	1.00,1.10, 2.01 & 4.00	10A 11B 12A 10B					EO B3	IN FLD DWG & B/M ADDED LDW280P18138-11 & -13 (ON-5 & -7) ADDED SECTION BC-BC. ADDED LDW280P17590-11 AS REQD ON -5-7-13 & -15.	LM-1 LM-2	✓				
	4	1.00,1.10, 2.04 & 5.00	21B 23B 24B				✓	EO B4	IN FLD DWG ADDED GT835P-8 TAPE & GT835M-8 TAPE ON-23. IN FLD DWG & B/M ADDED GT835E-8 TAPE (AS REQD) ON -23. ADDED SH 2.04.	LTA-8	✓				
	5	1.10,2.01 & 4.00	11C 27D					EO B5	ADDED: SECTION BF-BF, 15/16 DIA HOLE, LDW450-5257-1 GT835P-8 & GT535B-2-1.00 ON-9		✓				
	6	1.10,2.04&4.00	18B					EO B6	ON-19,-21 & -23 LDW280-28761-3 WAS LDW280-28761-1	NOT REQD	NOT	REQD			
	7	1.10 & 2.02						EO B7	IN B/M ON -35 LDW360-51297-5 WAS LDW360-51279-5 & LDW360-51297-11 WAS LDW360-51279-11. ON -19,-21 & -23 LDW360-28297-5 WAS LDW360-28279-5 & LDW360-28297 -11 WAS LDW360-28279-11.	NOT REQD	NOT	REQD			
	8	1.10,2.00 2.01, 3.00 & 4.00	5B 4D 3D 16D				✓	EO B8	ON-3,-5,-7 & -9 REMOVED MS20470AD4(4), AN960D4(4) & NAS1132V3. ADDED .139-.145 (#28 DRILL) GB511J-06-4 (4), AN960D6(4), MS20426AD3(8), NAS680C06(4), GB 511J-08-3(1) & SECTION BE-BE. REVISED NOTE #2 REPLACED; SAGE GREEN, SIZE E, SPEC. VT 295, TYPE II, CLASS I, NYLON THREAD MAYBE PURCHASED FROM THREADS INC., GASTONIA, NORTH CAROLINA. CODE IDENT #19937:, WITH: ASTROQUARTZ RQ754-12 THREAD. (CONT ON SH 1.11)	LTA-8 LM-1 LM-2 LM-3	✓				

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO					
B												

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28664	C
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01 NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET 1.12

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
B	8							EO B8	MAYBE PURCHASED FROM DODGE FIBERS CORP. P.O. BOX 124, HOOSICK FALLS, N.Y. CODE IDENT #07512. ADDED SH. 1.11.				R. SVOBODA 2-20-67		
	9	1.00, 1.11, 2.04 & 4.00	8A 10B					EO B9	IN B/M FOR -35 ADDED LDW280-28761-3, GW10H-1 WASHER (59) & GB10J-1 BUSHING (59).	LM-1	NOT	REQD			
	10	1.11, 2.01, 2.04 & 5.00	23B 24B					EO B10	ON -7 IN FLD DWG & B/M; ADDED LDW280P17964-5 COVER 2 REQD, GR11B-1 RETAINER (8), GW10H-3 WASHER (8), ON -35, ADDED GR11B-1 RETAINER (8), GW10H-3 WASHER (8) & INSTALL PER LPC 280-3 CALLOUT (2).	LM-1	✓				
C	1	1.00, 1.11 & 4.00	12D					EO C1	ON -11, -13, -15 & -17 IN FLD DWG REVERSED CALLOUTS LDW 280P17967-61 & LDW280P17967-63.	NOT REQD	NOT	REQD		DAM 5/15/67	5-15-67
	2	1.11 & 2.00							REF EO B2: "ON -11, -13, -15 & -17 ASSYS ------- ADDED NOTE 8" SHOULD BE "ON -3, -5, -7, -9 INSTL & -11, -13, -15, -17 ASSYS ----- ADDED NOTE #8.	NOT REQD	NOT	REQD			
	3	1.11 & 3.00							ADDED NOTE #9 & #10.	NOT REQD	NOT	REQD			
	4	1.11 & 4.00	15C						REF EO B3, VIEW BC-BC DIMS 20 1/2, 1, 6 & 2 1/4 SHOULD BE 8 1/4, 1/2, 2 1/2 & 1 RESPECTIVELY DJ	NOT REQD	NOT	REQD	F.A. WSG		
	5	1.10 & 4.00	17C 17A					ec ①	IN FLD/DWG GT835P-8 WAS GT535B-1-100.	NOT REQD	NOT	REQD			
D	1	2.03, 2.04, 3.00, 4.00, 1.11.	4C 5A 10B					EO D1	IN FLD & B/M ADDED LDW360-28297-7 TO -19 -21 & -23 & ADDED LDW360-51297-7 TO -35 REMOVED LDW280 P17512-9 PATCH IN FLD SHOWED WIRE ROUTING & ADDED SECTION BG-BG.	LTA-8 LM-1 LM-2 LM-3	✓		N. HOWELL 11-3-67		
	2	4.00	12B 14A					EO D2	ON -3, -5, -7 & -9, REMOVED LDW280P17947-7 IN FLD. ADDED NOTE WRAP PER LPC 280-6 & LPC 280-7	LTA-8, LM-1 LM-2 & LM-3	✓				
	3							EO D3	CANCELLED EO B5	LTA-8	✓				
	4	2.02 4.00	11B					EO D4	IN FLD & B/M FOR -11 & -13 REMOVED LDW280P17479-35 & ADDED LDW280P17479-65	LM-2 LM-3	✓				
	5	2.01 3.00	3C 6D 7D				✓	EO D5 LCD-1135 CONT ON SH 1.12	IN FLD & B/M ADDED -37 & -39 SHIELD ASSY (MAKE FROM (CONT. ON SH. 1.12)	LM-1, LM-2 & LM-3	✓				

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO
C		5/4/67					
D							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28664	D
SCALE NONE			SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~[illegible]~~ APPD
											REWORK	SCRAP			
D	5						✓	EO D5 LCD19-1135	(CONT FROM SH 1.11) LDW280-51557-1) IN F/D ADDED SECTION BJ-BJ & BK-BK ADDED SH 1.12	LM-1 THRU LM-3	✓		N. HOWELL 11-3-67	[illegible] 11-21-67	[illegible] 11-27-67
	6	2.00, 2.02 2.03, 3.00	3B 3D 4B				✓	EO D6 LCD-1244	IN B/M & FLD FOR-15 REMOVED LDW280P17967-15 (1), -57(2) & -59 (2) LDW280P17946-11 (18) & MS51957-26 (18) FOR -7 REMOVED GB511J-08-2 (6), AN960D8 (6)	LM-1	✓				
	7	2.00, 2.02 2.03, 3.00	3B 3D 4B			✓		EO D7 LCD-1244	REMOVED FROM -5 GB511J-06-4 (4), GB511J-08-2 (2) AN960D6 (4). AN960-D8 (2). REMOVED FROM -13 LDW280P17967-15 (1), -57(2) & -59 (2), LDW280P17946-11(18) MS51957-26 (18)	LM-2	✓				
	8	2.01 3.00	3C 6D 7D			✓		EO D8 LCD 1847	FOR-5 & -7 REMOVED -37 & -39 ADDED -41, -43 & LDW280P18339-23, REVISED SECTIONS BJ-BJ, BK-BK & DETAIL BH.	LM-1 LM-2	✓				
	9	2.00 4.00	17A 19B				✓	EO D9	ON -3 FLD & B/M REMOVED GT535-LCA-0006(8); ADDED GT835G-LCS-0006 (8)	LM-3	✓				
	10	2.02, 2.04 3.00, 4.00 5.00	7D 8D 10A	P		✓		EO D10 LCD 1244 (CCA 667)	IN FLD & B/M FOR-3, -11 & -19 ADDED SECT ✱-✱ & REMOVED -37, -39, GR11B-1 (AS REQD), GW10H-3 (AS REQD), LDW280-28714-7, LDW280P17967-15, -57(2) & -59 (2) & LDW280-28297-7. ON -19, -45 REPLACES -31 REMOVED LDW280M17698-11 (16), GS20D-06-14 (16), MS51957-26 (18), LDW280P17946-11 (18), AN960D6 (20), GB511J-08-2 (2), AN960D8 (2), NAS697A08 (2), MS20426AD3 (12), GB511J-06-4 (4), NAS680C06 (4), & GS20D-06-8 (2). ADDED NOTE #11.	LM-3	✓	-37 -39			
	11	3.00	4A				✓	LCD-1244	REF EO D6 GB511J-08-2 (6), AN960D8 (6) S/B (2) EA AND (4) EA. ON GB511J-06-4, AN960D6, RESPECTIVELY.	LM-1	✓				
	12					✓		LCD-1244	REF EO D7 LDW280P17697-15 S/B LDW280P17967-15	LM-2	✓				
	13			P		✓		LCD-1244 (CCA667)	REF EO D10 SECT ✱ ✱ NOT REQD.	LM-3	✓		ES CEA		
								D Ⓓ							

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO			
D										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28664	D Ⓓ
SCALE	NONE		SHEET 1.12

ENG 77.16 3-66

01

NAS 9-1100

LDW280-28664 E

LFM

LFM 155	LDW280-53553	SEE NOTE 14	1
PART NO.	LDW280-28664-49		

LM	LDW280-28553	LTA-8(18)	1
PART NO.	LDW280-28664-9		

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51553	LM-1(31)	1
PART NO. LDW280-28664-7		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52553	LM-2(32)	1
PART NO. LDW280-28664-5		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53553	LM-3(33)	1
PART NO. LDW280-28664-3		GAEC SCH NO. 52	

WORK PKG. NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	2.01	2.02	2.03	3.00	4.00	5.00
REV	E	B	E	E	E	E	E	E	E
SHEET	1.11	1.12	2.04						
REV	D	D	E						
SHEET	1.13								
REV	E								

LAST SECT LTR USED	BM	GRUMMAN REL INFO E	
LAST DASH NO. USED	-57	PRIM NO. 207	JK(001) ME-16E-3/18/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.030 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO.
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	MOUQUIN	RELIABILITY	
LAYOUT BY	FLANDERS	THERMO	H. TAMEL 10/24/66
CHECKED BY			
GROUPLDR	J.STRAKOSCH 7/24		
VEHDESINT	W.BISCHOFF 7/23		
STRUCTURES	W. HAUCK 7/23	PROJ ENGR	R.CARBEE 10-25
STRUCTURES	R.HILDERMAN 7/23	REL GROUP	J.TAGLIAVIA 10/27/66
WEIGHTS	D.ROBESCH 7-30		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTL
DESCENT STAGE ~ QUAD I
FIXED THERMAL

SIZE	CODE IDENT NO.		
B	26512	LDW280-28664	E
SCALE NONE		SHEET 1.00 OF 13	

ENG 77.1 12-65

SUPERSEDES LDW280-28664 -REV A 10-27-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
E	1	1.00, 1.13 & 3.00							INC EO E1 ADDED SH. 1.13	LM-1			M. MARKARIAN 1-23-69		
	2	1.00, 2.01 2.04, 5.00	23B 24B	P					INC EO E2	LM-2					
	3	1.00, 2.03, 2.04 3.00, 4.00	8A, 14B 10D, 11D, 13D	S					INC EO E3	LM-3					
	4	1.00, 2.02 2.03, 4.00	18A						INC EO E4						
	5	1.00 2.00 THRU 2.04, 3.00, 4.00 & 5.00	3A, 10A 11B	LFM-155					INC EO E5			H.D.	E.C.G.		
	6	2.04, 3.00	3A	LFM-155 Ⓡ		V		LCD 2899	REF EO E5: REVISED CALLOUT: CREATE -49 ----- & ADD LDW280P17512-65 INBD OF LDW280P 17512-57 SHOULD BE ADD LDW280P17512 -65 INBD OF LDW280P17512-61.	LM-3	NOT	REQD	F. Zukas 1-23-69	3/1/69	3-7-69

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO
	E	3/11/69	3/12/69		3/17/69			MR 3/14/69

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28664	E
SCALE NONE			SHEET 1.13

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
-51	-49	-33	-9	-7	-5	-3											
	10		10			10		MS51957-26	E	SCREW	STD PART						
	1		1	1	1	1		MS21042L08		NUT							
	AR		AS REQD	AS REQD	AS REQD	AS REQD		MS20470-DD5		RIVET							
	AR		AS REQD	AS REQD	AS REQD	AS REQD		MS20426-AD3		RIVET							
	1		1	1	1	1		AN960-D8L		WASHER							
	2		4	2	2	2		AN960-D8		WASHER							
			4		4			AN960-D6		WASHER							
	2		2	2	2	2		GT535L-HA0740		TAPE							
	2		2	2	2	2		GR500A-5G		RIVET							
	2		2	2	2	2		GB511J-08-3		BOLT							
	3		5	3	3	3		GB511J-08-2		BOLT							
	2		4	4	4	2		NAS697-A08		NUT PLATE	STD PART						
	2		2	2	2	2		GB511J-08-1		BOLT	STD PART						
	14		14	14	14	14		LDW280P17575-11		WASHER	SEE DWG						11A
	1		1	1	1	1		LDW280M17641-1		FITTING	SEE DWG						16D
1								LDW280P17947-7		INSULATION	SEE DWG						14A
		1						LDW280P17947-5		BLANKET ASSY	SEE DWG						14A
	10		10	10	10	10		LDW280P17575-13		WASHER	SEE DWG						223
	59		59	59	59	59		GW10H-1		WASHER	STD PART						
	59		59	59	59	59		GB10J-1		BUSHING	STD PART						
	8		8	8	8	8		GT535G-LCS-0006		TAPE	STD PART						
			1	1	1	1		LDW280-28664-33		BLANKET ASSY							10A
			1					-17		SHIELD ASSY							11A
				1				-15		SHIELD ASSY							11A
					1			-13		SHIELD ASSY							11A
						1		-11		SHIELD ASSY							11A
								-9		SHIELD INSTL							11A
								-7		SHIELD INSTL							11A
								-5		SHIELD INSTL							11A
								LDW280-28664-3	E	SHIELD INSTL							11A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28664	E
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

-55	-53	-49	-21	-13	-9	-7	-5	-3	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				AR		AR				GT15C-3	E	TAPE	GRUMMAN STD						
1										LDW280-28664-57		BLANKET ASSY					NONE	NONE	10A
	1									LDW280-28664-55		BLANKET ASSY					↑	↑	10A
		1								LDW280-28664-53		SHIELD ASSY							10A
		1								LDW280-28664-51		BLANKET ASSY					↓	↓	10A
										LDW280-28664-49		SHIELD INSTL	(SEE NOTE 14)				NONE	NONE	10A
			8	8		8				GW10H-3		WASHER	STD PART						
			8	8		8				GR11B-1		RETAINER	STD PART						
				2		2				LDW280P17964-5		COVER	SEE DWG						25B
					4					GB511J-06-4		BOLT	STD PART						
					4	4	4			NAS680C06		NUT PLATE	STD PART						
						AS REQD	AS REQ'D.			LDW280P18339-23		TAPE	SEE DWG						7D
						1	1			LDW280-28664-43		SHIELD ASSY	SEE DWG	MAKE FROM	LDW280-	51557-3			7D
						1	1			LDW280-28664-41		SHIELD ASSY	SEE DWG	MAKE FROM	LDW280-	51557-3			6D
		AR				AS REQD	AS REQD	AS REQD		LDW280P17590-11		TAPE	SEE DWG						12A
						1	1			LDW280P18138-13	↓	SHIELD	↕						12A
						1	1			LDW280P18138-11	E	SHIELD	SEE DWG						11A

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28664	E

SCALE NONE

SHEET 2.01

ENG 77.2 7-65

01

NAS 9-1100

-55	-53	-35	-23	-21	-19	-17	-15	-13	-11	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					1						LDW280-28664-45	E	BLANKET ASSY							10A
								1			LDW280-28714-7	E	SHIELD ASSY	SEE DWG						3B
							1				LDW280-28714-5		SHIELD ASSY							3B
						1					LDW280-28714-1		SHIELD ASSY							3B
			1	1							LDW360-28297-11		THERMOCOUPLE							17A
			1								LDW280P18128-11		PATCH							24A
1			1	1	1						LDW360-28297-5		THERMOCOUPLE							17A
	1					1	1	1	1		LDW280P17967-81		STRAP							12B
	1					1	1	1	1		-69									11C
	1					1	1	1	1		-65									12C
	1					1	1	1	1		-63									12D
	1					1	1	1	1		-61									12D
						2					-59									3B
						2					-57									3B
	1					1	1	1	1		-47									12E
	1					1	1	1	1		-19									22B
						1					LDW280P17967-15		STRAP							4B
		1									LDW360-51297-11		THERMOCOUPLE							17A
4		4	4	4	4						LDW280P17512-35		BLANKET ASSY							19C
	1							1	1		LDW280P17479-65		STRAP							11B
		1									LDW360-51297-5		THERMOCOUPLE							17A
						1	1				LDW280P17479-35		STRAP							11B
	1					1	1	1	1		LDW280P17479-27		STRAP	SEE DWG						11B
							1				LDW280-28664-35		BLANKET ASSY							10A
		1	1	1							LDW280-28664-31		BLANKET ASSY							10A
			1								-29									10A
		1		1							-27									10A
					1						-25									10A
						1					-23									10A
								1			21									10A
									1		LDW280-28664-19	E	BLANKET ASSY							10A

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-28664 E

SCALE NONE

SHEET 2.02

ENG 77.2 7-65

01

NAS 9-1100

-55	-53	-23	-21	-19	-17	-15	-13	-11	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
QTY PER ASSEMBLY																			
	35				53	45	45	35		MS51957-26	E	SCREW	STD PART						
	2				2	2	2	2		MS21042L08		NUT							
	AR				AS REQD	AS REQD	AS REQD	AS REQD		MS20470-A5		RIVET							
	AR				AS REQD	AS REQD	AS REQD	AS REQD		MS20470-A3		RIVET							
	2				2	2	2	2		AN960-D8		WASHER							
	56				76	76	76	56		AN960-D6		WASHER							
	292				292	292	292	292		AN960-D416L		WASHER							
	1				1	1	1	1		GB511J-08-3		BOLT							
	1				1	1	1	1		GB511J-08-2		BOLT	STD PART						
	25				46	28	28	28		LDW280P17946-11		STANDOFF	SEE DWG						11A
	11				11	11	11	11		LDW280P17575-11		WASHER	SEE DWG						16D
59		59	59	59						GW10H-1		WASHER	STD PART						
59		59	59	59						GB10J-1		BUSHING	STD PART						
	30				32	32	32	30		GS20D-06-8		SCREW	STD PART						
	5				21	21	21	5		GS20D-06-14		SCREW	STD PART						
	5				21	21	21	5		LDW280M17698-11		WASHER	SEE DWG						9A
		1	1							LDW360-28297-7		THERMOCOUPLE	SEE DWG						17A
		1	1	1						LDW280-28761-3		DOOR JAM	SEE DWG						18B
						AS REQD	AS REQD			LDW280P17590-11		TAPE	SEE DWG						11B
	1					1	1	1		LDW280-28758-7		SHIELD ASSY	SEE DWG						12C
						1	1			LDW280-28758-5		SHIELD ASSY							10C
					1					LDW280-28758-3		SHIELD ASSY							12C
					1					LDW280-28758-1		SHIELD ASSY							10D
1				1						LDW360-28297-25		THERMOCOUPLE							17A
	1				1	1	1	1		LDW280-28757-11		STRAP ASSY							11B
	1				1	1	1	1		LDW280-28757-9		STRAP ASSY							11C
	1				1	1	1	1		LDW280-28757-7		STRAP ASSY							11C
	1				1	1	1	1		LDW280-28757-5		STRAP ASSY							11C
	1							1		LDW280-28733-5		SHIELD ASSY							12C
						1	1			LDW280-28733-3		SHIELD ASSY							12C
					1					LDW280-28733-1	E	SHIELD ASSY	SEE DWG						12C

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28664
E
SCALE NONE
SHEET 2.03

ENG 77.2 7-65

01

NAS 9-1100

-57	-53	-45	-35	-23	-31	-29	-27	-25	-11	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	6								6		AN960-516L	E	WASHER	STD PART						
	6								6		AN960-8L	E	WASHER	STD PART						
1											LDW280P17512-65	E	BLANKET ASSY	SEE DWG						3A
	1								1		LDW280-28758-9	E	SHIELD ASSY	SEE DWG						10D
			1								LDW360-51297-7	E	THERMOCOUPLE	SEE DWG						4C
			8								GR11B-1		RETAINER	GRUMMAN STD						
1											LDW280P17512-61	E	BLANKET ASSY	SEE DWG						3A
			8								GW10H-3	E	WASHER	GRUMMAN STD						
			59								GW10H-1	E	WASHER	STD PART						
			59								GB10J-1	↑	BUSHING	STD PART						
			1								LDW280-28761-3		DOOR JAM	SEE DWG						18B
														↑						
AR		AR	AR	AS REQD	AS REQD						GT835P-8		TAPE							21B
AR		AR	AR	AS REQD	AS REQD						GT835M-8		TAPE							21B
AR		AR	AR	AS REQD	AS REQD						GT835E-8		TAPE							21B
		1									LDW280P17512-47		BLANKET ASSY	↓						11C
								1			LDW280P17512-43		BLANKET ASSY	SEE DWG						3A
							1				LDW280P17512-39		BLANKET ASSY	SEE DWG						3A
						1					LDW280P17512-37	↓	BLANKET ASSY	SEE DWG						3A
					1						LDW280P17512-7	E	BLANKET ASSY	SEE DWG						3A

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

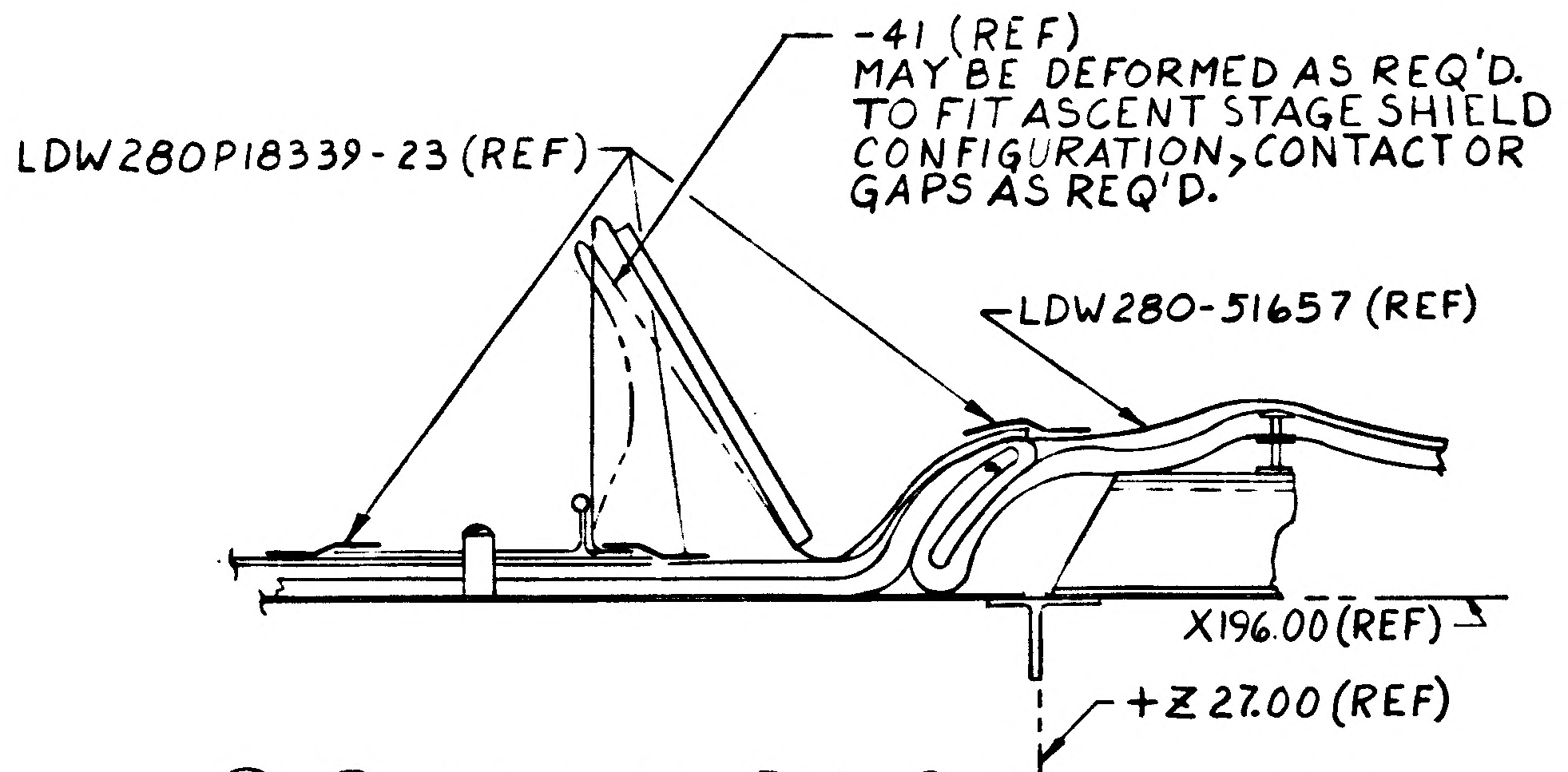
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28664 E
SCALE NONE
SHEET 2.04

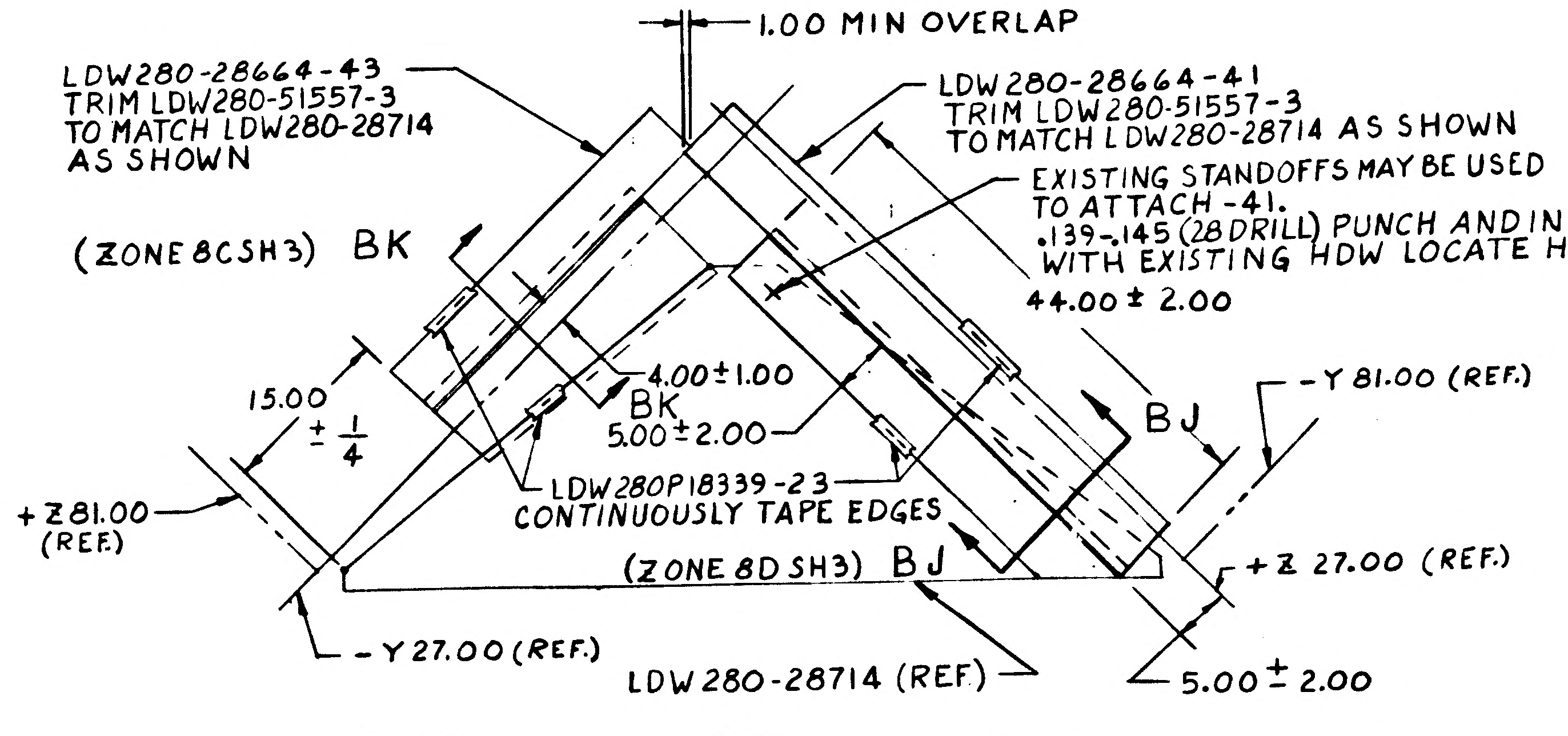
ENG 77.2 7-65

01

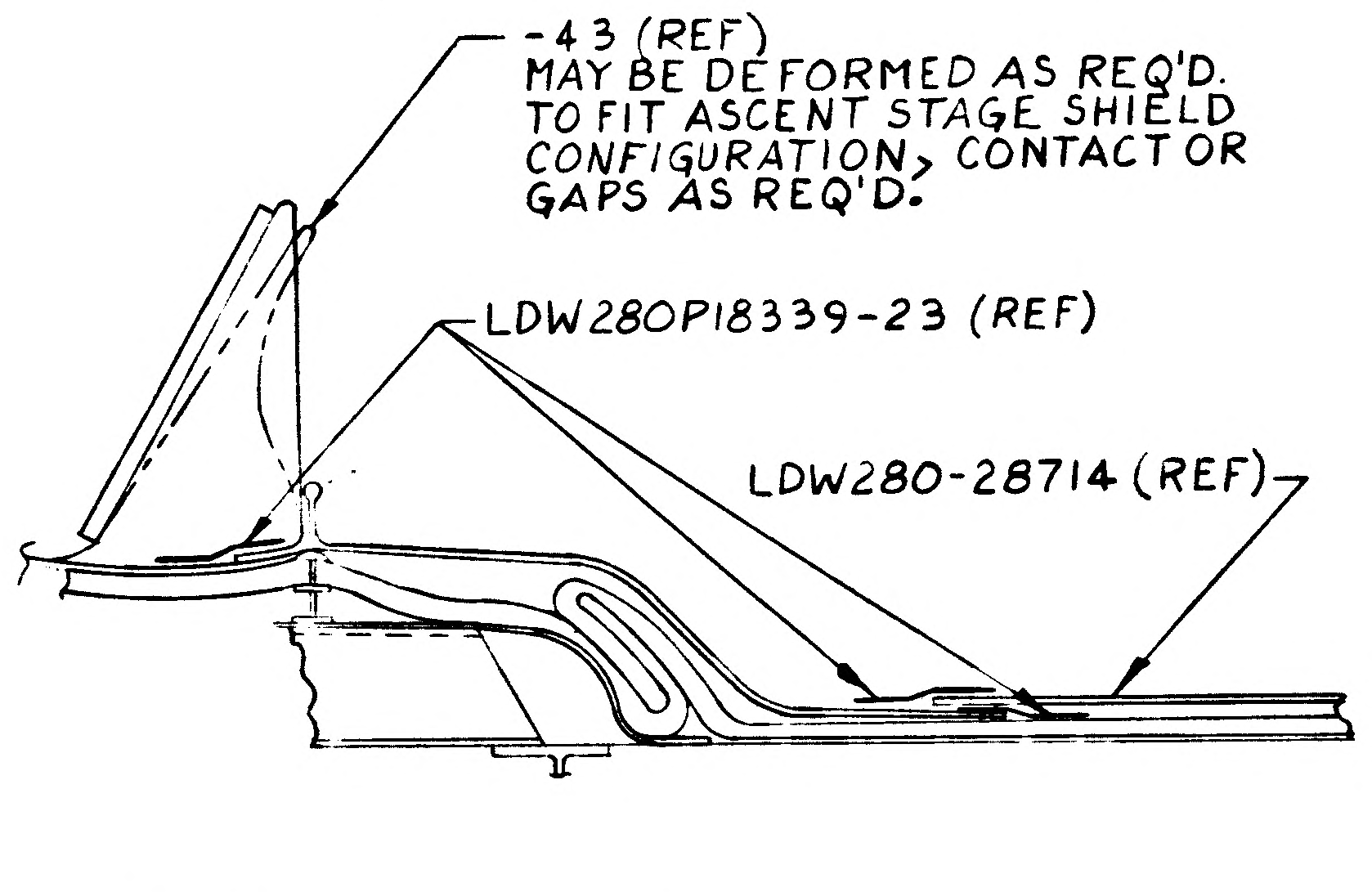
NAS 9-1100


LDW280P18339-23 (REF)
-41 (REF) MAY BE DEFORMED AS REQ'D. TO FIT ASCENT STAGE SHIELD CONFIGURATION, CONTACT OR GAPS AS REQ'D.
LDW280-51657 (REF)
X196.00 (REF)
+Z 27.00 (REF)

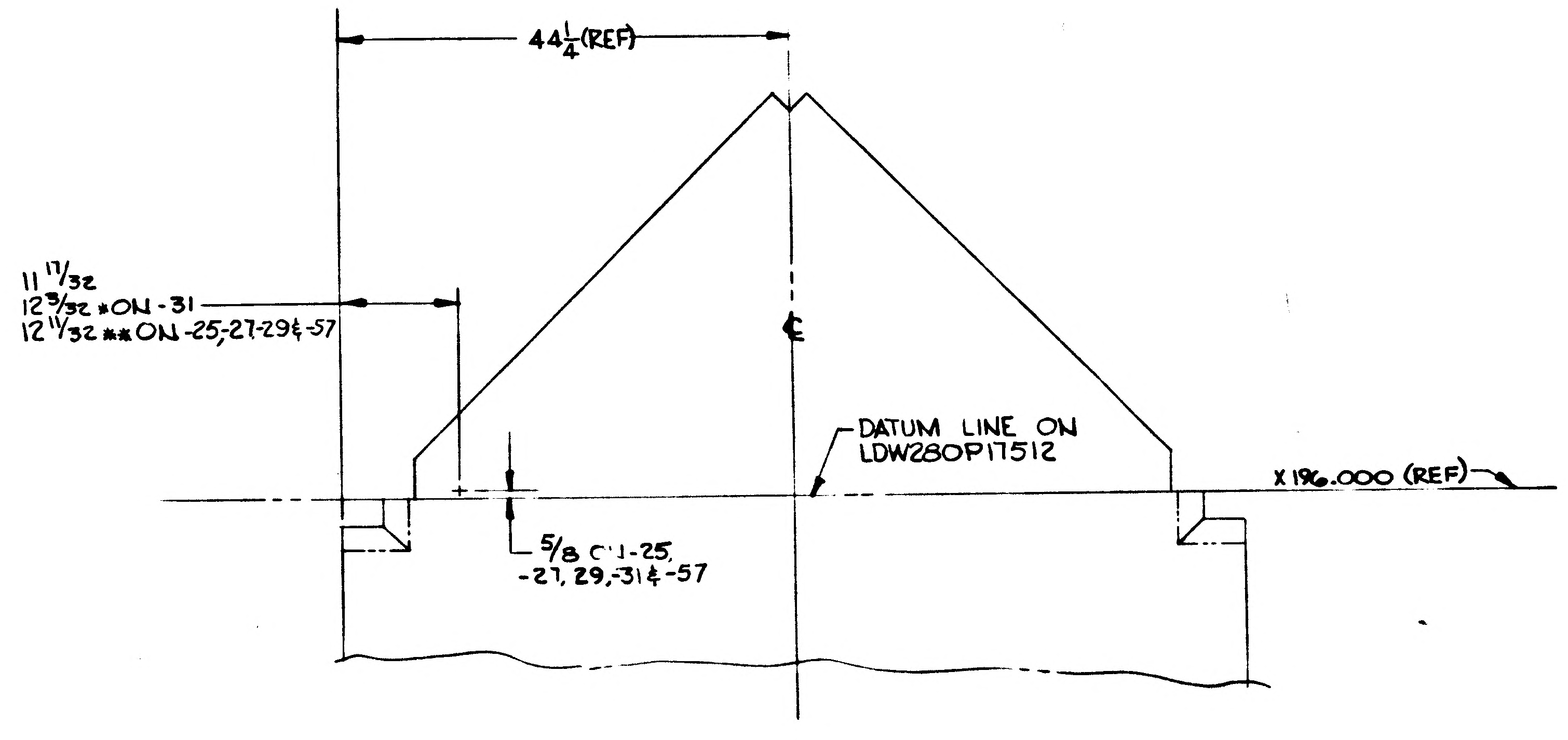
Ⓓ5 Ⓓ8 SECTION BJ-BJ (ZONE 6D SH 3)
NO SCALE


1.00 MIN OVERLAP
LDW280-28664-43 TRIM LDW280-51557-3 TO MATCH LDW280-28714 AS SHOWN
LDW280-28664-41 TRIM LDW280-51557-3 TO MATCH LDW280-28714 AS SHOWN
EXISTING STANDOFFS MAY BE USED TO ATTACH -41.
.139-.145 (28 DRILL) PUNCH AND INSTALL WITH EXISTING HDW LOCATE HOLES ON INSTL.
(ZONE 8C SH3) BK
44.00 ± 2.00
-Y 81.00 (REF.)
15.00 ± 1/4
4.00 ± 1.00
BK
5.00 ± 2.00
BJ
+Z 81.00 (REF.)
LDW280P18339-23 CONTINUOUSLY TAPE EDGES
(ZONE 8D SH3) BJ
+Z 27.00 (REF.)
-Y 27.00 (REF.)
LDW 280-28714 (REF)
5.00 ± 2.00

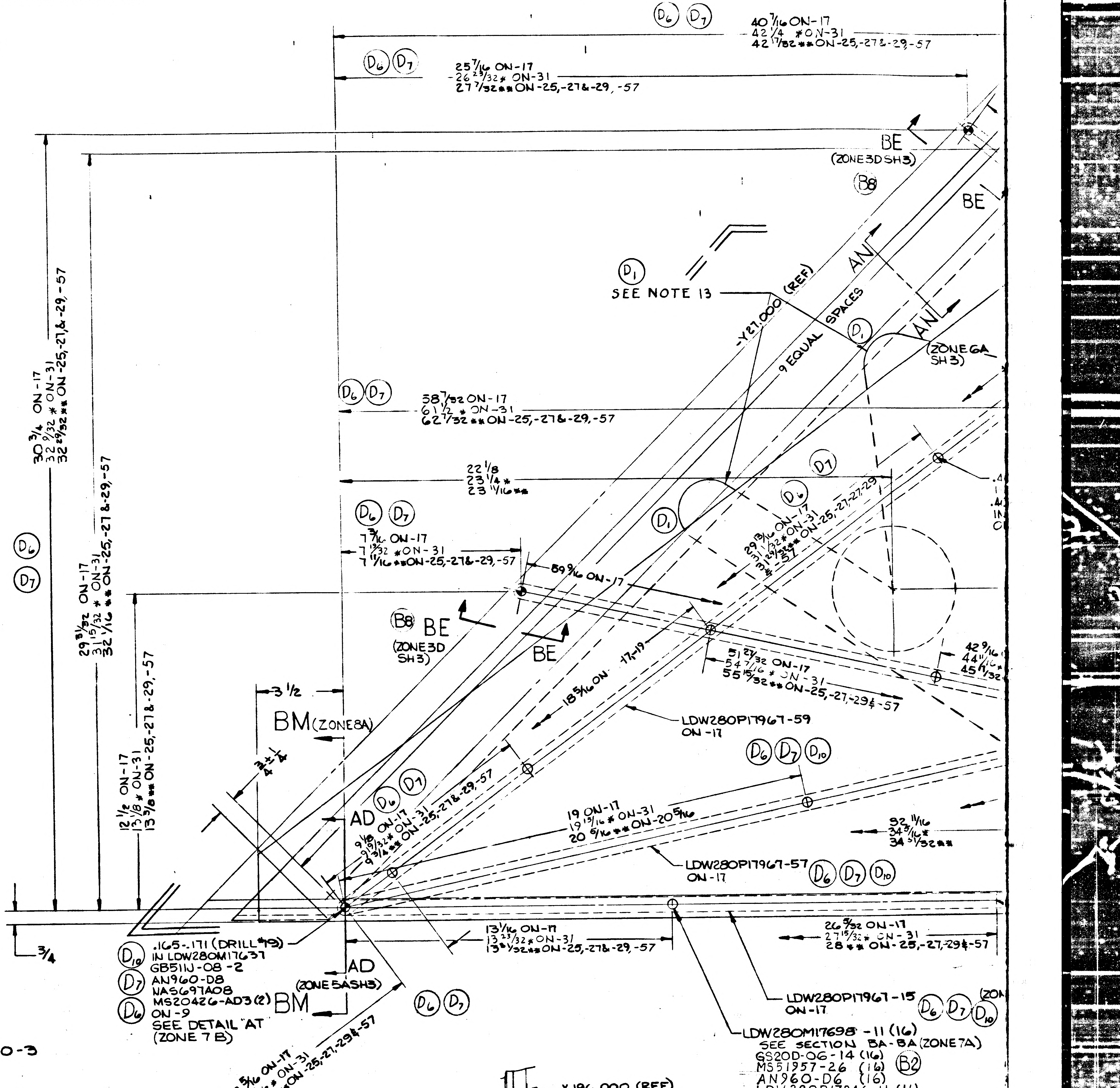
Ⓓ5 Ⓓ8 DETAIL BH (ZONE 3C SH 3)
NO SCALE

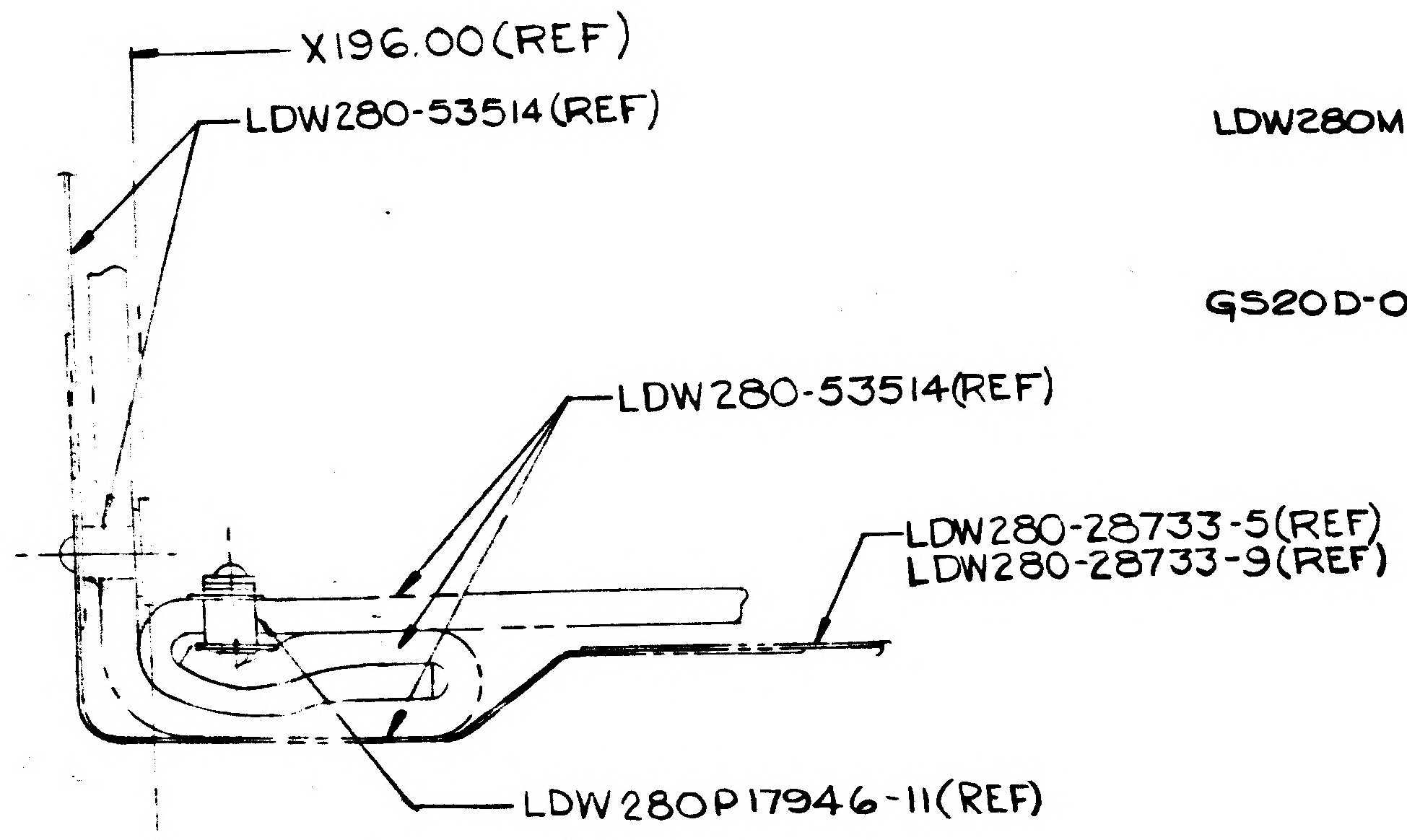

-43 (REF) MAY BE DEFORMED AS REQ'D. TO FIT ASCENT STAGE SHIELD CONFIGURATION, CONTACT OR GAPS AS REQ'D.
LDW280P18339-23 (REF)
LDW280-28714 (REF)

Ⓓ5 Ⓓ8 SECTION BK-BK (ZONE 7D SH 3)
NO SCALE

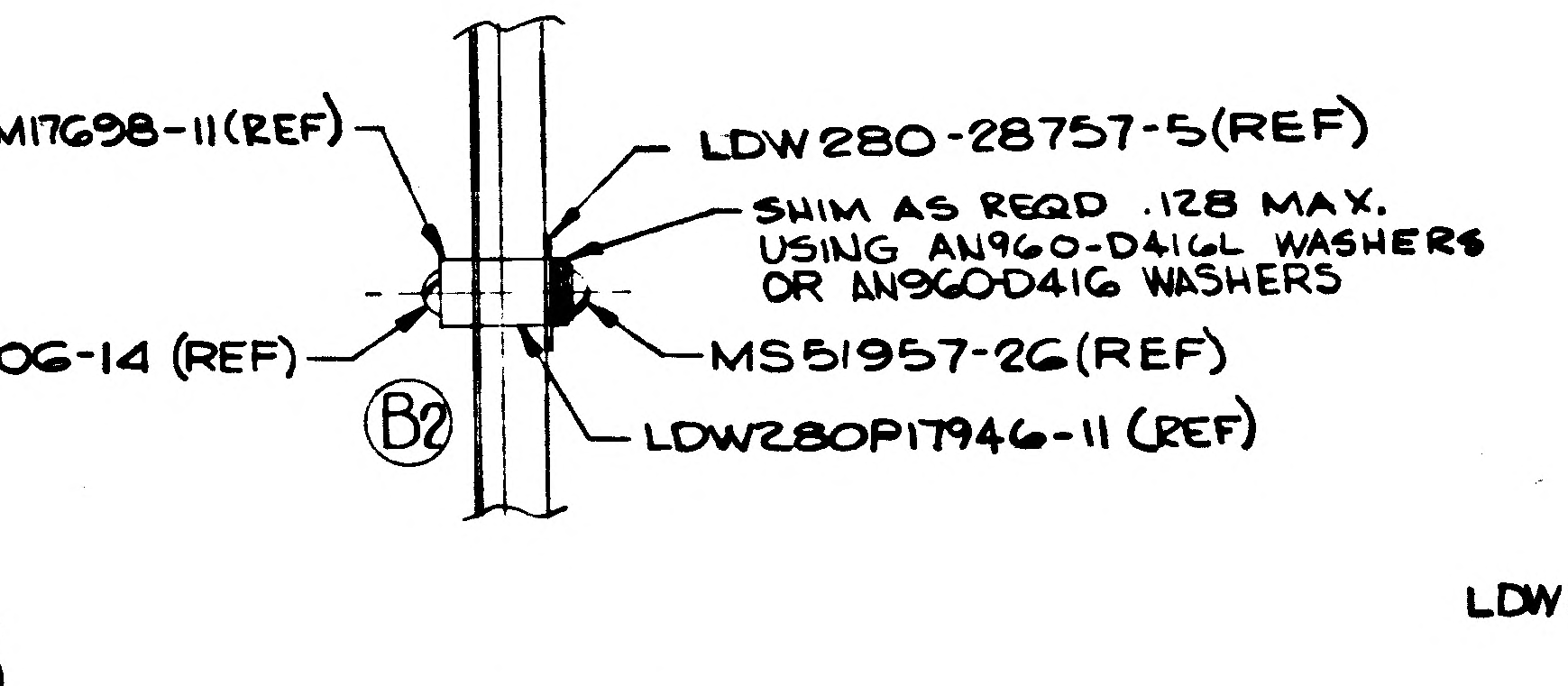

44 1/4 (REF)
11 17/32
12 9/32 * ON-31
12 11/32 ** ON-25,-27,-29 & -57
℄
DATUM LINE ON LDW280P17512
X196.000 (REF)
5/8 ON-25, -27, 29, -31 & -57

DETAIL AT (ZONE 6B SH 3)

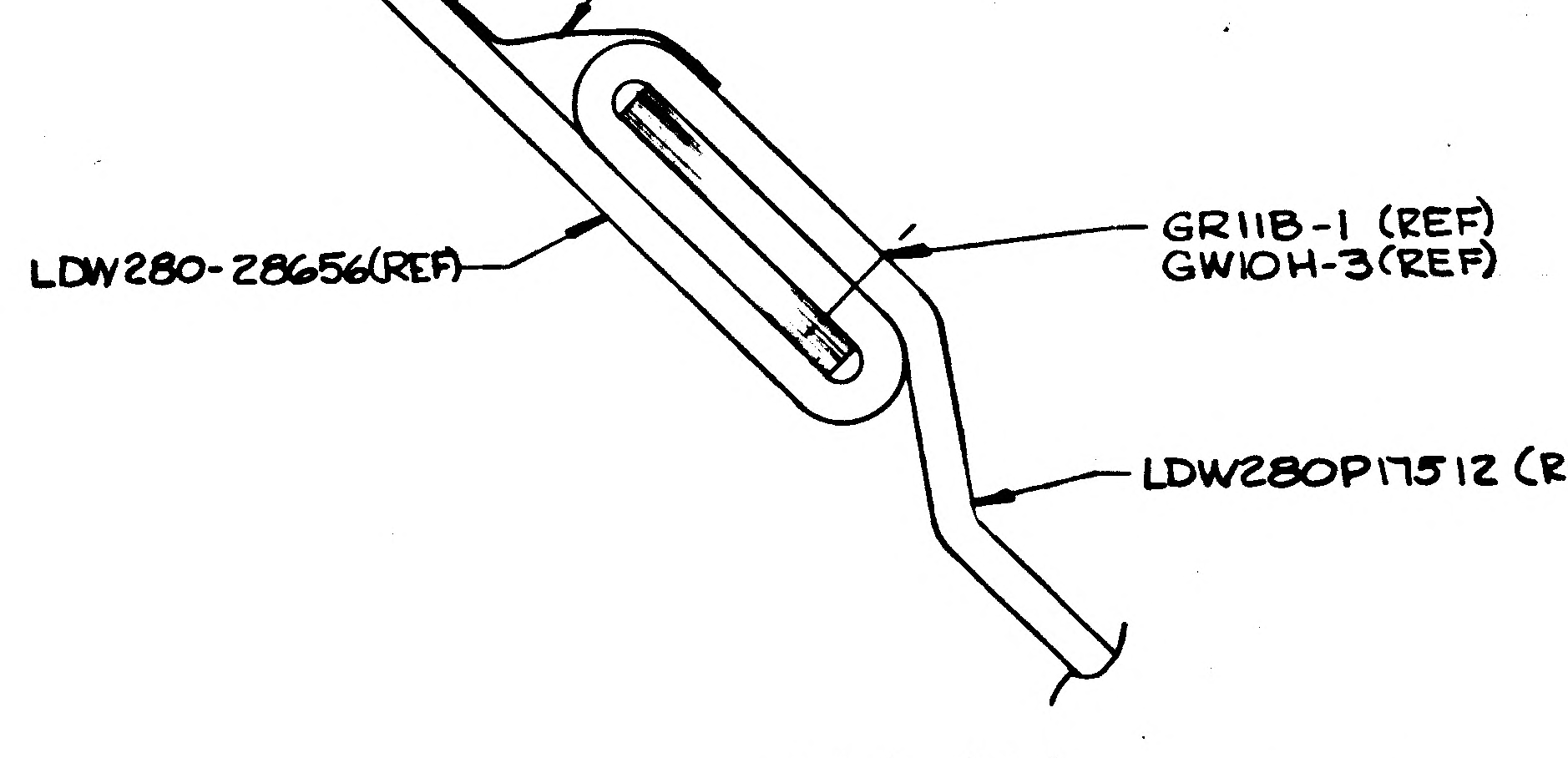

Ⓓ6 Ⓓ7
40 7/16 ON-17
42 1/4 * ON-31
42 17/32 ** ON-25,-27 & -29,-57
Ⓓ6 Ⓓ7
25 7/16 ON-17
26 23/32 * ON-31
27 7/32 ** ON-25,-27 & -29, -57
BE
(ZONE 3D SH3)
Ⓑ8
BE
Ⓓ1
SEE NOTE 13
-Y27.000 (REF)
9 EQUAL SPACES
AN
Ⓓ1
AN
(ZONE 6A SH 3)
30 3/4 ON-17
32 9/32 * ON-31
32 29/32 ** ON-25,-27, & -29,-57
Ⓓ6 Ⓓ7
58 7/32 ON-17
61 1/2 * ON-31
62 7/32 ** ON-25,-27 & -29,-57
22 1/8
23 1/4 *
23 11/16 **
Ⓓ7
Ⓓ1
Ⓓ6
29 13/16 ON-17
31 1/32 * ON-31
31 29/32 ** ON-25,-27,-27,-29 & -57
Ⓓ6 Ⓓ7
7 3/16 ON-17
7 13/32 * ON-31
7 11/16 ** ON-25,-27 & -29,-57
59 9/16 ON-17
Ⓓ6
Ⓓ7
29 31/32 ON-17
31 15/32 * ON-31
32 1/16 ** ON-25,-27 & -29,-57
Ⓑ8 BE
(ZONE 3D SH3)
BE
18 5/16 ON -17,-19
51 27/32 ON-17
54 7/16 * ON-31
55 15/32 ** ON-25,-27,-29 & -57
42 9/16
44 11/16 *
45 1/32
3 1/2
BM (ZONE 8A)
3/4 ± 1/4
LDW280P17967-59 ON-17
Ⓓ6 Ⓓ7 Ⓓ10
12 1/2 ON-17
13 1/8 * ON-31
13 3/8 ** ON-25,-27 & -29,-57
AD
Ⓓ6 Ⓓ7
9 1/8 ON-17
9 19/32 * ON-31
9 3/4 ** ON-25,-27 & -29,-57
19 ON-17
19 13/16 * ON-31
20 5/16 ** ON-20 5/16
32 11/16
34 3/16 *
34 31/32 **
LDW280P17967-57 ON-17 Ⓓ6 Ⓓ7 Ⓓ10
3/4
Ⓓ10 .165-.171 (DRILL #19) IN LDW280M17637
GB511J-08-2
Ⓓ7 AN960-D8
NAS697A08
Ⓓ6 MS20426-AD3 (2) ON-9
SEE DETAIL "AT" (ZONE 7 B)
AD
(ZONE 5A SH3)
BM
13 1/16 ON-17
13 23/32 * ON-31
13 31/32 ** ON-25,-27 & -29,-57
Ⓓ6 Ⓓ7
2 5/16 ON-17
2 7/16 * ON-31
2 15/32 ** ON-25,-27,-29 & -57
26 5/32 ON-17
27 15/32 * ON-31
28 ** ON-25,-27,-29 & -57
LDW280P17967-15 ON-17 Ⓓ6 Ⓓ7 Ⓓ10
LDW280M17698-11 (16)
SEE SECTION BA-BA (ZONE 7A)
GS20D-06-14 (16)
MS51957-26 (16) Ⓑ2
AN960-D6 (16)
LDW280P17946-11 (16)


X196.00 (REF)
LDW280-53514 (REF)
LDW280-53514 (REF)
LDW280-28733-5 (REF)
LDW280-28733-9 (REF)
LDW280P17946-11 (REF)

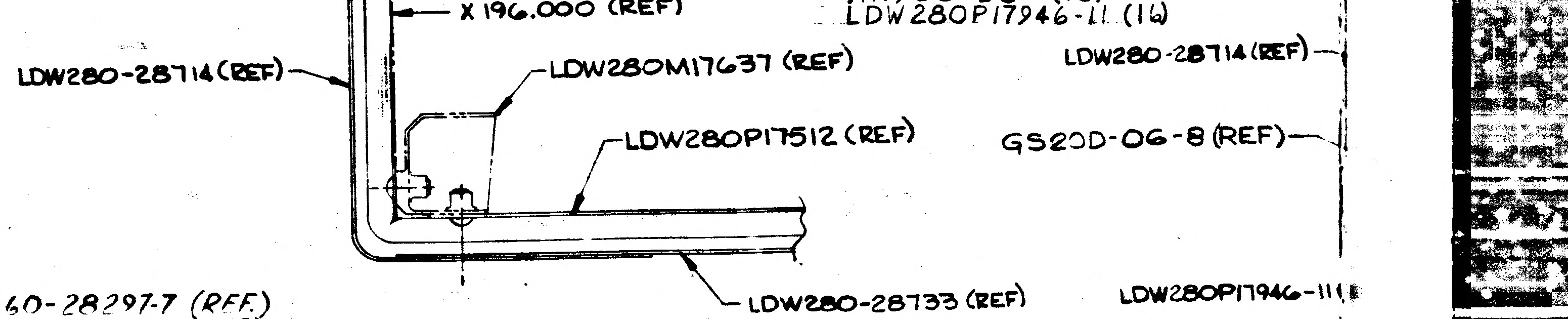
SECTION BM-BM (ZONE 5B)
(SCALE: FULL) (ON-11 & -53)
(TYP 6 PLACES) Ⓔ3


LDW280M17698-11 (REF)
LDW 280-28757-5 (REF)
SHIM AS REQD .128 MAX. USING AN960-D416L WASHERS OR AN960-D416 WASHERS
GS20D-06-14 (REF)
MS51957-26 (REF)
Ⓑ2
LDW280P17946-11 (REF)

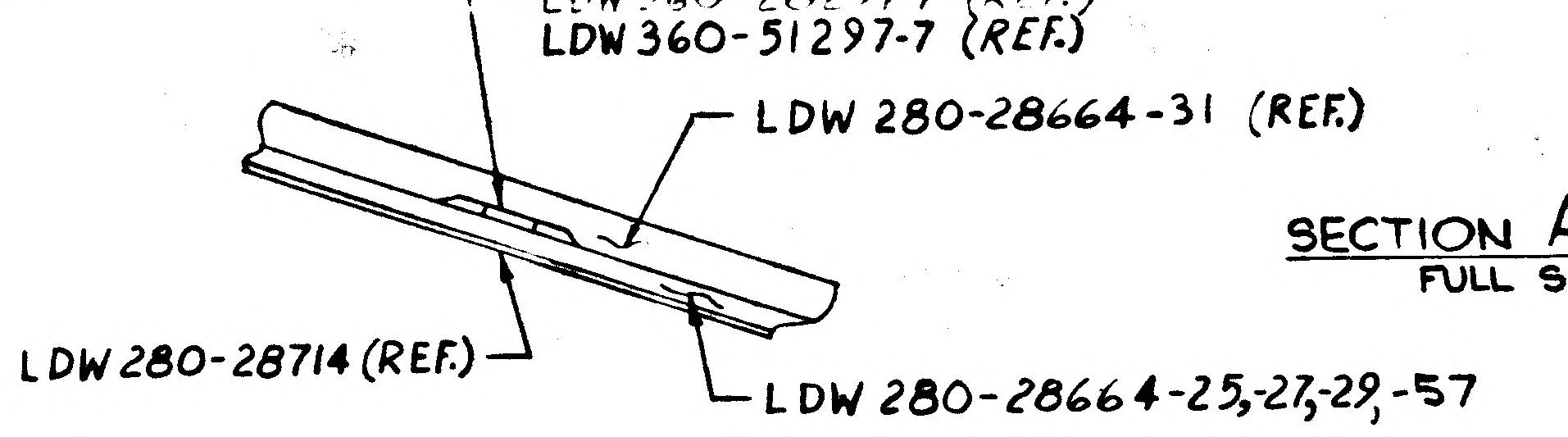
SECTION BA-BA (ZONE 11B SH 4)
FULL SIZE


TAPE PER LPC280-3
LDW280-28656 (REF)
GR11B-1 (REF)
GW10H-3 (REF)
LDW280P17512 (REF)

SECTION AN-AN (ZONE 4C SH 3)
FULL SIZE


X 196.000 (REF)
LDW280-28714 (REF)
LDW280M17637 (REF)
LDW280P17512 (REF)
LDW280-28714 (REF)
GS20D-06-8 (REF)
LDW280-28733 (REF)
LDW280P17946-11

SECTION AD-AD (ZONE 5B SH 3) (ON-13, -15 & -17)
FULL SIZE

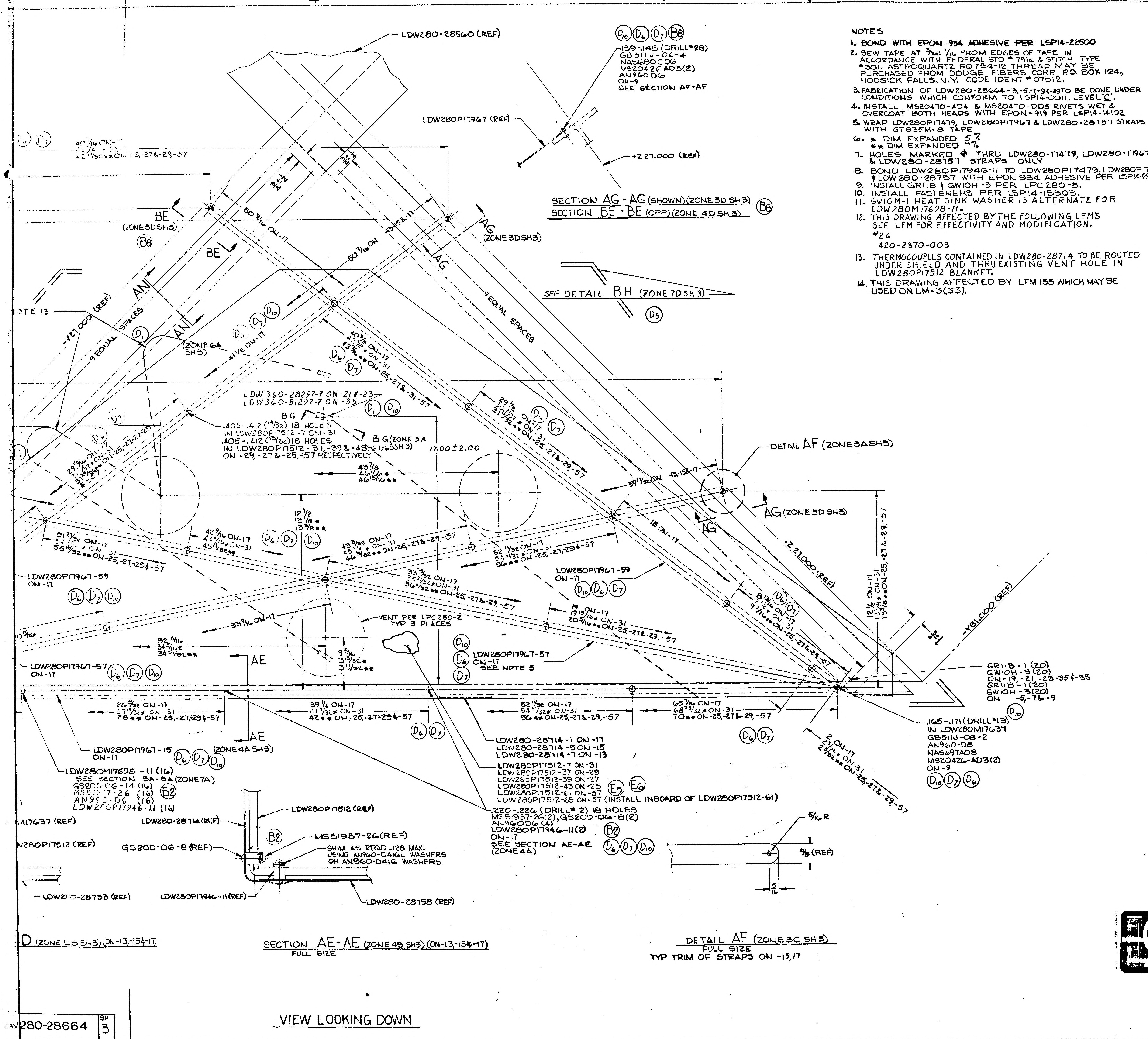

LDW 360-28297-7 (REF)
LDW 360-51297-7 (REF)
LDW 280-28664-31 (REF)
LDW 280-28714 (REF)
LDW 280-28664-25, 27, 29, -57

Ⓓ1 SECTION BG-BG (ZONE 4C SH 3)
FULL SIZE

01/02

NAS 9-1100

LDW280-28664 SH 3


LDW280-28560 (REF)
.139-.145 (DRILL #28)
GB511J-06-4
NAS680C06
MS20426AD3(2)
AN960D6
ON-9
SEE SECTION AF-AF
LDW280P17967 (REF)
+Z27.000 (REF)
SECTION AG-AG (SHOWN) (ZONE 3D SH3)
SECTION BE-BE (OPP) (ZONE 4D SH3)
BE (ZONE 3D SH3)
AG (ZONE 3D SH3)
50 3/16 ON-17
50 7/16 ON -13,15 & -17
9 EQUAL SPACES
SEE DETAIL BH (ZONE 7D SH 3)
AN (ZONE 6A SH3)
-Y27.000 (REF)
NOTE 13
41/2 ON-17
LDW360-28297-7 ON-21 & -23
LDW360-51297-7 ON -35
BG
BG (ZONE 5A SH 3)
.405-.412 (13/32) 18 HOLES IN LDW280P17512-7 ON-31
.405-.412 (13/32) 18 HOLES IN LDW280P17512-37,-39 & -43-61,-65 ON -29,-27 & -25,-57 RESPECTIVELY
17.00 ± 2.00
43 7/8
46 1/16 *
46 15/16 **
DETAIL AF (ZONE 3A SH3)
AG (ZONE 3D SH3)
18 ON-17
+Z27.000 (REF)
-Y81.000 (REF)
LDW280P17967-59 ON-17
LDW280P17967-57 ON-17
VENT PER LPC280-2 TYP 3 PLACES
LDW280P17967-57 ON-17 SEE NOTE 5
AE
GR11B-1 (20)
GW10H-3 (20)
ON-19,-21,-23-35 & -55
GR11B-1 (20)
GW10H-3 (20)
ON -5,-7 & -9
.165-.171 (DRILL #19) IN LDW280M17637
GB511J-08-2
AN960-D8
NAS697A08
MS20426-AD3(2)
ON-9
LDW280P17967-15 ON-17
(ZONE 4A SH3)
LDW280M17698-11 (16)
SEE SECTION BA-BA (ZONE 7A)
GS20D-06-14 (16)
MS51957-26 (16)
AN960-D6 (16)
LDW280P17946-11 (16)
LDW280-28714-1 ON -17
LDW280-28714-5 ON -15
LDW280-28714-7 ON -13
LDW280P17512-7 ON-31
LDW280P17512-37 ON-29
LDW280P17512-39 ON-27
LDW280P17512-43 ON-25
LDW280P17512-61 ON-57
LDW280P17512-65 ON-57 (INSTALL INBOARD OF LDW280P17512-61)
.220-.226 (DRILL #2) 18 HOLES
MS51957-26(2), GS20D-06-8(2)
AN960D6 (4)
LDW280P17946-11(2)
ON-17
SEE SECTION AE-AE (ZONE 4A)
M17637 (REF)
W280P17512 (REF)
LDW280P17512 (REF)
LDW280-28714 (REF)
MS51957-26 (REF)
GS20D-06-8 (REF)
SHIM AS REQD .128 MAX. USING AN960-D416L WASHERS OR AN960-D416 WASHERS
LDW280-28733 (REF)
LDW280P17946-11 (REF)
LDW280-28758 (REF)
5/16 R
5/8 (REF)
D (ZONE 5B SH3) (ON-13,-15 & -17)
SECTION AE-AE (ZONE 4B SH3) (ON-13,-15 & -17)
FULL SIZE
DETAIL AF (ZONE 3C SH3)
FULL SIZE
TYP TRIM OF STRAPS ON -15,17
VIEW LOOKING DOWN

NOTES

1. BOND WITH EPON 934 ADHESIVE PER LSP14-22500
2. SEW TAPE AT 3/16 ± 1/16 FROM EDGES OF TAPE IN ACCORDANCE WITH FEDERAL STD #751a & STITCH TYPE #301. ASTROQUARTZ RQ754-12 THREAD MAY BE PURCHASED FROM DODGE FIBERS CORP. P.O. BOX 124, HOOSICK FALLS, N.Y. CODE IDENT #07512.
3. FABRICATION OF LDW280-28664-3,-5,-7,-9 & -49 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011, LEVEL "C".
4. INSTALL MS20470-AD4 & MS20470-DD5 RIVETS WET & OVERCOAT BOTH HEADS WITH EPON-919 PER LSP14-14102
5. WRAP LDW280P17479, LDW280P17967 & LDW280-28157 STRAPS WITH GT835M-8 TAPE
6. * DIM EXPANDED 5%
   ** DIM EXPANDED 7%
7. HOLES MARKED ⌖ THRU LDW280-17479, LDW280-17967 & LDW280-28757 STRAPS ONLY
8. BOND LDW280P17946-11 TO LDW280P17479, LDW280P17967 & LDW280-28757 WITH EPON 934 ADHESIVE PER LSP14-22500.
9. INSTALL GR11B & GW10H-3 PER LPC 280-3.
10. INSTALL FASTENERS PER LSP14-15303.
11. GW10M-1 HEAT SINK WASHER IS ALTERNATE FOR LDW280M17698-11.
12. THIS DRAWING AFFECTED BY THE FOLLOWING LFM'S SEE LFM FOR EFFECTIVITY AND MODIFICATION.
    #26
    420-2370-003
13. THERMOCOUPLES CONTAINED IN LDW280-28714 TO BE ROUTED UNDER SHIELD AND THRU EXISTING VENT HOLE IN LDW280P17512 BLANKET.
14. THIS DRAWING AFFECTED BY LFM 155 WHICH MAY BE USED ON LM-3(33).

RECORD DATA

MODEL	[illegible]	EFFECTIVITY
LM	E	LM-1(31)

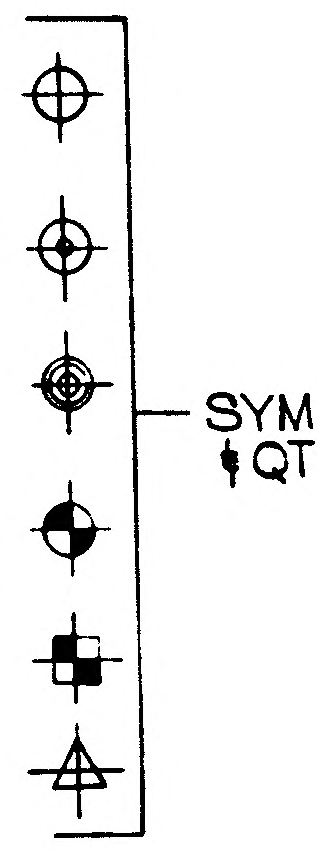
MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 90) - 22.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) - 5.6 SQ. FT.

PRINT TRIM LINE

SYMBOL LEGEND



SYMBOLS ARE FOR LOCATION & QTY ONLY

02/02

NAS 9-1100

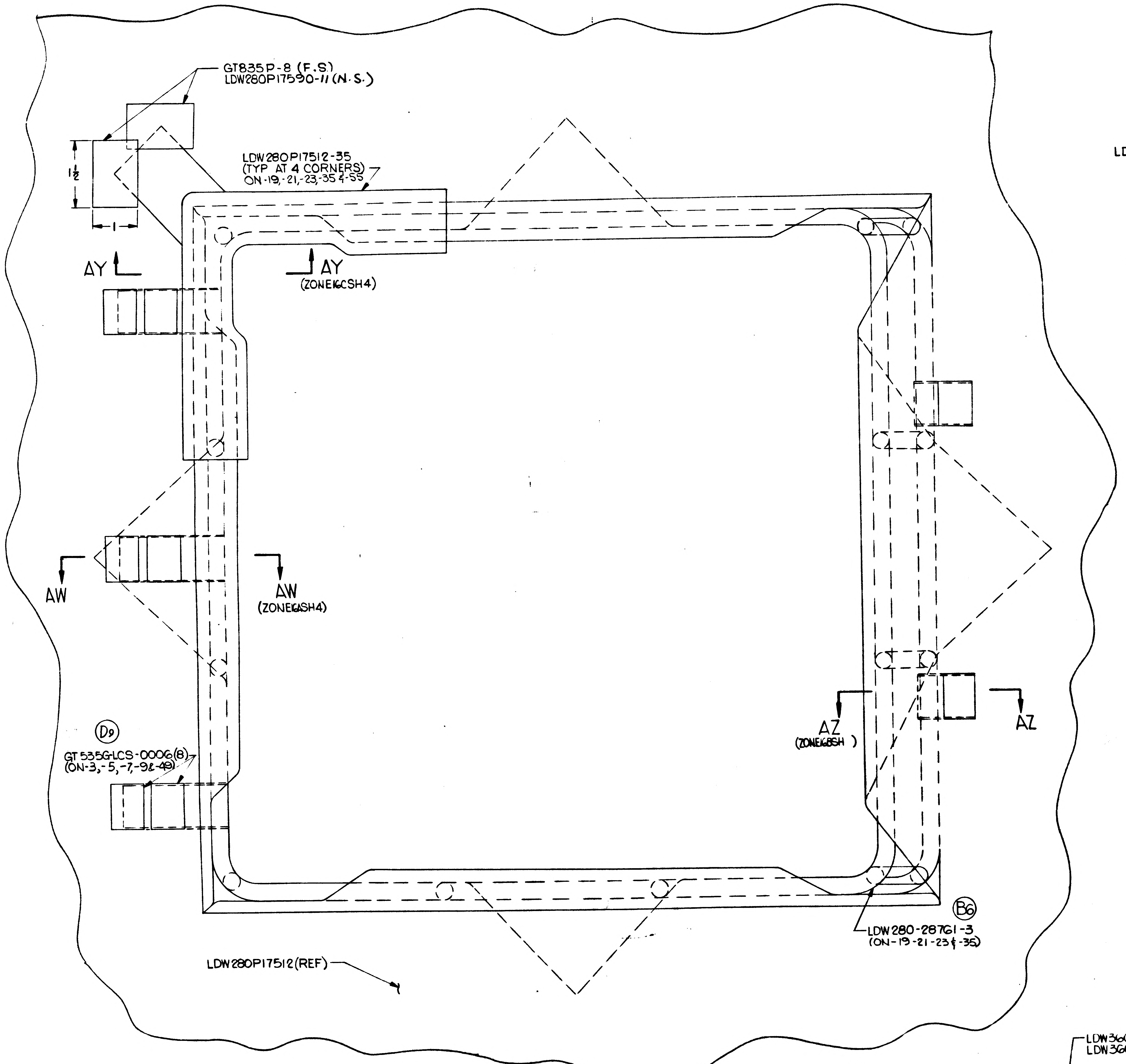
LDW280-28664 E

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

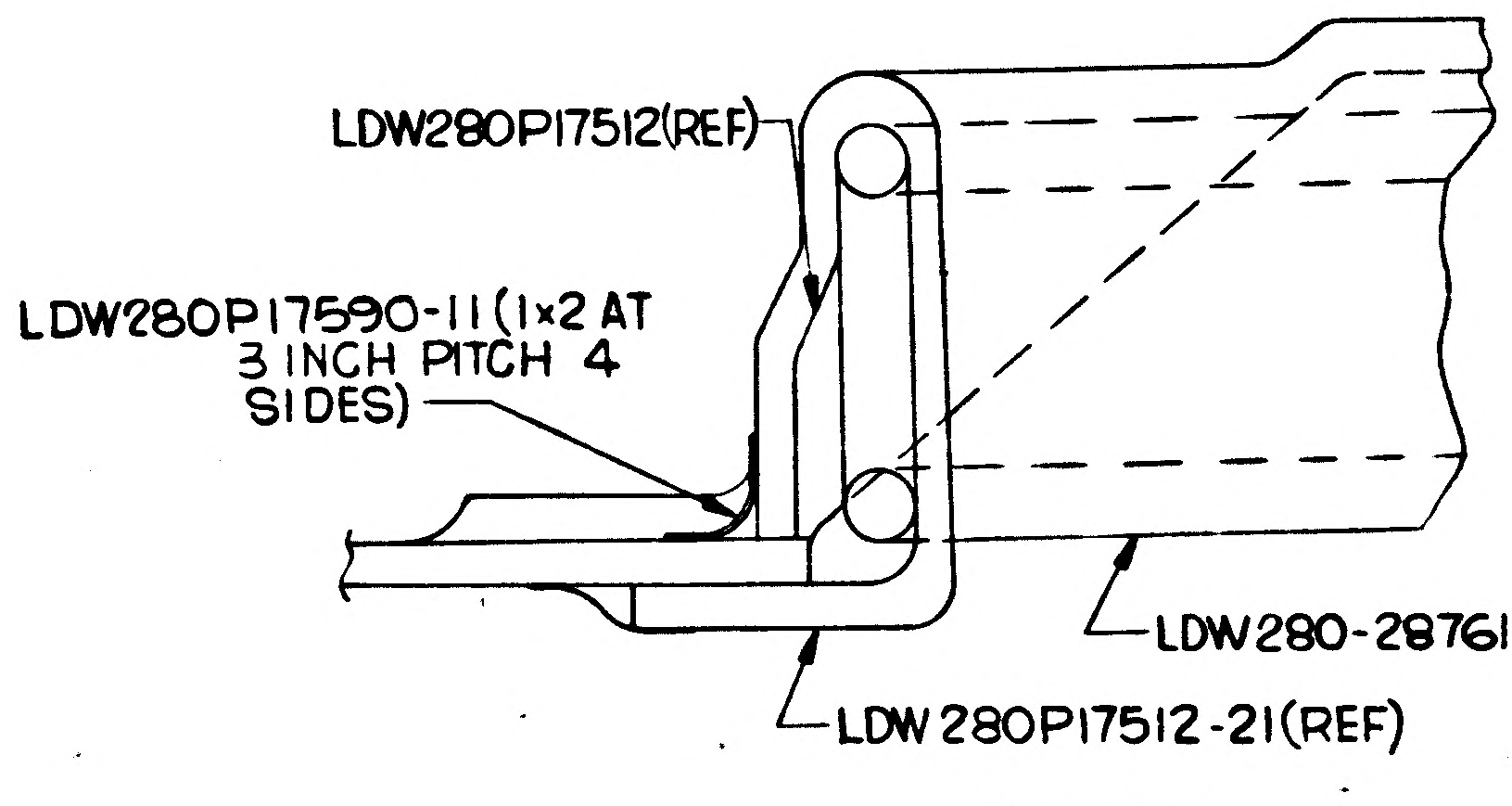
MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-28664	E
	SCALE 1/2 NOTED		SHEET 3.00	

280-28664 SH 3

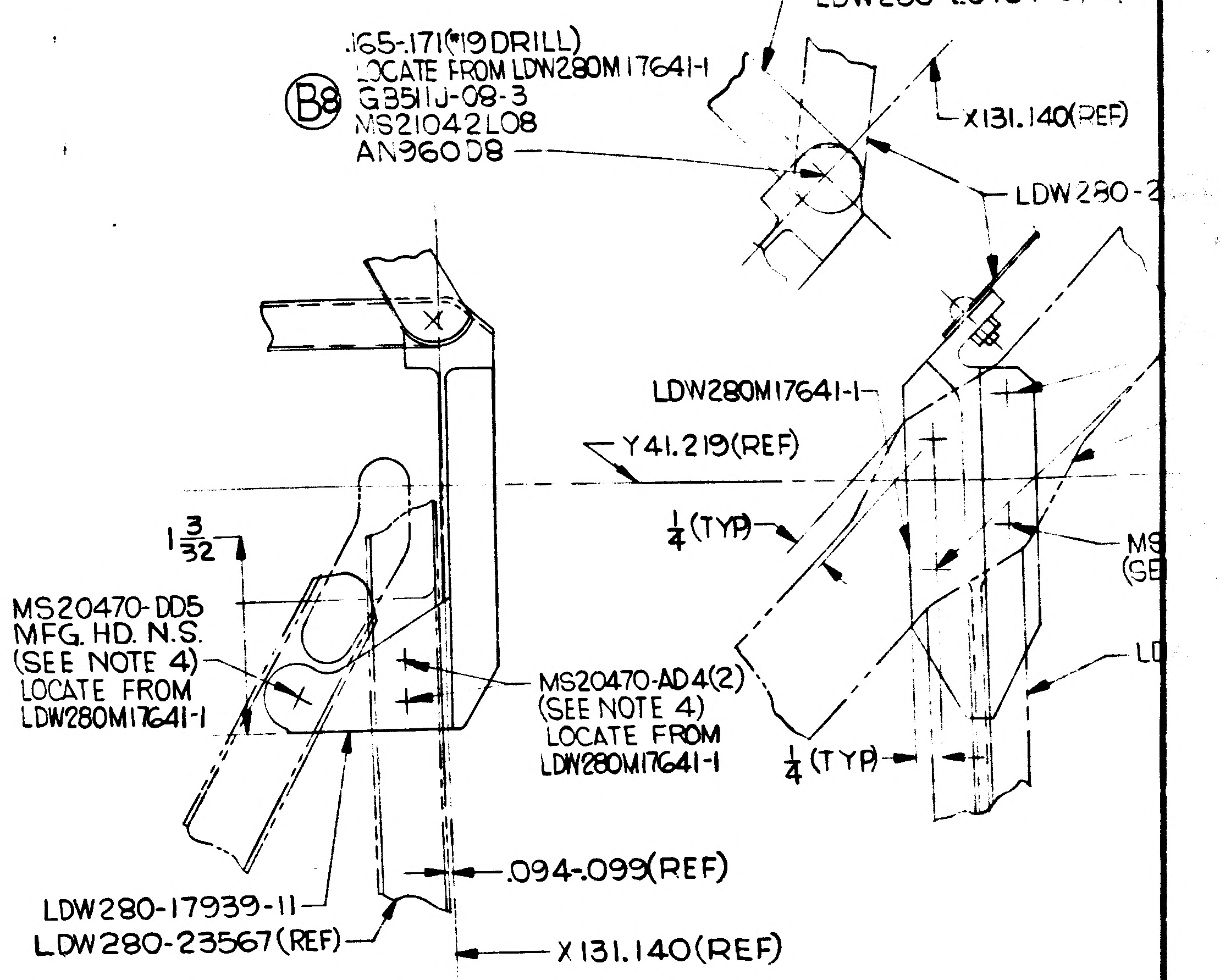
2/2


GT835P-8 (F.S)
LDW280P17590-11 (N.S.)
1½
1
LDW280P17512-35
(TYP AT 4 CORNERS)
ON-19,-21,-23,-35 &-55
AY
AY
(ZONE16CSH4)
AW
AW
(ZONE16ASH4)
D9
GT535G-LCS-0006(8)
(ON-3,-5,-7,-9&-49)
AZ
(ZONE16BSH)
AZ
B6
LDW280-28761-3
(ON-19-21-23&-35)
LDW280P17512(REF)

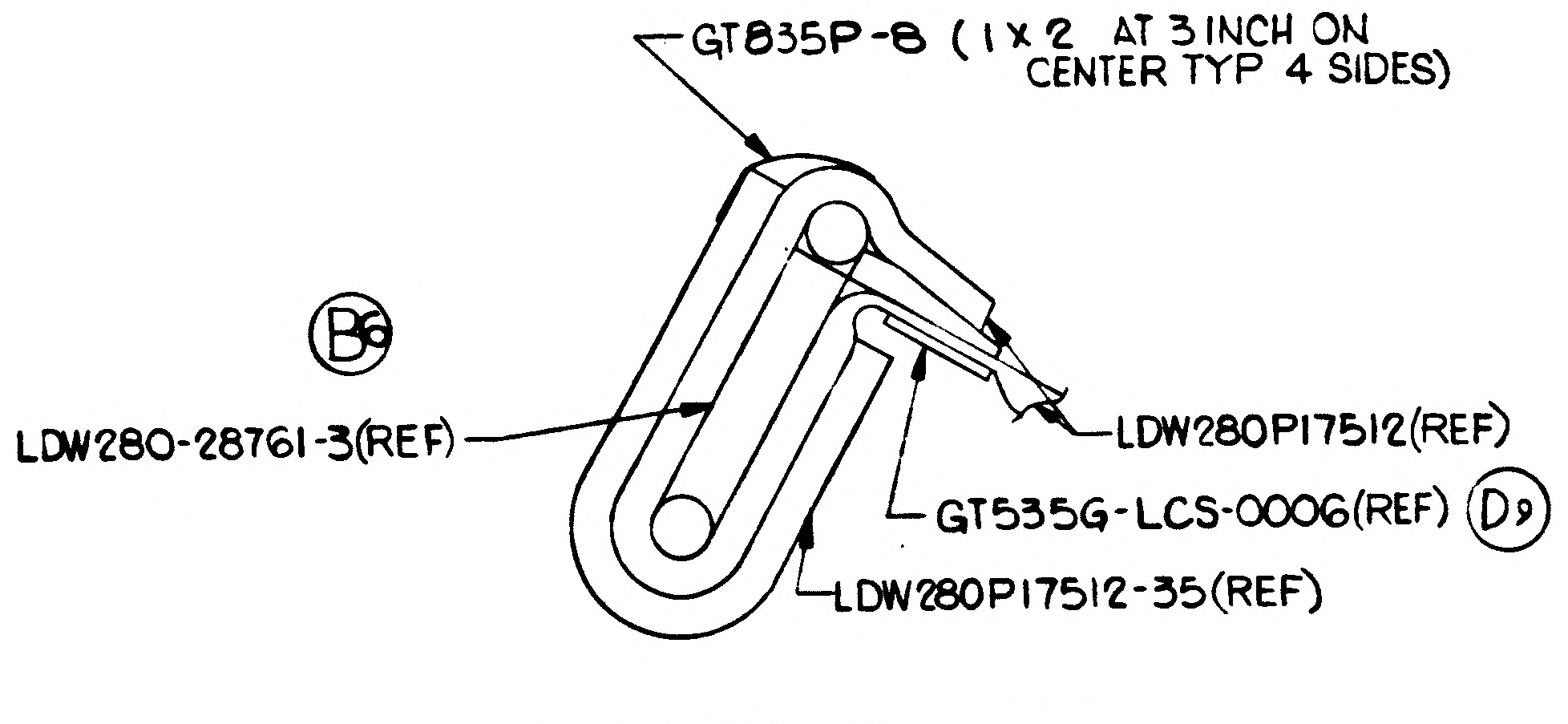
DETAIL AL (ZONE11ASH4)
(SCALE: FULL)


LDW280P17512(REF)
LDW280P17590-11 (1×2 AT 3 INCH PITCH 4 SIDES)
LDW280-28761-3(REF)
LDW280P17512-21(REF)

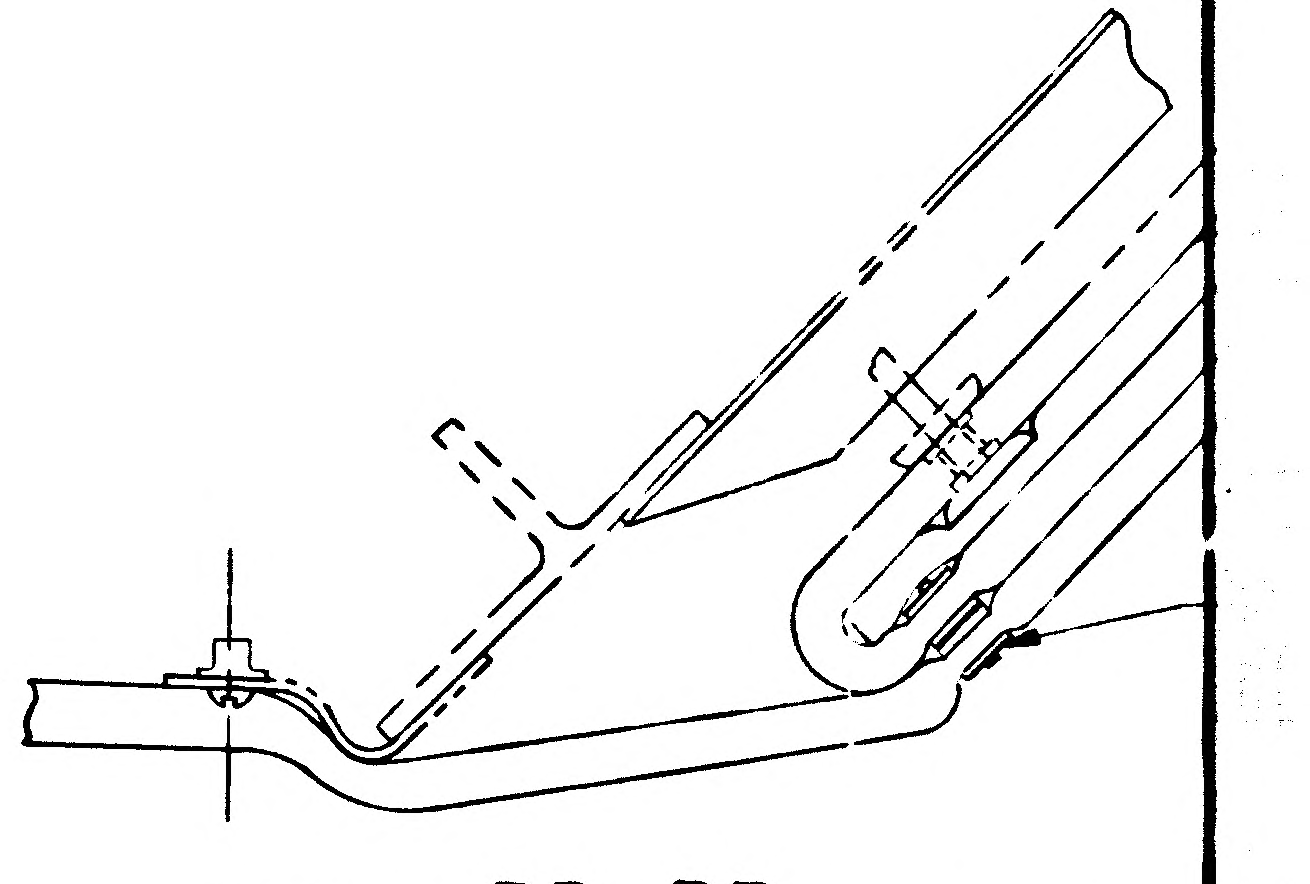
SECTION AY-AY (ZONE 16C SH4)
(SCALE: FULL)


.165-.171(#19 DRILL)
LOCATE FROM LDW280M17641-1
B8
GB511J-08-3
MS21042L08
AN960D8
LDW280-28757-3&-7(RE
X131.140(REF)
LDW280-2
LDW280M17641-1
Y41.219(REF)
1 3/32
¼ (TYP)
MS
(SE
LD
MS20470-DD5
MFG. HD. N.S.
(SEE NOTE 4)
LOCATE FROM
LDW280M17641-1
MS20470-AD4(2)
(SEE NOTE 4)
LOCATE FROM
LDW280M17641-1
¼ (TYP)
.094-.099(REF)
LDW280-17939-11
LDW280-23567(REF)
X131.140(REF)

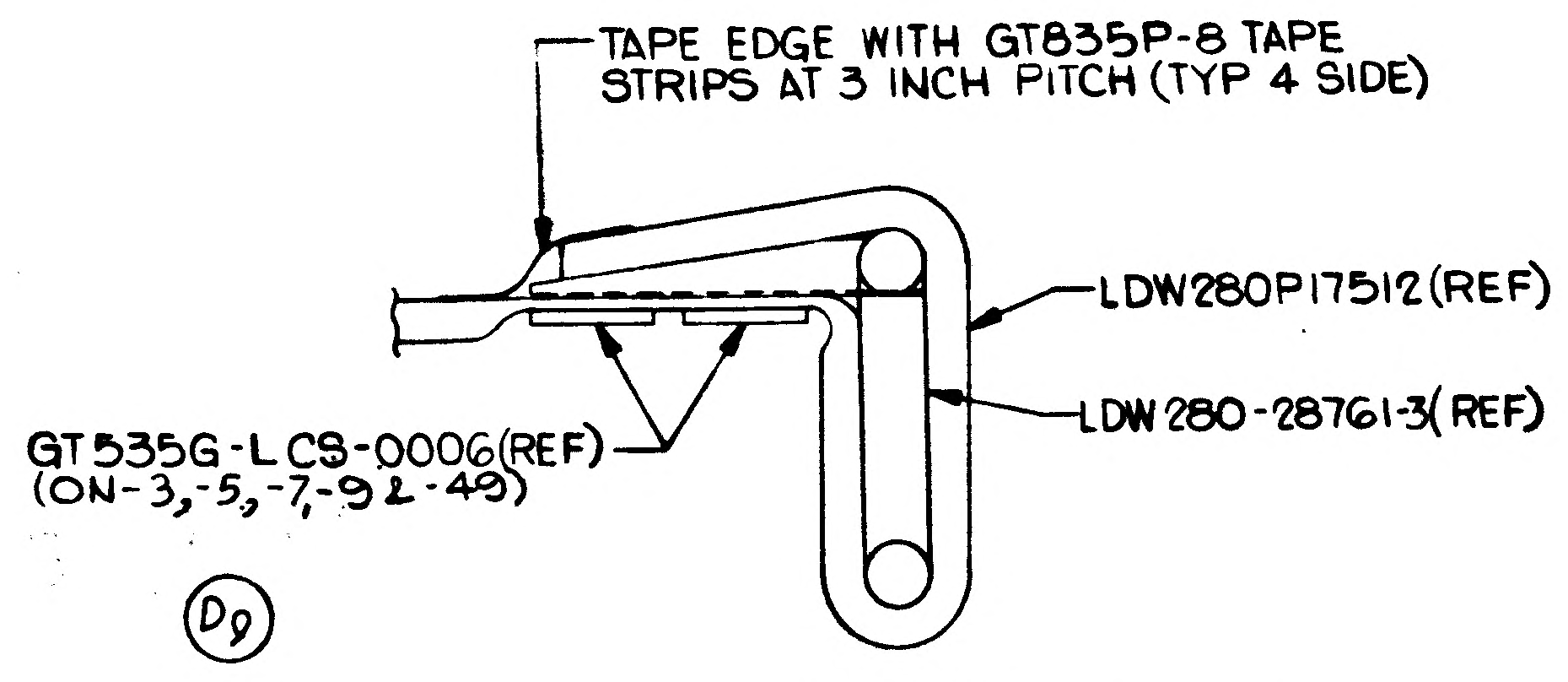
VIEW AV-AV (ZONE12ASH4)
(SCALE: FULL)


GT835P-8 (1×2 AT 3 INCH ON CENTER TYP 4 SIDES)
B6
LDW280-28761-3(REF)
LDW280P17512(REF)
GT535G-LCS-0006(REF)
D9
LDW280P17512-35(REF)

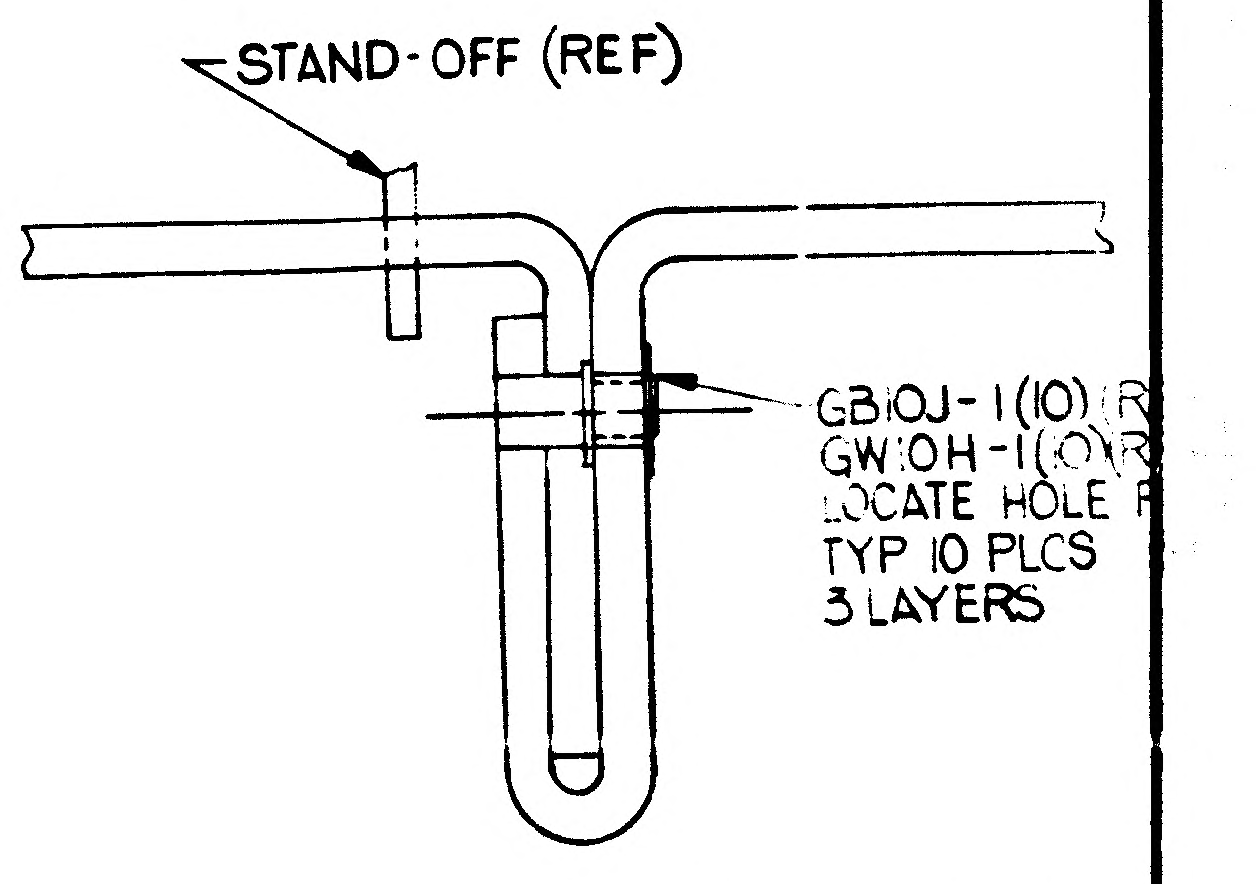
SECTION AZ-AZ (ZONE8BSH4)
(SCALE: FULL)



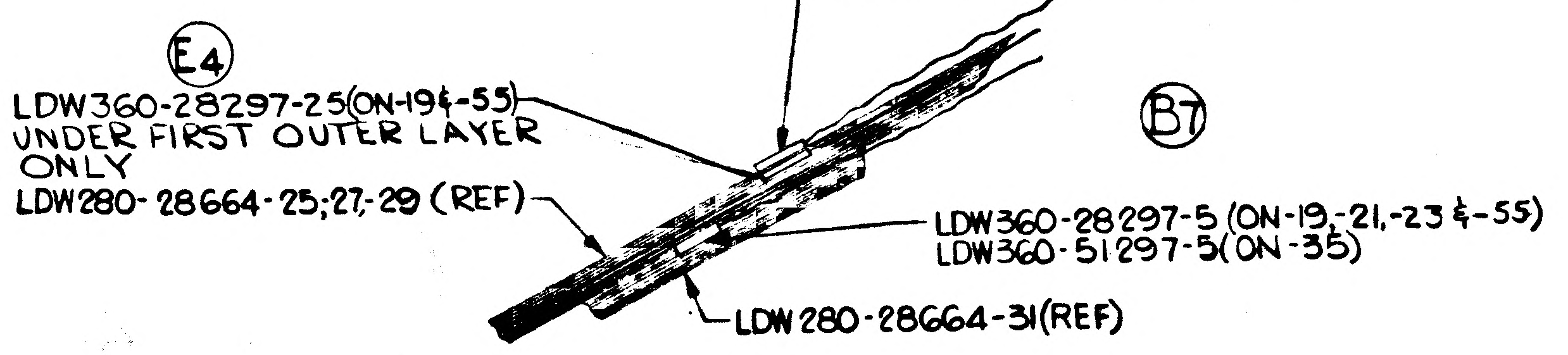
SECTION BB-BB (ZONE10CSH4)
(ON-3,5,-7&-49, (SCALE: FULL)


TAPE EDGE WITH GT835P-8 TAPE STRIPS AT 3 INCH PITCH (TYP 4 SIDE)
LDW280P17512(REF)
LDW280-28761-3(REF)
GT535G-LCS-0006(REF)
(ON-3,-5,-7,-9&-49)
D9

SECTION AW-AW (ZONE19BSH4)
(SCALE: FULL)


STAND-OFF (REF)
GB10J-1(10)(R
GW10H-1(10)(R
LOCATE HOLE F
TYP 10 PLCS
3 LAYERS

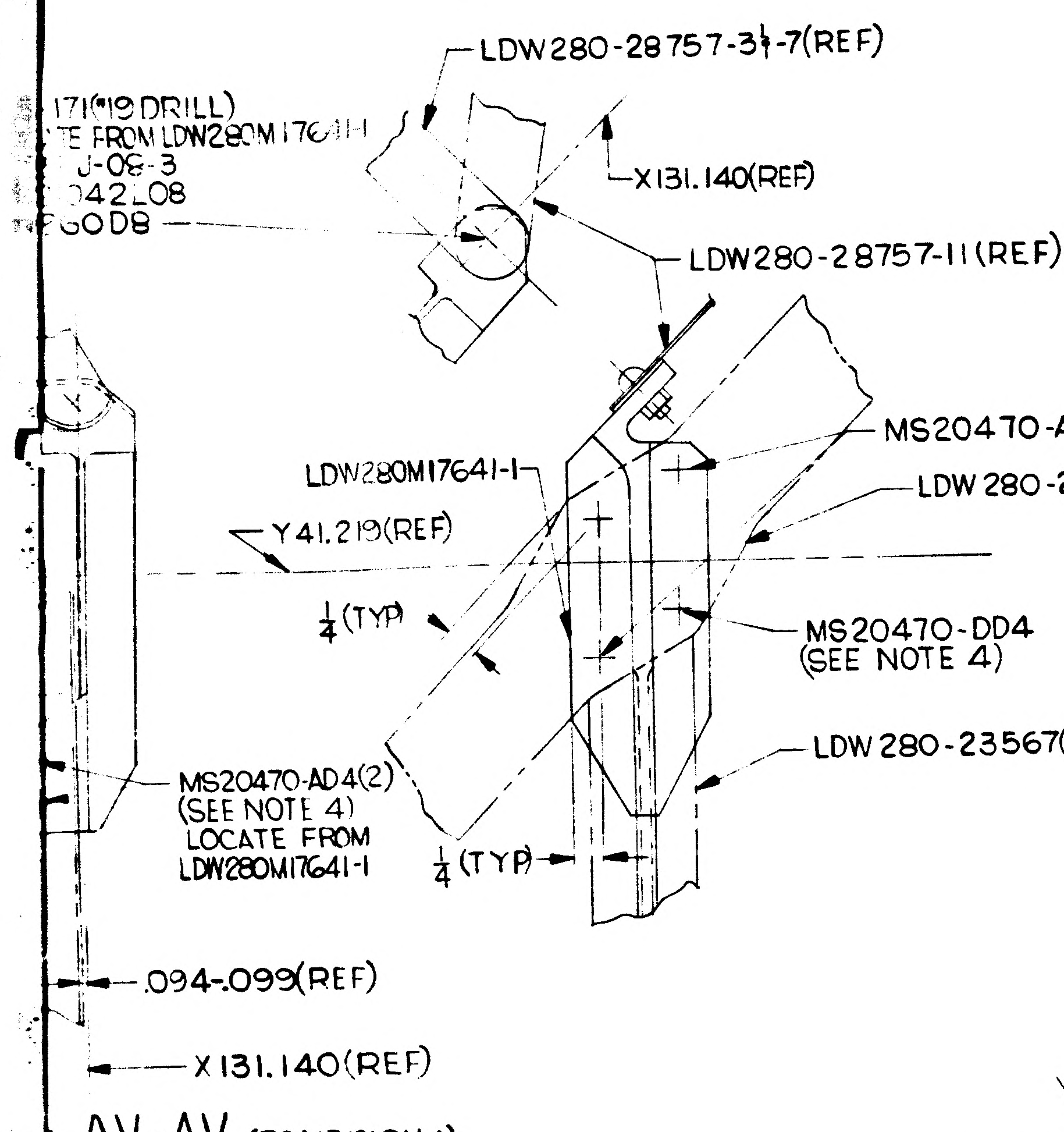
SECTION AU-AU (ZONE10CSH4)
(ON-9) (SCALE: FULL)


LDW360-28297-11(ON-21 & -23)
LDW360-51297-11 (ON-35)
E4
LDW360-28297-25(ON-19&-55)
UNDER FIRST OUTER LAYER
ONLY
LDW280-28664-25;27,-29 (REF)
B7
LDW360-28297-5 (ON-19,-21,-23&-55)
LDW360-51297-5(ON-35)
LDW280-28664-31(REF)

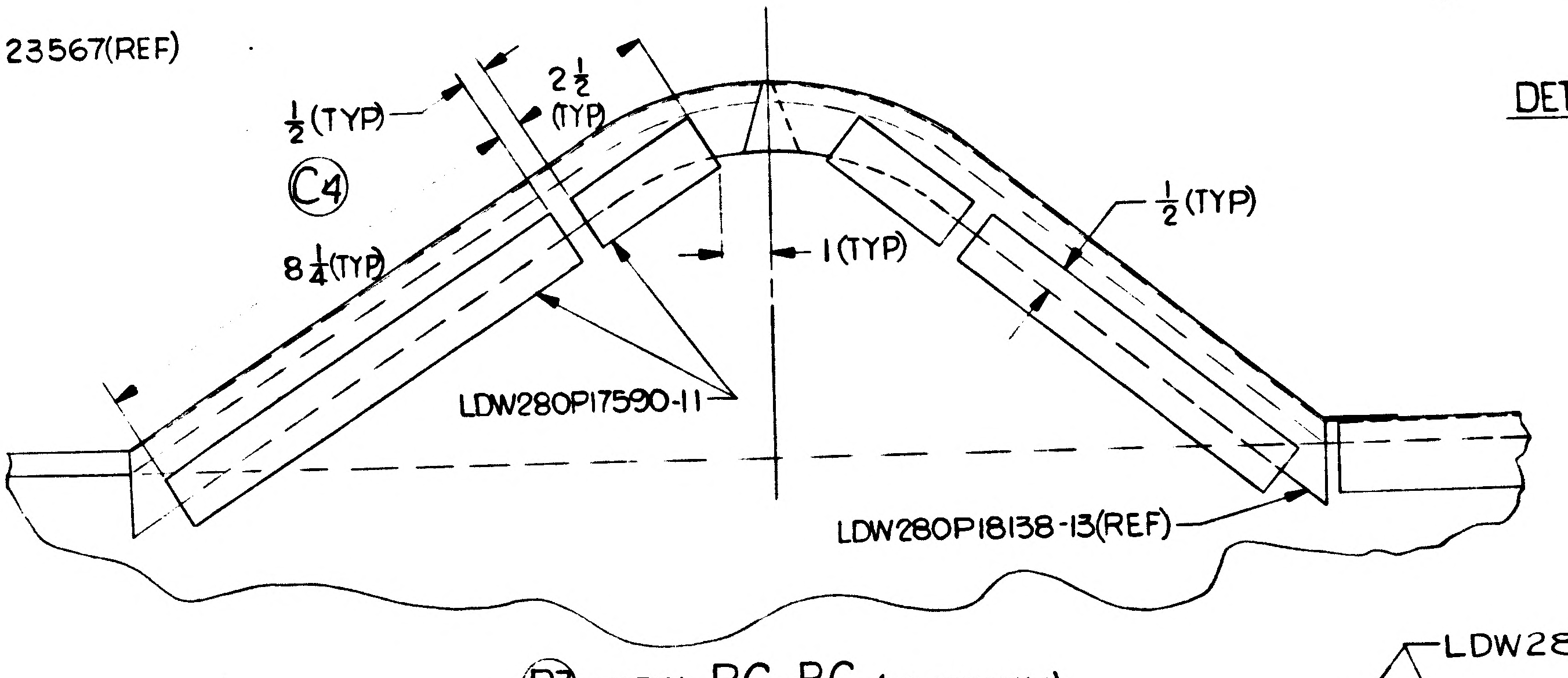
SECTION AM-AM (ZONE 11ASH4)
(NO SCALE)

01/03 NAS 9-1100

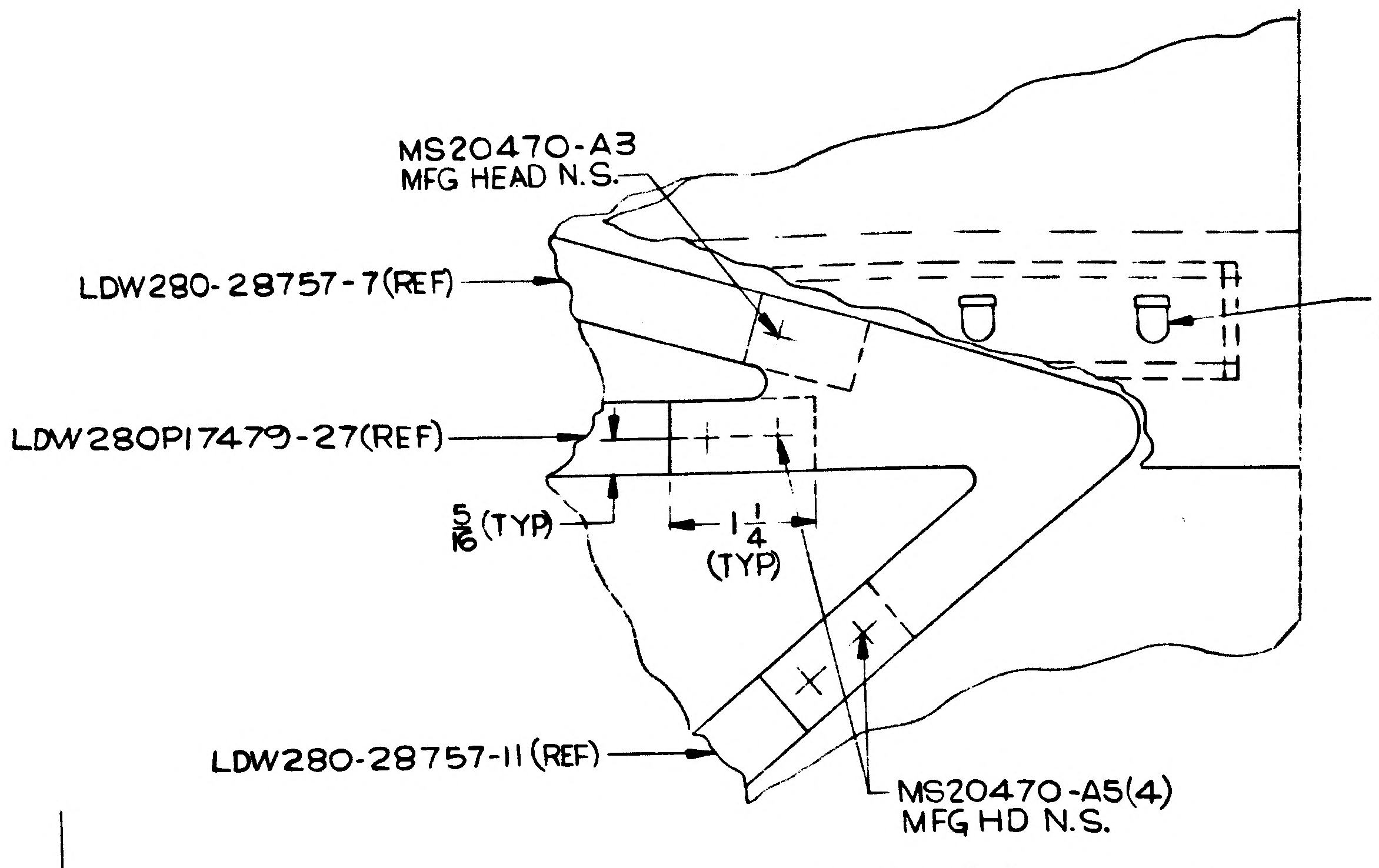
LDW280-28664 SH 4


.171(#19 DRILL)
TE FROM LDW280M17641-1
J-08-3
042L08
60D8
LDW280-28757-3 & -7(REF)
X131.140(REF)
LDW280-28757-11(REF)
MS20470-AD4(3)
LDW280-23547(REF)
LDW280M17641-1
Y41.219(REF)
¼(TYP)
MS20470-DD4
(SEE NOTE 4)
LDW280-23567(REF)
MS20470-AD4(2)
(SEE NOTE 4)
LOCATE FROM
LDW280M17641-1
¼(TYP)
.094-.099(REF)
X131.140(REF)

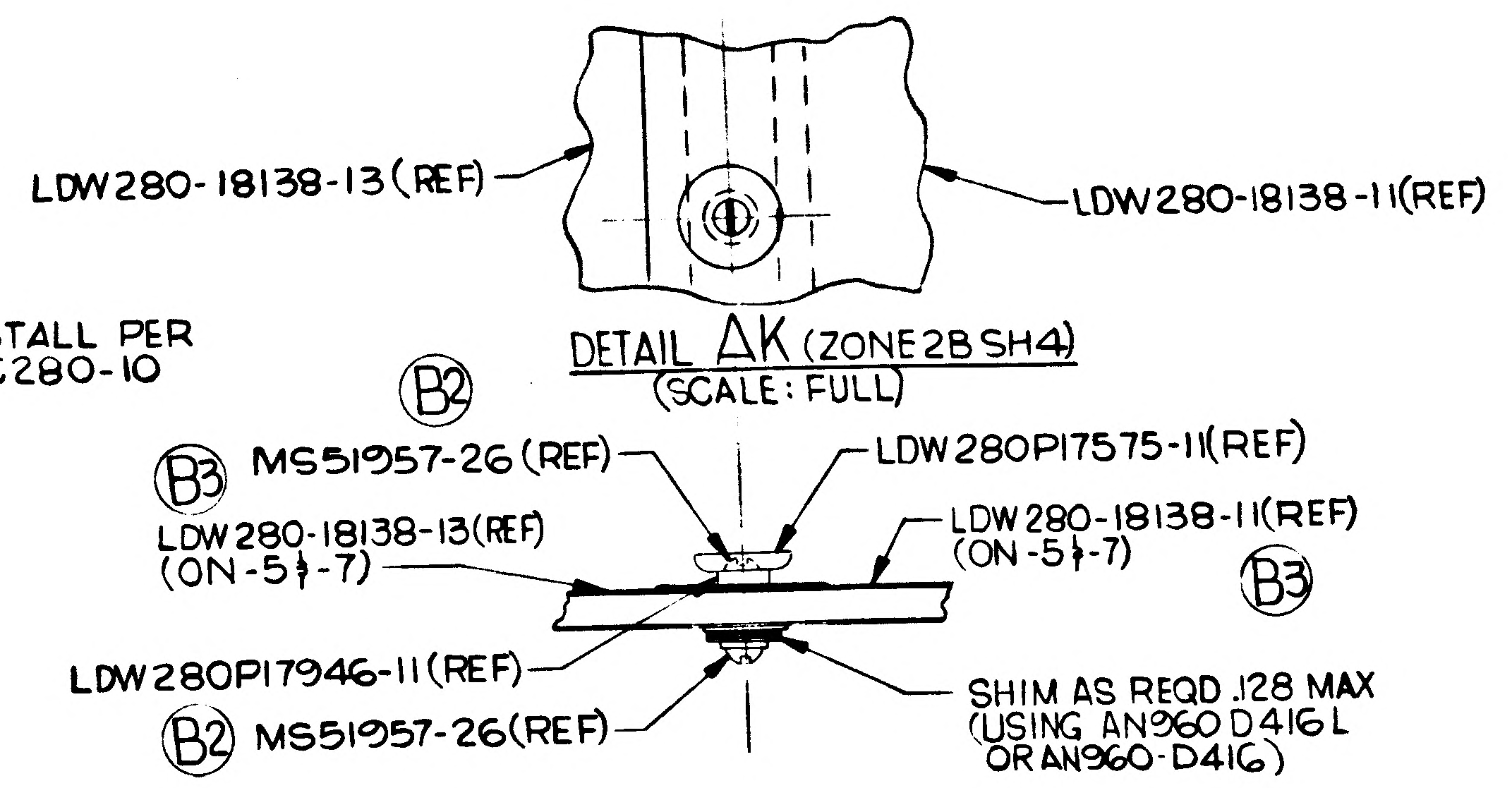
AV-AV (ZONE12ASH4)
(SCALE: FULL)


½(TYP)
2½(TYP)
C4
8¼(TYP)
1(TYP)
½(TYP)
LDW280P17590-11
LDW280P18138-13(REF)

B3 VIEW BC-BC (ZONE12ASH4)
(ON-5 & -7) (SCALE: 1/2)

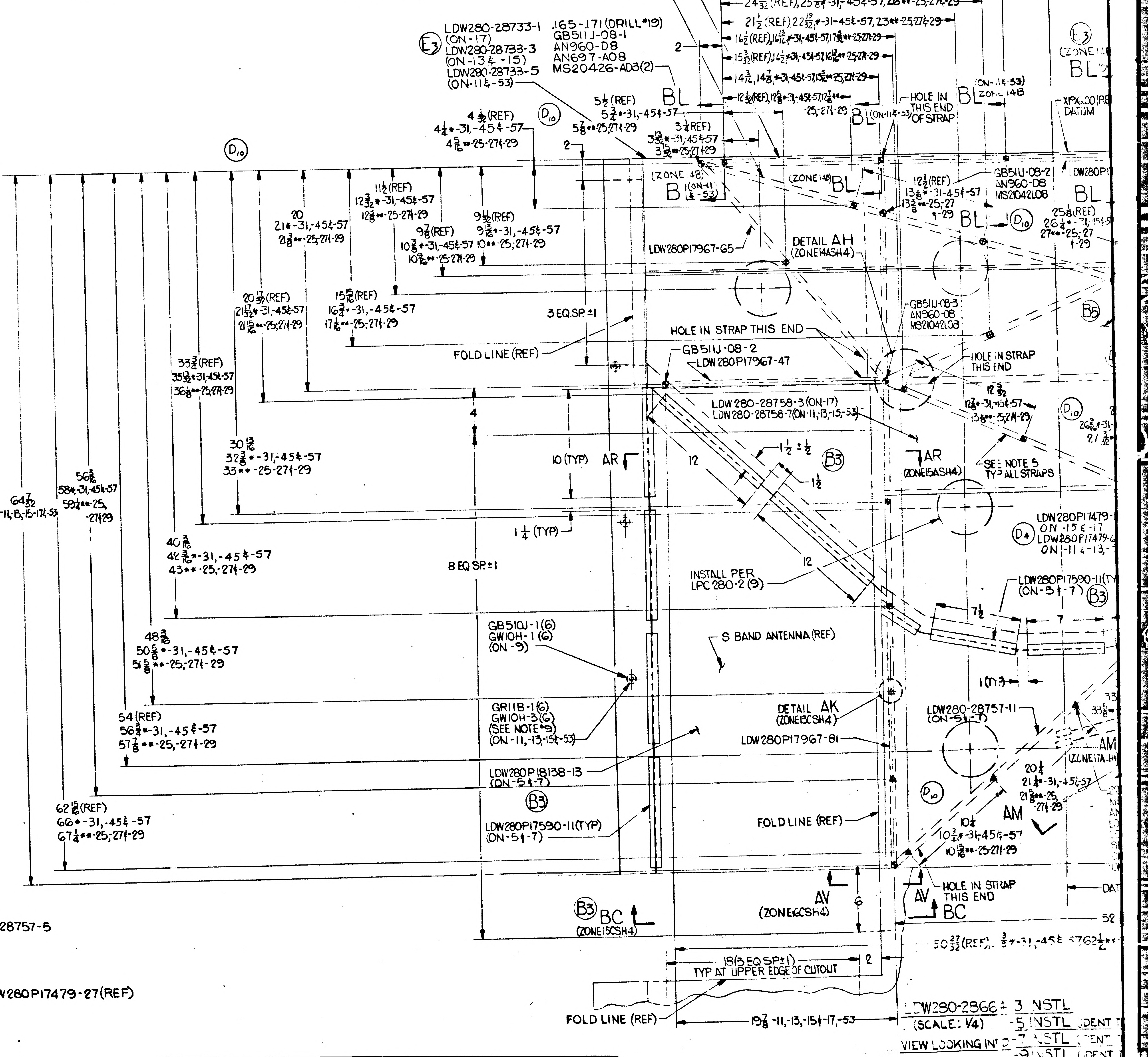

MS20470-A3
MFG HEAD N.S.
LDW280-28757-7(REF)
INSTALL PER
LPC280-10
LDW280P17479-27(REF)
5/16(TYP)
1¼
(TYP)
LDW280-28757-11(REF)
MS20470-A5(4)
MFG HD N.S.

DETAIL AJ (ZONE10CSH4)
(SCALE: FULL)

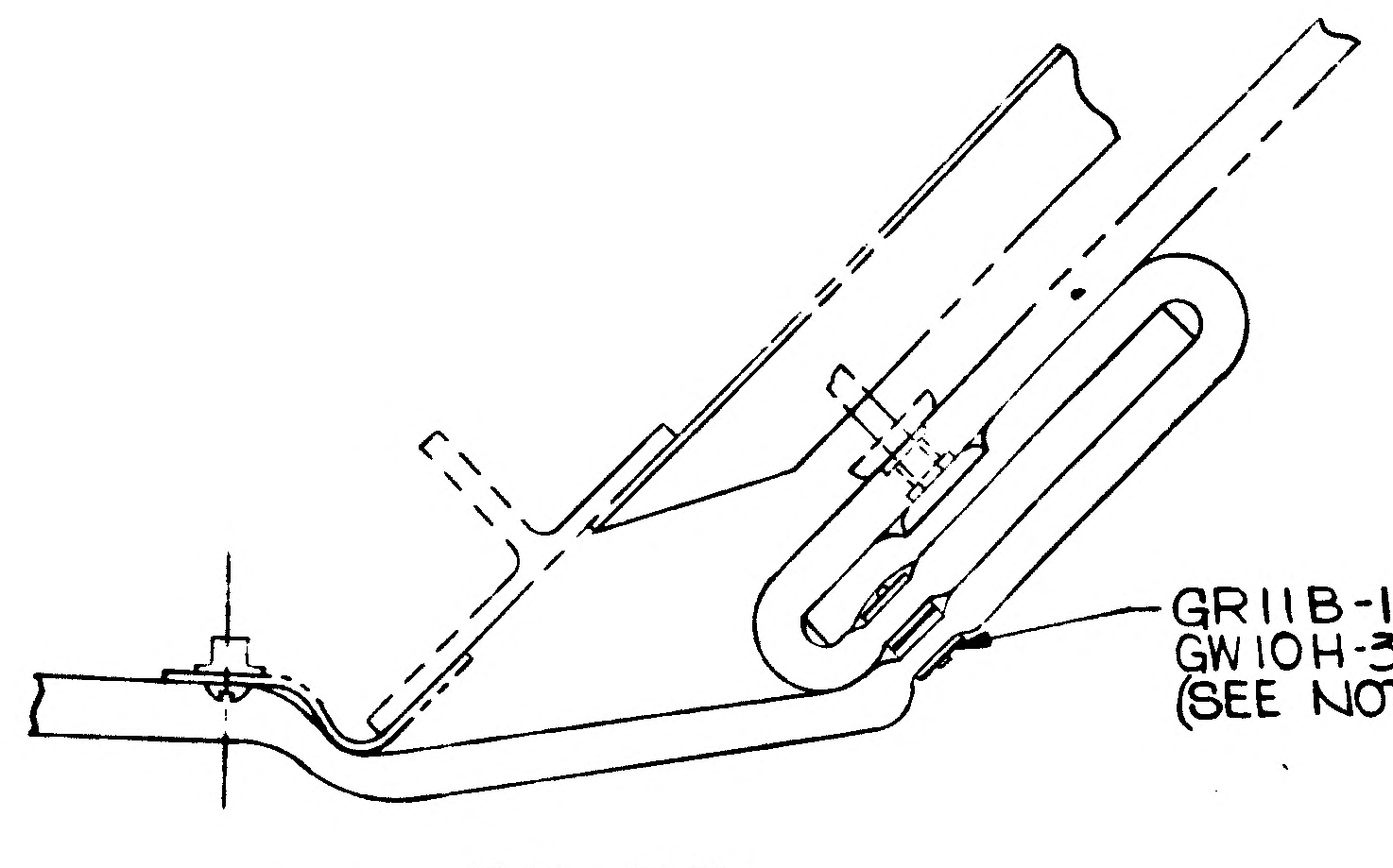

LDW280-18138-13(REF)
LDW280-18138-11(REF)

DETAIL AK (ZONE13BSH4)
(SCALE: FULL)

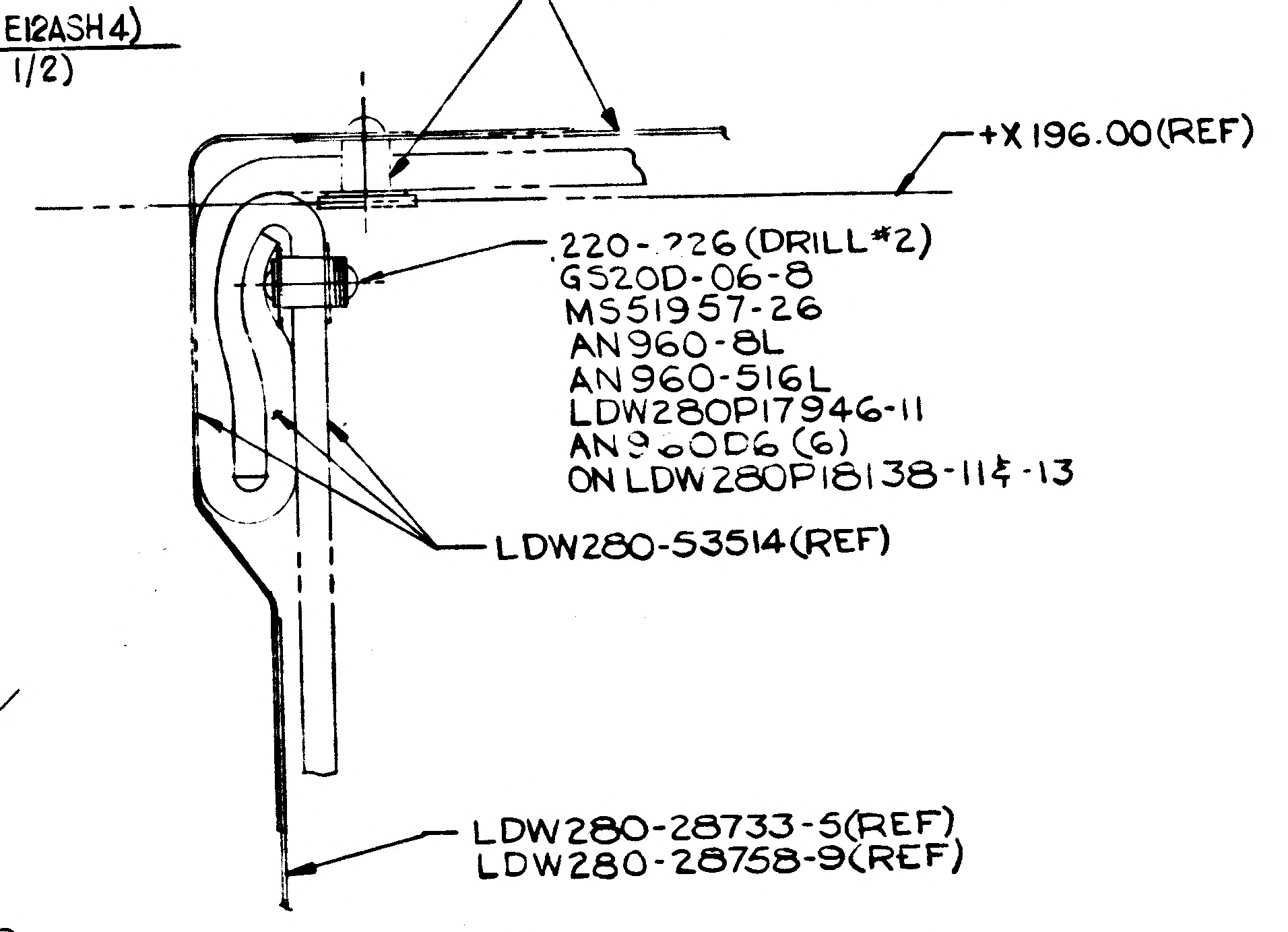
B2
B3 MS51957-26(REF)
LDW280P17575-11(REF)
LDW280-18138-13(REF)
(ON-5 & -7)
LDW280-18138-11(REF)
(ON-5 & -7)
B3
LDW280P17946-11(REF)
SHIM AS REQD .128 MAX
(USING AN960D416L
OR AN960-D416)
B2 MS51957-26(REF)


+281.00(REF)
-27.00(REF)
D10
65 3/...
65⅜ -11...
64½, 61 13/32, *-31, -45 & -5...
57¼(REF), 60⅛, *-31, -45...
52, 49½, *-31, -45 & -57, 53** -25, -27 & ...
49 1/32(REF), 51⅝, *-31, -45 & -57, 52½** -25, -27 & ...
39½(REF), 41½, *-31, -45 & -57, 42¼** -25, -27 & -29
40, 38, *-31, -45 & -57, 40⅝** -25, -27 & -29
30 11/16(REF), 32 7/32, *-31, -45 & -57, 32 13/16** -25, -27 & -29
27 9/16, 26¼, *-31, -45 & -57, 28⅛** -25, -27 & -29
24 5/32(REF), 25⅜ *-31, -45 & -57, 26** -25, -27 & -29
21½(REF), 22 19/32, *-31-45 & -57, 23** -25, 27 & -29
16½(REF), 16 13/16, *-31, -45 & -57, 17 5/32** -25, 27 & 29
15 3/32(REF), 16½, *-31, -45 & -57, 16 13/16** -25, 27 & -29
14 3/16, 14⅞, *-31, -45 & -57, 15 3/16** -25, 27 & -29
12 1/32(REF), 12⅝ *-31, -45 & -57, 12⅞** -25, 27 & -29
C1 LDW280P17967-61
LDW280P17967-63
E3 LDW280-28733-1
(ON-17)
LDW280-28733-3
(ON-13 & -15)
LDW280-28733-5
(ON-11 & -53)
.165-.171(DRILL #19)
GB511J-08-1
AN960-D8
AN697-A08
MS20426-AD3(2)
2
BL
5½(REF)
5¾ *-31, -45 & -57
5⅞ ** -25, 27 & -29
3¼(REF)
3 13/32 * -31, -45 & 57
3 15/32 ** -25, 27 & 29
4 1/32(REF)
4¼ * -31, -45 & -57
4 5/16 ** -25-27 & -29
D10
2
BL (ON-11 & -53)
HOLE IN THIS END OF STRAP
BL (ON-11 & -53) ZONE 14B
E3 (ZONE 14...
BL
X196.00(REF) DATUM
(ZONE 14B) BL (ON-11 & -53)
(ZONE 14B) BL
12½(REF)
13⅛ * -31-45 & -57
13⅜ ** -25, 27 & -29
GB511J-08-2
AN960-D8
MS21042L08
BL
D10
25⅛(REF)
26¼ * -31, -45 & -57
27 ** -25, 27 & -29
LDW280P1...
D10
11½(REF)
12 3/32 * -31, -45 & -57
12⅜ ** -25-27 & -29
20
21 * -31, -45 & -57
21⅜ ** -25, 27 & -29
9⅞(REF)
10⅜ * -31, -45 & -57
10 9/16 ** -25-27 & -29
9 11/32(REF)
9 13/16 * -31, -45 & -57
10 ** -25, 27 & -29
LDW280P17967-65
DETAIL AH
(ZONE14ASH4)
20 17/32(REF)
21 17/32 * -31, -45 & -57
21 15/16 ** -25, 27 & -29
15 15/16(REF)
16¾ * -31, -45 & -57
17 1/16 ** -25, 27 & -29
3 EQ.SP. ±1
FOLD LINE (REF)
HOLE IN STRAP THIS END
GB511J-08-2
LDW280P17967-47
GB511J-08-3
AN960-D8
MS21042L08
B5
HOLE IN STRAP THIS END
33¾(REF)
35 13/32 * -31, -45 & -57
36⅛ ** -25, 27 & -29
4
LDW280-28758-3(ON-17)
LDW280-28758-7(ON-11, -13, -15, -53)
12 9/32
12⅞ * -31, -45 & -57
13⅛ ** -25, 27 & -29
D10
26 9/16 * -31...
27 3/32 *...
10(TYP)
AR
12
1½ ± ½
B3
1½
AR
(ZONE15ASH4)
SEE NOTE 5
TYP ALL STRAPS
64 7/32
-11, -13, -15, -17 & -53
56 3/16
58 * -31, -45 & -57
59¼ ** -25,
-27 & 29
30 13/16
32⅜ * -31, -45 & -57
33 ** -25-27 & -29
1¼(TYP)
LDW280P17479-...
D4 ON -15 & -17
LDW280P17479-...
ON -11 & -13, -...
40 3/16
42 3/16 * -31, -45 & -57
43 ** -25, -27 & -29
8 EQ SP. ±1
INSTALL PER
LPC280-2(9)
12
LDW280P17590-11(TYP)
(ON-5 & -7)
B3
7½
7
48 3/16
50⅝ * -31, -45 & -57
51⅝ ** -25, 27 & -29
GB510J-1(6)
GW10H-1(6)
(ON-9)
S BAND ANTENNA (REF)
1(TYP)
54(REF)
56¾ * -31, -45 & -57
57⅞ ** -25, -27 & -29
GR11B-1(6)
GW10H-3(6)
(SEE NOTE #9)
(ON-11, -13, -15 & -53)
DETAIL AK
(ZONE13CSH4)
LDW280P17967-81
LDW280-28757-11
(ON-5 & -7)
33...
33⅝...
AM
(ZONE17A-H4)
LDW280P18138-13
(ON-5 & -7)
B3
LDW280P17590-11(TYP)
(ON-5 & -7)
62 15/16(REF)
66 * -31, -45 & -57
67¼ ** -25, 27 & -29
FOLD LINE (REF)
D10
20¼
21¼ * -31, -45 & -57
21 5/8 ** -25
-27 & -29
AM
10¼
10¾ * -31, -45 & -57
10 15/16 ** -25-27 & -29
AV
(ZONE16CSH4)
6
AV
HOLE IN STRAP
THIS END
BC
DAT...
52...
50 27/32(REF), ⅜ * -31, -45 & -57 62½ **...
B3 BC
(ZONE15CSH4)
18(3 EQ SP ±1)
TYP AT UPPER EDGE OF CUTOUT
2
FOLD LINE (REF)
19⅞ -11, -13, -15 & -17, -53

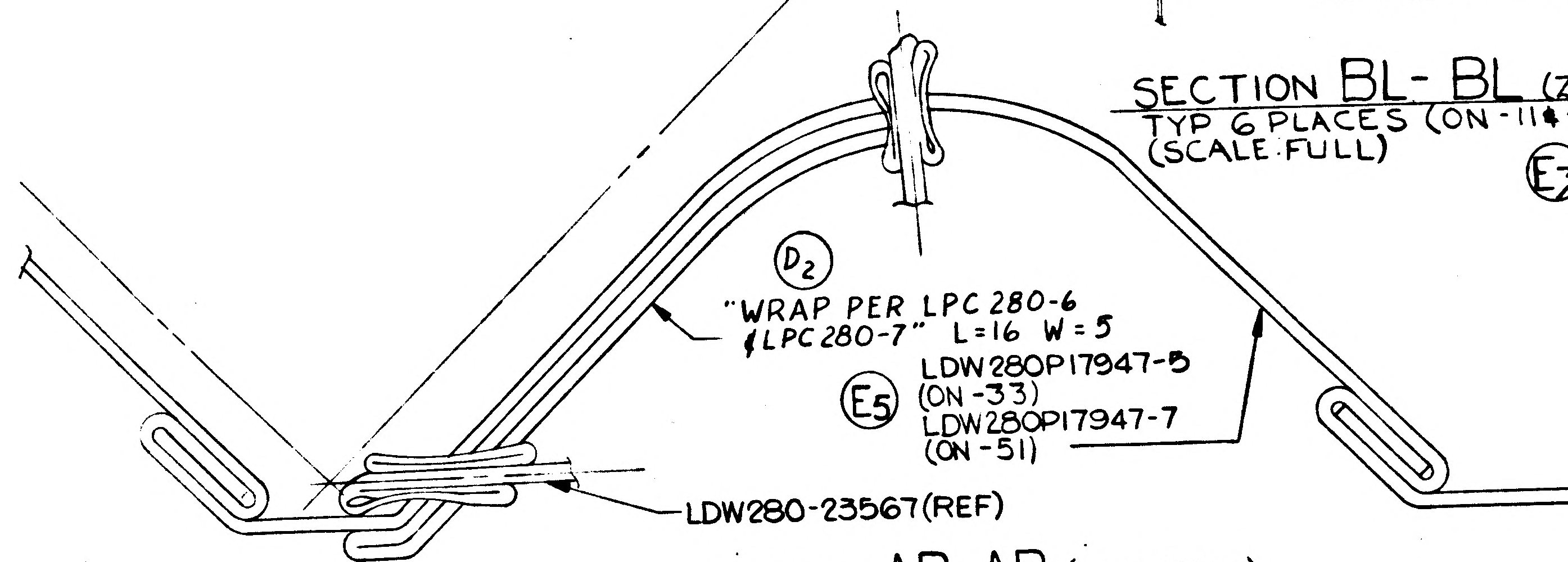
LDW280-28664 -3 INSTL
(SCALE: 1/4)
VIEW LOOKING IN...
-5 INSTL (IDENT...
-7 INSTL (IDENT...
-9 INSTL (IDENT...
-11 ASSY
-13 ASSY (IDENT...
-15 ASSY (IDENT...
-17 ASSY (IDENT...


GR11B-1(10)
GW10H-3(10)
(SEE NOTE #9)

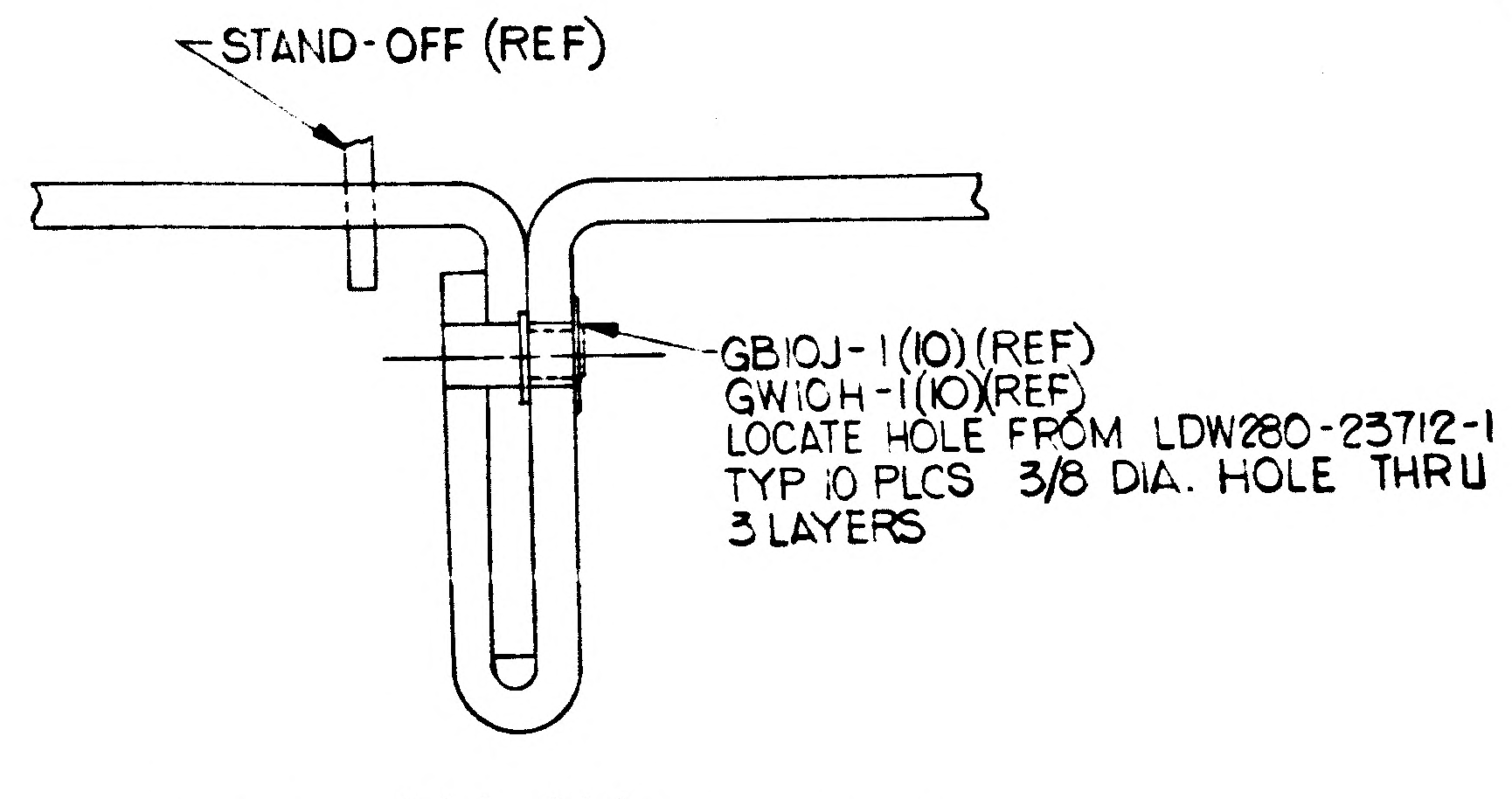
SECTION BB-BB (ZONE10CSH4)
(ON-3, 5, 7 & 49) (SCALE: FULL)


LDW280-53514(REF)
+X196.00(REF)
.220-.226(DRILL #2)
GS20D-06-8
MS51957-26
AN960-8L
AN960-516L
LDW280P17946-11
AN960D6(6)
ON LDW280P18138-11 & -13
LDW280-53514(REF)
LDW280-28733-5(REF)
LDW280-28758-9(REF)

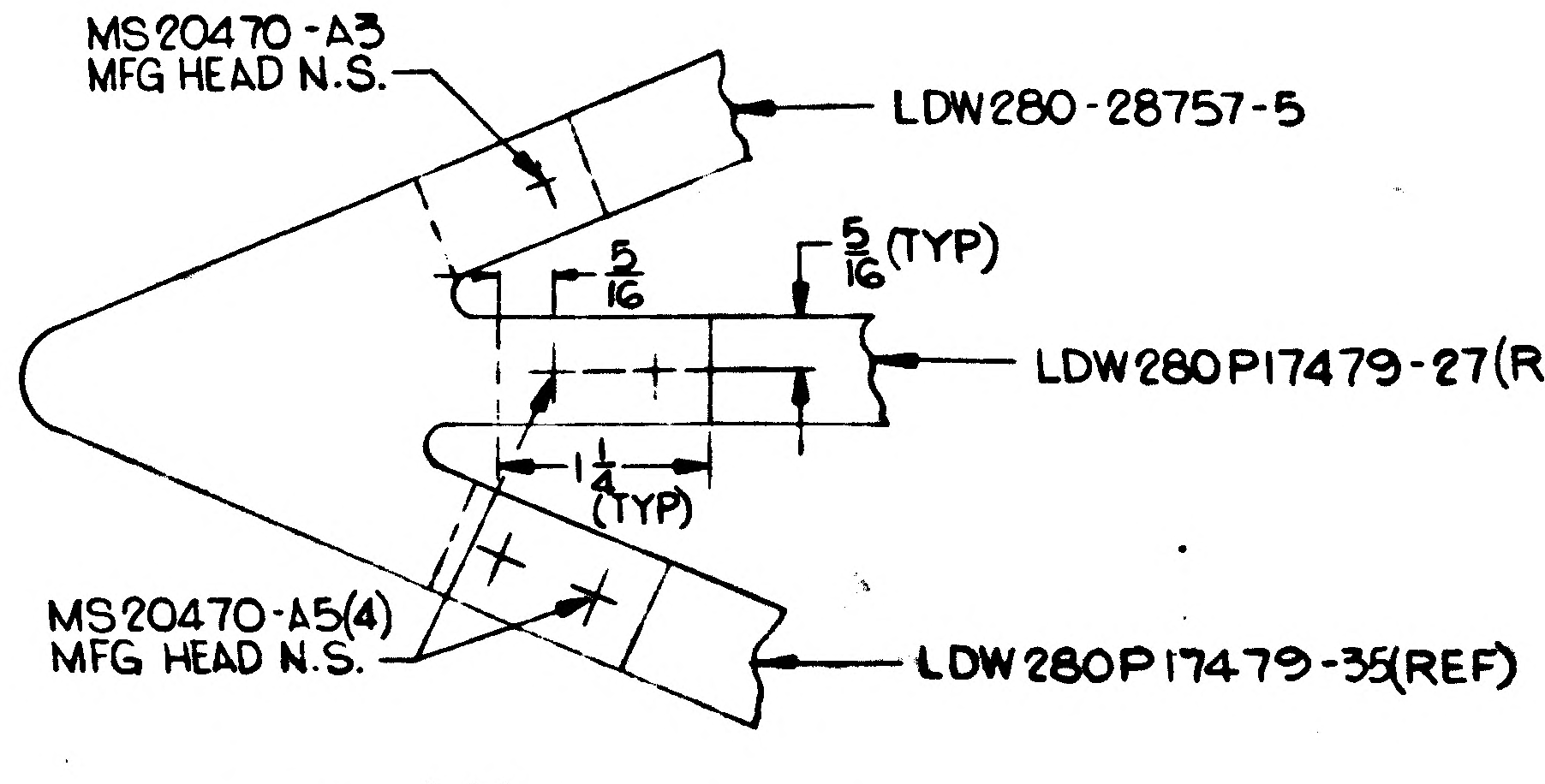
SECTION BL-BL (ZONE 12C)
TYP 6 PLACES (ON -11 & -53)
(SCALE: FULL)
E3


D2
"WRAP PER LPC 280-6
& LPC 280-7" L=16 W=5
E5 LDW280P17947-5
(ON-33)
LDW280P17947-7
(ON-51)
LDW280-23567(REF)

SECTION AR-AR (ZONE12BSH4)
(ON-3, -9 & -49) (SCALE: 1/2)

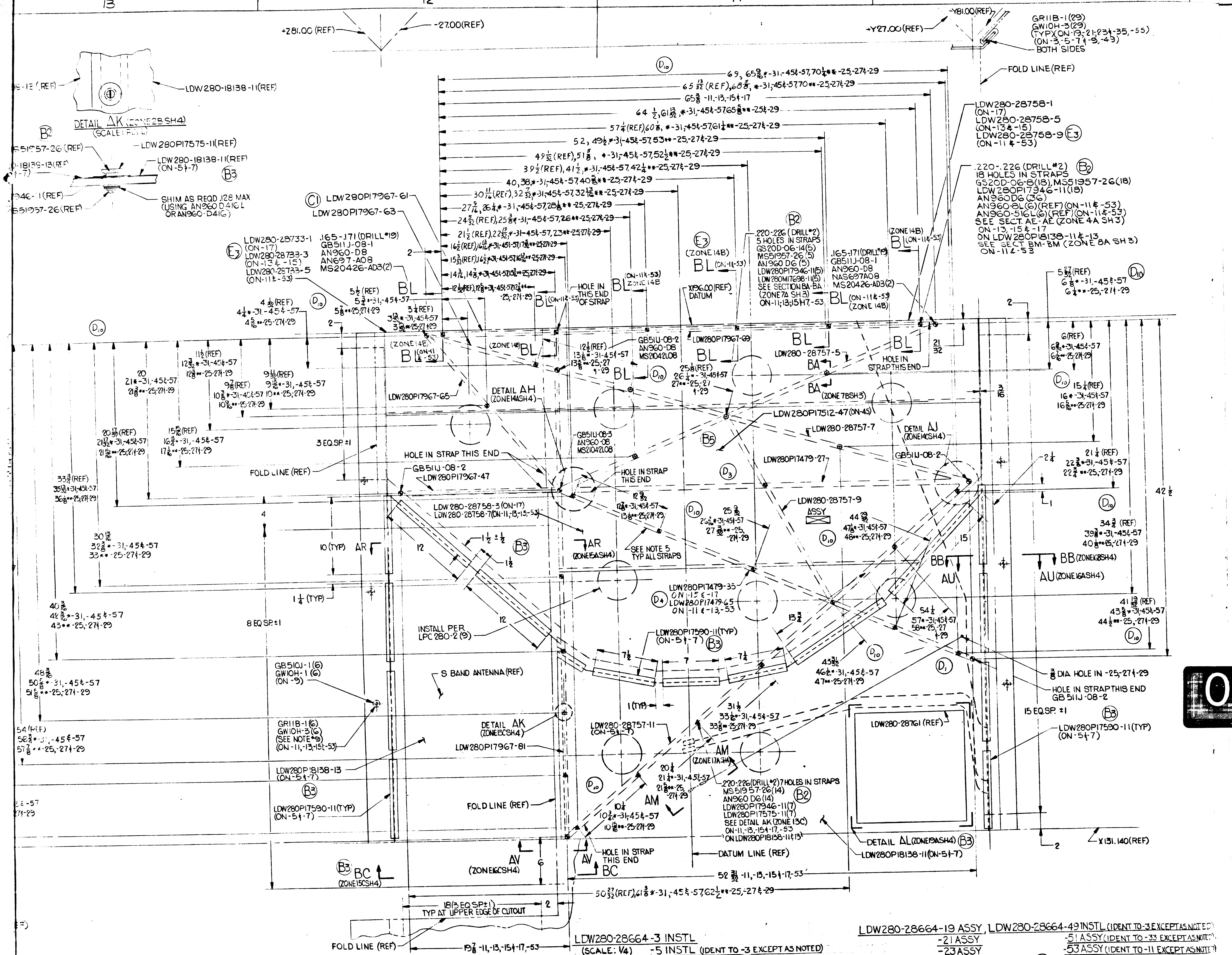

STAND-OFF (REF)
GB10J-1(10)(REF)
GW10H-1(10)(REF)
LOCATE HOLE FROM LDW280-23712-1
TYP 10 PLCS 3/8 DIA. HOLE THRU
3 LAYERS

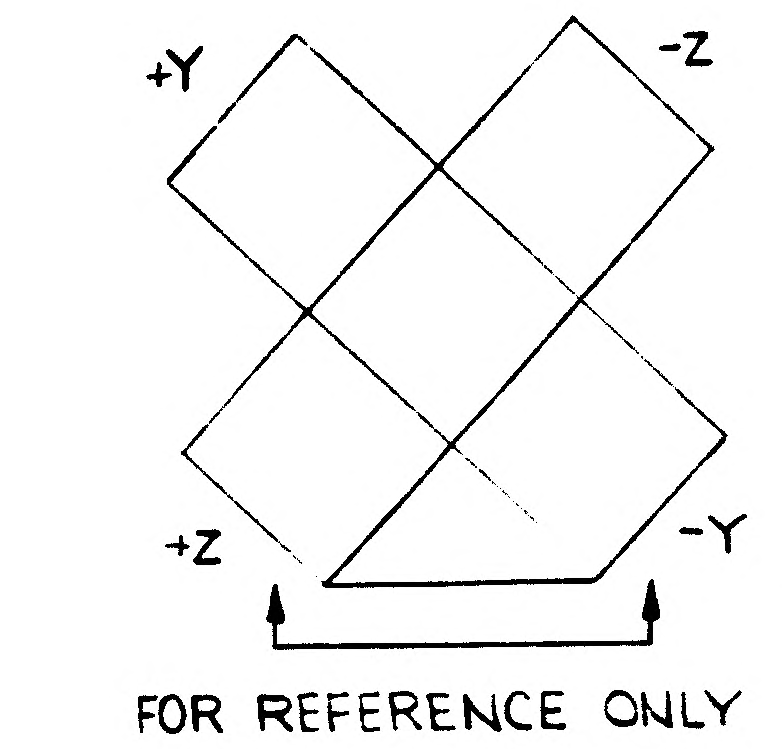
SECTION AU-AU (ZONE10CSH4)
(ON-9) (SCALE: FULL)


MS20470-A3
MFG HEAD N.S.
LDW280-28757-5
5/16
5/16(TYP)
LDW280P17479-27(REF)
1¼
(TYP)
MS20470-A5(4)
MFG HEAD N.S.
LDW280P17479-35(REF)

DETAIL AH (ZONE12CSH4)
(SCALE: FULL)

02/03 NAS 9-1100


13
12
11
10
9
+Z81.00 (REF)
-27.00 (REF)
+Y27.00 (REF)
-Y81.00 (REF)
GR11B-1(29)
GW10H-3(29)
(TYP)(ON-19,-21,23&-35,-55)
(ON-3,-5-7&-9,-43)
BOTH SIDES
FOLD LINE (REF)
LDW280-18138-11(REF)
DETAIL AK (ZONE 2B SH4)
(SCALE: FULL)
MS51957-26 (REF)
LDW280P17575-11(REF)
LDW280-18138-11(REF)
(ON-5&-7)
SHIM AS REQD .128 MAX
(USING AN960D416L
OR AN960-D416)
69, 65 3/8 *-31,-45&-57,70 1/4 **-25,-27&-29
65 13/32 (REF), 68 3/8 *-31,-45&-57,70 **-25,-27&-29
65 3/8 -11,-13,-15&-17
LDW280-28758-1
(ON-17)
LDW280-28758-5
(ON-13&-15)
LDW280-28758-9
(ON-11&-53)
.220-.226 (DRILL #2)
18 HOLES IN STRAPS
GS20D-06-8(18), MS51957-26(18)
LDW280P17946-11(18)
AN960D6 (36)
AN960-8L(6)(REF)(ON-11&-53)
AN960-516L(6)(REF)(ON-11&-53)
SEE SECT. AE-AE (ZONE 4A SH3)
ON-13,-15&-17
ON LDW280P18138-11&-13
SEE SECT. BM-BM (ZONE 8A SH3)
ON-11&-53
LDW280P17967-61
LDW280P17967-63
LDW280-28733-1
(ON-17)
LDW280-28733-3
(ON-13&-15)
LDW280-28733-5
(ON-11&-53)
.165-.171 (DRILL #19)
GB511J-08-1
AN960-D8
AN697-A08
MS20426-AD3(2)
.220-.226 (DRILL #2)
5 HOLES IN STRAPS
GS20D-06-14(5)
MS51957-26(5)
AN960 D6(5)
LDW280P17946-11(5)
LDW280M17698-11(5)
SEE SECTION BA-BA
(ZONE 7A SH3)
ON-11,13,15 H7,-53
X196.00(REF)
DATUM
BL
HOLE IN THIS END OF STRAP
DETAIL AH
(ZONE 14A SH4)
LDW280P17967-65
GB511J-08-2
AN960-D8
MS20426-08
LDW280P17967-69
LDW280-28757-5
HOLE IN STRAP THIS END
BA
(ZONE 7B SH3)
LDW280P17512-47 (ON-45)
LDW280-28757-7
DETAIL AJ
(ZONE 14C SH4)
GB511J-08-3
AN960-D8
MS20426-08
HOLE IN STRAP THIS END
GB511J-08-2
LDW280P17967-47
HOLE IN STRAP THIS END
LDW280P17479-27
3 EQ.SP. ±1
FOLD LINE (REF)
LDW280-28758-3 (ON-17)
LDW280-28758-7 (ON-11,-13,-15-53)
AR
(ZONE 15A SH4)
SEE NOTE 5
TYP ALL STRAPS
LDW280-28757-9
ASSY
BB
(ZONE 16B SH4)
AU
(ZONE 16A SH4)
10 (TYP)
1 1/4 (TYP)
8 EQ.SP. ±1
INSTALL PER
LPC 280-2 (9)
LDW280P17479-33
ON-11,15&-17
LDW280P17479-65
ON-11&-13,-53
LDW280P17590-11(TYP)
(ON-5&-7)
S BAND ANTENNA (REF)
GB510J-1(6)
GW10H-1(6)
(ON-9)
GR11B-1(6)
GW10H-3(6)
(SEE NOTE 9)
(ON-11,-13,-15&-53)
DETAIL AK
(ZONE 15C SH4)
LDW280P17967-81
LDW280P18138-13
(ON-5&-7)
LDW280P17590-11(TYP)
(ON-5&-7)
FOLD LINE (REF)
LDW280-28757-11
(ON-5&-7)
AM
(ZONE 17A SH4)
.220-.226 (DRILL #2) 7 HOLES IN STRAPS
MS51957-26(14)
AN960 D6(14)
LDW280P17946-11(7)
LDW280P17575-11(7)
SEE DETAIL AK (ZONE 13C)
ON-11,-13,-15&-17,-53
ON LDW280P18138-11&13
LDW280-28761 (REF)
DETAIL AL (ZONE 15A SH4)
LDW280P18138-11(ON-5&-7)
3/8 DIA HOLE IN -25,-27&-29
HOLE IN STRAP THIS END
GB511J-08-2
15 EQ.SP. ±1
LDW280P17590-11(TYP)
(ON-5&-7)
X131.140(REF)
DATUM LINE (REF)
HOLE IN STRAP
THIS END
AV
(ZONE 16C SH4)
BC
(ZONE 15C SH4)
52 31/32 -11,-13,-15&-17,-53
50 27/32 (REF), 61 3/8 *-31,-45&-57, 62 1/2 **-25,-27&-29
18(3 EQ SP±1)
TYP AT UPPER EDGE OF CUTOUT
FOLD LINE (REF)
19 7/8 -11,-13,-15&-17,-53
42 1/2



FOR REFERENCE ONLY

03/03 NAS 9-1100

LDW280-28664-3 INSTL
(SCALE: 1/4)
VIEW LOOKING INBD
-5 INSTL (IDENT TO -3 EXCEPT AS NOTED)
-7 INSTL (IDENT TO -3 EXCEPT AS NOTED)
-9 INSTL (IDENT TO -3 EXCEPT AS NOTED)
-11 ASSY
-13 ASSY (IDENT TO -11 EXCEPT AS NOTED)
-15 ASSY (IDENT TO -11 EXCEPT AS NOTED)
-17 ASSY (IDENT TO -11 EXCEPT AS NOTED)

LDW280-28664-19 ASSY,
-21 ASSY
-23 ASSY
-25 ASSY
-27 ASSY
-29 ASSY
-31 ASSY
-33 ASSY
-35 ASSY
-45 ASSY Ⓓ10

LDW280-28664-49 INSTL (IDENT TO -3 EXCEPT AS NOTED)
Ⓔ5
-51 ASSY (IDENT TO -33 EXCEPT AS NOTED)
-53 ASSY (IDENT TO -11 EXCEPT AS NOTED)
-55 ASSY (IDENT TO -19 EXCEPT AS NOTED)
-57 ASSY (IDENT TO -25 & -45 EXCEPT AS NOTED)

LDW280-28664 SH 4

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 120

D

C

B LDW280-28664 E

LDW280-28664 L

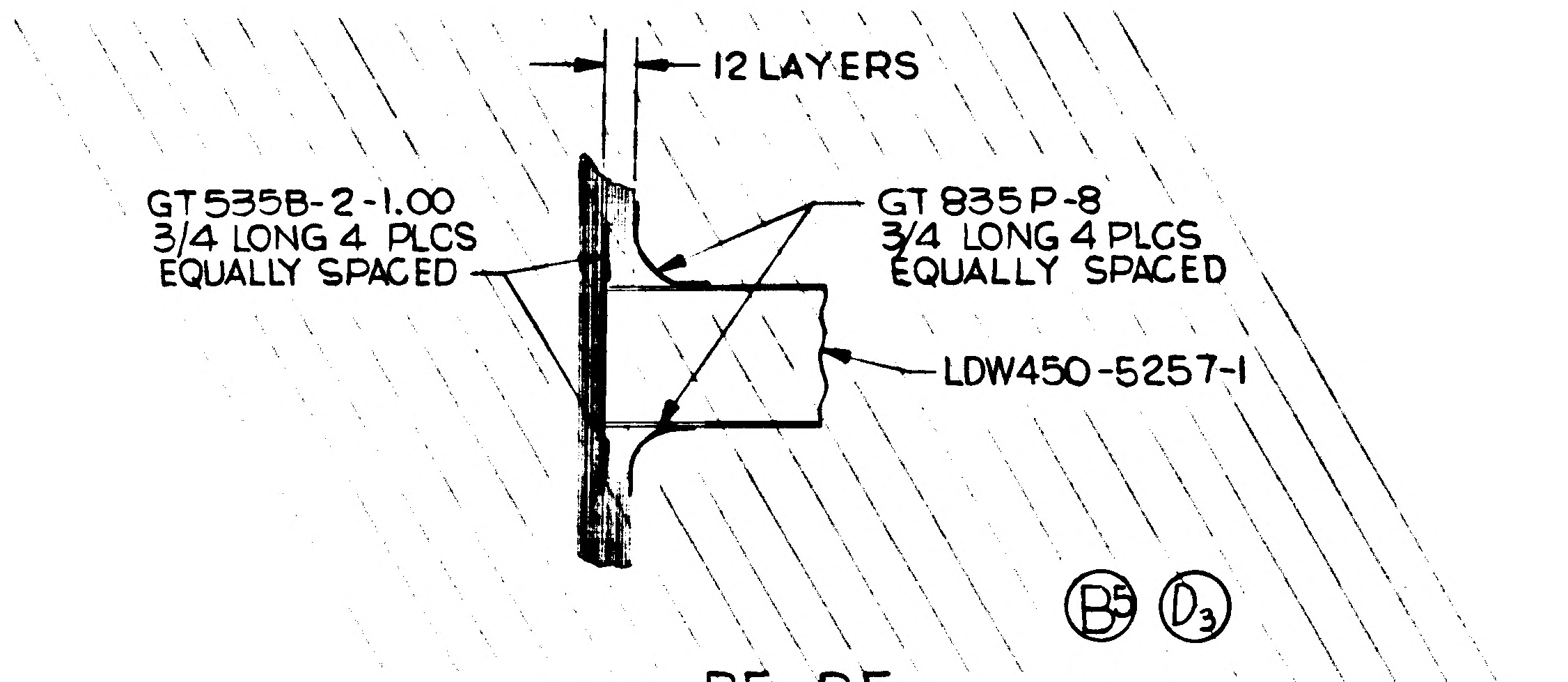
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 122) = 30.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 7.6 SQ. FT.

PRINT TRIM LINE

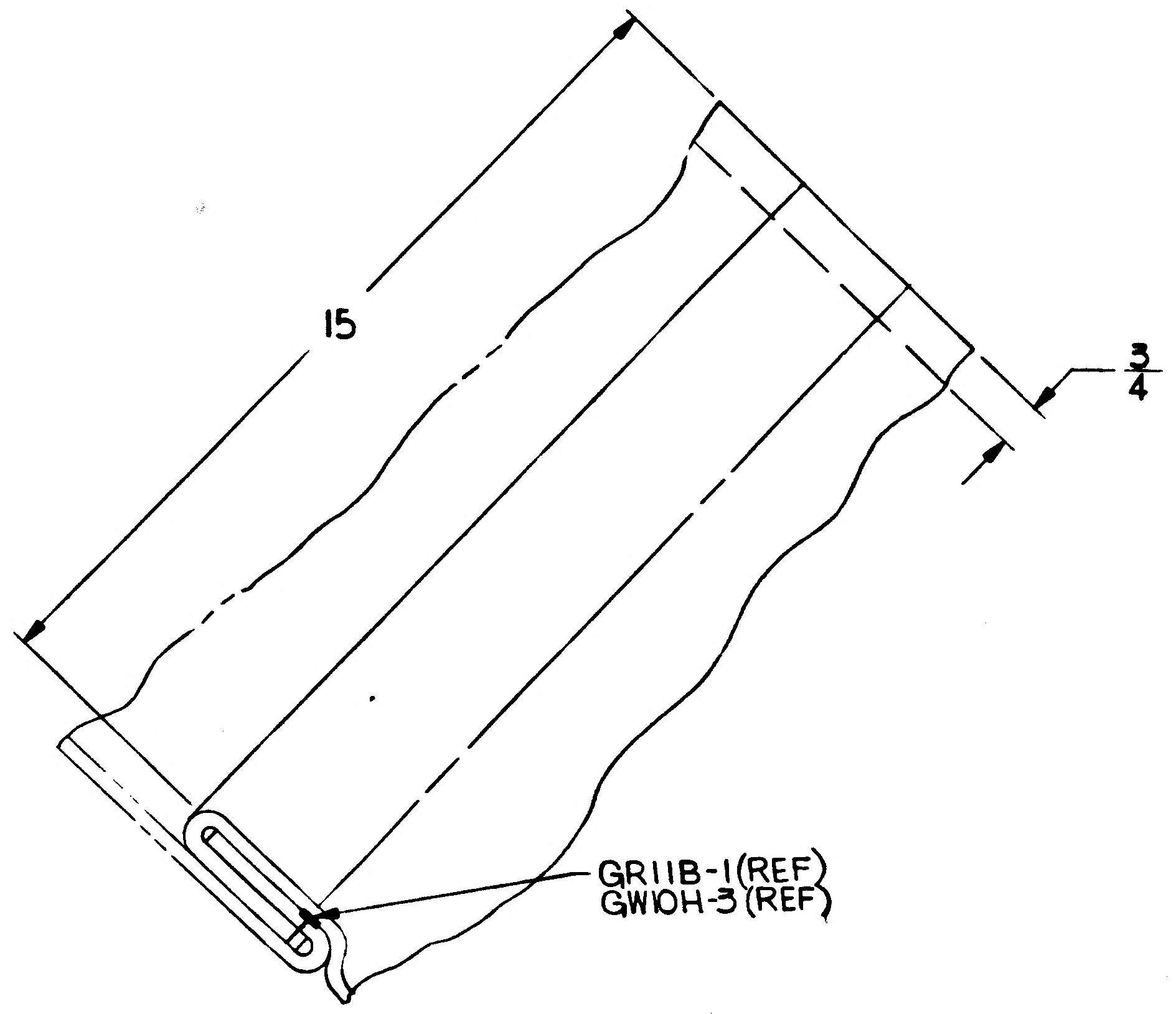
	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28664	E
MODEL OR END ITEM	SCALE 1/4 + NOTED		SHEET 4.0C	

13 12 11 10 9

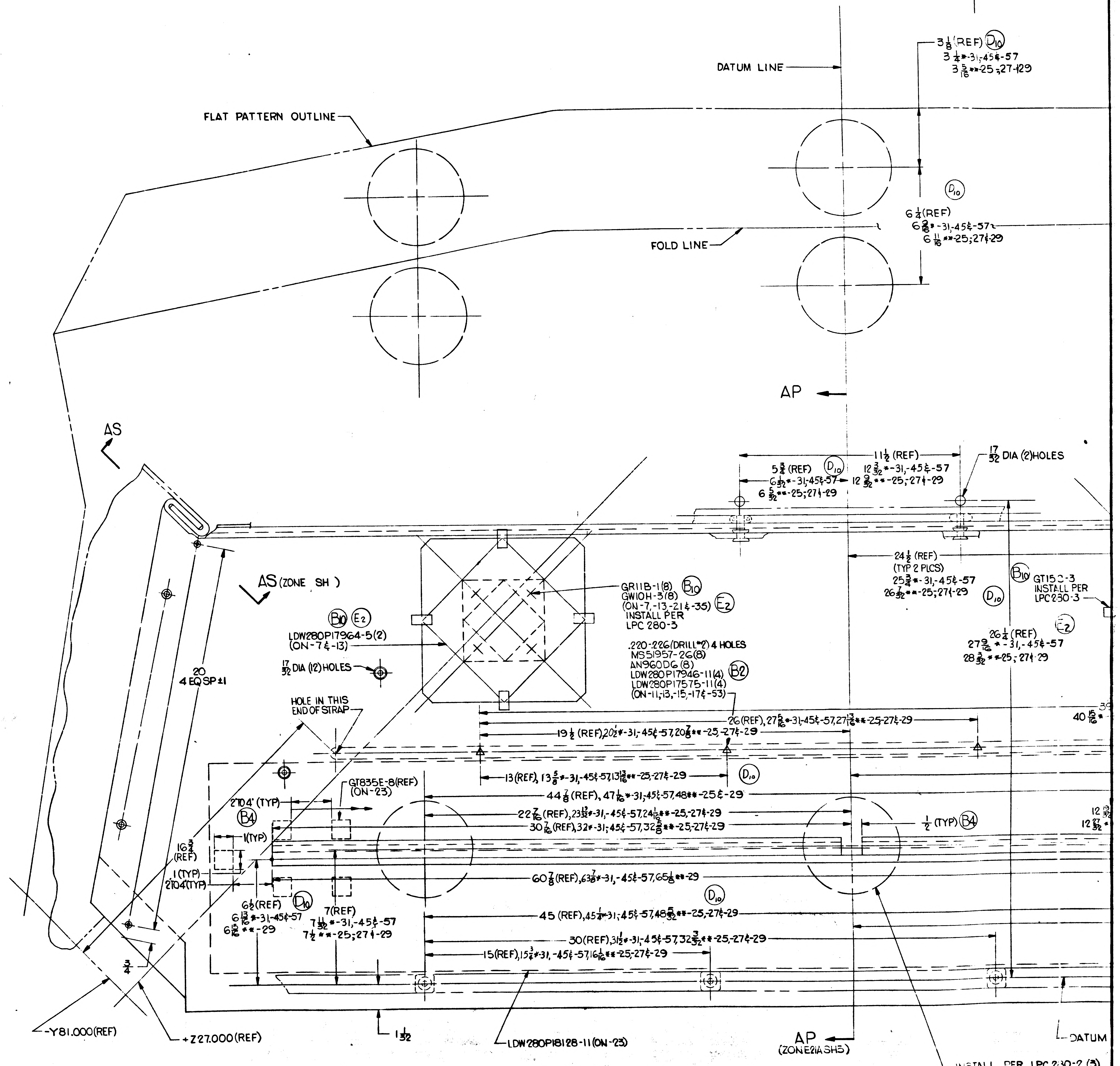
3/4


12 LAYERS
GT535B-2-1.00
3/4 LONG 4 PLCS
EQUALLY SPACED
GT835P-8
3/4 LONG 4 PLCS
EQUALLY SPACED
LDW450-5257-1
B5
D3

SECTION BF - BF (ZONE11C SH4)
(NO SCALE)(ON-9)


15
3/4
GR11B-1(REF)
GW10H-3(REF)

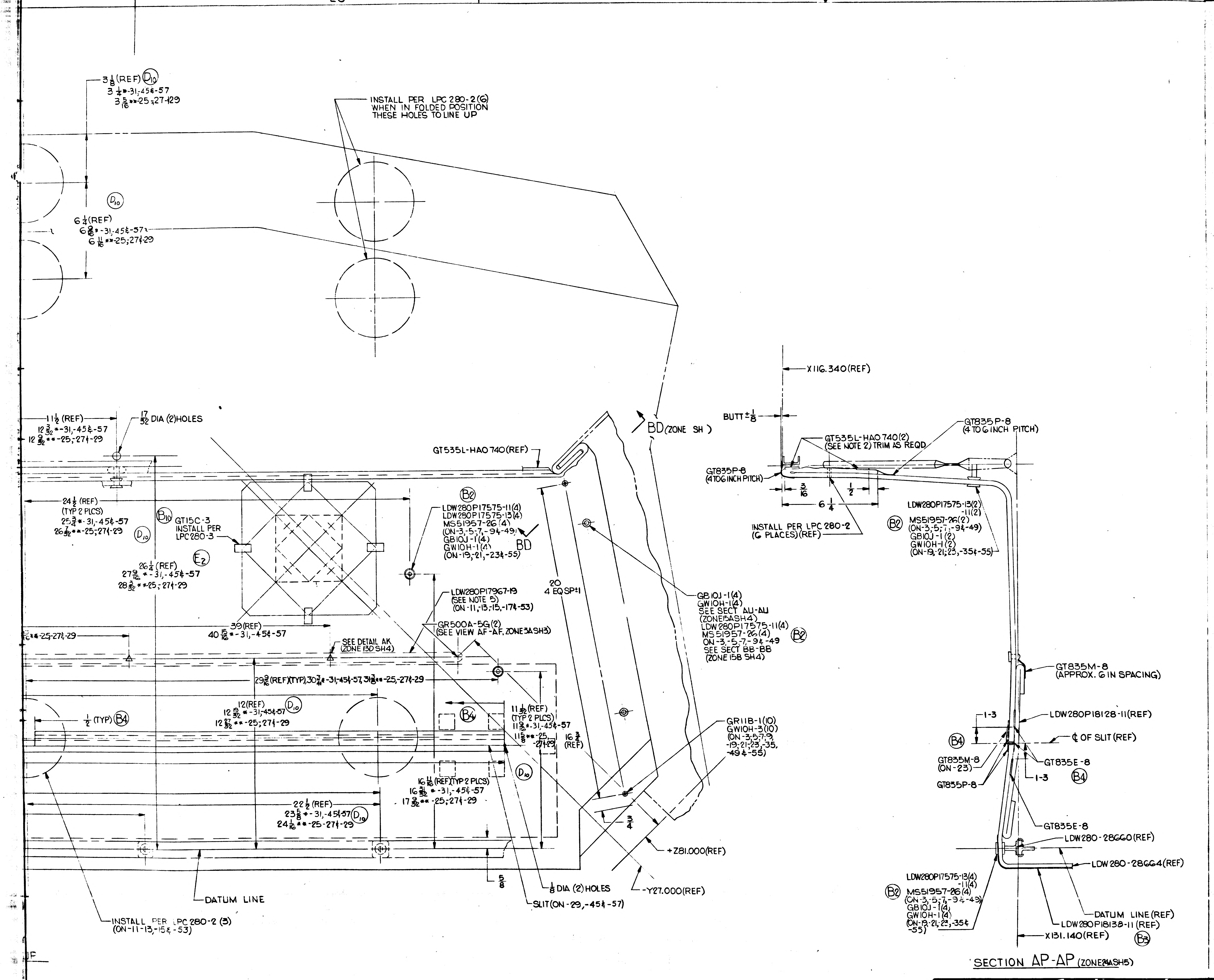
VIEW AS - AS (SHOWN)(ZONE27C SH5)
VIEW BD - BD (OPP)(ZONE23C SH5)


DATUM LINE
3 1/8 (REF) D10
3 1/4 *-31,-45 & -57
3 3/16 **-25;27-129
FLAT PATTERN OUTLINE
D10
6 1/4 (REF)
6 3/8 *-31,-45 & -57
6 11/16 **-25;27 & -29
FOLD LINE
AP
AS
11 1/2 (REF)
5 3/4 (REF) D10
12 3/32 *-31,-45 & -57
6 1/32 *-31,-45 & -57
12 9/32 **-25;27 & -29
6 5/32 **-25;27 & -29
17/32 DIA (2)HOLES
AS (ZONE SH)
24 1/2 (REF)
(TYP 2 PLCS)
25 3/4 *-31,-45 & -57
26 7/32 **-25;27 & -29
D10
B10
GT15C-3
INSTALL PER
LPC 280-3
E2
26 1/4 (REF)
27 9/16 *-31,-45 & -57
28 3/32 **-25;27 & -29
GR11B-1(8) B10
GW10H-3(8)
(ON-7,-13,-21 & -35) E2
INSTALL PER
LPC 280-3
B10 E2
LDW280P17964-5(2)
(ON-7 & -13)
17/32 DIA (12) HOLES
.220-.226(DRILL #2) 4 HOLES
MS51957-26(8)
AN960D6(8)
LDW280P17946-11(4) B2
LDW280P17575-11(4)
(ON-11,-13,-15,-17 & -53)
20
4 EQ SP ±1
HOLE IN THIS
END OF STRAP
26(REF), 27 5/16 *-31,-45 & -57, 27 13/16 **-25-27 & -29
40 15/16 *
19 1/2 (REF), 20 1/2 *-31,-45 & -57, 20 7/8 **-25,-27 & -29
13(REF), 13 5/8 *-31,-45 & -57, 13 13/16 **-25,-27 & -29
D10
GT835E-8(REF)
(ON-23)
44 7/8 (REF), 47 1/16 *-31,-45 & -57, 48 **-25 & -29
2.04 (TYP)
B4
22 7/16 (REF), 23 13/32 *-31,-45 & -57, 24 1/16 **-25,-27 & -29
30 7/16 (REF), 32 *-31,-45 & -57, 32 5/8 **-25,-27 & -29
1/2 (TYP) B4
12 19/32
12 27/32 *
1(TYP)
16 3/4
(REF)
1 (TYP)
2.04 (TYP)
60 7/8 (REF), 63 7/8 *-31,-45 & -57, 65 1/8 **-29
D10
6 1/2 (REF) D10
6 13/16 *-31,-45 & -57
6 15/16 **-29
7(REF)
7 11/32 *-31,-45 & -57
7 1/2 **-25;27 & -29
45 (REF), 45 1/4 *-31,-45 & -57, 48 5/32 **-25,-27 & -29
30(REF), 31 1/2 *-31,-45 & -57, 32 3/32 **-25,-27 & -29
15(REF), 15 3/4 *-31,-45 & -57, 16 1/16 **-25,-27 & -29
3/4
-Y81.000(REF)
+Z27.000(REF)
1 1/32
LDW280P18128-11(ON-23)
AP
(ZONE21A SH5)
DATUM
INSTALL PER LPC 280-2 (3)
(ON-11-13,-15 & -53)

VIEW LOOKING UP

01/02 NAS 9-1100

LDW280-28664 SH 5


23
22
21
20
3 1/8 (REF) D10
3 1/4 *-31,-45&-57
3 5/16 **-25;27-129
INSTALL PER LPC 280-2(6) WHEN IN FOLDED POSITION THESE HOLES TO LINE UP
D10
6 1/4 (REF)
6 3/8 *-31,-45&-57
6 11/16 **-25;27&-29
11 1/2 (REF)
12 3/32 *-31,-45&-57
12 9/32 **-25;27&-29
17/32 DIA (2)HOLES
GT535L-HA0740(REF)
BD (ZONE SH)
24 1/2 (REF) (TYP 2 PLCS)
25 3/4 *-31,-45&-57
26 7/32 **-25;27&-29
B10
D10
GT15C-3 INSTALL PER LPC280-3
E2
26 1/4 (REF)
27 9/16 *-31,-45&-57
28 3/32 **-25;27&-29
B2
LDW280P17575-11(4)
LDW280P17575-13(4)
MS51957-26(4)
(ON-3,-5,-7,-9&-49)
GB10J-1(4)
GW10H-1(4)
(ON-19,-21,-23&-55)
BD
LDW280P17967-19 (SEE NOTE 5) (ON-11,-13,-15,-17&-53)
20 4 EQ SP±1
GR500A-5G(2) (SEE VIEW AF-AF, ZONE3ASH3)
39(REF)
40 15/16 *-31,-45&-57
13/16 **-25,27&-29
SEE DETAIL AK (ZONE 13D SH4)
29 9/16 (REF)(TYP), 30 3/4 *-31,-45&-57, 31 3/8 **-25,-27&-29
GB10J-1(4)
GW10H-1(4)
SEE SECT AU-AU (ZONE15ASH4)
LDW280P17575-11(4)
MS51957-26(4)
ON-3,-5,-7,-9&-49
SEE SECT BB-BB (ZONE 15B SH4)
B2
1/2 (TYP) B4
12(REF)
12 19/32 *-31,-45&-57
12 27/32 **-25;27&-29
D10
B4
11 1/32 (REF) (TYP 2 PLCS)
11 9/16 *-31,-45&-57
11 5/8 **-25,-27&-29
16 3/4 (REF)
D10
16 11/16 (REF)(TYP 2 PLCS)
16 31/32 *-31,-45&-57
17 9/32 **-25;27&-29
22 1/2 (REF)
23 5/8 *-31,-45&-57
24 1/16 **-25-27&-29
D10
GR11B-1(10)
GW10H-3(10)
(ON-3,5,7,9, -19,21,23,-35, -49&-55)
3/4
+Z81.000(REF)
5/8
1/8 DIA (2) HOLES
-Y27.000(REF)
SLIT(ON-29,-45&-57)
DATUM LINE
INSTALL PER LPC 280-2 (3) (ON-11-13,-15&-53)
F
X116.340(REF)
BUTT ± 1/8
GT535L-HA0740(2) (SEE NOTE 2) TRIM AS REQD
GT835P-8 (4 TO 6 INCH PITCH)
GT835P-8 (4 TO 6 INCH PITCH)
3/16
1/2
6 1/4
INSTALL PER LPC 280-2 (6 PLACES)(REF)
LDW280P17575-13(2) -11(2)
B2
MS51957-26(2)
(ON-3,-5,-7,-9&-49)
GB10J-1(2)
GW10H-1(2)
(ON-19,-21,23,-35&-55)
GT835M-8 (APPROX. 6 IN SPACING)
1-3
LDW280P18128-11(REF)
B4
℄ OF SLIT (REF)
GT835M-8 (ON-23)
GT835E-8
GT835P-8
1-3
B4
GT835E-8
LDW280-28660(REF)
LDW280-28664(REF)
LDW280P17575-13(4) -11(4)
B2
MS51957-26(4)
(ON-3,-5,-7,-9&-49)
GB10J-1(4)
GW10H-1(4)
(ON-19,-21,-23,-35& -55)
DATUM LINE(REF)
LDW280P18138-11(REF)
X131.140(REF)
B3
D
C
B
A

SECTION AP-AP (ZONE24ASH5)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 88

PRINTING INFO ONLY

FULL SIZE SHEET AREA (36 X 90)= 22.5 SQ. FT.

1/2 SIZE SHEET AREA (1/4 OF FULL)= 5.6 SQ. FT.

PRINT TRIM LINE

LDW280-28664 E

LDW280-28664 E

W280-28664 SH 5

02/02

NAS 9-1100

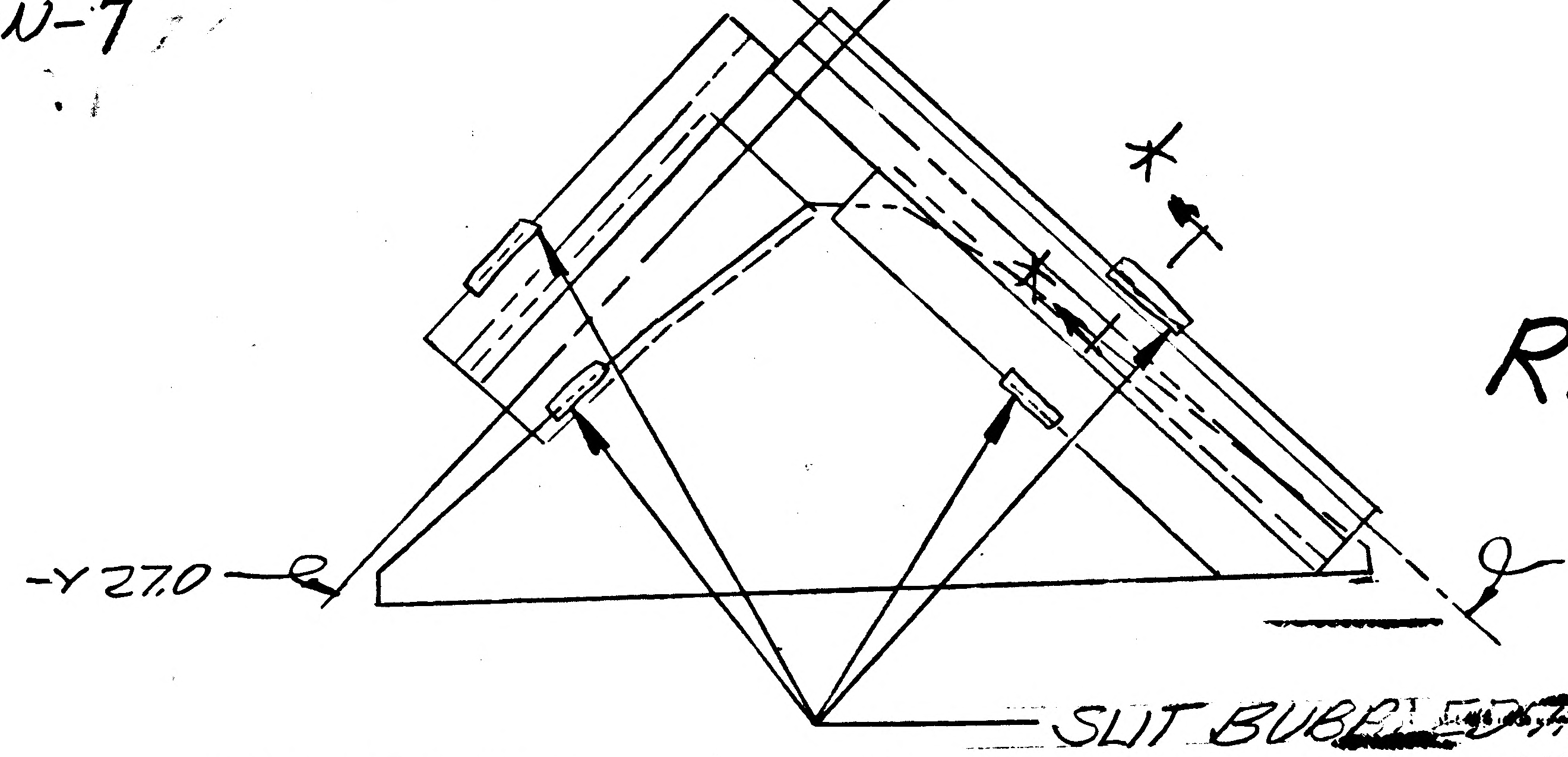
	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28664	E
MODEL OR END ITEM	SCALE 1/2		SHEET 5.00	

ENG 32.1 REV 3-65

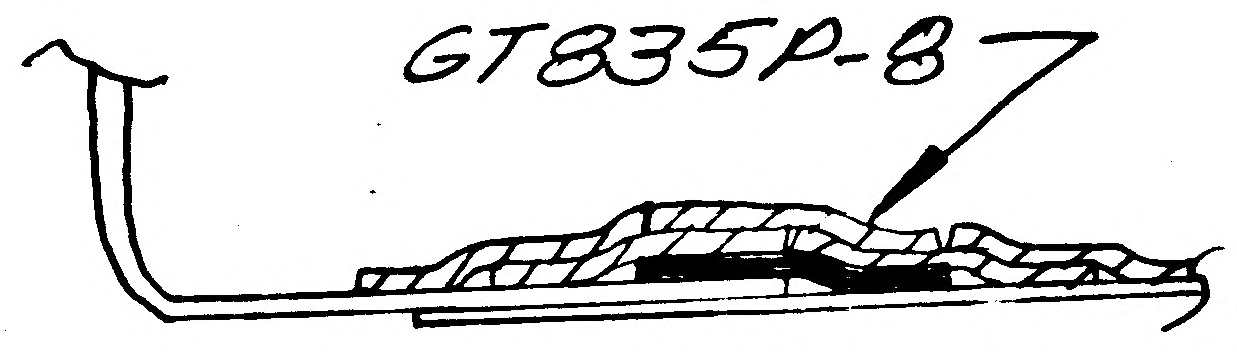
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28664	EO NO. E1
CONTROL INFO NO. LM-83-2143	

ON-7



RECORD E.O.



SECT *-*

SLIT BUBBLED AREAS OF LDW280-P18339-23 TAPE WHERE IT DOES NOT ADHERE TO CONTOUR. WIPE DOWN BOTH SIDES OF EXISTING TAPE WITH A FREON DAMPENED CLOTH. APPLY (5) PIECES OF GT835P-8 TAPE IN AN OVERLAPPING PATTERN AS SHOWN.

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☑	LCD-10774

REASON FOR EO REF SK DR 470
TO ASSURE TAPE ADHERES TO BADLY WRINKLED SKIN.

DESCRIPTION OF EO
ADDED EO TO RECORD BLOCK FOR LM-1

GAEC EO RELEASE 83 C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
	✓	✓	

APPROVED BY	SYS.	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
		Jap	JWC PE			MAK		MAK
DATE	11/1/67	11/1/67			11/1/67	10/31/67	1 Nov 67	11/1/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL D.S. QUAD I ~ FIXED THERMAL.	LDW280-28664	E1

ISSUED BY LIAISON ~ J. KOSLOSKI X2818 SECTION V.D.I. GROUP NO. 816 PL 83 K

01

NAS 9-1100

B

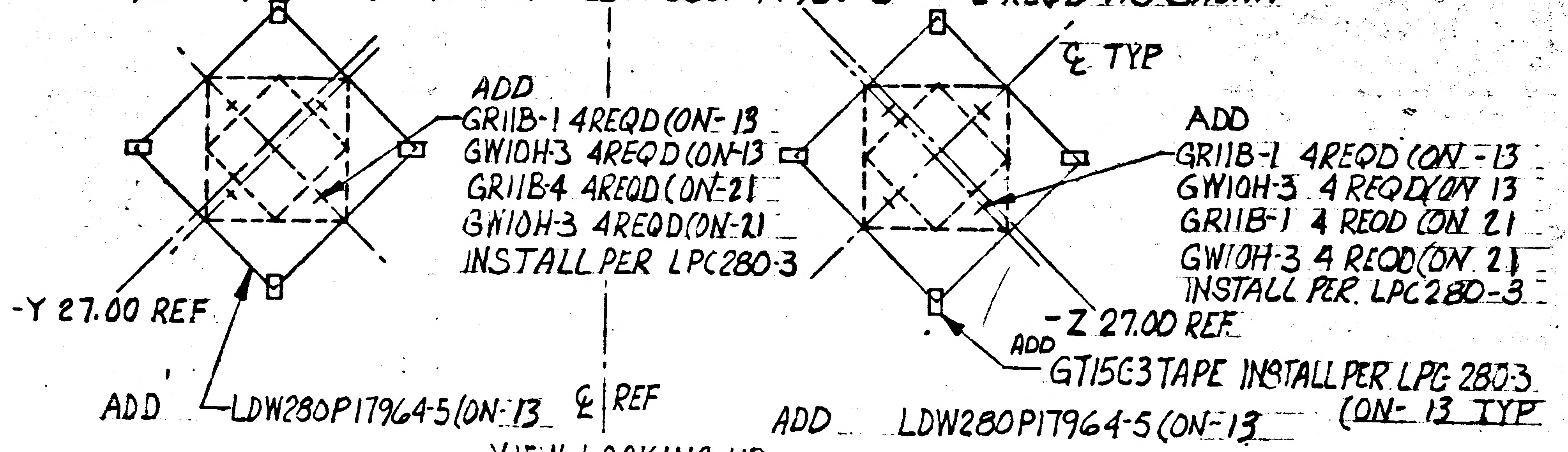
ENG 22.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG NO LDW280-28664		EO NO.	E2
CONTROL INFO NO. LDW280B0158			

IN F/D & L/M FOR -13 ADD LDW280P17964-5 2 REQD AS SHOWN



℄ TYP
ADD
GR11B-1 4REQD (ON-13
GW10H-3 4REQD (ON-13
GR11B-4 4REQD (ON-21
GW10H-3 4REQD (ON-21
INSTALL PER LPC280-3
ADD
GR11B-1 4REQD (ON-13
GW10H-3 4 REQD (ON 13
GR11B-1 4 REQD (ON 21
GW10H-3 4 REQD (ON 21
INSTALL PER LPC280-3
-Y 27.00 REF
-Z 27.00 REF
ADD
GT15C3 TAPE INSTALL PER LPC 280-3
(ON-13 TYP
ADD LDW280P17964-5 (ON-13
℄ REF
ADD LDW280P17964-5 (ON-13

VIEW LOOKING UP

DESCRIPTION ABOVE
ON-~~27~~ 21 ADDED GR11B-1 RETAINER (8) GW10H-3 WASHER (8) & "INSTAL PER LPC 280-3" CALLOUT (2) ADDED GT15C-3 TAPE. THIS IS AN ORIGINAL E.O.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2223 CCA745 (5)

REASON FOR EO: LANDING GEAR REMOVAL ON LM-2

DESCRIPTION OF EO: ON-13 IN F/D & L/M ADDED LDW280P17964-5 COVER ~ 2 REQ'D. GR11B-1 RET. (8) GW10H-3 WASHER (8) CONT. ABOVE

Ⓡ GAEC EO RELEASE: JK 11/16/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO	SUB CONTR UNIT NO.
LM		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	11/10/67			11/10/67	11/14		11/14/67	11-16-67
P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: SHIELD INSTL. ~ DESCENT STAGE QUAD FIXED THERMAL

DRAWING NO.: LDW280-28664

EO NO.: E2

121517
ISSUED BY E.V.R. CASE x1153 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

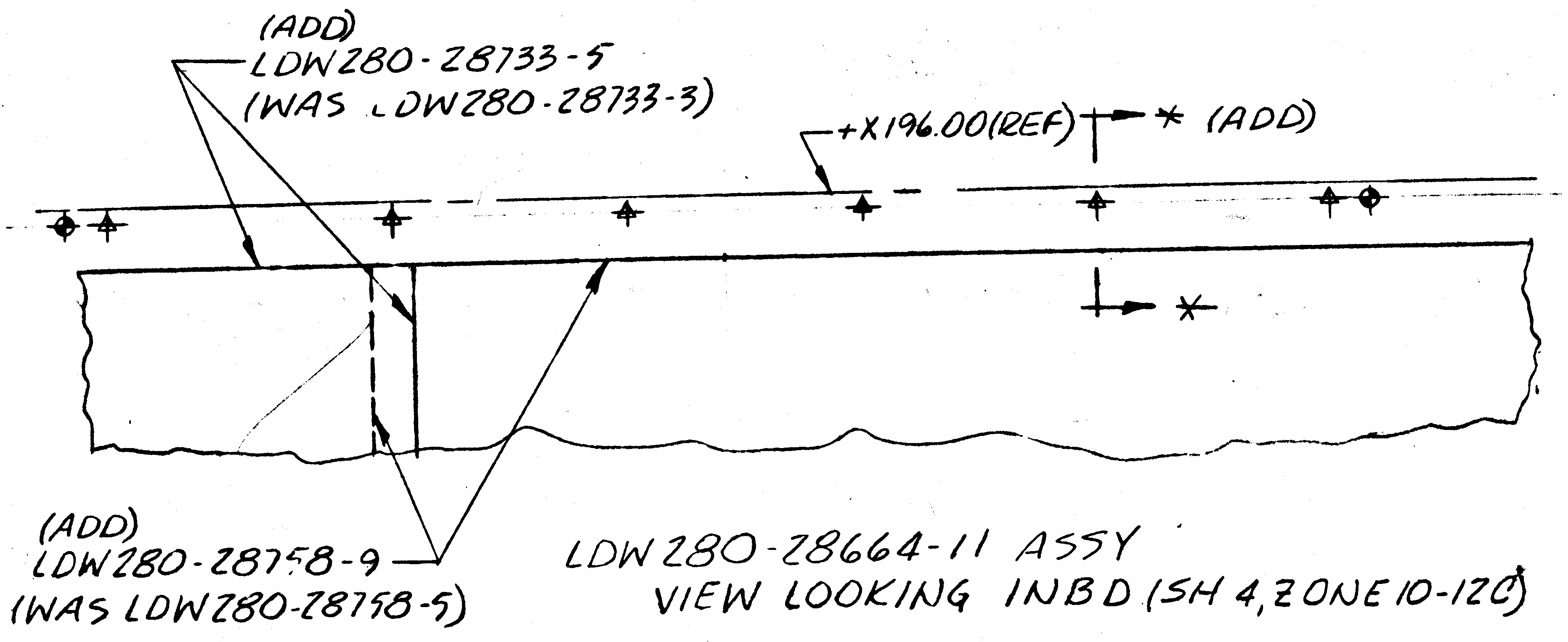
01
NAS 9-1100

ENG 32.2 REV 3-65

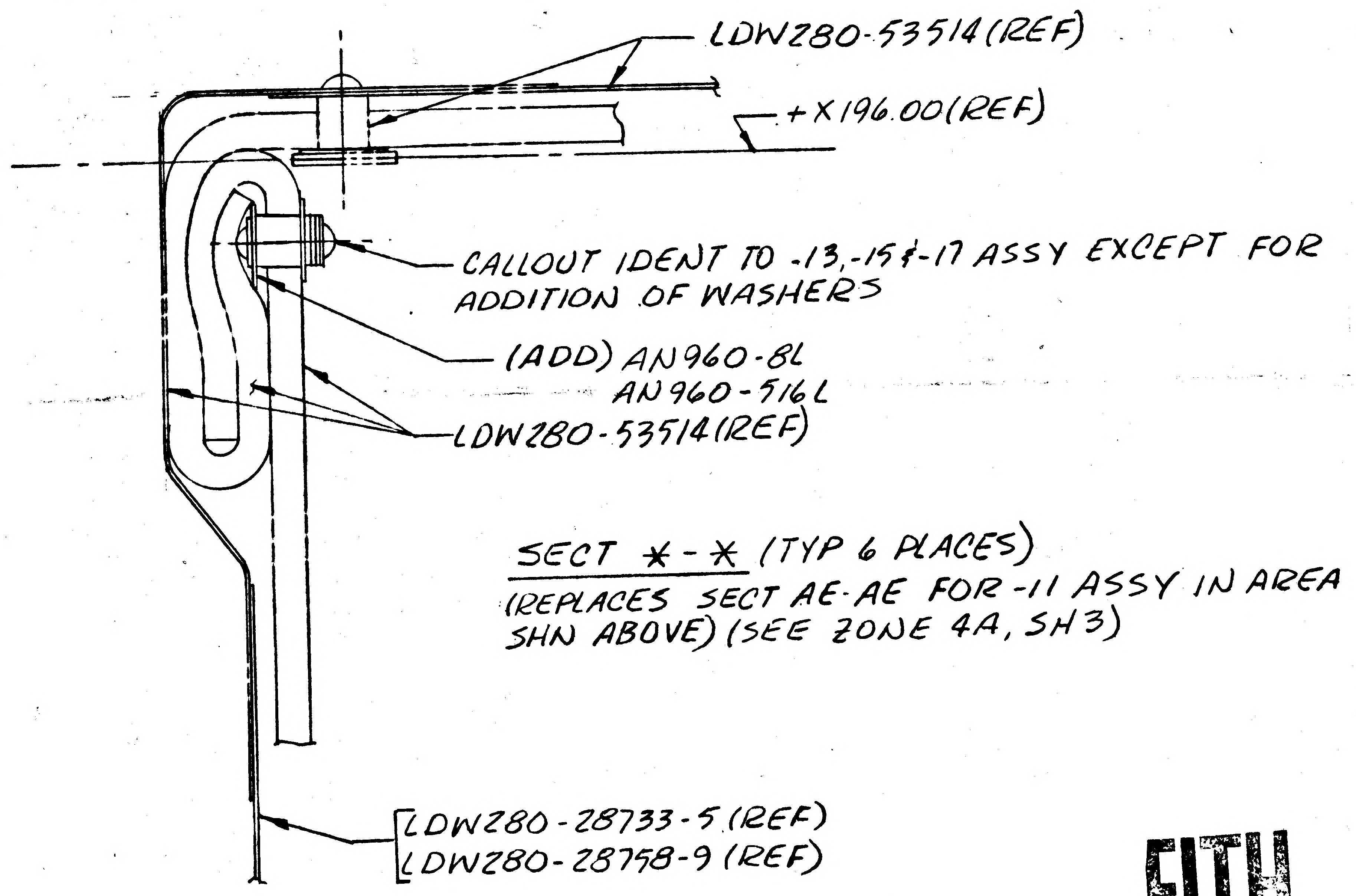
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-28664	EO NO.	E3
CONTROL INFO NO.	LDW280B1191		

IN M/B FOR-3, REMOVE LDW420-2370 (SER #1) REQMTS


(ADD)
LDW280-28733-5
(WAS LDW280-28733-3)
+X196.00(REF)
* (ADD)
*
(ADD)
LDW280-28758-9
(WAS LDW280-28758-5)

LDW280-28664-11 ASSY
VIEW LOOKING INBD (SH 4, ZONE 10-12C)


LDW280-53514(REF)
+X196.00(REF)
CALLOUT IDENT TO -13,-15 & -17 ASSY EXCEPT FOR ADDITION OF WASHERS
(ADD) AN960-8L
AN960-516L
LDW280-53514(REF)
LDW280-28733-5 (REF)
LDW280-28758-9 (REF)

SECT *-* (TYP 6 PLACES)
(REPLACES SECT AE-AE FOR-11 ASSY IN AREA SHN ABOVE) (SEE ZONE 4A, SH3)

FITH

ADD SECT **-** REPLACING SECT AD-AD TO REFLECT CHANGES MADE IN THAT AREA OF -11. (SEE ZONE 5A, SH3)

* USE NEXT AVAILABLE LETTER

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1244	PKG # 46	(5)
REASON FOR EO	PROVISION FOR FITH SHIELD	DESCRIPTION OF EO	FOR-11 ASSY, ADDED LDW280-28733-5, LDW280-28758-9, AN960-8L(6), AN960-516L(9), SECT *-* & SECT *-*. REMOVED LDW280-28733-3 & LDW280-28758-5. IN M/B FOR-3, REMOVED LDW420-2370 (SER #1) REQMTS.				GAEC EO RELEASE	K 1/19/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	JAS			PBT	MJG	JAP	JP
DATE	1/15/67			1-15-68	1-17-68	1/15/68	1/18/68
S	VDI						

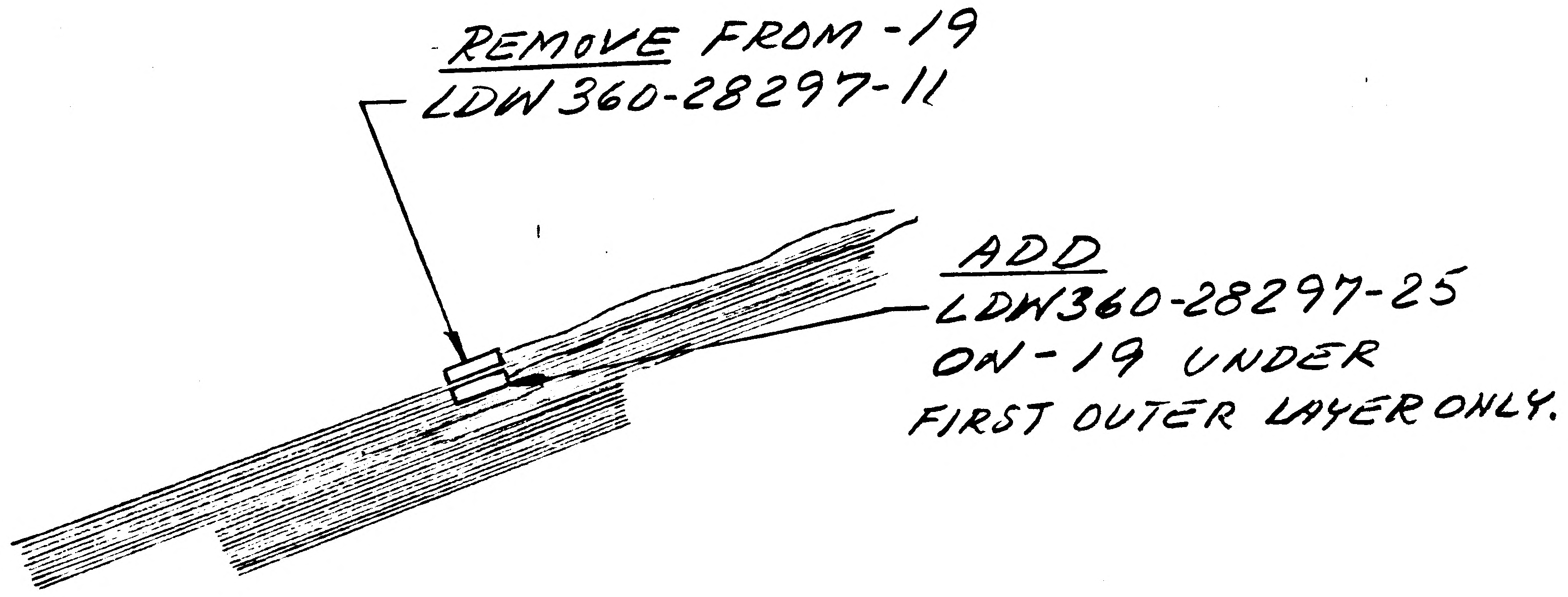
PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL D/S - QUAD I - FIXED THERMAL	LDW280-28664	E3

CDR 02056B
ISSUED BY S. TAMRES/P. THORJUSEN x1153 SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28664
EO NO. E4
CONTROL INFO NO. LM-5-19719



SEC. AM-AM ZONE 17A SH.4.

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2360	(5)

REASON FOR EO: REDESIGN OF THERMAL SHLD.

DESCRIPTION OF EO: FROM -19 REMOVED LDW360-28297-11 & ADDED LDW360-28297-25.

GAEC EO RELEASE: C

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY								
DATE	4/10	4/11/68			4-10-68	4-10-68	4/10	4/11/68
	VDI	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C
DRAWING TITLE: SHIELD INSTL. D.S.-QUAD I FIXED THERMAL
DRAWING NO. LDW280-28664
EO NO. E4

ISSUED BY LIAISON J. JARVIS SECTION VDI GROUP NO. 280 PL 5

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-28664
EO NO. E5
CONTROL INFO NO. LDW280-53066

CREATE -49 INSTL IDENTICAL TO -3 INSTL EXCEPT -51 ASSY REPLACES -33 ASSY AND -53 ASSY REPLACES -11 ASSY AND ADD LDW280P17512-65 INBD OF LDW280P17512-57

-51 IDENTICAL TO -33 EXCEPT LDW280P17947-7 REPLACES LDW280P17947-5

-53 IDENTICAL TO -11 EXCEPT -55 ASSY REPLACES -19 ASSY

-55 IDENTICAL TO -19 EXCEPT -57 ASSY REPLACES -25 & -45 ASSYS, & OMIT REQUIREMENTS FOR LDW280-28761-3.

-57 IDENTICAL TO -25 & -45 EXCEPT LDW280P17512-61 REPLACES LDW280P17512-43 & LDW280P17512-47

N/A FOR -49 LDW280-53553 1EA

LFM

ADD NOTE * (USE NEXT AVAILABLE NOTE NUMBER)
THIS DWG AFFECTED BY LFM 155 WHICH MAY BE USED ON LM-3(33)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2899

PKG 1 ⑤

REASON FOR EO: PLUME IMPINGEMENT PROTECTION SEVEN SECOND DOCKING

DESCRIPTION OF EO: ADDED -49, -51, -53, -55, -57, NOTE * & LDW280P17512-65

GAEC EO RELEASE: Ⓡ 1C 4/26/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 155	LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	4/1/68	4/22/68		4/19/68	4/22/68		4/22/68	4-22-68

PRIORITY: C
DRAWING TITLE: SHIELD INSTL D/S-QUAD I-FIXED THERMAL
DRAWING NO.: LDW280-28664
EO NO.: E5

042668
ISSUED BY D.SHAPIRO/P.THORTUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

QTY PER ASSEMBLY								CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
69 67 65 63	61 59 57 55	53 51 49 47	45 43 41 39	37 35 33 31	29 27 25 23	21 19 17 15	13 11 5 3											
	1							✓	LDW280-28665-59	E	BLANKET - POLY	SEE DWG						
		1						✓	-57		BLANKET - POLY							
		1							-55		BLANKET ASSY							
		1							-53		BLANKET ASSY							
							1		-51		SHIELD ASSY - SEQ							
							1		-49		SHIELD ASSY - SEQ							
			1					✓	-47		BLANKET - POLY							
			1					✓	-45		BLANKET - MYLAR							
			1					✓	-43		BLANKET - MYLAR							
			1					✓	-41		BLANKET - POLY							
			1					✓	-39		BLANKET - POLY							
			1						-37		BLANKET ASSY							
			1						-35		BLANKET ASSY							
							1		-33		SHIELD ASSY - BOTTOM							
							1		-31		SHIELD ASSY - BOTTOM							
1					1			✓	-29		BLANKET - MYLAR							
1					1			✓	-27		BLANKET - POLY							
					1				-25		BLANKET ASSY							
							1		-23		SHIELD ASSY - SIDE							
							1		-21		SHIELD ASSY - SIDE							
						1		✓	-19		BLANKET - MYLAR							
						1		✓	-17		BLANKET - POLY							
							11		-15		BLANKET ASSY							
							1		-13		SHIELD ASSY - TOP							
							1		-11		SHIELD ASSY - TOP	SEE DWG						
									-5		THERMAL SHIELD INSTL					NONE	NONE	
									LDW280-28665-3	E	THERMAL SHIELD INSTL					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28665	A
SCALE NONE			SHEET 2.[illegible]

ENG 77.2 7-65

01 NAS 9-1100

LDW280-28665 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51553	LM-1(31)	1
LEM	LDW280-28553	LTA-8(18)	

PART NO.	GAEC SCH NO.
LDW280-28665-5	
LDW280-28665-3	52

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	2.01	2.02	2.03	3.00	4.00	5.00
REV	B	B	A	B	B	B	B	B	B
SHEET	6.00								
REV	B								
SHEET									
REV									

LAST SECT LTR USED AD
LAST DASH NO. USED -69
GRUMMAN REL INFO B
PRIM NO. 207 R001 MP-18 11/15/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/16 ± .03 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY F. MADDEN R. VANCOTT
LAYOUT BY F. MADDEN R. VANCOTT
CHECKED BY
GRP LEADER 7/1/66
STRUCT 7/23
STRUCT 7/23
JOI 7/23
WEIGHTS 17
THERMAL
RELIAB.
PROJ ENGR 8-10
REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

THERMAL SHIELD INSTL
DESCENT STAGE, QUAD. II FIXED

SIZE B
CODE IDENT NO. 26512
LDW280-28665 B
SCALE NONE
SHEET 1.00 OF 10

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
									RETRACED SHEETS 3,4, N/C (LAST REVISION N/C)				R.VC FJM		
A	1	ALL						Ⓡ	ADDED SHEET $\begin{matrix}1.01\\2.02\\2.03\end{matrix}$. SHEET 1 OF 10 WAS:-1 OF 7 REMOVED -1 INSTL. ADDED -3 & -5 INSTL. & -11, -13, -15, -17, -19, -21, -23, -25, -27, -29, -31, -33, -35, -37, -39, -41, -43, -45, -47, -49, -51, -53, -55, -57 & -59 61, -63, -65, -67, & 69. REMOVED NOTES 1 THRU 5. ADDED NOTES 6 THRU 10	LTA-9(18) LM-1(31)		-1	RVC FJM 10/29/66	11-16-66	11/17/66
B	1	2.01, 2.03 5.00						E0B1	ON-5 ADDED LDW280P18175-11(1) & -13(1) & GT15C-3	LM-1(31)	✓		G. ZARCADOOLAS 10-31-67		
	2	3.00					✓	E0B2	REV. NOTE 7. NOTE 7 WAS: SAGE GREEN, SIZE "E" SPEC VT295, TYPE II, CLASS I, NYLON THREAD MAY BE PURCHASED FROM THREADS INC., GASTONIA, NORTH CAROLINA, CODE IDENT #19937	LTA-8(18) LM-1(31)	✓				
	3	2.02, 6.00						E0B3	IN FIELD OF DWG & B/M ON-45 REMOVED LDW280P17582-9	LM-1(31)	✓				
	4	2.02, 2.03, 6.00						E0B4	ON-5, IN FIELD OF DWG & B/M ADDED LDW280P17964-5 COVER(2) REQD, GR11B-1 RETAINER(8), GW10H-3 WASHER(8) -ON-37, ADDED GR11B-1 RETAINER(8), GW10H-3 WASHER(8) & "INSTALL PER LPC280-3" CALLOUT(2)		✓				
	5	2.01, 2.03 4.00						E0B5	ON-5 ADDED LDW280-18111-13 & GR500A-4E, REVISED CALLOUT GR500A-4L WAS MS20470AD4		✓				
	6	2.01						E0B6	IN B/M ADDED LDW280-51742-3 ON-51		NOT	REQD			
	7	2.02, 2.03 3.00, 4.00						E0B7	IN FIELD & B/M, FOR-5, ADDED: GS11K-1-15, GS11K-3-216, GS11K-2-186, GS11K-2-202, GS11K-1-5, GS11K-3-066, GS11K-1-3, GS11K-3-036, GS11K-1-2(2) GS11K-3-022(2), GS577A-1, GT835P-8 & NOTE 11		✓				
	8	2.02, 2.03 3.00, 4.00					✓	E0B8 LCD-928	REVISED E0B7-30 3/4 (WAS 30 3/4 REF), 1 7/16 (WAS 1 7/16 REF) GS11K-1-6 (WAS GS11K-1-5) GS11K-3-082 (WAS GS11K-3-066). ADDED 11/16, 9 5/8 & 12 7/8 DIM. ADDED NOTE: IT IS PERMISSIBLE TO SLIT .188 X .125 FLANGE OF GS11K-1-2 ETC		✓				
	9	2.02, 2.03 4.00					✓	E0B9 LCD-1244	IN FIELD & B/M FOR-5 REMOVED GB511J-08-2(6). AN960D8(6). FOR-13 REMOVED LDW280P17946-11(16), LDW280P17967-15(1), -53(2), -55(2) & MS51597-26(16)		✓				
	10	2.03, 3.00					✓	LE0280-589 LCD-928	IN FIELD & B/M REMOVED GS577A-1 & ADDED GS577A-4 STAPLE (ON-5)		✓		TS 28		

CHG APPROVED

LTR	~~GROUP LDR~~	VDI	STRUCT	STRUCT	WEIGHTS	THERMO
A		11/17/66	WJH 11/16/66			
B						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28665	B

SCALE NONE

SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY																																CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
69	67	65	63	61	59	57	55	53	51	49	47	45	43	41	39	37	35	33	31	29	27	25	23	21	19	17	15	13	11	5	3											
																														1			LDW280P18175-13	E	BLANKET	SEE DWG						
																														1			LDW280P18175-11	E	BLANKET	SEE DWG						
																					1												LDW280P17581-5	E	BLANKET - POLY-SIDE	SEE DWG						
																				1													LDW280P17581-3		↓ -MYLAR-SIDE							
																									1								LDW280P17580-5		BLANKET - MYLAR - TOP							
																										1							LDW280P17580-3		↓ - POLY - TOP							
																														14	14		LDW280P17575-13		WASHER							
																														19	19		LDW280P17575-11		WASHER							
									14														12					15					LDW280M17698-11		WASHER							
																														1			LDW280-51826-3		VALVE COVERS							
																														1			LDW280-51826-1		VALVE COVERS							
									1																								LDW280-51742-1		SHIELD ASSY SEQ							
										1																							LDW280-28742-3		↓ SEQ							
									1																								LDW280-51742-3		SHIELD ASSY SEQ							
																							1										LDW280-28739-5		SHIELD ASSY SIDE							
																								1									LDW280-28739-3		↓ SIDE							
																												1					LDW280-28736-5		SHIELD ASSY TOP							
																													1				LDW280-28736-3		↓ TOP							
																														1			LDW280-18111-13		PLATE							
	1																																LDW280-18110-15		CHANNEL	SEE DWG						
		1																															LDW280-18110-11		↓	SEE DWG						
																								1									LDW280-28665-69		BLANKET ASSY-SIDE							
																							1	1									LDW280-28665-67		STRAP ASSY							
									1	1																							LDW280-28665-65		STRAP ASSY							
							1																										LDW280-28665-63		BLANKET - MYLAR							
								1																									LDW280-28665-61	E	BLANKET - MYLAR							

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28665	B

SCALE NONE

SHEET 2.01

ENG 77.2 7-65

01

NAS 9-1100

65	63	61	59	57	55	53	51	49	47	45	43	41	39	37	35	33	31	29	27	25	23	21	19	17	15	13	11	5	3	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
QTY PER ASSEMBLY																																								
																												1			GS11K-3-036	E	STRIP	GRUMMAN STD						
																												2			GS11K-3-022									
																												1			GS11K-2-186									
																												1			GS11K-1-15									
																												1			GS11K-1-6									
																												1			GS11K-1-3									
																												2			GS11K-1-2		STRIP	GRUMMAN STD						
							1	1																							LDW280P17967-93		STRAP	SEE DWG						
																					1	1									-91									
1																															-89									
	1																														-87									
	1																														-85									
																					2	2									-79									
																					1	1									-73									
																											2				-55									
																											2				-53									
																					1	1					1				LDW280P17967-15		STRAP							
																												2			LDW280P17964-5		COVER							
							5	5													31	31					16				LDW280P17946-11		STANDOFF							
																															LDW280P17584-25		BLANKET MYLAR	- SEQ						
				1																											-23		POLY	-						
			1																												-9		POLY	-						
		1																													LDW280P17584-5		MYLAR	- SEQ						
									1																						LDW280P17582-19		BLANKET - POLY -	BTH						
												1																			-11		POLY							
													1																		-7		POLY							
										1	1																				LDW280P17582-5	E	BLANKET - MYLR -	BTH SEE DWG						

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28665	B

⑮

SCALE NONE

SHEET 2.02

ENG 77.2 7-65

01

NAS 9-1100

69 67 65 63 61	59 57 55	53 51 49 47	45 43 41 39	37 35 33 31	29 27 25 23	21 19 17 15	13 11 5 3	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				AS REQD			AS REQD		GT15C-3	E	TAPE	GRUMMAN STD						
		14			14		15		GS20D-06-14	E	SCREW	GRUMMAN STD						
		14				14	15		GS20D-06-8	↑	SCREW	GRUMMAN STD						
		1616			1818		319A24		MS51957-26		SCREW	STD PART						
							AS REQD		GT835P-8		TAPE	GRUMMAN STD						
							AS REQD		GS577A-4		STAPLE	GRUMMAN STD						
22									MS21042L08		NUT	STD PART						
40		1515		2214	40	31	3422		GW10H-3		WASHER							
40		1515		2214	40	31	3422		GR11B-1		RETAINER							
						AS REQD	AS REQD		AN960C416L		WASHER							
v2							713		AN960D8		WASHER							
							33		GB511J-08-3		BOLT							
v2									GB511J-08-1		BOLT							
							1		GR500A-4L		RIVET							
							1		GR500A-4E		RIVET							
							2624		MS20426-AD3		RIVET							
							1310		NAS697-A08		NUT PLATE							
									AN960C6		WASHER							
							410		GB511J-08-2		BOLT							
4		1212		1414					GW10H-1	↓	WASHER							
4		121✓		1414					GB10J-1	E	BUSHING	STD PART						
							1		GS11K-3-216	E	STRIP	GRUMMAN STD						
							1		GS11K-3-082	E	STRIP	GRUMMAN STD						

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28665	B ⑬

SCALE NONE

SHEET 2.03

ENG 77.2 7-65

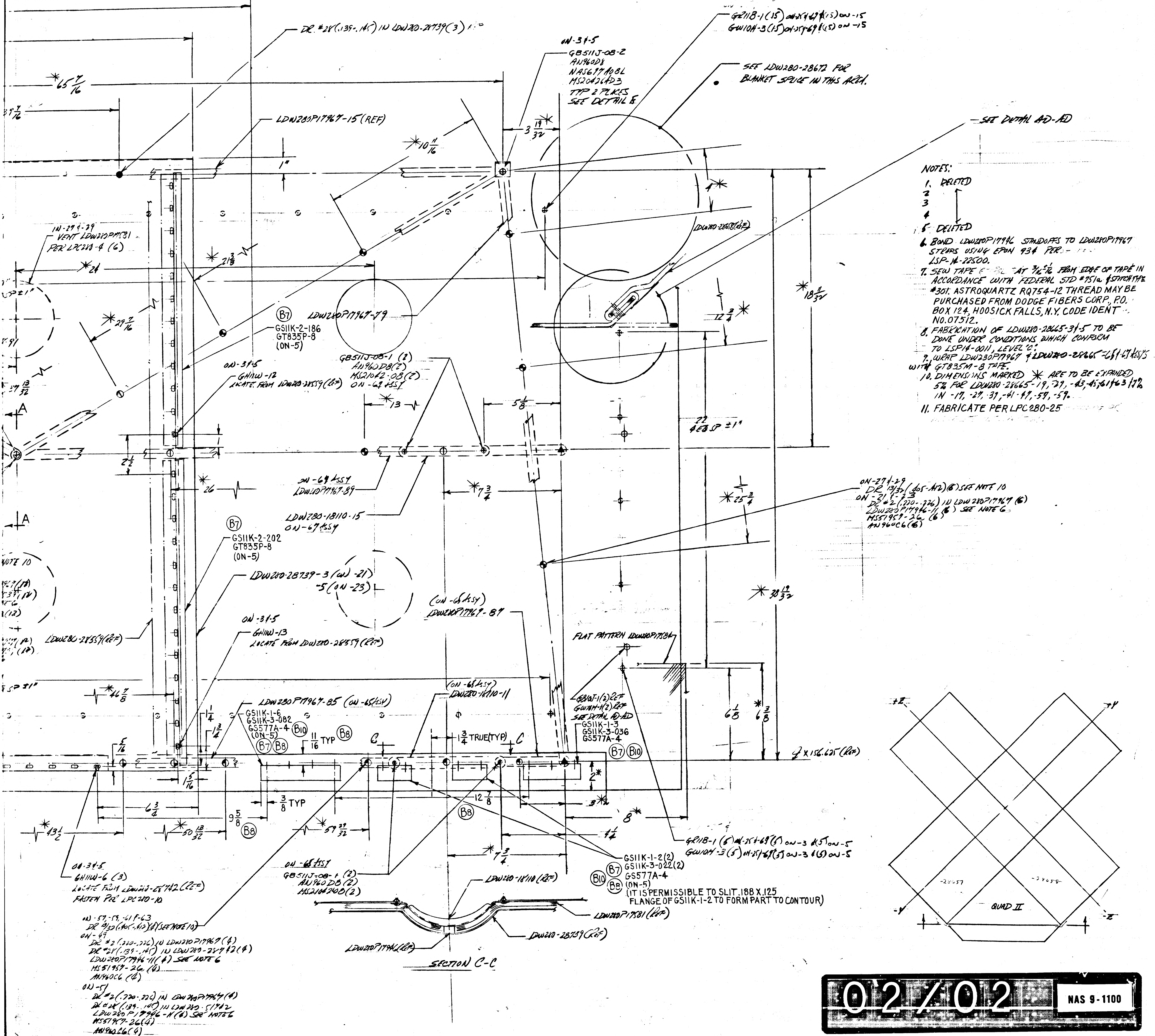
01

NAS 9-1100

SEE LDW280-28692 FOR BLANKET SPLICE IN THIS AREA
LDW280P17946 (REF)
LDW280P17881 (REF)
SHIM TO A MAX OF .120 USING AN960C416L WASHERS
AN960C6 (REF)
LDW280M17678-11 (REF)
MS51957 (REF)
GS20D (REF)
AN960C6 (REF)
LDW280-28959 (REF)
LDW280P17967 (REF)
SECTION A-A
LDW280-28659 (REF)
SEE DETAIL AD-AD
LDW280P17967-99
ON-27 LDW280P17581-5
ON-29 LDW280P17581-3
LOCATE HOLE FROM LDW280-28657 & LDW280-28663
3/16 DIA HOLE ON-69 (4)
GB10J-1 (4)
GW10H-1 (4)
DETAIL AD-AD
GB10J-1 (2) REF
GW10H-1 (2) REF
SEE DETAIL AD-AD
22 4 EQ SP ±1" TYP BOTH ENDS
ON-25 & -69 STAPLE & TAPE PER LPC 280-1
GR18-1 (5) ON-25 & 69 (15) ON-53 & -55
GW10H-3 (5) ON-25 & 69 (15) ON-53 & -55
LDW280P17967-73
GR18-1 (5) ON-25 & 69, (5) ON-3 & (5) ON-5
GW10H-3 (5) ON-25 & 69, (5) ON-3 & (5) ON-5
LDW280P17967
DR #19 (.165-.171)
DETAIL E
TYP END TRIM
48 1/2
44 23/32
65 7/16
11 1/4
3 1/4
3 1/8
13 3/16
26 11/32
31 9/16
B
B
2 BLANKET F/P
5 1/2 (REF)
FOLD LINE X 192 3/4 (REF)
SEAM PER LPC 280-3 USE GT15C-3 TAPE AT 4-6" PITCH
12 5/16
9 1/2
24 5/8
24
8 1/2
18
13
26
33 27/32
3 3/4
6 1/8
5/8
1 3/4
1/4
ON-27 & -29 VENT LDW280 PER LPC 280-4
24
72" 14 EQ SP ±1"
LDW280P17967-91
37 13/32
A
A
48 1/32
58 11/32
68 27/32
ON-27 & -29
DR 13/32 (.405-.412) (12) SEE NOTE 10
ON-21
DR #2 (.220-.226) IN LDW280P17967 (12)
DR #28 (.139-.145) IN LDW280-28739 (12)
LDW280P17946-11 (12) SEE NOTE 6
MS51957-26 (12), GS20D-06-8 (12)
AN960C6 (24)
ON-23
DR #2 (.220-.226) IN LDW280P17967 (12)
DR #28 (.139-.145) IN LDW280-28739 (12)
LDW280P17946-11 (12) SEE NOTE 6
MS51957-26 (12)
LDW280M17648-11 (12)
AN960C6 (12)
GS20D-06-14 (12)
LDW280-28559 (REF)
72" 14 EQ SP ±1"
ON-31-5
GH11W-6
LOCATE FROM LDW280-28742 (6P)
FASTEN PER LPC 280-10
FOLD LINE (160.25 REF)
SEAM PER LPC 280-3 USE GT15C-3 TAPE AT 4-6" PITCH
D
D
LDW280-28747 (REF)
LDW280-28742 (REF)
3 1/4
5 1/2 (REF)
BLANKET F/P
5 1/4
3 1/2
10 7/8
21 3/4
32 5/8
43 1/2
ON-5
GB511J-08-3
AN960D8
NAS697A08L
MS20426AD3 (2)
TYP 3 PLACES
SEE DETAIL E
ON-3
GB511J-08-3
AN960D4
TYP 3 PLACES
SEE DETAIL E
DATUM LINE
ON-57, 59, 61 & 63
DR 13/32 (.405-.412) 5 (SEE NOTE 10)
ON-49
DR #2 (.220-.226) IN LDW280P17967 (5)
DR #28 (.139-.145) IN LDW280-28742 (5)
LDW280P17946-11 (5) SEE NOTE 6
MS51957-26 (5), GS20D-06-8 (5)
AN960C6 (10)
ON-51
DR #2 (.220-.226) IN LDW280P17967 (5)
DR #28 (.139-.145) IN LDW280-51742 (5)
LDW280P17946-11 (5) SEE NOTE 6
MS51957-26 (5)
AN960C6 (5)
GS20D-06-14 (5)
LDW280M17698-11 (5)
ON-21 & -23
DR #28 (.139-.145) IN LDW280-28739 (5)
LDW280-28665-3 INSTL
-5 INSTL
-21 ASSY
-23
-25
-27
-29
-49
-51
-53
-55
-57
-59
-61
-63
-65
-67
-69
SEE NOTE 10
SEE NOTE 10

01/02

NAS 9-1100


DR. #28 (.139-.145) IN LDW280-28739 (3)
LDW280P17967-15 (REF)
ON-31-5
GB511J-08-2
AN960D8
NAS677A08L
MS20426AD3
TYP 2 PLACES
SEE DETAIL E
GR118-1 (15) ON-25 & 69 & (15) ON-15
GW10H-3 (15) ON-25 & 69 & (15) ON-15
SEE LDW280-28672 FOR BLANKET SPLICE IN THIS AREA.
SEE DETAIL AD-AD
LDW280-28658 (REF)
IN-27 & -29
VENT LDW280P17581
PER LPC280-4 (6)
LDW280P17967-79
GS11K-2-186
GT835P-8
(ON-5)
B7
ON-31-5
GH11W-12
LOCATE FROM LDW280-28559 (REF)
GB511J-08-1 (2)
AN960D8 (2)
MS21042-08 (2)
ON-67 ASSY
ON-67 ASSY
LDW280P17967-89
LDW280-18110-15
ON-67 ASSY
GS11K-2-202
GT835P-8
(ON-5)
LDW280-28739-3 (ON-21)
-5 (ON-23)
(ON-65 ASSY)
LDW280P17967-87
LDW280-28559 (REF)
ON-31-5
GH11W-13
LOCATE FROM LDW280-28559 (REF)
FLAT PATTERN LDW280P17834
ON-27 & -29
DR 13/32 (.405-.412) (6) SEE NOTE 10
ON-21 & -23
DR #2 (.220-.226) IN LDW280P17967 (6)
LDW280P17946-11 (6) SEE NOTE 6
MS51957-26 (6)
AN960C6 (6)
LDW280P17967-85 (ON-65 ASSY)
(ON-65 ASSY)
LDW280-18110-11
GS11K-1-6
GS11K-3-082
GS577A-4
(ON-5)
B7 B8 B10
11/16 TYP
1 3/4 TRUE (TYP)
C
GB10T-1 (2) REF
GW10H-1 (2) REF
SEE DETAIL AD-AD
GS11K-1-3
GS11K-3-036
GS577A-4
B7 B10
℄ X 156.625 (REF)
3/8 TYP
B8
GR118-1 (5) ON-25 & 69 (5) ON-3 & (5) ON-5
GW10H-3 (5) ON-25 & 69 (5) ON-3 & (5) ON-5
GS11K-1-2 (2)
GS11K-3-022 (2)
GS577A-4
(ON-5)
(IT IS PERMISSIBLE TO SLIT .188 X .125 FLANGE OF GS11K-1-2 TO FORM PART TO CONTOUR)
ON-31-5
GH11W-6 (3)
LOCATE FROM LDW280-28742 (REF)
FASTEN PER LPC280-10
ON-65 ASSY
GB511J-08-1 (2)
AN960D8 (2)
MS21042-08 (2)
LDW280-18110 (REF)
LDW280P17581 (REF)
LDW280-28739 (REF)
LDW280P17946 (REF)
SECTION C-C
ON-57, -59, -61 & -63
DR 13/32 (.405-.412) (4) (SEE NOTE 10)
ON-49
DR #2 (.220-.226) IN LDW280P17967 (4)
DR #28 (.139-.145) IN LDW280-28742 (4)
LDW280P17946-11 (4) SEE NOTE 6
MS51957-26 (4)
AN960C6 (4)
ON-51
DR #2 (.220-.226) IN LDW280P17967 (4)
DR #28 (.139-.145) IN LDW280-51742
LDW280P17946-11 (4) SEE NOTE 6
MS51957-26 (4)
AN960C6 (4)
A
+Z
+Y
-Y
-Z
QUAD II
65 7/16
10 11/16
3 19/32
1"
21 3/8
24
29 7/16
18 9/32
12 3/4
13
5 1/8
2 1/2
26
7 3/4
25 3/4
30 19/32
46 7/8
6 1/8
6 3/8
1 1/4
1 3/4
5/16
1 5/16
6 3/4
9 5/8
43 1/2
50 13/32
59 29/32
12 7/8
2
3
8
4 1/4
7 3/4

NOTES:

1. DELETED
2
3
4
5. DELETED
6. BOND LDW280P17946 STANDOFFS TO LDW280P17967 STRAPS USING EPON 934 PER LSP-14-22500.
7. SEW TAPE AT 3/16 ± 1/16 FROM EDGE OF TAPE IN ACCORDANCE WITH FEDERAL STD #751a & STITCH TYPE #301. ASTROQUARTZ RQ754-12 THREAD MAY BE PURCHASED FROM DODGE FIBERS CORP., P.O. BOX 124, HOOSICK FALLS, N.Y. CODE IDENT NO. 07512.
8. FABRICATION OF LDW280-28665-31-5 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011, LEVEL "C".
9. WRAP LDW280P17967 & LDW280-28665-65 & -67 ASSY'S WITH GT835M-8 TAPE.
10. DIMENSIONS MARKED ✳ ARE TO BE EXPANDED 5% FOR LDW280-28665-19, -29, -43, -45, -61 & 63 & 7% IN -17, -27, -39, -41 -47, -57, -59.
11. FABRICATE PER LPC280-25

02/02 NAS 9-1100

LAYOUT RELEASE - MAY BE REDRAWN ON PRODUCTION FORMAT

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X

PRINTING INFO ONLY

PRINT TRIM LINE

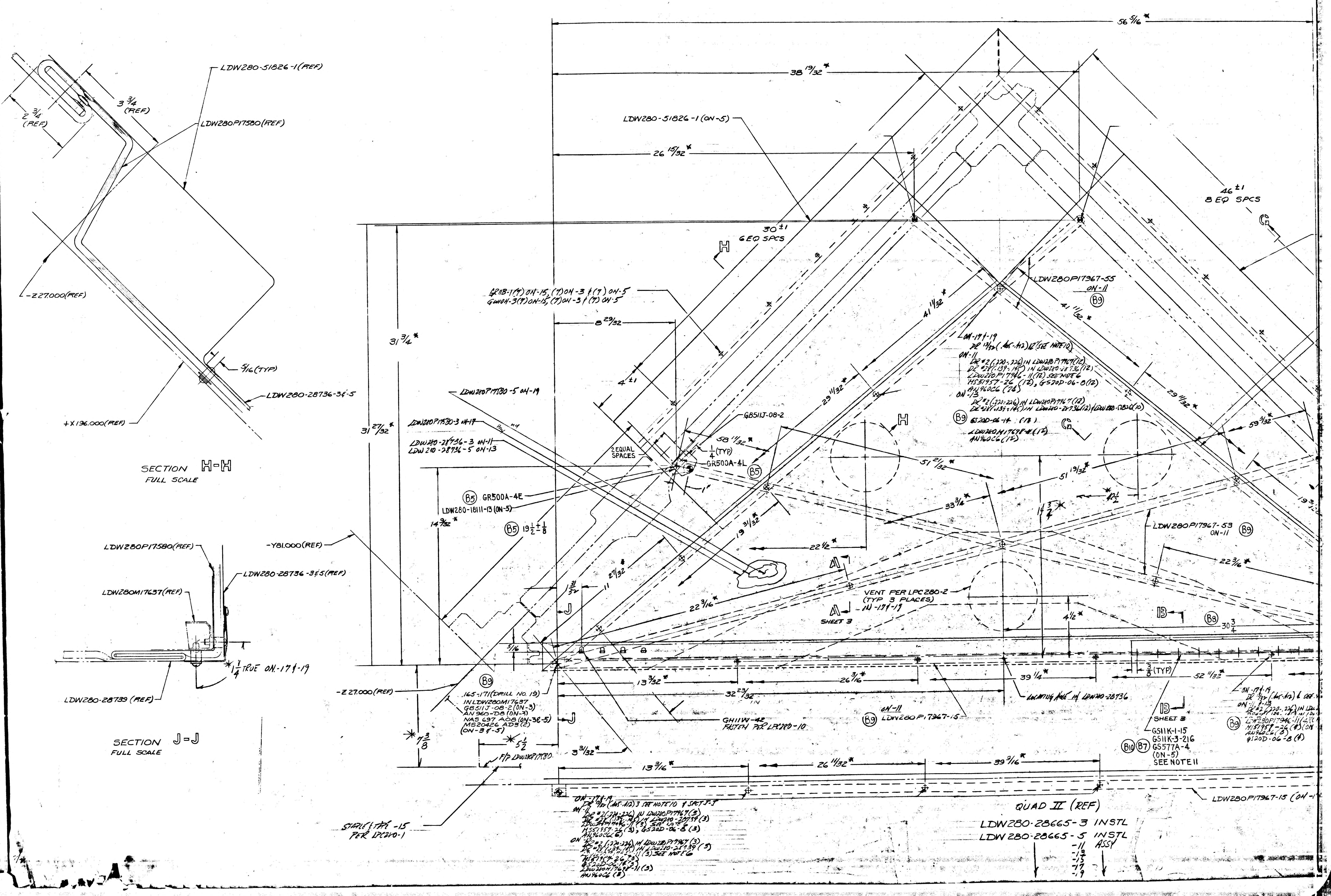
LDW280-28665 B

LDW280-28665 B

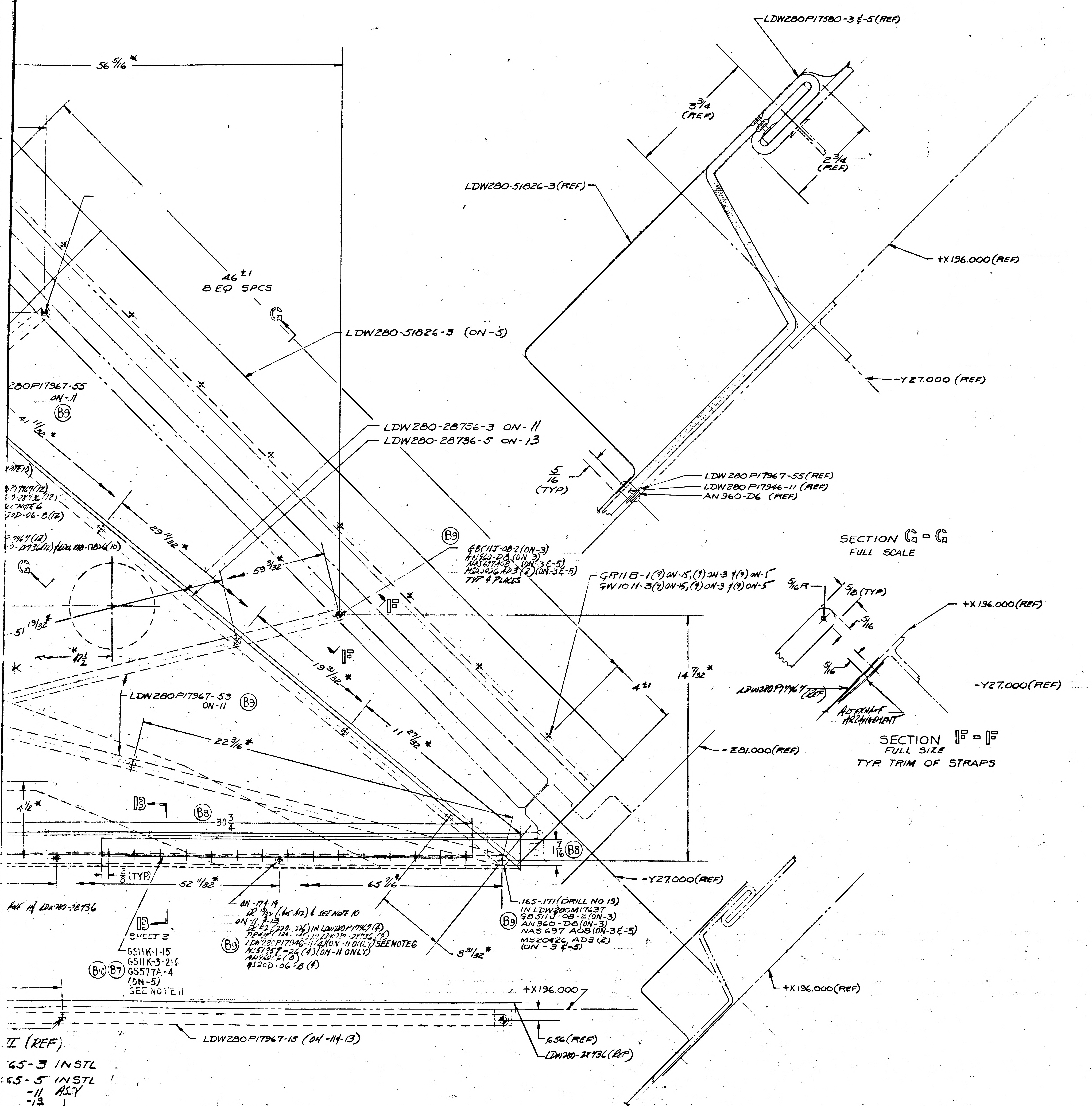
	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28665	B
MODEL OR END ITEM	SCALE 1/2		SHEET 3.00	

REDRAWN - SUPERSEDES SHT 3.00 NO CHANGE

01702 NAS 9-1100



56 5/16 *
38 19/32 *
26 15/32 *
LDW280-51826-1 (ON-5)
46 ±1
8 EQ SPCS
G
LDW280-51826-1 (REF)
LDW280P17580 (REF)
3 3/4 (REF)
2 3/4 (REF)
-Z27.000 (REF)
5/16 (TYP)
LDW280-28736-3 & -5
+X196.000 (REF)
SECTION H-H
FULL SCALE
30 ±1
6 EQ SPCS
H
GR11B-1 (7) ON-15, (7) ON-3 & (7) ON-5
GW104-3 (7) ON-15, (7) ON-3 & (7) ON-5
8 29/32
31 3/4 *
4 ±1
41 11/32 *
LDW280P17967-55
ON-11
B9
41 11/32 *
ON-17 & -19
DR 13/32 (.405-.412) 12 (SEE NOTE 10)
ON-11
DR #2 (.220-.226) IN LDW280P17967 (12)
DR #28 (.139-.145) IN LDW280-28736 (12)
LDW280P17946-11 (12) SEE NOTE 6
MS51957-26 (12), GS20D-06-8 (12)
AN960C6 (24)
ON-13
DR #2 (.220-.226) IN LDW280P17967 (12)
DR #28 (.139-.145) IN LDW280-28736 (12) & LDW280-51826 (10)
B9
GS20D-06-14 (12)
LDW280M17698-11 (12)
AN960C6 (12)
29 11/32 *
29 11/32 *
59 3/32
LDW280P17580-5 ON-19
LDW280P17580-3 ON-17
LDW280-28736-3 ON-11
LDW280-28736-5 ON-13
31 27/32 *
GB511J-08-2
2 EQUAL SPACES
58 11/32 *
1/4 (TYP)
GR500A-4L
B5
H
51 21/32 *
51 19/32 *
12 1/2
B5 GR500A-4E
LDW280-18111-13 (ON-5)
14 9/32 *
B5 19 1/2 ± 1/8
1°
33 3/4 *
14 3/4 *
19 31/32 *
22 1/2
LDW280P17967-53
ON-11
B9
-Y81.000 (REF)
2 7/32
1 31/32
22 3/16 *
22 3/16 *
A
VENT PER LPC280-2
(TYP 3 PLACES)
ON-17 & -19
A
SHEET 3
4 1/2 *
B
B8
30 3/4
LDW280P17580 (REF)
LDW280-28736-3 & 5 (REF)
LDW280M17637 (REF)
1 1/4 TRUE ON-17 & -19
LDW280-28739 (REF)
SECTION J-J
FULL SCALE
J
5/16
B9
.165-.171 (DRILL NO. 19)
IN LDW280M17637
GB511J-08-2 (ON-3)
AN960-D8 (ON-3)
NAS 697 A08 (ON-3 & -5)
MS20426 AD3 (2)
(ON-3 & -5)
J
-Z27.000 (REF)
13 3/32 *
26 3/16 *
39 1/4 *
3/8 (TYP)
52 11/32 *
32 23/32 IN
LOCATING HOLE IN LDW280-28736
GH11W-42
FASTEN PER LPC280-10
ON-11
B9 LDW280P17967-15
B
SHEET 3
GS11K-1-15
GS11K-3-216
GS577A-4
(ON-5)
SEE NOTE 11
B10 B7
ON-17 & -19
DR 13/32 (.405-.412) & SEE
ON-11
DR #2 (.220-.226) IN LDW
B9
MS51957-26 (4) ON
AN960C6 (8)
GS20D-06-8 (4)
* 7 3/8
5 1/2
3 31/32 *
F/P LDW280P17580
13 3/16 *
26 11/32 *
39 3/16 *
LDW280P17967-15 (ON-
STAPLE LTR -15
PER LPC280-1
ON-17 & -19
DR 13/32 (.405-.412) 3 SEE NOTE 10 & SECT J-J
ON-11
DR #2 (.220-.226) IN LDW280P17967 (3)
DR #28 (.139-.145) IN LDW280-28739 (3)
LDW280P17946-11 (3) SEE NOTE 6
MS51957-26 (3), GS20D-06-8 (3)
AN960C6 (6)
ON-13
DR #2 (.220-.226) IN LDW280P17967 (3)
DR #28 (.139-.145) IN LDW280-28739 (3)
LDW280P17946-11 (3) SEE NOTE 6
MS51957-26 (3)
GS20D-06-16 (3)
LDW280M17698-11 (3)
AN960C6 (8)
QUAD II (REF)
LDW280-28665-3 INSTL
LDW280-28665-5 INSTL
-11 ASSY
-13
-15
-17
-19


LDW280P17580-3 & -5 (REF)
3 3/4 (REF)
2 3/4 (REF)
LDW280-51826-3 (REF)
+X196.000 (REF)
-Y27.000 (REF)
56 5/16 *
46 ± 8 EQ SPCS
G
LDW280-51826-3 (ON-5)
280P17967-55 ON-11
B9
41 11/32 *
LDW280-28736-3 ON-11
LDW280-28736-5 ON-13
5/16 (TYP)
LDW280P17967-55 (REF)
LDW280P17946-11 (REF)
AN960-D6 (REF)
NOTE 10)
P17967 (12)
-28736 (12)
NOTE 6
D-06-8 (12)
P17967 (12)
-28736 (12) / LDW280-51826 (10)
29 11/32 *
59 3/32
B9
GB511J-08-2 (ON-3)
AN960-D8 (ON-3)
NAS697A08 (ON-3 & -5)
MS20426AD3 (2) (ON-3 & -5)
TYP 4 PLACES
GR11B-1 (9) ON-15, (9) ON-3 & (9) ON-5
GW10H-3 (9) ON-15, (9) ON-3 & (9) ON-5
SECTION G - G
FULL SCALE
5/16 R
5/8 (TYP)
5/16
+X196.000 (REF)
5/16
LDW280P17967 (REF)
-Y27.000 (REF)
ALTERNATE ARRANGEMENT
SECTION F - F
FULL SIZE
TYP. TRIM OF STRAPS
51 19/32 *
12 1/2
F
19 3/32 *
4 ±
14 7/32 *
LDW280P17967-53 ON-11
B9
11 27/32 *
22 3/16 *
-Z81.000 (REF)
4 1/2 *
B
B8
30 3/4
1 7/16
B8
3/8 (TYP)
52 11/32 *
65 7/16 *
-Y27.000 (REF)
HOLE IN LDW280-28736
B
SHEET 3
GS11K-1-15
GS11K-3-216
GS577A-4
(ON-5)
SEE NOTE 11
B10
B7
ON-17 & -19
DR 13/32 (.405-.412) & SEE NOTE 10
ON-11 & -13
DR #2 (.220-.226) IN LDW280P17967 (4)
DR #30 (.129-.136) IN LDW280-28736 (4)
B9
LDW280P17946-11 (4) (ON-11 ONLY) SEE NOTE 6
MS51959-26 (4) (ON-11 ONLY)
AN960C6 (8)
GS20D-06-8 (4)
3 31/32 *
.165-.171 (DRILL NO 19)
IN LDW280M17637
B9
GB511J-08-2 (ON-3)
AN960-D8 (ON-3)
NAS697A08 (ON-3 & -5)
MS20426AD3 (2)
(ON-3 & -5)
+X196.000
+X196.000 (REF)
.656 (REF)
LDW280-28736 (REF)
LDW280P17967-15 (ON-11 & -13)
II (REF)
65-3 INSTL
65-5 INSTL
-11 ASSY
-13
-15
-17
-19

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X) = SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = SQ. FT.

PRINT TRIM LINE

LDW280-28665 B

LDW280-28665 B

LAYOUT RELEASE MAY BE REDRAWN
ON PRODUCTION FORMAT

02/02 NAS 9-1100

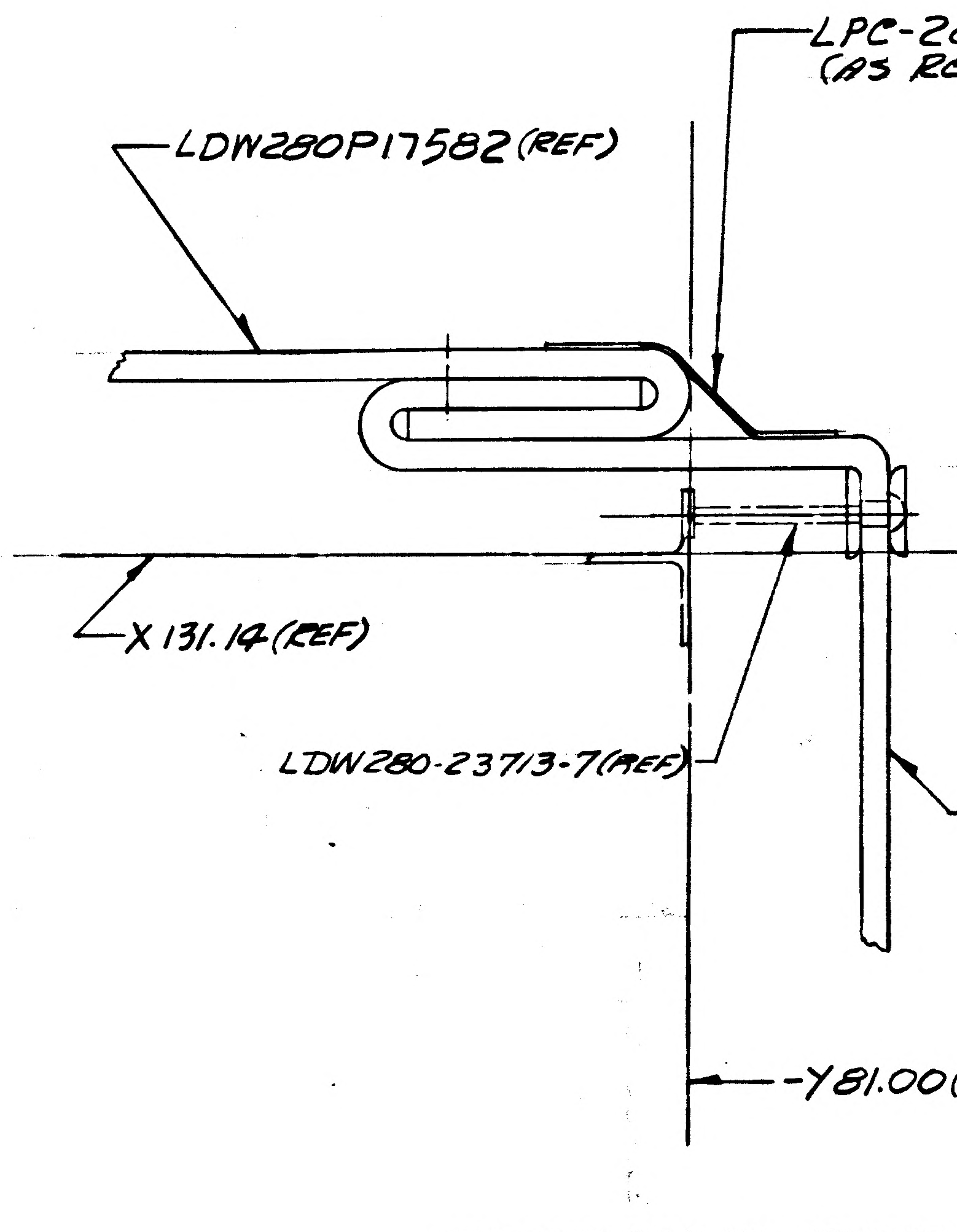
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-28665	B
	SCALE 1/1 & NOTED		SHEET 4.00	

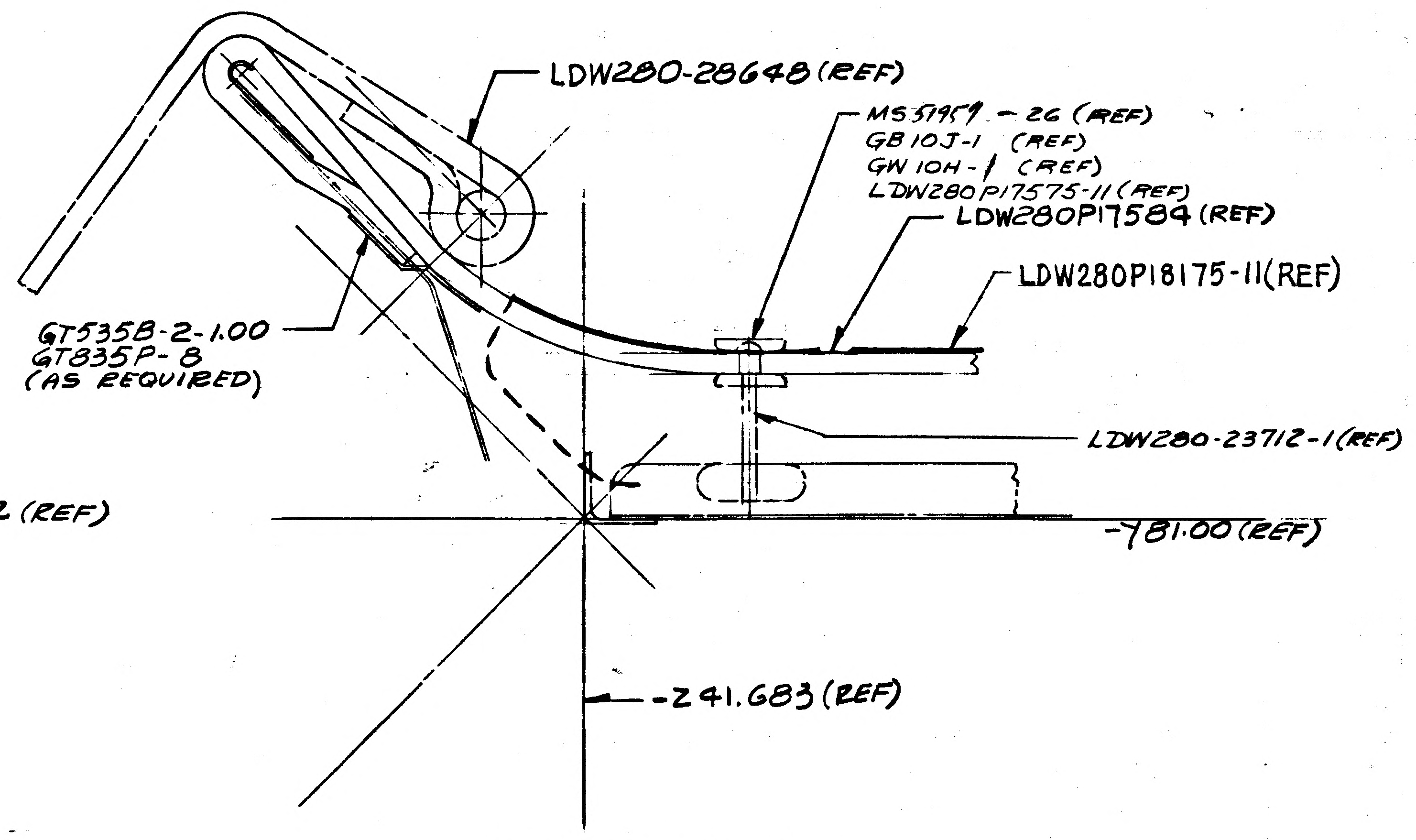
Ⓑ

SUPERSEDES LDW280-28665 N/C 8-10-66

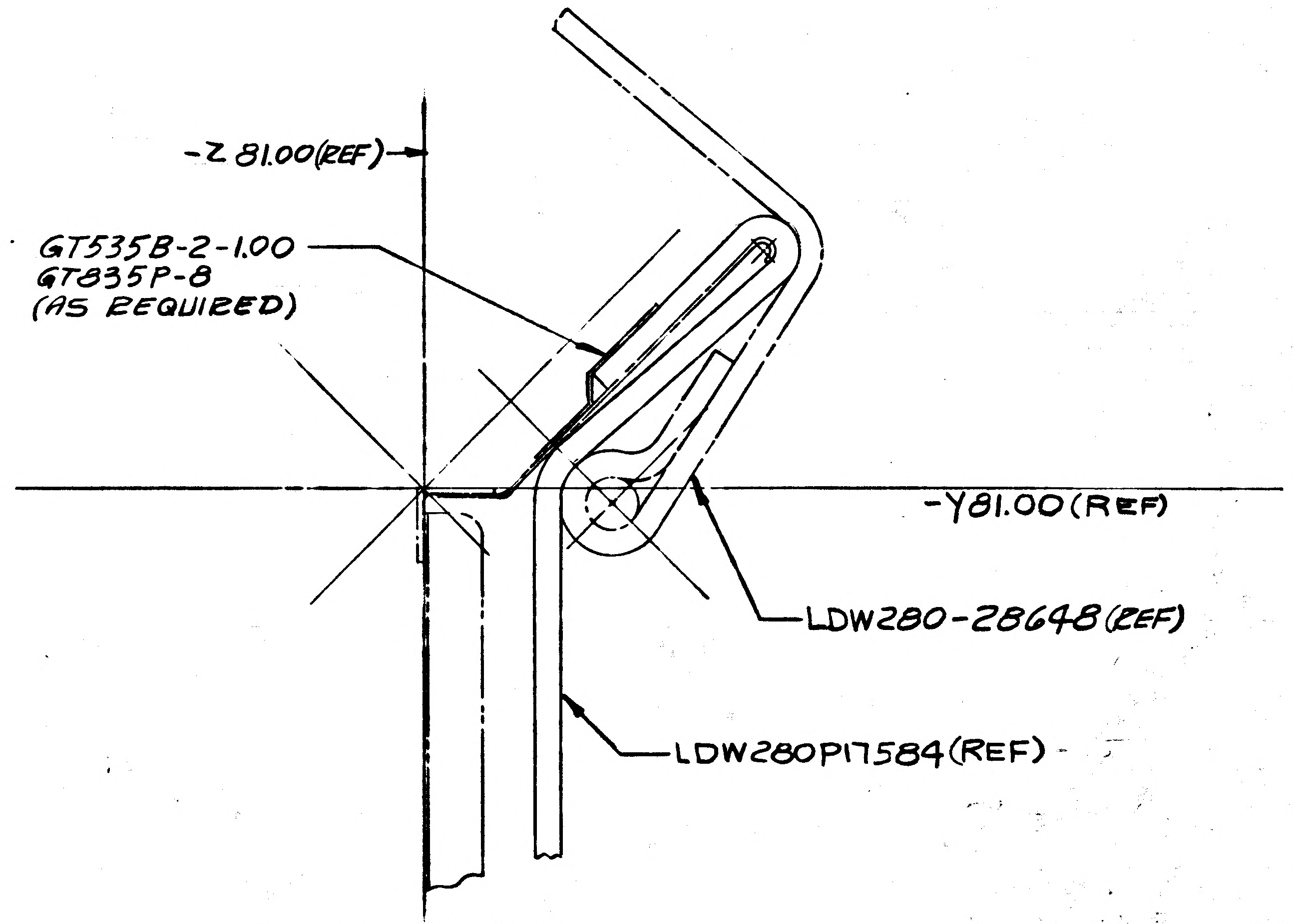
ENG 727 6-64 GRAVURE PRESS, INC. BROOKLYN 17, N. Y. ULTRAVEL NO 400M

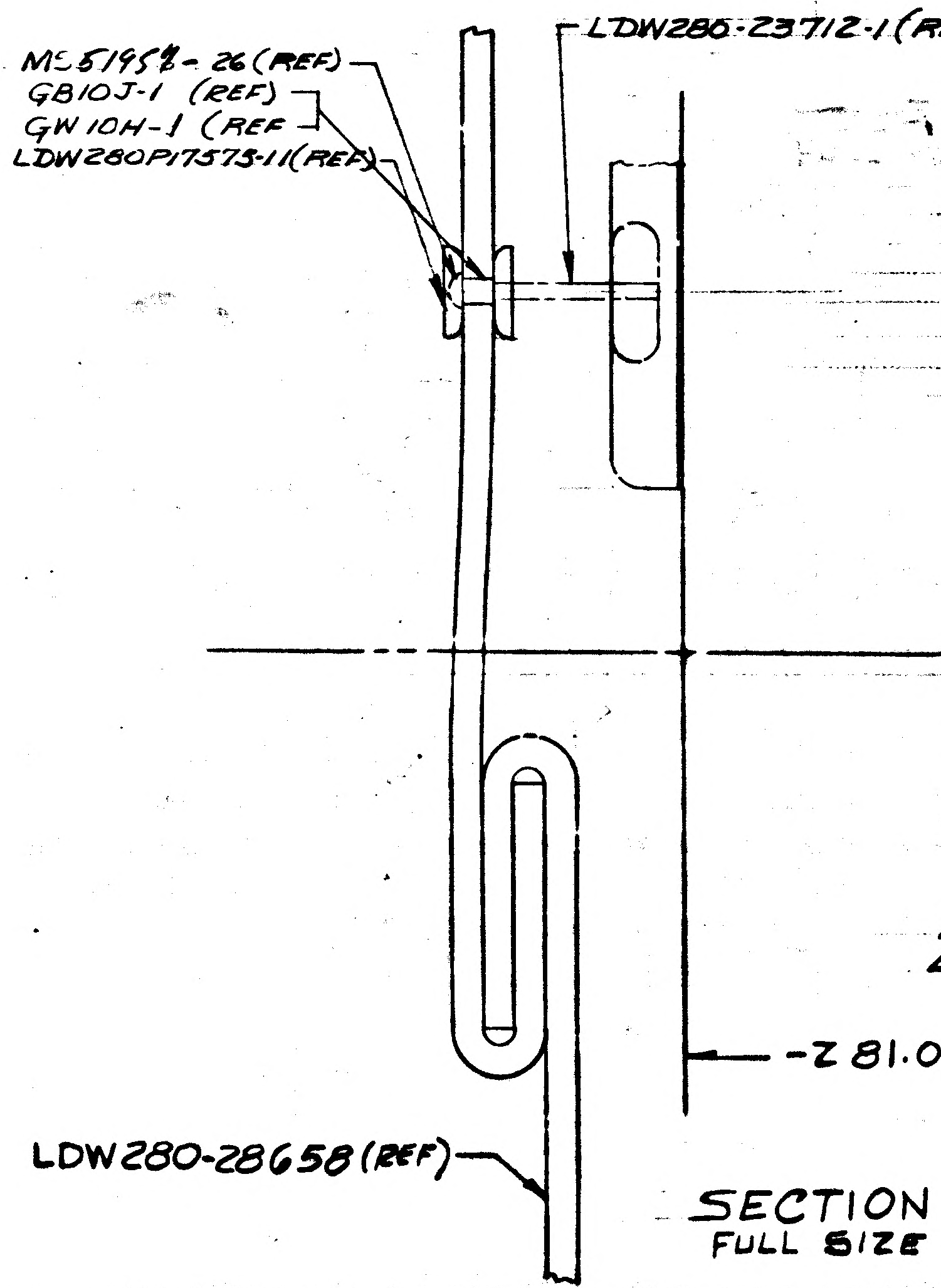

LPC-280-3 SEAM (AS REQUIRED)
LDW280P17582 (REF)
X 131.14 (REF)
LDW280-23713-7 (REF)
LDW280P17584 (REF)
-Y81.00 (REF)

SECTION T-T
FULL SIZE
(TYP FOR -Z SIDE)

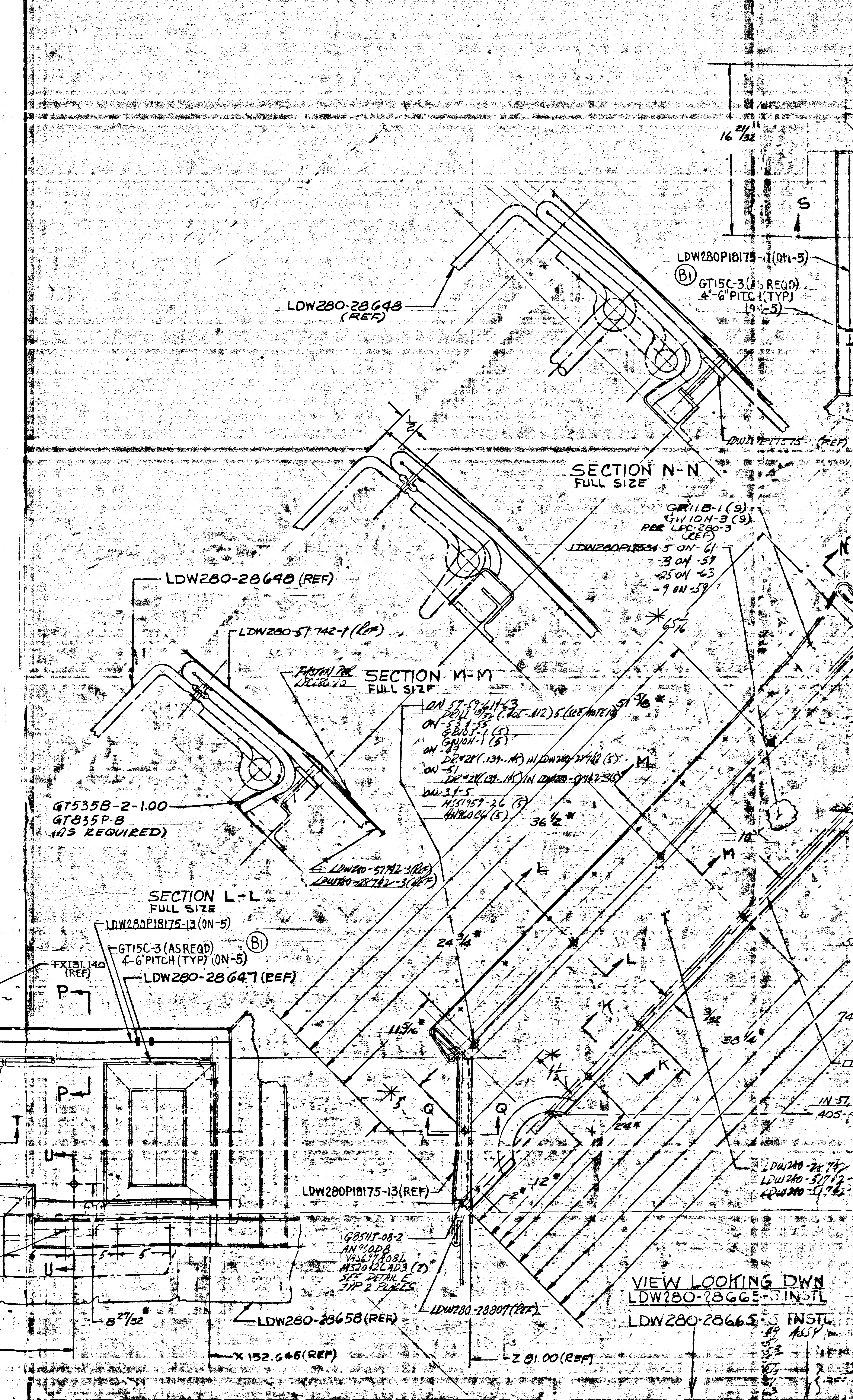

LDW280-28648 (REF)
MS51959-26 (REF)
GB10J-1 (REF)
GW10H-1 (REF)
LDW280P17575-11 (REF)
LDW280P17584 (REF)
LDW280P18175-11 (REF)
GT535B-2-1.00
GT835P-8
(AS REQUIRED)
LDW280-23712-1 (REF)
-Y81.00 (REF)
-Z41.683 (REF)

SECTION S-S
FULL SIZE

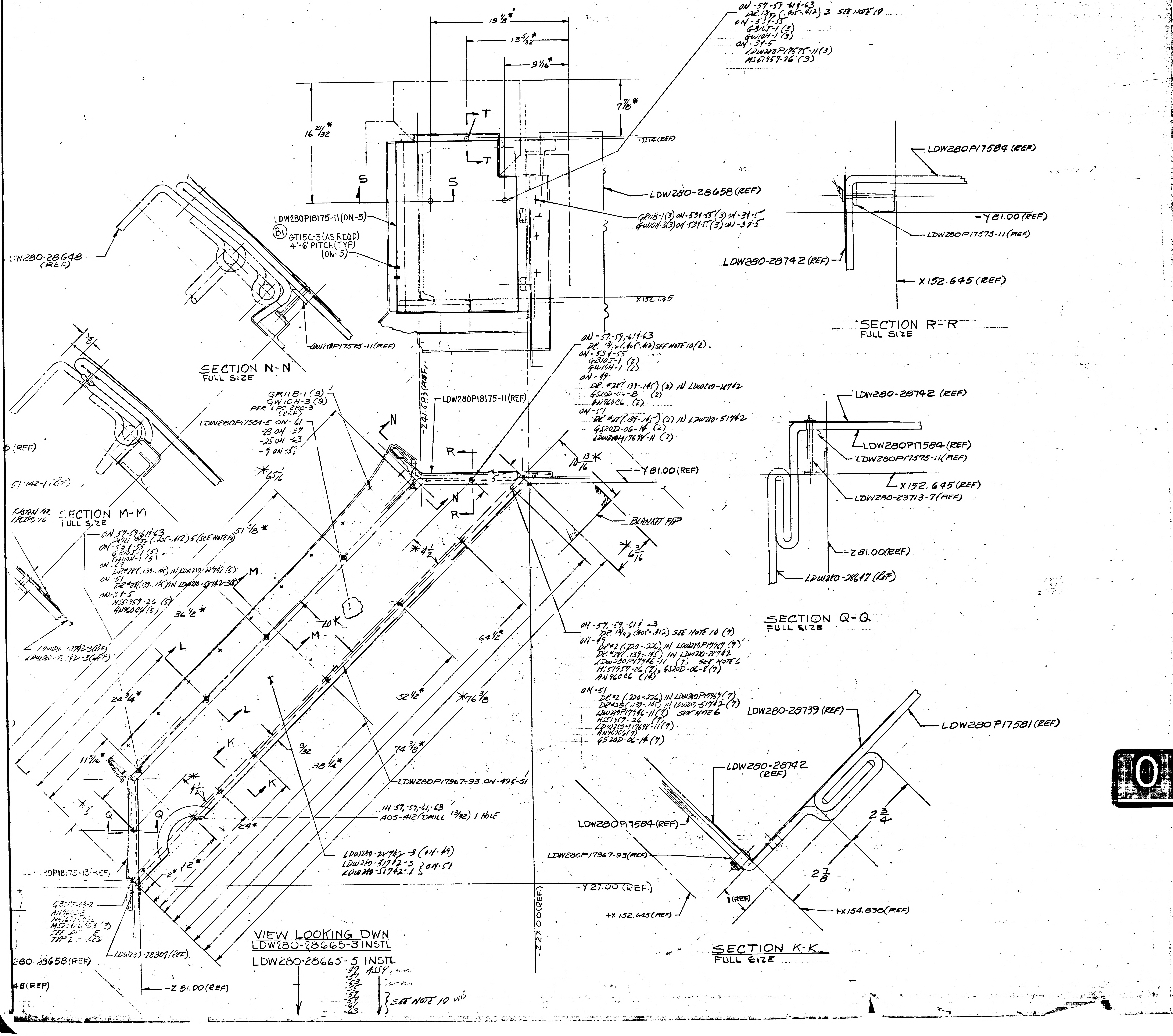

-Z 81.00 (REF)
GT535B-2-1.00
GT835P-8
(AS REQUIRED)
-Y81.00 (REF)
LDW280-28648 (REF)
LDW280P17584 (REF)


MS51958-26 (REF)
GB10J-1 (REF)
GW10H-1 (REF)
LDW280P17575-11 (REF)
LDW280-23712-1 (REF)
-Y27.00 (REF)
-Z 81.00 (REF)
LDW280-28658 (REF)

SECTION U-U
FULL SIZE


SECTION P-P
FULL SCALE
ON -57, 59, 61 & 63
DR 13/32 (.405-.412) 2 (SEE NOTE 10)
ON -53 & 55
GB10J-1 (2)
GW10H-1 (2)
ON -3 & 5
LDW280P17575-11 (2)
MS51957-26 (2)
FLAT PATTERN OF LDW280P17584 (REF)
GF11B-1 (3) ON -53 & 55 (3) ON -3 & 5
GW10H-3 (3) ON -53 & 55 (3) ON -3 & 5
7 3/4
12 1/8
7 25/32
8 27/32
16 11/16
X131.140 (REF)
P
T
U
LDW280P18175-13 (ON-5)
GT15C-3 (AS REQD) 4"-6" PITCH (TYP) (ON-5)
B1
LDW280-28647 (REF)
SECTION L-L
FULL SIZE
LDW280-28648 (REF)
LDW280-57742-1 (REF)
SECTION M-M
FULL SIZE
GT535B-2-1.00
GT835P-8
(AS REQUIRED)
LDW280-57742-3 (REF)
LDW280-57742-5 (REF)
SECTION N-N
FULL SIZE
LDW280-28648 (REF)
LDW280P18175-11 (ON-5)
GT15C-3 (AS REQD) 4"-6" PITCH (TYP) (ON-5)
GF11B-1 (9)
GW10H-3 (9)
PER LPC-280-3 (REF)
LDW280P18534-5 ON -61
-3 ON -59
-25 ON -63
-9 ON -59
16 21/32
S
M
L
K
Q
24 3/4
36 1/2
38 1/4
51 3/8
24
12
LDW280P18175-13 (REF)
GB511E-08-2
AN960D8
MS20426AD3
SEE DETAIL E
TYP 2 PLACES
LDW280-28807 (REF)
LDW280-28658 (REF)
X 152.646 (REF)
-Z 81.00 (REF)
VIEW LOOKING DWN
LDW280-28665 INSTL
LDW280-28665 INSTL ASSY

01702 NAS 9-1100



SECTION N-N
FULL SIZE
SECTION M-M
FULL SIZE
SECTION R-R
FULL SIZE
SECTION Q-Q
FULL SIZE
SECTION K-K
FULL SIZE
VIEW LOOKING DWN
LDW280-28665-3 INSTL
LDW280-28665-5 INSTL
LDW280-28648 (REF)
LDW280P17575-11(REF)
LDW280P18175-11(ON-5)
GT15C-3 (AS REQD)
4"-6" PITCH(TYP)
(ON-5)
LDW280-28658 (REF)
LDW280P18175-11(REF)
LDW280P17584 (REF)
-Y81.00 (REF)
LDW280P17575-11 (REF)
LDW280-28742 (REF)
X152.645 (REF)
LDW280-23713-7(REF)
-Z81.00(REF)
LDW280-28647 (REF)
LDW280-28739 (REF)
LDW280P17581 (REF)
LDW280P17584 (REF)
LDW280P17967-93 (REF)
+X152.645 (REF)
+X154.838 (REF)
LDW280P17967-93 ON-49$-51
-Y27.00 (REF.)
-Z27.00 (REF.)
-Z41.683 (REF.)
-Z81.00 (REF)
LDW280-28807 (REF)
LDW280-28658 (REF)
BLANKET F/P
19 1/8*
13 5/32*
9 1/16*
7 7/8*
16 21/32*
10 13/16
6 3/16
51 5/8*
36 1/2*
24 3/4*
52 1/2*
64 1/2*
76 3/8
74 3/8*
38 1/4*
11 5/16*
24*
12*
2 3/4
2 7/8
1 (REF)

LAYOUT RELEASE-TO BE REDRAWN ON PRODUCTION FORMAT

02/02 NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL ∫ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X

PRINTING INFO ONLY

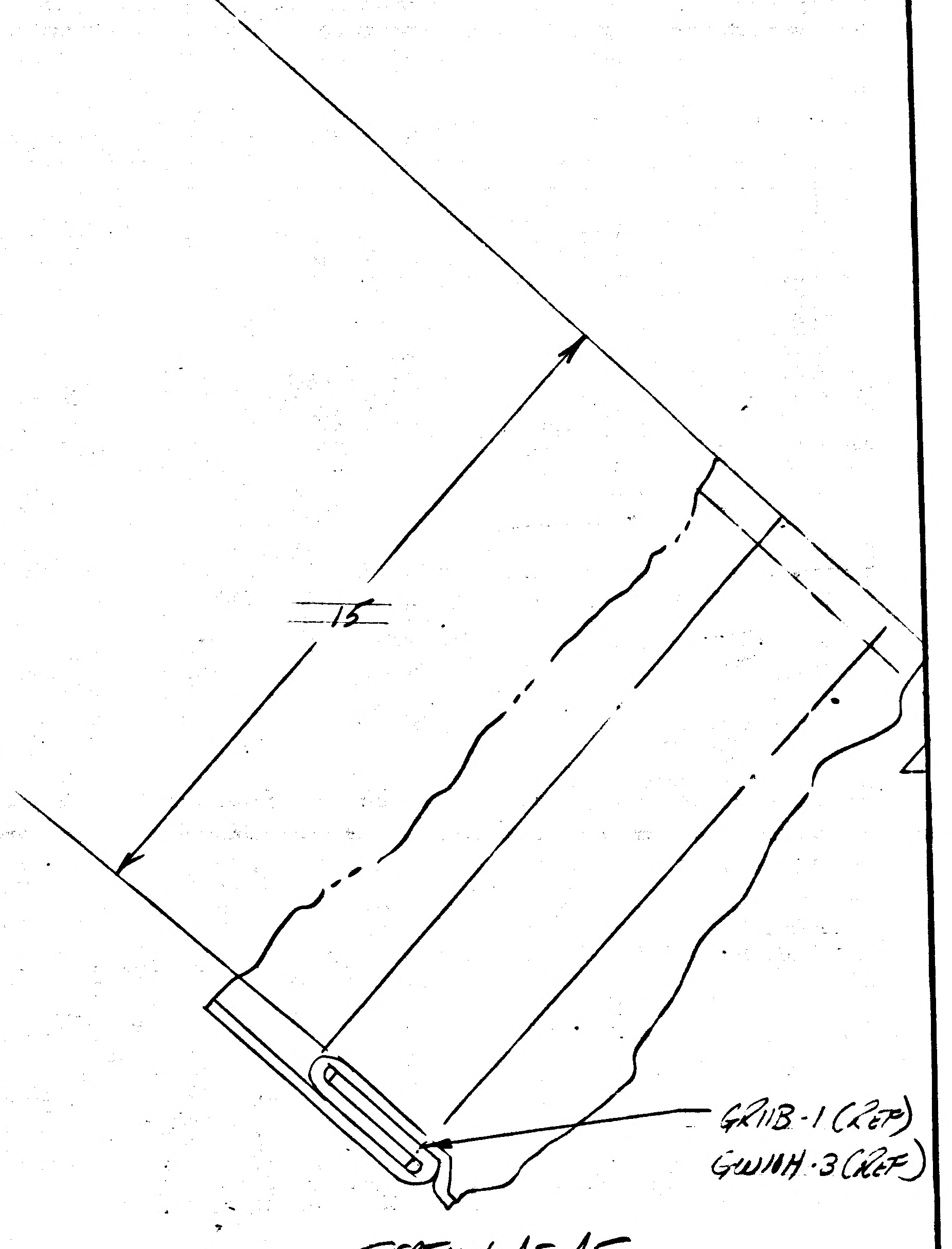
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	J	26512	LDW280-28665	B
	SCALE NOTED		SHEET 5.00	

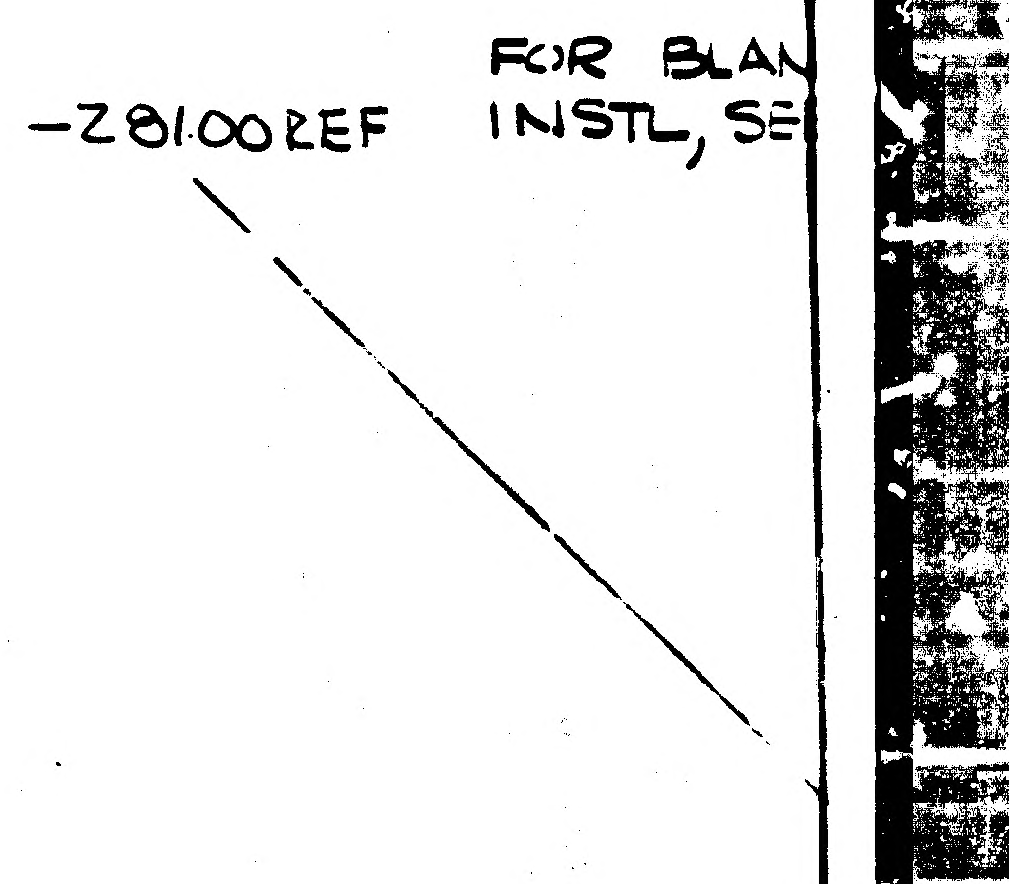
THIS IS AN ORIGINAL DWG

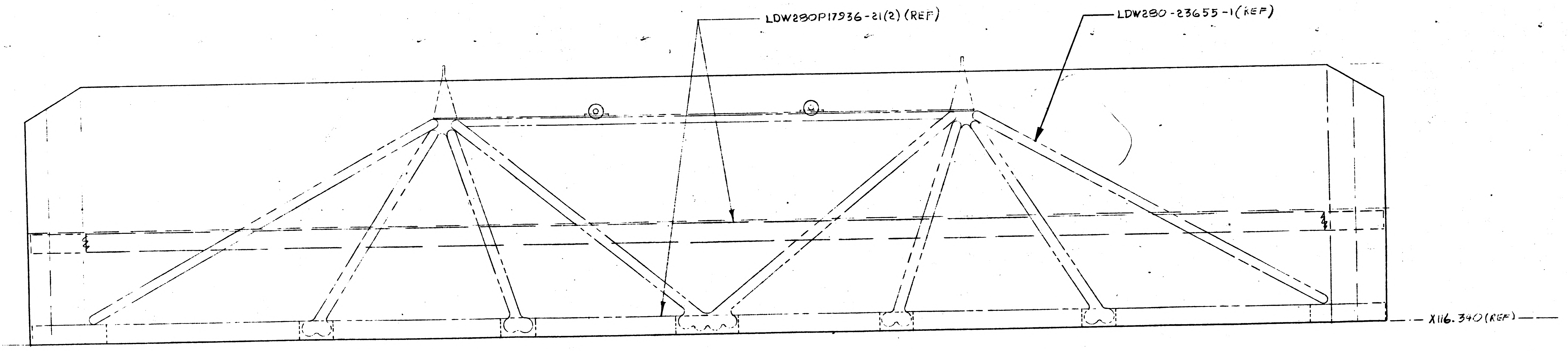
SUPERSEDES LDW280-28665 N/C 3-10-66

LDW280-28665 B


.15
GRIIB-1 (REF)
GWIIH-3 (REF)

SECTION AE-AE


-Z81.00REF
FOR BLAN
INSTL, SE

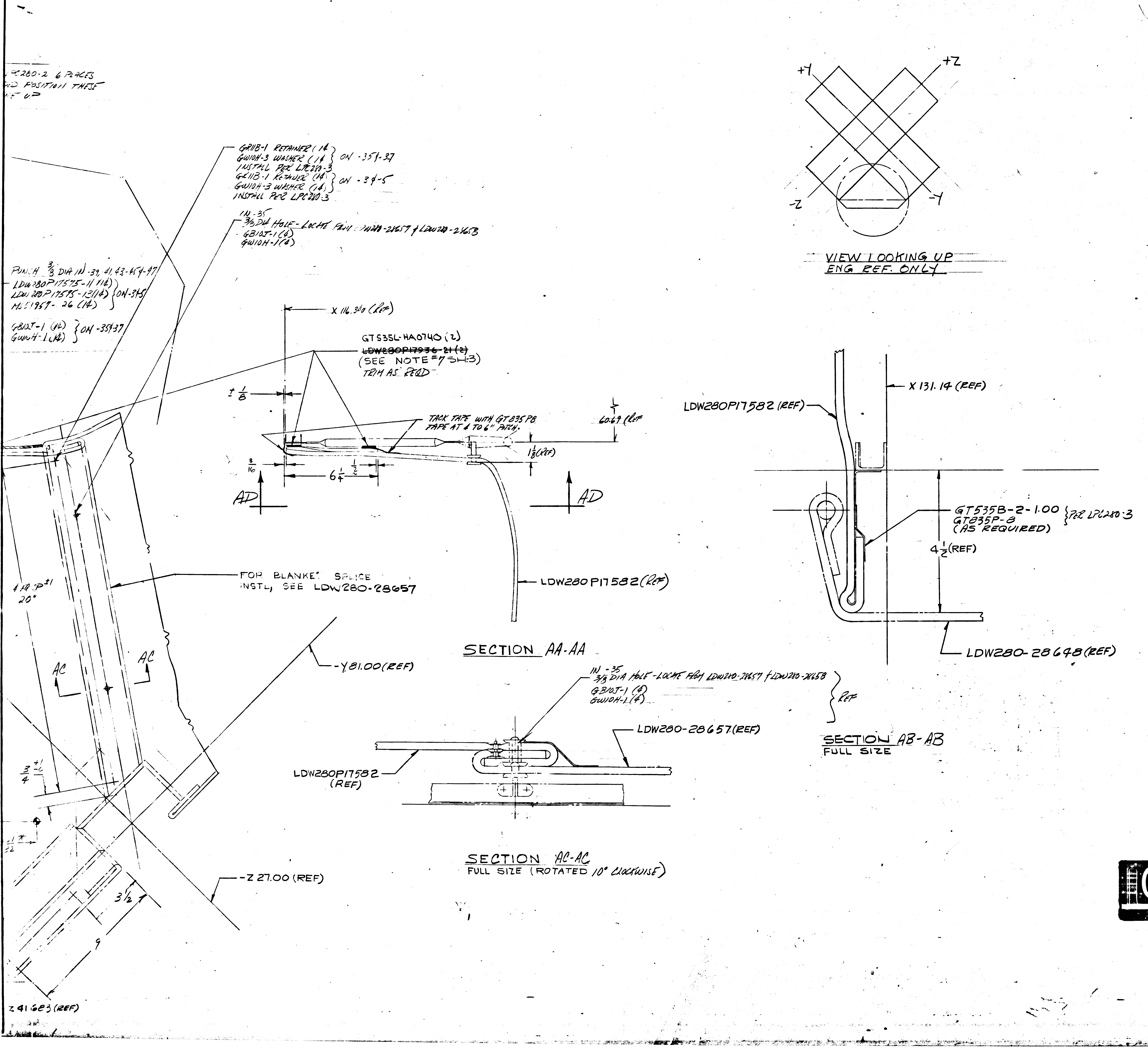

LDW280P17936-21(2) (REF)
LDW280-23655-1(REF)
X116.340 (REF)

SECTION AD-AD
ROTATED CCW 90°

01/03 NAS 9-1100

02/03 NAS 9-1100

LDW280-28665 - 3 INSTL
-5 INSTL
-31 ASSY
-33
-35
-37
-39
-41
-43
-47 ASSY
LDW280-28665
VIEW LKG UP
ON -35 & -37
STAPLE & TAPE PER LPC280-1
IN -35 & -37
INSTALL PER LPC280-2 6 PLACES
WHEN IN FOLDED POSITION THESE
HOLES TO LINE UP
FLAT PATTERN OUTLINE
*3 1/8 (TYP)
*6 1/4 (TYP)
LDW280P17582-5 (ON-43)
B3
LDW280P17582-7 (ON-39)
-11 (ON-41)
LDW280P17582-19 (ON-47)
PUNCH 3/8 DIA IN -39, 41, 43, 45 & 47
LDW280P17575-11 (1/2)
LDW280P17575-13 (1/2)
MS51959-26 (1/2)
ON-3 & 5
GB10J-1 (1/2)
GW10H-1 (1/2)
ON-35 & 37
15
3/4
GR11B-1 (REF)
GW10H-3 (REF)
SECTION AE-AE
AE
CHOCK HOLES (2) REF
*26.812
*11 1/2
*5 3/4
AA
LDW280-23655-1 (REF)
B4
LDW280P17964-5 (ON-5)
GR11B-1 (4) (ON-5)
GW10H-3 (4) (ON-5)
GR11B-1 (4) (ON-37)
GW10H-3 (4) (ON-37)
GT15C-3 (INSTALL PER LPC280-3)
B4
GR11B-1 (4) (ON-5)
GW10H-3 (4) (ON-5)
GR11B-1 (4) (ON-37)
GW10H-3 (4) (ON-37)
GT15C-3 (INSTALL PER LPC280-3)
℄
SYM EXCEPT AS NOTED
IN -35 & -37
INSTALL PER LPC280-2
(2) PLACES
22 9/16 (REF) *
4 EQ SP ±1
20"
4 EQ SP ±1
20"
FOR BLANKET SPLICE ON-1
INSTL, SEE LDW280-28658
-Z81002 REF
B4
LDW280P17964-5 (ON-5)
20 13/16 *
SEE LDW280-28822
FOR FOLD IN THIS
AREA
34 3/4
*21 5/8
AC
AC
21 5/8 *
7 13/16 *
29 3/8 (REF) *
4 21/32 *
3/4
-Y27002 REF
*24 5/8
8 7/8 *
AA
AB
9 7/8 *
8 7/8 *
3/4 +1 -0
4 21/32 *
3 1/2
9
3 1/2
9
2 13/16 *
1 3/4
*9 1/3
*14
AB
7 1/2 *
* 55 15/32
-Y41687 (REF)
BLANKET F/P
-Z41683 (REF)
(REF)


PC280-2 6 PLACES
D POSITION THESE
E UP
GR11B-1 RETAINER (14)
GW10H-3 WASHER (14) } ON -35 & -37
INSTALL PER LPC280-3
GR11B-1 RETAINER (14)
GW10H-3 WASHER (14) } ON -3 & -5
INSTALL PER LPC280-3
IN -35
3/8 DIA HOLE - LOCATE FROM LDW280-28657 & LDW280-28658
GB10J-1 (4)
GW10H-1 (4)
PUNCH 3/8 DIA IN -39, 41, 43-45 & -47
LDW280P17575-11 (14)
LDW280P17575-13 (14) } ON -3 & 5
MS51957-26 (14)
GB10J-1 (14)
GW10H-1 (14) } ON -35 & 37
X 116.340 (REF)
GTS35L-HA0740 (2)
~~LDW280P17936-21 (2)~~
(SEE NOTE #7 SH:3)
TRIM AS REQD
± 1/8
TACK TAPE WITH GT835PB TAPE AT 4 TO 6" PITCH.
60.69 (REF)
1 1/8 (REF)
3/16
6 1/4
1 1/2
AD
AD
LDW280P17582 (REF)
FOR BLANKET SPLICE INSTL, SEE LDW280-28657
4 EQ SP ±1
20"
AC
AC
-Y 81.00 (REF)
3/4 +1/-0
1/32
-Z 27.00 (REF)
3 1/2
9
Z 41.683 (REF)
+Y
+Z
-Z
-Y
X 131.14 (REF)
LDW280P17582 (REF)
GT535B-2-1.00
GT835P-8 } PER LPC280-3
(AS REQUIRED)
4 1/2 (REF)
LDW280-28648 (REF)
IN -35
3/8 DIA HOLE - LOCATE FROM LDW280-28657 & LDW280-28658
GB10J-1 (4)
GW10H-1 (4) } REF
LDW280-28657 (REF)
LDW280P17582 (REF)

VIEW LOOKING UP
ENG REF. ONLY

SECTION AA-AA

SECTION AB-AB
FULL SIZE

SECTION AC-AC
FULL SIZE (ROTATED 10° CLOCKWISE)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.
PRINT TRIM LINE

LDW280-28665 B

LDW280-28665 B

03/03

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-28665	B
LEM MODEL OR END ITEM	SCALE		SHEET 6.00	

(B)

THIS IS AN ORIGINAL DWG.

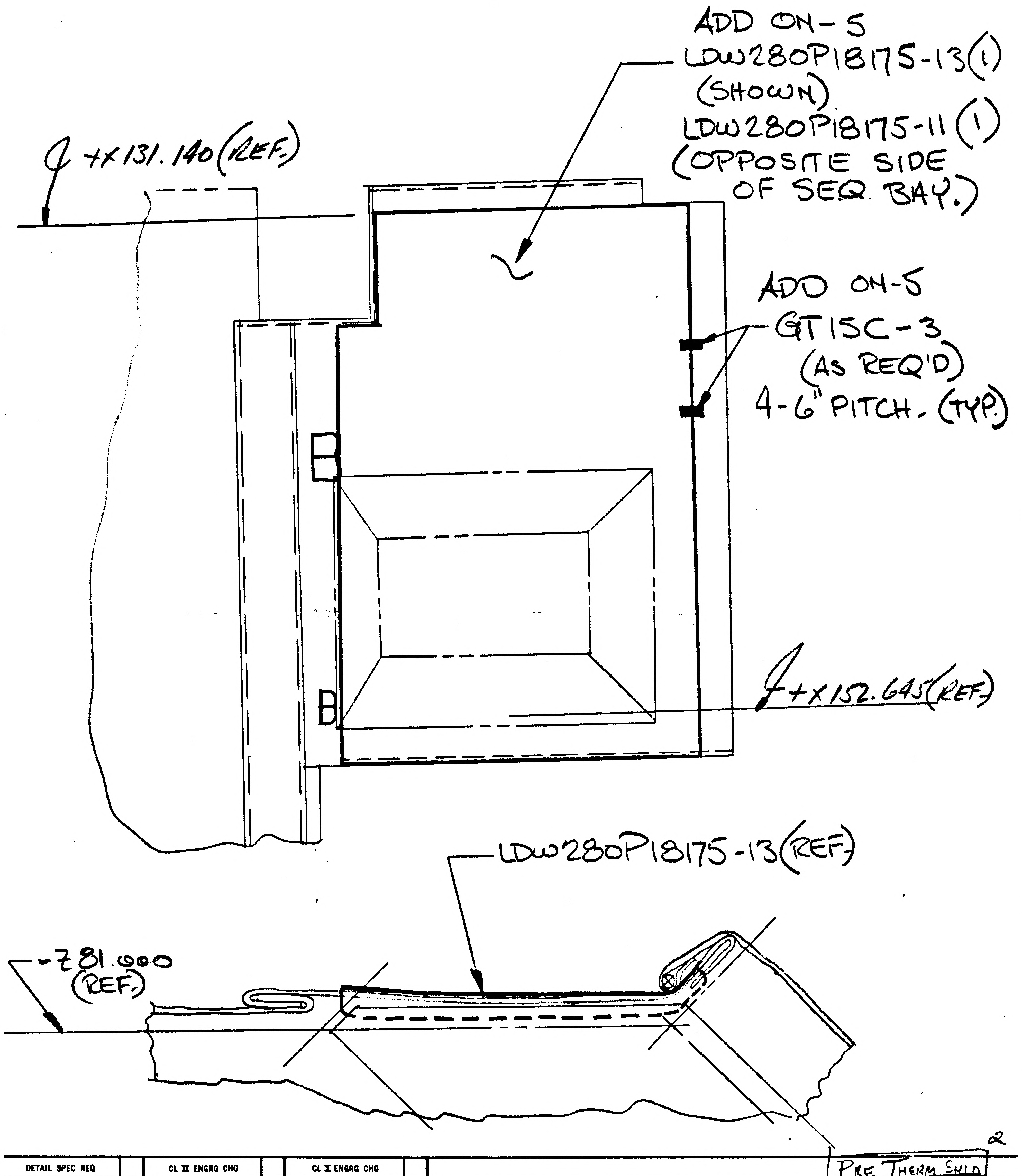
REDRAWN - SUPERSEDES SHT 6.00 NO CHANGE

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28665		EO NO. B1	
CONTROL INFO NO. LDW280A4074			

ON-5 ADD LDW280P18175-11(1) & -13(1) & GT15C-3.



ADD ON-5
LDW280P18175-13(1)
(SHOWN)
LDW280P18175-11 (1)
(OPPOSITE SIDE
OF SEQ. BAY.)
℄ +X131.140 (REF.)
ADD ON-5
GT15C-3
(AS REQ'D)
4-6" PITCH. (TYP.)
℄ +X152.645 (REF.)
LDW280P18175-13 (REF.)
-Z81.000
(REF.)
PRE THERM SHLD
2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG									
REASON FOR EO: THERMAL REQMTS. LCR-620				DESCRIPTION OF EO: ON-5 ADDED LDW280P18175-11(1) & -13(1) & GT15C-3.									GAEC EO RELEASE: ⊘ FR 12/6/6
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	RAH		KC for WH		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		✓		DATE 12/6/66	12/6/66		12/6/66	12/6/66	12/6/66
LM		LM-1 (31)		REVISE DWG	RECORD EO	REWORK	SCRAP	5 V.D.I.	Thermo SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG / PROJ ENGRG
				PRIORITY C	DRAWING TITLE: THERMAL SHIELD INSTL ~ D.S. ~ QUAD II ~ FIXED				DRAWING NO. LDW280-28665				EO NO. B1

ISSUED BY Gus Hansmann X1153 SECTION V.D.I. GROUP NO. 280 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28665
EO NO. BV
CONTROL INFO NO. LDW280A-4365

REVISE NOTE #7 TO READ AS SHOWN BELOW

SEW TAPE AT 3/16 ±1/16 FROM EDGE OF TAPE IN ACCORDANCE WITH FEDERAL STD. #751a & STITCH TYPE #301. ASTROQUARTZ RQ754-12 THREAD MAY BE PURCHASED FROM DODGE FIBERS CORP. P.O. BOX 124, HOOSICK FALLS, N.Y. CODE IDENT. NO. 07512

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		2

REASON FOR EO: ASTROQUARTZ THREAD REQ'D TO PREVENT DETERIORATION AT HIGH TEMP.

DESCRIPTION OF EO: REVISED NOTE #7 REPLACED; SAGE GREEN, SIZE E, SPEC. VT295, TYPE II, CLASS I, NYLON THREAD MAY BE PURCHSED FROM ETC.; WITH ASTROQUARTZ RQ754-12 THREAD MAY BE PURCHASED FROM DODGE FIBERS CORP., P.O. BOX 124, HOOSICK FALLS, N.Y. CODE IDENT. NO. 07512

GAEC EO RELEASE: FR 12/14/66

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-1 (31)		
LM	LTA-8 (18)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	12/14/66	12/14/66	12/14/66 MAT'LS	12/13/66	12/14/66		~~12-14-66~~	12/14/66
5	VD1	~~SUPPORT~~ THERMO	~~RELIAB.~~ GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	THERMAL SHIELD INSTL D.S.-QUAD II FIXED	LDW280-28665	BV

ISSUED BY J. BUKOWSKI EXT 1153 SECTION - VD1 GROUP NO. 335 PL 35

01 NAS 9-1100

B

H.C.

ENG 32.1 REV 3-63

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28665		EO NO. B3
CONTROL INFO N LM-29 1015		

IN F/D & B/M ON -45

REMOVE LDW280P17582-9

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: DETAIL PART NOT USED

DESCRIPTION OF EO: IN F/D & B/M ON-45 REMOVED LDW280P17582-9

GAEC EO RELEASE: ® C 017

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JAS				~	DV		
DATE	1/25				~	1/5/67	1-6-67	1/5/67
5								

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C 29	THERMAL SHIELD INSTL DESCENT STAGE QUAD II FMED	LDW280-28665	B3

ISSUED BY LIAISON J. Altman X7930 H. Pacu... X1153 1-4-67 SECTION VEH DES INT GROUP NO. 335 PL 29

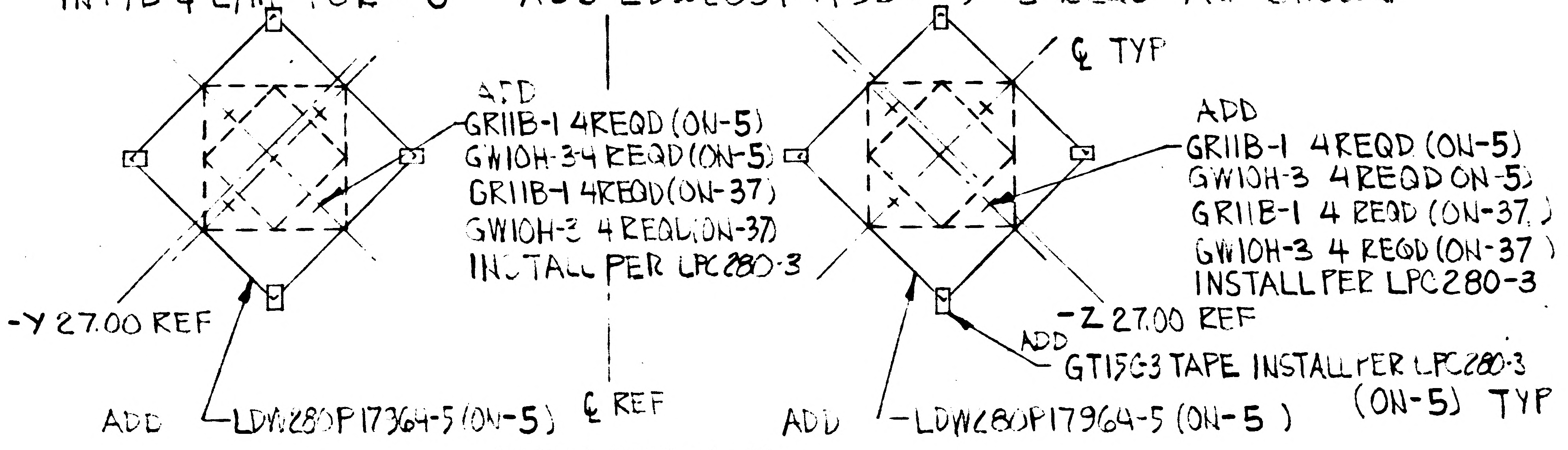
01 NAS 9-1100

B
H.G.
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28665
EO NO. 34
CONTROL INFO NO. LM-29-1030

IN F/D & L/M FOR -5 ADD LDW280P17964-5 2 REQD AS SHOWN


℄ TYP
ADD
GR11B-1 4REQD (ON-5)
GW10H-3 4 REQD (ON-5)
GR11B-1 4REQD (ON-37)
GW10H-3 4 REQD (ON-37)
INSTALL PER LPC280-3
ADD
GR11B-1 4REQD (ON-5)
GW10H-3 4REQD ON-5)
GR11B-1 4 REQD (ON-37)
GW10H-3 4 REQD (ON-37)
INSTALL PER LPC280-3
-Y 27.00 REF
-Z 27.00 REF
ADD
GT15G3 TAPE INSTALL PER LPC280-3
(ON-5) TYP
ADD LDW280P17964-5 (ON-5)
℄ REF
ADD LDW280P17964-5 (ON-5)

VIEW LOOKING UP

DESCRIPTION ABOVE
ON-37, ADDED GR11B-1 RETAINER (8), GW10H-3 WASHER (8) & "INSTALL PER LPC 280-3" CALLOUT (2).
2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ THIS IS AN ORIGINAL E.O.

REASON FOR EO: LANDING GEAR REMOVAL ON LM-1
CCA-398

DESCRIPTION OF EO: ON-5
IN F/D & L/M ADDED LDW280P17964-5 COVER 2REQD
[illegible] RETAINER (8), GW10H-3 WASHER (8), CONT ABOVE

GAEC EO RELEASE: C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	[illegible]				~	[illegible]	RMC (E)	[illegible]
DATE	1/25				~	1-10-67	1-11-67	1-10-67
	5 VD1							

PRIORITY: C 27
DRAWING TITLE: SHIELD INSTL - DESCENT STAGE QUAD II FIXED THERMAL
DRAWING NO. LDW280-28665
EO NO. B4

ISSUED LIAISON [illegible] ZEMAN 1155 SECTION VD1 GROUP NO. 336 [illegible]

01 NAS 9-1100

01

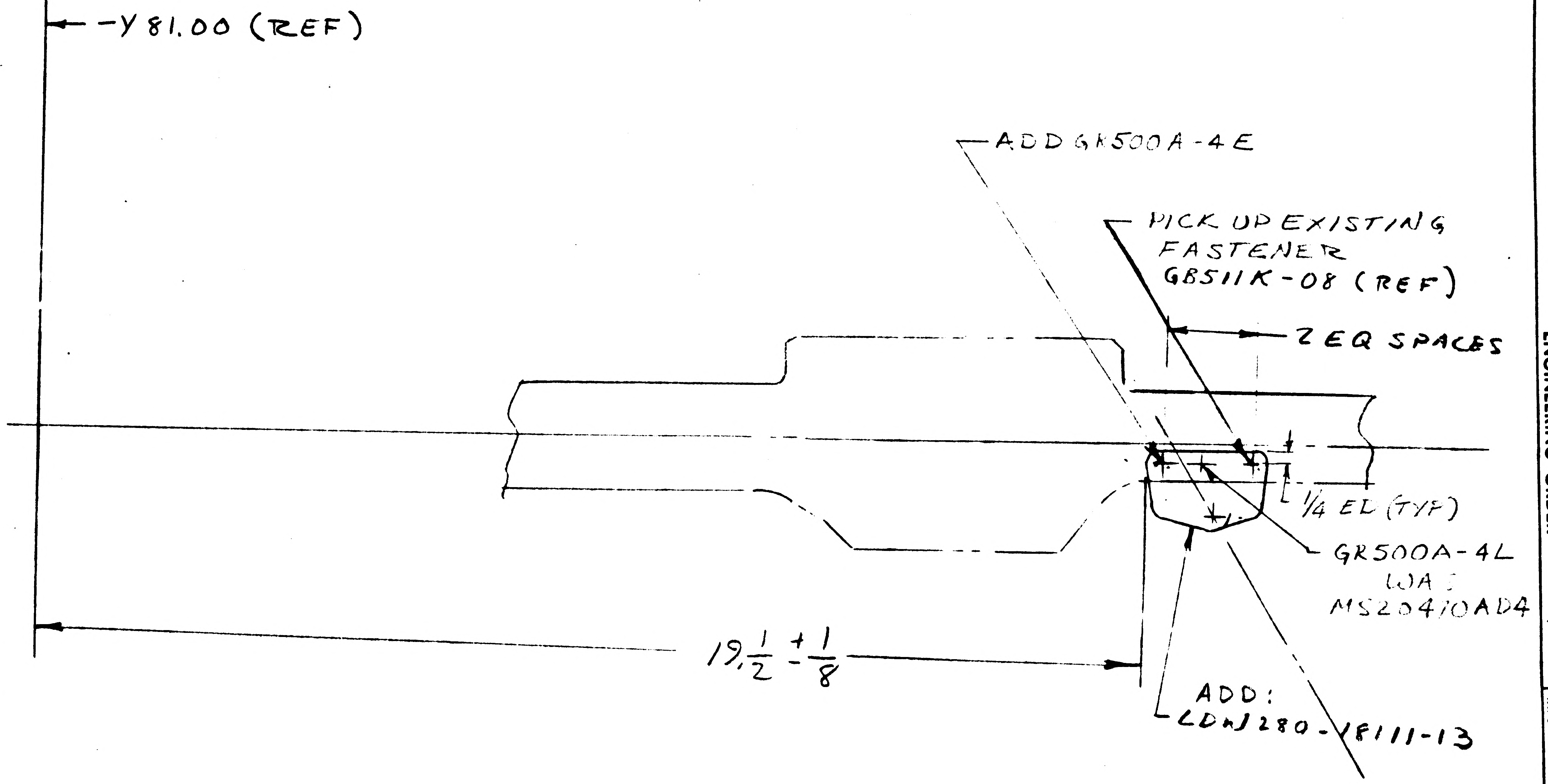
NAS 9-1100

B

ENG 22.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO.	LDW280-28665	EO NO.	35
CONTROL INFO NO.	LM5-11684		



-Y81.00 (REF)
ADD GR500A-4E
PICK UP EXISTING FASTENER GB511K-08 (REF)
2 EQ SPACES
1/4 EL (TYP)
GR500A-4L WAS MS20470AD4
$19\frac{1}{2} \pm \frac{1}{8}$
ADD: LDW280-18111-13

RELEASED BY LIAISON

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	GAEC C EO RELEASE
REASON FOR EO: TO FACILITATE SUPT INSTL OF BLANKET ASSY		DESCRIPTION OF EO: 0W-5 ADDED LDW280-18111-13 & GR500A-4E, REVISED CALLOUT GR500A-4L WAS MS20470AD4	WE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM 1(31)	

DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY					
REVISE DWG ✓	RECORD EO	REWORK ✓	SCRAP				
			S	DATE 1/24/67		7/1/67	
						1-24-67	1/24/67	1-27-67	1/30/67
				AW		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
PRIORITY C	DRAWING TITLE: BLKT INSTL O/S - QUAD II			SUPPORT VOI	RELIAB. GROUP	DRAWING NO. LDW280-28665-	EO NO. B5

ISSUED BY Don Ragas 1x 454 SECTION UDI GROUP NO. 335 PL 5

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28665
EO NO. B6
CONTROL INFO NO. LM 5-11836

IN B/M ADD LDW 280-51742-3 ON -51

RELEASED BY LIAISON

(REF) ALREADY CALLED OUT IN FIELD
PART HAS BEEN INSTALLED ON LM-1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		5

REASON FOR EO: OMITTED FROM B/M IN ERROR

DESCRIPTION OF EO: IN B/M ADDED LDW280-51742-3 ON -51

GAEC EO RELEASE: C
JK
31

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		NOT	REQD

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	WT			~	JFJ	OH	RMC (EW)	JRP
DATE	2/14/67			~	2-16-67	2-15-67	2-21-67	2/17/67
6	VDI							

PRIORITY: C

DRAWING TITLE: THERMAL SHIELD INSTL DESCENT STAGE QUAD III FIXED

DRAWING NO.: LDW280-28665

EO NO.: B6

ISSUED BY H. PALLMEYER X4709 SECTION VEH DES INT GROUP NO. 335 PL 5

01

NAS 9-1100

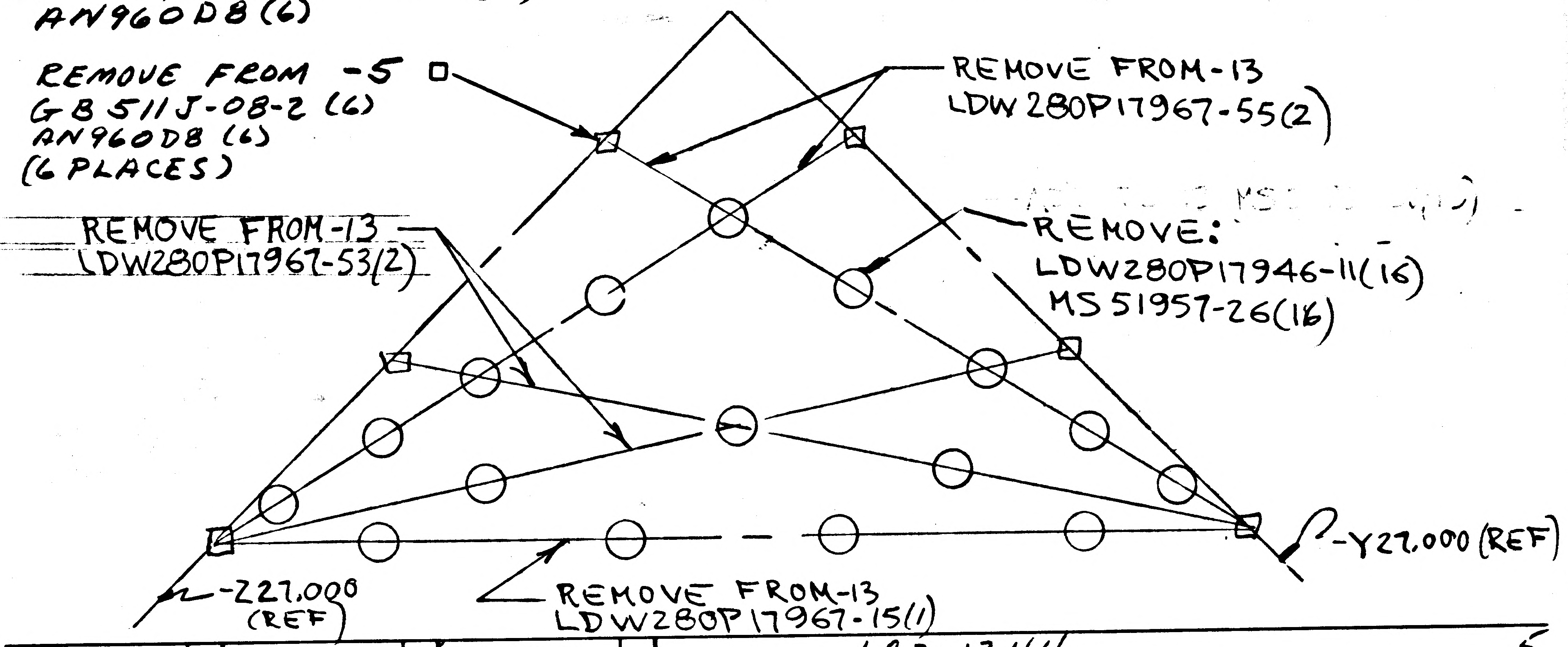
ENG 32.1 REV 3-65

FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28665		EO NO. B9
CONTROL INFO NO. LDW280A 6701		

IN B/M & FLD REMOVE FROM -13 LDW280P17946-11(16), LDW280P17967-15(1), 53(2) & -55(2) & MS51957-26(16). FROM -5 REMOVE GB511J-08-2 (6) AN960D8(6)


REMOVE FROM -5 □
GB511J-08-2 (6)
AN960D8 (6)
(6 PLACES)
REMOVE FROM-13
LDW280P17967-55(2)
REMOVE FROM-13
LDW280P17967-53(2)
REMOVE:
LDW280P17946-11(16)
MS51957-26(16)
-Y27.000 (REF)
-Z27.000 (REF)
REMOVE FROM-13
LDW280P17967-15(1)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	LCD-1244

REASON FOR EO: TO PROVIDE FOR FITH SHIELD

DESCRIPTION OF EO: IN FLD & B/M FOR -5 REMOVED GB511J-08-2(6), AN960D8(6). FOR-13 REMOVED LDW280P17946-11(16), LDW280P17967-15(1), 53(2) & -55(2) & MS 51597-26(16)

GAEC EO RELEASE: JK 5/2/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓-13	

APPROVED BY	jap	MO		JMS	WJM				AC
DATE	5/2/67	5/2/67		5/2/67	5/2/67			5/2/67	5-2-67
5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG		PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	THERMAL SHIELDING DESCENT STAGE, QUAD II FIXED	LDW280-28665	89

ISSUED BY STEA/STRAKOSCH X1156 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280
EO NO. 589
CONTROL INFO NO. LDW280A6772

ON THE DWGS LISTED BELOW IN L/M & F/D AT INSTL OF ALL GS11K-1--- TAB STRIPS REMOVE GS577A-1 & ADD GS577A-4 STAPLE

DWG No *	EFF	CHANGE No	TITLE
LDW280-28559-5	LM-1(31)	B3	
LDW280-28665-5	LM-1(31)	B10	
LDW280-28733-3	LM-1(31) THRU LM-3(33)	A4	
LDW280-28736-5 & -7	LM-1(31) THRU LM-15(45)	A5	
LDW280-28748-11, -13 & -15	LM-1(31) THRU LM-15(45)	A10	
LDW280-28754-7 & -9	LM-1(31) THRU LM-15(45)	A9	
LDW280-28758-5 & -7	LM-1(31) THRU LM-3(33)	B3	SEE
LDW280-28770-5	LM-1(31) THRU LM-15(45)	B5	
LDW280-28773-11 & -13	LM-1(31) THRU LM-3(33)	A8	
LDW280-28804-5	LM-1(31) THRU LM-15(45)	A6	
LDW280-28817-7	LM-1(31) THRU LM-15(45)	A4	DWG
LDW280-51742-3	LM-1(31)	A4	
LDW280-51831-1	LM-1(31) THRU LM-15(45)	A2	
LDW280-52739-3	LM-2(32) THRU LM-15(45)	A2	
LDW280-52742-1, -3, -5, -7, -9 & -11	LM-2(32) THRU LM-15(45)	A7	
LDW280-52763-9 & -11	LM-2(32) THRU LM-15(45)	A5	
LDW280-52767-1 & -3	LM-2(32) THRU LM-15(45)	B3	
LDW280-53600-3 & -5	LM-3(33)	A3	
LDW280-54605-1	LM-4(34) THRU LM-15(45)	A2	
LDW280-54714-1	LM-4(34) THRU LM-15(45) & DES. VER. 70	A5	
LDW280-54733-1	LM-4(34) THRU LM-15(45)	A2	
LDW280-54758-1 & -3	LM-4(34) THRU LM-15(45)	A1	
LDW280-54784-1	LM-4(34) THRU LM-15(45) & DES. VER. 70	A2	
LSK280-10993-17, -19 & -21	DES. VER. 70	A4	

CDR = 5/10/67

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 928

REASON FOR EO: TO PROVIDE CORRECT STAPLE CALLOUT

DESCRIPTION OF EO: ON * REPLACED GS577A-1 WITH GS577A-4

Ⓡ GAEC EO RELEASE: 2 C JK 5/?/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	(NOTED ABOVE)		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP
APPROVED BY
DATE 5/4/67
5 VDI
SUPPORT
RELIAB. GROUP
GROUP LEADER —
STRESS GROUP 5/4/67
LIAISON ENGRG
PROJ ENGRG 5/6/67 5/8/67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 589

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE, LAST REV "A", J.BIANCHINO 2-27-67						
									ADDED SHEETS, 2.04, 2.05, 6.00 & 7.00						
B	1	2.04 2.05 & 3.00	1C					B1	IN NOTE #2 LDW280P17946-11 STAND-OFFS WAS WASHERS, ON-17, -25 & -33: GS20D-06-14(32) WAS MS35206-229, GS20D-06-8 (16) WAS MS35206-226 & MS51957-26 (64) WAS MS35206-226, ON-3, -5 & -7: MS51957-26 (6) WAS MS35206-226, ON-41: MS51957-26 (6) WAS MS35206-226, REVISED B/M	LTA-8, LM-1 THRU LM-15	✓		J. BIANCHINO 3-14-67		
	2	2.04 & 5.00						B2	IN F/D ADDED GT835P-8, TAPE & GT835M-8 TAPE ON-11 IN F/D & B/M ADDED GT835E-3 TAPE (AS REQD) ON-11	LTA-8	✓				
	3	2.03						B3	IN B/M FOR-11 ADDED QTY 1 REQD FOR LDW280P18128-11	NOT REQD	NOT	REQD			
	4	2.00, 2.01 & 2.02						E4	IN F/D & B/M REMOVED LDW280-28748-3, -5 & -7, ADDED LDW280-28748-9, -11, -13 & -15	NOT REQD	NOT	REQD			
	5	2.04, 2.05 & 3.00	1B 1C					B5	ON-41, -3, -5 & -7 REMOVED MS20470DD4(3), NAS35306-226(4), NAS1132V2(11) & ADDED MS20470A4 (3), GB511J-06-2(4), GB511J-08-3(2), GB511J-08-2(9). REVISED PICTURE & CALLOUTS IN SECT B-B & DET. "E", REVISED NOTE #1 REMOVED GT535G-LC5 & REPLACED; THREAD TO BE SAGE GREEN, SIZE E, SPEC MIL-T-8707 TYPE II, CLASS I, NYLON THREAD MAYBE PURCHASED FROM ETC.; WITH: ASTROQUARTZ RQ754-12 THREAD. MAY BE PURCHASED FROM DODGE FIBERS CORP., P.O. BOX 124, HOOSICK FALLS N.Y. CODE IDENT NO. 07512	LTA-8, LM-1 THRU LM-15	✓				
	6	2.03, 2.04, 2.0 5.00						B6	ON-3 IN F/D & L/M ADDED LDW280P17964-5 COVER 2 REQD, GR11B-1 RETAINER (8), GW10H-3 WASHER (8), ON-17 ADDED GR11B-1 RETAINER (8), GW10H-3 WASHER (8) & "INSTALL PER LPC 280-3" CALLOUT (2).	LM-1	✓				
	7	4.00							ADDED PICTURE OF LDW280-28750	NOTED	NOT	REQD			
	8								REF EO B2 ADDED DETAIL "T" FOR LTA-8 ONLY	NOTED	NOT	REQD			
	9								REF EO B4 ON-25 LDW280-28748-13 SHOULD BE-9	NOT REQD	NOT	REQD			

CHG APPROVED

LTR	GROUP LDR	VehDes Int	Structures	Structures	Weights	Thermo	Reliability
B							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28666	B ⑧
SCALE	NONE	SHEET	1.10

ENG 77.18 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.12

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
B	10	2.04 & 3.00	3A 5A						REF EO B5 REMOVED NOTE #1 ADDED NOTE #8, IN SECT "B-B" .165-.171 WAS .139-.145, GB511J-08-2 WAS NAS 1132V2, IN DET. "E" GB511J-08-2 WAS NAS 1132V2 (2)	LTA-8 LM-1 THRU LM-15	NOT	REQD	J. BIANCHINO 3-14-67		
	11	3.00 6.00							REMOVED EXPANDED DIM (8) PLACES ON SHEETS 3.00 & 6.00		NOT	REQD			
	12	2.04							IN B/M ADDED GT535L-HA0740 & GT535L-HA0320		NOT	REQD			
	13	3.00 4.00 6.00 7.00							ADDED SH 7.00, ADDED SECTIONS "U-U, V-V, W-W, Y-Y, Z-Z, AA-AA, THRU AZ-AZ, BA-BA THRU BF-BF"		NOT	REQD			
C	1	1.00, 1.10 2.03, 6.00	47 D					EO C1	IN F/D & B/M REMOVED LDW280P18081-13 FROM -25 & -33 ADDED LDW280P18081-15 TO -25 & -33 1 REQD EACH	LM-2 THRU LM-15	✓	-	N. HOWELL 11-15-67		
	2	2.01, 2 2.02 2.04 2.05 3.00 7.00	7D 59C 59D				✓	EO C2 LCD 1135	IN F/D & B/M ADDED -43 & -45 SHIELD ASSY (MAKE FROM LDW 280-51557-1). IN F/D ADDED SECT. BH-BH & BJ-BJ IN F/D & B/M ON -17, -25 & -33 2 PLACES MS35206-226, AN960C6 & LDW 280P17575-11 (WAS) GS20D-06-14 & LDW280M17968-11 ON -3 -5 & -7 MS35206-226, AN960C6 & LDW 280P17575-11 (WAS) GS20D-06-8.	LM-1 THRU LM-15	✓				
	3	2.02, 2.04 3.00, 7.00	3C 4,6D 7BC 10AB 55C 56D 57C				✓	EO C3 LCD-1244	IN B/M & FLD REMOVED FROM -17: LDW280P17967-39 (1), -41 (1), -43 (1), -45 (1), -47 (1), -49 (1) & -51 (1); LDW280P17946-11 (18), LDW280P18085-11 (1), MS51957-26 (18), MS20470DD4 (3) & AN960D4 (6)	LM-1	-17				
	4	2.04 3.00	3B 7C				✓	EO C4 LCD-1244	REF EO C3 IN B/M REMOVED FROM -3 (WAS -17) GB511J-06-2 (4), GB511J-08-3 (2) (WAS GB511J-06-3 (2) & AN960D8 (2). IN FLD REMOVED FROM -3 (WAS FROM -17) GB511J-06-2 (4), GB511J-08-3 (2), AN960D8 (2)	LM-1	-3 -17				
	5	1.00, 2.01 2.03, 2.04 2.05, 3, 6	2,3B 4,5D 7,BCD 47D			✓		EO C5 LCD-1244	ADDED -43 INSTL N/A LDW 280-52553 EFF LM-2 (32) ADD TO -43: -45 BLKT ASSY IN M/B FOR -5 REMOVED N/A LDW280-52553 EFF LM-2 (32)	LM-2	✓				
	6	1.00, 2.01 2.03, 2.04 2.05, 3, 6	2B 47D 7BCD				✓	EO C6	REF EO C5 -47 INSTL AND -49 ASSY WAS -43 INSTL AND -45 ASSY ON EO C5 L.D.	LM-2	✓				

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	THERMO	RELIABILITY
B							
C							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28666	C

SCALE NONE SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.13

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~[illegible]~~ APPD
C	7	200 201 3.00 7.00 1.12	7D 59 C&D			✓		EO C7 LCD1847	FOR -3 & -47 REMOVED -43 & -45 & ADDED -51 & -53 REVISED, SECT BH-BH & BJ-BJ (REF EO C2). ADDED NOTE 9. -43 & -45 MAY BE REWORKED AS SHOWN TO CREATE -51 & -53 ADDED SH 1.12.	LM-1 LM-2	NOTED		N. HOWELL 11-15-67	X	X
	8	201 202 203 204 205 3,6,7	4D 5A 7CD 7AB 3D 49C	P		✓		EO C8 LCD 1244	FOR -5, -7, -25 & -33 ADDED SECT ✱ ✱ & REMOVED MS 35206-226 (3), AN960C6 (5), LDW280P17575-11 (3), MS51957-26 (18), AN960D6 (AS REQD), AN960D416L (AS REQD) GB511J-08-3 (2), NAS697A08L (1), NAS696A08L (1), MS20426 AD3 (12), AN960D8 (2), GB11B-1 (16), GW10H-3 (16), GB511J-06-2 (4), NAS697A06L (4), LDW280M17698-11 (13) GS20D-06-14 (13), LDW280P17946-11 (18), AN960D4 (6), MS20470A4 (3), LDW280P18085-11, LDW280P18081-15 LDW280-28745-5 & LDW280P17967-39 THRU LDW 280P17967-51, LDW280-28666-45 & -43. ON -29 & -37 LDW280P17534-45 WAS LDW280P17534-21. ON -29 LDW280P17534-55 WAS LDW280P17534-7.	LM-3 THRU LM-15	✓	-43 -45		X	X
	9	3.00				✓		EO C9 LCD10774	ADDED EO TO RECORD BLOCK FOR LM-1	NOTED	NOTED			X	X
	10	2.01 4.00	15C	P		✓		EO C10 LCD 1244	FOR -25 REPLACED LDW280-28748-13 WITH LDW280-28748-17 L.D	LM-3	✓			X	X
	11	1.00, 1.10 2.03, 6.00							REF EO C1 LDW280P18081-13 SHOULD BE LDW280P18081-11	LM-2 THRU LM-15	NOT	REQD		T. SCHWARTZ 11-28-67	12/2/67
	12	2, THRU 3 7.00					✓	LCD-1135	REF EO C2 INFLD ADDED DETAIL BG	LM-1 THRU LM-15					
	13	202, 204 3,7	7B				✓	LCD 1244	REF EO C3, REMOVED MS20470DD4 S/B MS20470A4	LM-1					
	14	2, 201, 1.12 3,7	7D 59C,D			✓		LCD 1847	REF EO C7, TRIM LDW280-51557-3 IDENT TO LDW280-51557-1 S/B IDENT TO LDW280-28745-5. ADDED 6 5/8 DIM & 45°.	LM-1 LM-2					
	15	201 THRU 3,6,7		P		✓		LCD 1244	REF EO C8 SECT ✱✱ NOT REQD., GB11B-1 S/B GR11B-1, ON -29 LDW280P17534-55 S/B ON -31. L.D.	LM-3 THRU LM-15					

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCT.	STRUCT.	WEIGHTS	THERMO	RELIABILITY
C							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28666	C ⓒ
SCALE NONE			SHEET 1.12

ENG 77.16 3-66

01

NAS 9-1100

LDW280-28666 D

LFM

LM	LDW280-53553	LM-3 (33)	1
LDW280-28666-5			
LM	LDW280-52553	LM-2 (32)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28666-47		GAEC SCH NO. 52	

LM	LDW28_-51553	LM-1 (31)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28666-3		GAEC SCH NO. 52	

LFM 155	LDW280-53553	SEE NOTE #10	1
PART NO. LDW280-28666-59			
LM	LDW280-28553	LTA-8 (18)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28666-41		GAEC SCH NO. 52	

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	1.11	2.00	2.01	2.02	2.03	2.04	2.05
REV	D	B	C	D	D	D	D	D	D
SHEET	1.12	1.13	1.14		3.00	4.00	5.00	6.00	7.00
REV	C	D	D		D	D	D	D	D
SHEET									
REV									

LAST SECT LTR USED	BM	GRUMMAN REL INFO C	
LAST DASH NO. USED	-65	PRIM NO. 207	JK (001) MP-16 D-7/19/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 ±.030 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM I
DOCUMENTATION TYPE II.

DRAWN BY	R.CLARK	THERMO	E. LEE 10-26-66
LAYOUT BY	R.CLARK	RELIABILITY	
CHECKED BY			
GP LEADER	J. STRAKOSCH		
VEH DES INT	BISHOFF 7-23-66		
STRUCTURES	W J H 7-23-66	PROJ ENGR	R.M. CARBEE 10-26-66
STRUCTURES	HILDERMAN 7-23-66	REL GROUP	JOE TAGLIAVIA
WEIGHTS	ROBESH 8-2-66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTALLATION -
DESCENT STAGE - QUAD III -
FIXED THERMAL

SIZE B
CODE IDENT NO. 26512
LDW280-28666 D (D)
SCALE NONE
SHEET 1.00 OF 17

3 77 1 12-65

SUPERSEDES LDW280-28666 "A" 10-13-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.14

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
C	16	201,4.00	15C	P		✓		LCD 1244	REF EOC10, IN DESCRIPTION LDW280-28748-13 SHOULD BE LDW280-28748-9. ADDED SH.1.13.	LM-3	NOT	REQD.	N. HOWELL 11-15-67	T. SCHWARTZ 11-28-67	12-4-67
	17	2.01,2.02,2.03 2.04,2.05,3,67	7ABC 3,4D	P		✓		LCD-1244	REF EOC8, REMOVED SECTIONS L-L, P-P, V-V, Y-Y, AA-AA, AC-AC, (1) AE-AE & AJ-AJ FROM FLD OF DWG L.D.	LM-3 THRU LM-15	NOT	REQD			
D	1	1.13, 5.00 2.03, 2.04 2.05	B28 B30	P		✓		EO D1 LCD 2223 CCA745	ON-47 IN F/D SH5 ZONE B28-B30 & L/M ADDED LDW280P17964-5 COVER 2 REQD, GR11B-1 RET.(8), GW10H-3 WASHER (8). ON-49 ADDED GR11B-1 RET.(8), GW10H-3 WASHER (8) & INSTAL PER LPC 280-3 CALLOUT (2) ADDED GT15C-3 TAPE.	LM-2(32)	✓		H. BARFOOT 5-1-1968		
	2	1.13, 2.03 4.00	20C	P		✓		EO D2 LCD 2360	ON-29 & -37 ADDED LDW280P17534-59 & REMOVED LDW280P17534-45	LM-3 THRU LM-15	✓				
	3	ALL		P		✓		EO D3 LCD 2360	FOR -7 INST'L REMOVED EFF LM-4 THRU LM-15	LM-4 THRU LM 15		-7			
	4	1.13, 2.01, 2.03, 2.05, 3.00, 4.00	2B 20C			✓		EO NO. D4 LCD 2360	IN F/D & B/M ON-25 (REF EO D2) ADDED -55, -57, LDW280P17534-59; REMOVED -27, -29 & LDW280P17534-45 (WAS) ON-29 & -37 ADDED LDW280P17534-59 REMOVE LDW280P17534-45.	LM-3	✓				
	5	1.13, 2.01 4.00	15C		✓			EO D5	FOR -49 ASSY, (1) LDW280-28748-13 REPLACED (1) LDW280-28748-9.	LM-2(32)	✓				
	6	1.13, 2.02 2.03			✓			EO D6	FOR -17 & -49 ADDED LDW280P18339-23	NOT REQD	NOT	REQD			
	7	1.13, 2.03 6.00	47C				✓	EO D7	ON-25 & -33 ADDED LDW280P18081-15	LM-3 THRU LM-15	✓				
	8	1.00, 1.13 4.00 6.00	24A, B,C,D 50A, B,C,D	P		✓		EO D8 LCD 2360	ON-25 REMOVED AN960C6(9) AN960D6(7) FOR-5 INSTL N/A LDW280-53553 WAS LDW280-52553 ON-25 ASSY REMOVED SECTIONS BE, AP, AS, AV, AN, AR, AT, AM, AH, AG, AF, AK, AL ADDED SECT BK, BL, BM & GW10R-06(15), GW10M-1 (12), AN960-8L(6), AN960-516L(6), GS20D-06-8 (21), GS20D-06-14(12) REMOVED LDW280M17698-11(17), LDW280P17575-11(7)	LM-3	✓		E.C.G.		

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT.	STRUCT.	WEIGHTS	THERMO	RELIABILITY				
C											
D											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28666	D (1)
SCALE NONE			SHEET 1.13

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
D	9	1.00,1.14, 2.00,2.01,2.02, 2.03,2.04,2.05 3,4,5,6	2B 19C	LFM155		✓		EOD9 LCD2899	ADDED -59,-61,-63 & -65 & NOTE #10 ADDED SH 1.14	LM-3	NOT	REQD	R.E. KINGSBURY 7-16-68	☒	☒
	10	1.13,1.14, 2.03,6.00	47C				✓		REF EOD7: ON -25 & -33 ADD LDW280P18081-15 EFF ON LM-3 THRU LM-15 S/B ON -25 ADD LDW280P18081-15 EFF ON LM-3 ONLY Ⓓ	LM-3	✓		K.G.	7-17-68	

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	THERMO	RELIABILITY				
	D											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28666	D Ⓓ
SCALE NONE		SHEET 1.14	

ENG 77.16 3-66

01 NAS 9-1100

C.L.	QTY PER ASSEMBLY												CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	-23	-21	-19	-17	-15	-13	-11	-9	59	-5	-3	-41											
C				31										LDW280M17698-11	E	WASHER	SEE DWG						10B
				1										LDW280-28748-11	E	SHIELD ASSY	SEE DWG						15C
								1						LDW280-28748-9		SHIELD ASSY	SEE DWG						43C
				1										LDW280-28745-5		SHIELD ASSY	SEE DWG						3D
								1						LDW280-28745-3		SHIELD ASSY	SEE DWG						3D
									1					LDW280-28666-61		BLANKET ASSY					NONE	NONE	2B
											1			LDW280-28666-53		SHIELD ASSY		MAKE FROM LDW280-51557-3			NONE	NONE	2B
											1			-51		SHIELD ASSY		MAKE FROM LDW280-51557-3					2B
										1				-25		BLANKET ASSY							2B
			1											-23									2B
			1											-21									2B
				1										-19									2B
											1			-17									2B
							1							-15									2B
							1							-13									2B
								1						-11									2B
												1		LDW280-28666-9		BLANKET ASSY							2B
														LDW280-28666-59		SHIELD INSTL							2B
														LDW280-28666-5		SHIELD INSTL							2B
														LDW280-28666-3		SHIELD INSTL							2B
C														LDW280-28666-41	E	SHIELD INSTL					NONE	NONE	2B

C.L. = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28666	D (D)

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

C.L.		-65	-59	-47	-63	-61	-57	-55	-31	-29	-27	-25	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C			32			1						1		LDW280M17698-11	E	WASHER	SEE DWG						10B
						1						1		LDW280-28748-17		SHIELD ASSY							15C
			1											LDW280-28748-13		SHIELD ASSY	SEE DWG						15C
			1											LDW280-28745-5		SHIELD ASSY	SEE DWG						3D
					1									LDW280-28666-65		BLANKET ASSY					NONE	NONE	2B
						1								LDW280-28666-63		BLANKET ASSY					NONE	NONE	2B
								1			1			LDW280-28666-31		BLANKET ASSY					NONE	NONE	2B
											1			LDW280-28666-29		BLANKET ASSY					NONE	NONE	2B
			1											LDW280-28666-27	E	BLANKET ASSY					NONE	NONE	2B
								1						LDW280-28666-57	E	BLANKET ASSY					NONE	NONE	2B
												1		LDW280-28666-55	E	BLANKET ASSY					NONE	NONE	2B
				1										LDW280-28666-53	E	SHIELD ASSY		MAKE FROM	LDW280-515	57 - 3	NONE	NONE	2B
				1										-51	E	SHIELD ASSY		MAKE FROM	LDW280-515	57 - 3	NONE	NONE	2B
				1										-49	E	BLANKET ASSY					NONE	NONE	2B
														LDW280-28666-47	E	SHIELD INSTL					NONE	NONE	2B
C																							

C.L. QTY PER ASSEMBLY

C.L. = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28666	D

SCALE NONE SHEET 2.01

ENG 77.2 7-65

01

NAS 9-1100

C.L.	-23	-21	-19	-17	-15	-13	-11	-9	59	-5	-3	-41	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C				A/R										LDW280P18339-23		TAPE ASSY	SEE DWG						
C							1							LDW280P18128-11	E	COVER	SEE DWG						32D
								1						LDW280P18085-11		STAND OFF							7B
				1				1						LDW280P18081-11		STAND OFF							47D
								1						LDW280P17967-51		STRAP							3C
								1						-49									7B
								1						-47									7C
								1						-45									7B
								1						-43									4D
								1						-41									4D
								1						-39									6D
				1				1						-37									46D
				1				1						-35									47D
				1				1						-33									42D
				1				1						-31									42D
				1				1						-19									28B
				1				1						LDW280P17967-17		STRAP							47D
											2			LDW280P17964-5		COVER							29C
				40				58						LDW280P17946-11		STANDOFF							10A
				16				15						LDW280P17575-11		WASHER							9C
		1												LDW280P17534-21		BLANKET ASSY							19C
						1								-19									47C
	1													-5									19C
C					1									LDW280P17534-3	E	BLANKET ASSY	SEE DWG						47C

QTY PER ASSEMBLY

C.L = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28666	D

SCALE NONE

SHEET 2.02

ENG 77.2 7-65

01

NAS 9-1100

C.L	QTY PER ASSEMBLY											CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				-49	-65		-61	-57	-31	-29	-27	-25											
C				A/R									LDW280P18339-23		TAPE ASSY	SEE DWG						
C				1									LDW280P18085-15	E	STAND OFF	SEE DWG						7B
				1			1					1	LDW280P18081-15		STAND OFF							47D
													LDW280P17967-51		STRAP							3C
													-49									7B
													-47									7C
													-45									7B
													-43									4D
													-41									4D
													-39									6D
				1			1					1	-37									19D
				1			1					1	-35									19C
				1			1					1	-33									42D
				1			1					1	-31									42D
				1			1					1	-19									28B
				1			1					1	LDW280P17967-17		STRAP							47D
				41			41					41	LDW280P17946-11		STANDOFF							24B
				15			6					6	LDW280P17575-11		WASHER							50B
										1			LDW280P17534-45		BLANKET ASSY							19C
								1					LDW280P17534-59		BLANKET ASSY							19C
					1								LDW280P17534-63		BLANKET ASSY							19C
C									1				LDW280P17534-55	E	BLANKET ASSY	SEE DWG						19C

C.L = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28666	D

SCALE NONE
SHEET 2.03

ENG 77.2 7-65

01

NAS 9-1100

	QTY PER ASSEMBLY																						
C.L	-23	-21	-19	-17	-15	-47	-11	-9	-59	-5	-3	-41	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				32										GS20D-06-14	E	SCREW	GRUMMAN STD						
				16										GS20D-06-8		SCREW	GRUMMAN STD						
						3			3	3	3	3		NAS21043-08		NUT	STD PART						
						2								LDW280P17964-5		COVER	SEE DWG						
						A/R					A/R			GT15C-3		TAPE	GRUMMAN STD						
						1			1	1	1	1		GT535L-HA0740									
						2			2	2	2	2		GT535L-HA0320									
							A/R							GT835P-8									
							A/R	A/R						GT835M-8									
							A/R							GT835E-8		TAPE							
						8								GW10H-3		WASHER							
												9		GW10H-1		WASHER							
				59		25	45		17	17	41	33		GR11B-1		RETAINER							
				59		33	45		33	33	41	33		GR10H-3		WASHER							
												2		GB511J-08-3		BOLT							
						11			11	11	11	11		GB511J-08-2		BOLT							
												9		GB10J-1		BUSHING							
												4		GB511J-06-2		BOLT	GRUMMAN STD						
						3			3	3	4	4		NAS697A08L		PLATE NUT	STD PART						
											4	4		NAS697A06L		PLATE NUT							
						1			1	1	2	2		NAS696A08L		PLATE NUT							
														MS20470A4		RIVET							
				54		3		112	3	3	6	6		MS51957-26		SCREW							
				1										MS35206-226		SCREW							
														MS20426AD3		RIVET							
								3						AN960D4		WASHER							
				A/R				A/R						AN960D416L									
						8			8	8	8	10		AN960D8									
				69				64			4	4		AN960D6									
				16		4		26	3	3	6	6		AN960C6	E	WASHER	STD PART						

C.L= CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28666	D
SCALE	NONE	SHEET	2.04

ENG 77.2 7-65

01

NAS 9-1100

C.L.	-49	-65	-61	-31	-29	-27	-25	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	32		30				30		GS20D-06-14	E	SCREW	GRUMMAN STD						
	16		37				37		GS20D-06-8	↑	SCREW	GRUMMAN STD						
	51		51				51		GR11B-1		RETAINER	GRUMMAN STD						
	51		51				51		GR10H-3		WASHER	GRUMMAN STD						
	8								GW10H-3		WASHER	GRUMMAN STD						
			15				15		GW10R-06		WASHER	GRUMMAN STD						
			6				6		AN960 516L		WASHER	GRUMMAN STD						
			6				6		AN960 8L		WASHER	GRUMMAN STD						
			12				12		GW10M-1		WASHER	GRUMMAN STD						
									MS20470A4		RIVET	STD PART						
	54		54				54		MS51957-26		SCREW	STD PART						
									AN960D4		WASHER	STD PART						
	R/R								AN960D416L		↑	↑						
	65		47				47		AN960D6	↓	↓	↓						
	16		5				5		AN960C6	E	WASHER	STD PART						

QTY PER ASSEMBLY

C.L = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28666	D (D)

SCALE NONE

SHEET 205

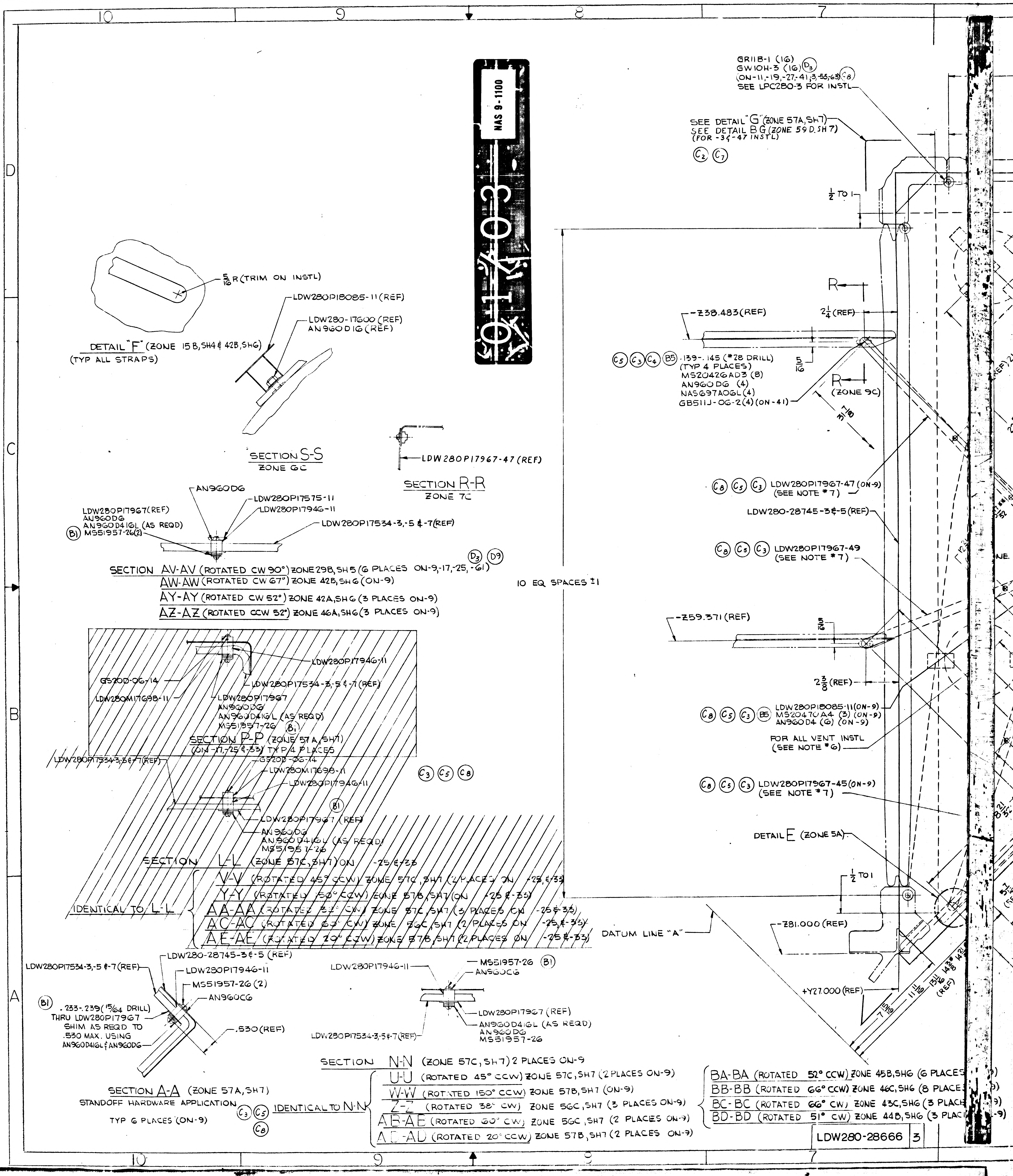
NG 77.2 7-65

01

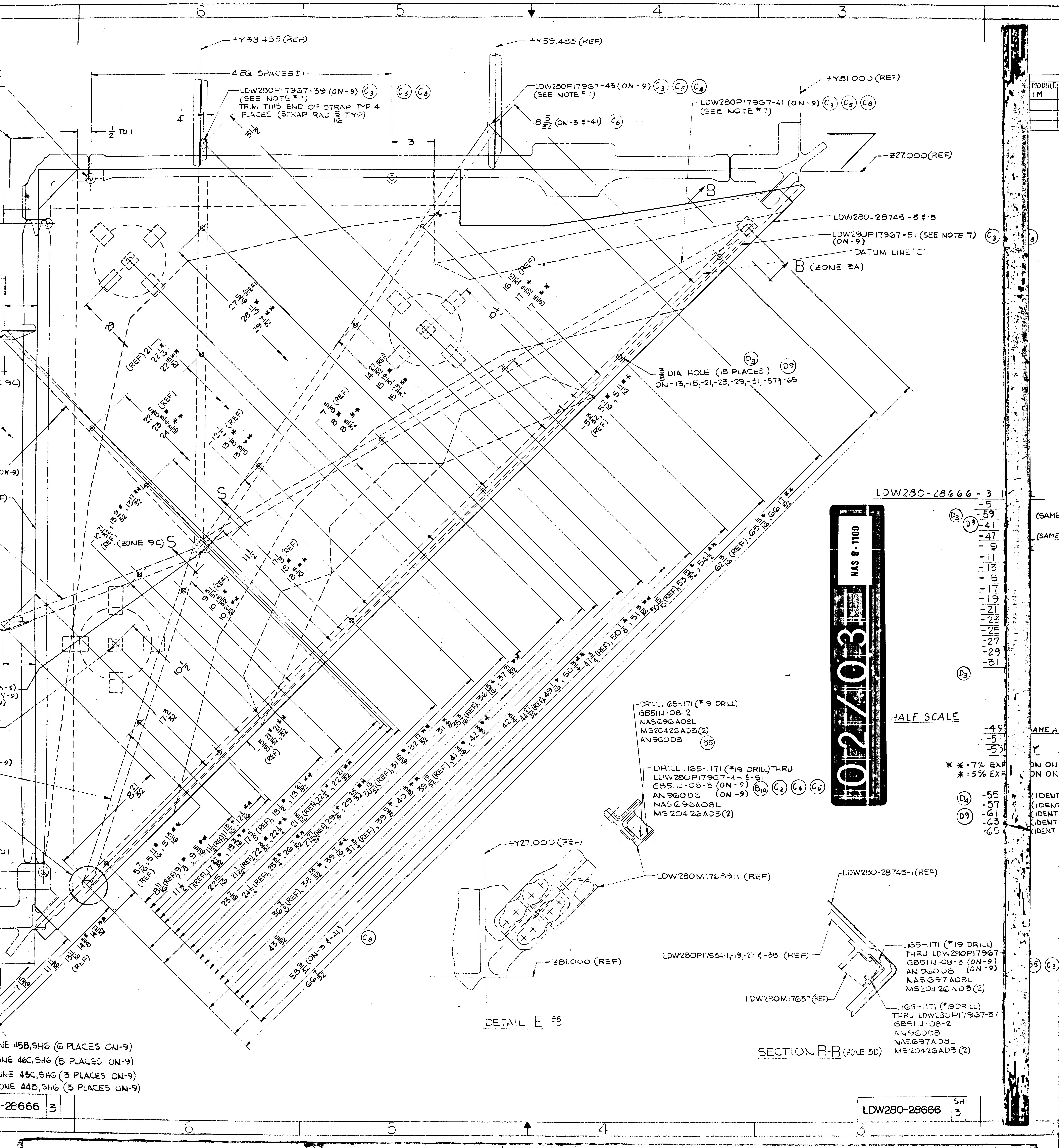
NAS 9-1100

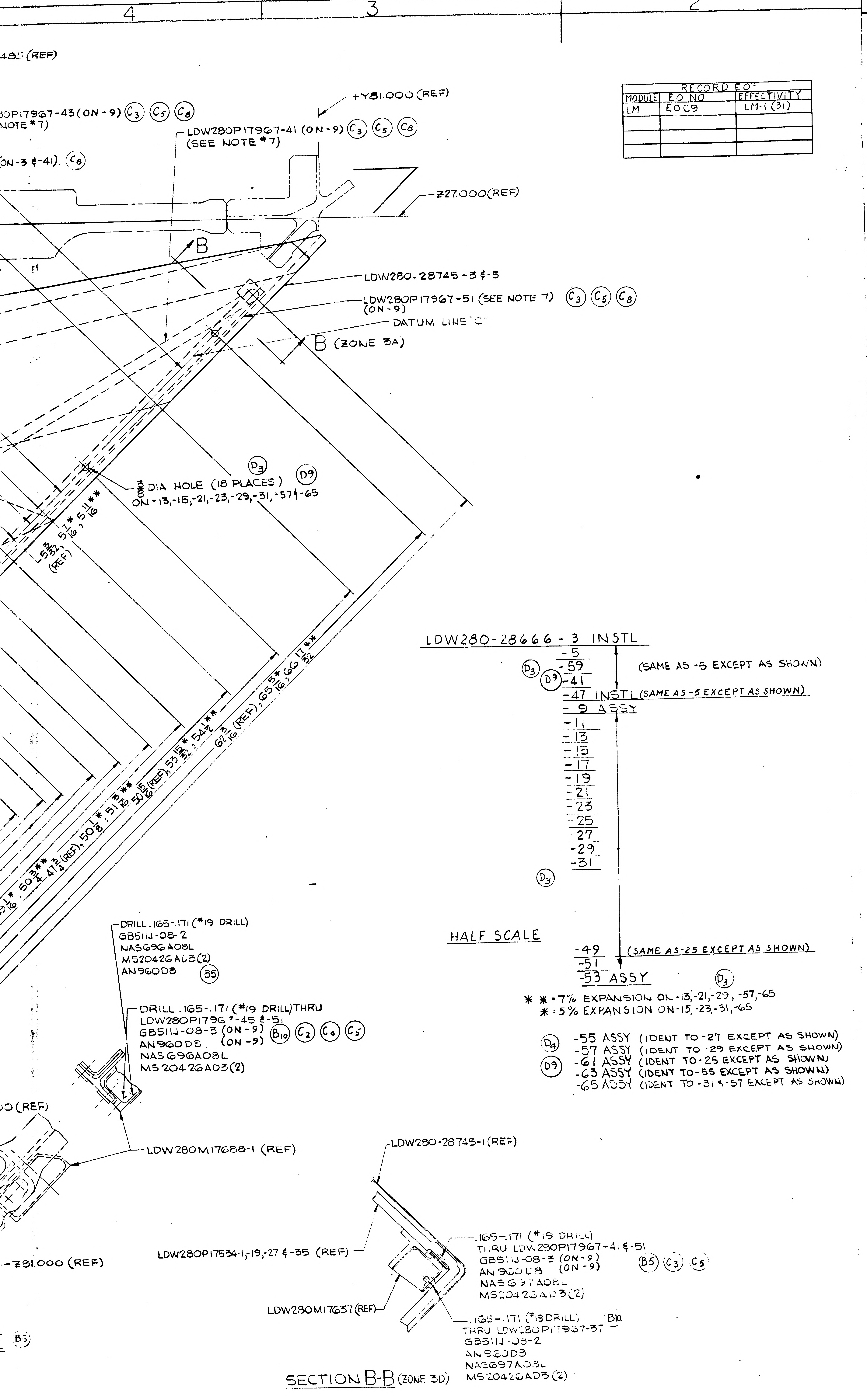
01/03

NAS 9-1100



10
9
8
7
D
C
B
A
5/16 R (TRIM ON INSTL)
DETAIL "F" (ZONE 15B, SH4 & 42B, SH6)
(TYP ALL STRAPS)
LDW280P18085-11 (REF)
LDW280-17600 (REF)
AN960D16 (REF)
SECTION S-S
ZONE 6C
LDW280P17967-47 (REF)
SECTION R-R
ZONE 7C
AN960D6
LDW280P17575-11
LDW280P17946-11
LDW280P17967 (REF)
AN960D6
AN960D416L (AS REQD)
(B1) MS51957-26(2)
LDW280P17534-3,-5 & -7 (REF)
(D3) (D9)
SECTION AV-AV (ROTATED CW 90°) ZONE 29B, SH5 (6 PLACES ON-9,-17,-25,-61)
AW-AW (ROTATED CW 67°) ZONE 42B, SH6 (ON-9)
AY-AY (ROTATED CW 52°) ZONE 42A, SH6 (3 PLACES ON-9)
AZ-AZ (ROTATED CCW 52°) ZONE 46A, SH6 (3 PLACES ON-9)
10 EQ SPACES ±1
LDW280P17946-11
GS200-06-14
LDW280P17534-3,-5 & -7 (REF)
LDW280M17698-11
LDW280P17967
AN960D6
AN960D416L (AS REQD)
MS51957-26 (B1)
SECTION P-P (ZONE 57A, SH7)
(ON -17,-25 & -33) TYP 4 PLACES
LDW280P17534-3,-5 & -7 (REF)
GS200-06-14
LDW280M17698-11
LDW280P17946-11
(C3) (C5) (C8)
(B1)
LDW280P17967 (REF)
AN960D6
AN960D416L (AS REQD)
MS51957-26
SECTION L-L (ZONE 57C, SH7) ON -25 & -33
IDENTICAL TO L-L
V-V (ROTATED 45° CCW) ZONE 57C, SH7 (2 PLACES ON -25, & -33)
Y-Y (ROTATED 150° CCW) ZONE 57B, SH7 (ON -25 & -33)
AA-AA (ROTATED 32° CW) ZONE 57C, SH7 (3 PLACES ON -25 & -33)
AC-AC (ROTATED 63° CW) ZONE 56C, SH7 (2 PLACES ON -25, & -33)
AE-AE (ROTATED 29° CCW) ZONE 57B, SH7 (2 PLACES ON -25 & -33)
DATUM LINE "A"
LDW280-28745-3 & -5 (REF)
LDW280P17534-3,-5 & -7 (REF)
LDW280P17946-11
MS51957-26 (2)
AN960C6
(B1)
.233-.239 (15/64 DRILL)
THRU LDW280P17967
SHIM AS REQD TO
.530 MAX. USING
AN960D416L & AN960D6
.530 (REF)
SECTION A-A (ZONE 57A, SH7)
STANDOFF HARDWARE APPLICATION
TYP 6 PLACES (ON-9)
(C3) (C5) (C8)
LDW280P17946-11
MS51957-26 (B1)
AN960C6
LDW280P17967 (REF)
AN960D416L (AS REQD)
AN960D6
MS51957-26
LDW280P17534-3,-5 & -7 (REF)
SECTION N-N (ZONE 57C, SH7) 2 PLACES ON-9
IDENTICAL TO N-N
U-U (ROTATED 45° CCW) ZONE 57C, SH7 (2 PLACES ON-9)
W-W (ROTATED 150° CCW) ZONE 57B, SH7 (ON-9)
Z-Z (ROTATED 38° CW) ZONE 56C, SH7 (3 PLACES ON-9)
AB-AB (ROTATED 60° CW) ZONE 56C, SH7 (2 PLACES ON-9)
AD-AD (ROTATED 20° CCW) ZONE 57B, SH7 (2 PLACES ON-9)
BA-BA (ROTATED 52° CCW) ZONE 45B, SH6 (6 PLACES
BB-BB (ROTATED 66° CCW) ZONE 46C, SH6 (8 PLACE
BC-BC (ROTATED 66° CW) ZONE 43C, SH6 (3 PLAC
BD-BD (ROTATED 51° CW) ZONE 44B, SH6 (3 PLAC
GR11B-1 (16)
GW10H-3 (16) (D3)
(ON-11,-19,-27,-41,-3,-55,-63) (C8)
SEE LPC280-3 FOR INSTL
SEE DETAIL "G" (ZONE 57A, SH7)
SEE DETAIL BG (ZONE 59D, SH 7)
(FOR -3 & -47 INSTL)
(C2) (C7)
1/2 TO 1
R
-Z38.483 (REF)
2 1/4 (REF)
(C5) (C3) (C4) (B5) .139-.145 (#28 DRILL)
(TYP 4 PLACES)
MS20426AD3 (8)
AN960D6 (4)
NAS697A06L (4)
GB511J-06-2 (4) (ON-41)
5/16
R
(ZONE 9C)
3 7/8
(C8) (C5) (C3) LDW280P17967-47 (ON-9)
(SEE NOTE #7)
LDW280-28745-3 & -5 (REF)
(C8) (C5) (C3) LDW280P17967-49
(SEE NOTE #7)
-Z59.371 (REF)
5/16
2 3/8 (REF)
(C8) (C5) (C3) (B5) LDW280P18085-11 (ON-9)
MS20470A4 (3) (ON-9)
AN960D4 (6) (ON-9)
FOR ALL VENT INSTL
(SEE NOTE #6)
(C8) (C5) (C3) LDW280P17967-45 (ON-9)
(SEE NOTE #7)
DETAIL E (ZONE 5A)
1/2 TO 1
-Z81.000 (REF)
+Y27.000 (REF)
7 15/16
11 11/16
13 11/16
14 3/8
14 21/32
(REF)
LDW280-28666
3


+Y33.483 (REF)
+Y59.485 (REF)
+Y81.000 (REF)
4 EQ SPACES ±1
LDW280P17967-39 (ON-9) (C3) (C5) (C8)
(SEE NOTE *7)
TRIM THIS END OF STRAP TYP 4 PLACES (STRAP RAD 5/16 TYP)
LDW280P17967-43 (ON-9) (C3) (C5) (C8)
(SEE NOTE *7)
LDW280P17967-41 (ON-9) (C3) (C5) (C8)
(SEE NOTE *7)
18 5/32 (ON-3 & -41) (C8)
1/2 TO 1
3
-Z27.000 (REF)
LDW280-28745-3 & -5
LDW280P17967-51 (SEE NOTE 7) (ON-9) (C3)
DATUM LINE "C"
B (ZONE 3A)
3/8 DIA HOLE (18 PLACES) (D3) (D9)
ON -13, -15, -21, -23, -29, -31, -57 & -65
S (ZONE 9C)
DRILL .165-.171 (*19 DRILL)
GB511J-08-2
NAS696A08L
MS20426AD3 (2)
AN960D8 (B5)
DRILL .165-.171 (*19 DRILL) THRU LDW280P17967-45 & -51
GB511J-08-3 (ON-9)
AN960D8 (ON-9) (B10) (C2) (C4) (C5)
NAS696A08L
MS20426AD3 (2)
+Y27.000 (REF)
LDW280M17688-1 (REF)
-Z81.000 (REF)
DETAIL E B5
LDW280-28745-1 (REF)
LDW280P17534-1, -19, -27 & -35 (REF)
LDW280M17637 (REF)
.165-.171 (*19 DRILL) THRU LDW280P17967-
GB511J-08-3 (ON-9)
AN960D8 (ON-9)
NAS697A08L
MS20426AD3 (2)
.165-.171 (*19 DRILL) THRU LDW280P17967-37
GB511J-08-2
AN960D8
NAS697A08L
MS20426AD3 (2)
SECTION B-B (ZONE 3D)
HALF SCALE
LDW280-28666-3
-5 -59 -41 -47 -9 -11 -13 -15 -17 -19 -21 -23 -25 -27 -29 -31
-49 -51 -53
** 7% EXP
* 5% EXP
-55 -57 -61 -63 -65
(IDENT
(SAME
ONE 45B, SH6 (6 PLACES ON-9)
ONE 46C, SH6 (8 PLACES ON-9)
ONE 43C, SH6 (3 PLACES ON-9)
ONE 44B, SH6 (3 PLACES ON-9)
LDW280-28666 SH 3
6 5 4 3
MODULE LM
02/03
NAS 9-1100


485 (REF)
+Y81.000 (REF)
0P17967-43 (ON-9) Ⓒ₃ Ⓒ₅ Ⓒ₈
NOTE *7)
LDW280P17967-41 (ON-9) Ⓒ₃ Ⓒ₅ Ⓒ₈
(SEE NOTE *7)
ON-3 & -41). Ⓒ₈
-Z27.000 (REF)
B
LDW280-28745-3 & -5
LDW280P17967-51 (SEE NOTE 7) Ⓒ₃ Ⓒ₅ Ⓒ₈
(ON-9)
DATUM LINE "C"
B (ZONE 3A)
3/8 DIA HOLE (18 PLACES) Ⓓ₃ Ⓓ₉
ON -13, -15, -21, -23, -29, -31, -57 & -65
5 3/32, 5 7/16*, 5 11/16** (REF)
9 1/16*, 50 3/4**, 47 3/4 (REF), 50 1/8*, 51 3/16**, 50 15/16 (REF), 53 15/32*, 54 1/2**
62 3/16 (REF), 65 5/16*, 66 17/32**
DRILL .165-.171 (*19 DRILL)
GB511J-08-2
NAS696A08L
MS20426AD3(2)
AN960D8 Ⓑ5
DRILL .165-.171 (*19 DRILL) THRU
LDW280P17967-45 & -51
GB511J-08-3 (ON-9)
AN960D8 (ON-9) Ⓑ₁₀ Ⓒ₂ Ⓒ₄ Ⓒ₅
NAS696A08L
MS20426AD3(2)
0 (REF)
LDW280M17688-1 (REF)
-Z81.000 (REF)
B5
LDW280-28745-1 (REF)
LDW280P17534-1, -19, -27 & -35 (REF)
LDW280M17637 (REF)
.165-.171 (*19 DRILL)
THRU LDW280P17967-41 & -51
GB511J-08-3 (ON-9)
AN960D8 (ON-9)
NAS697A08L
MS20426AD3(2)
Ⓑ5 Ⓒ₃ Ⓒ₅
.165-.171 (*19 DRILL)
THRU LDW280P17967-37
GB511J-08-2
AN960D3
NAS697A03L
MS20426AD3 (2)
B10
SECTION B-B (ZONE 3D)

LDW280-28666-3 INSTL
-5
Ⓓ₃ -59 (SAME AS -5 EXCEPT AS SHOWN)
Ⓓ9 -41
-47 INSTL (SAME AS -5 EXCEPT AS SHOWN)
-9 ASSY
-11
-13
-15
-17
-19
-21
-23
-25
-27
-29
-31
Ⓓ₃

HALF SCALE

-49 (SAME AS -25 EXCEPT AS SHOWN)
-51
-53 ASSY Ⓓ₃

** = 7% EXPANSION ON -13, -21, -29, -57, -65
* = 5% EXPANSION ON -15, -23, -31, -65

Ⓓ₄ -55 ASSY (IDENT TO -27 EXCEPT AS SHOWN)
-57 ASSY (IDENT TO -29 EXCEPT AS SHOWN)
Ⓓ9 -61 ASSY (IDENT TO -25 EXCEPT AS SHOWN)
-63 ASSY (IDENT TO -55 EXCEPT AS SHOWN)
-65 ASSY (IDENT TO -31 & -57 EXCEPT AS SHOWN)

RECORD EO'		
MODULE	EO NO	EFFECTIVITY
LM	EOC9	LM-1 (31)

03/03

NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

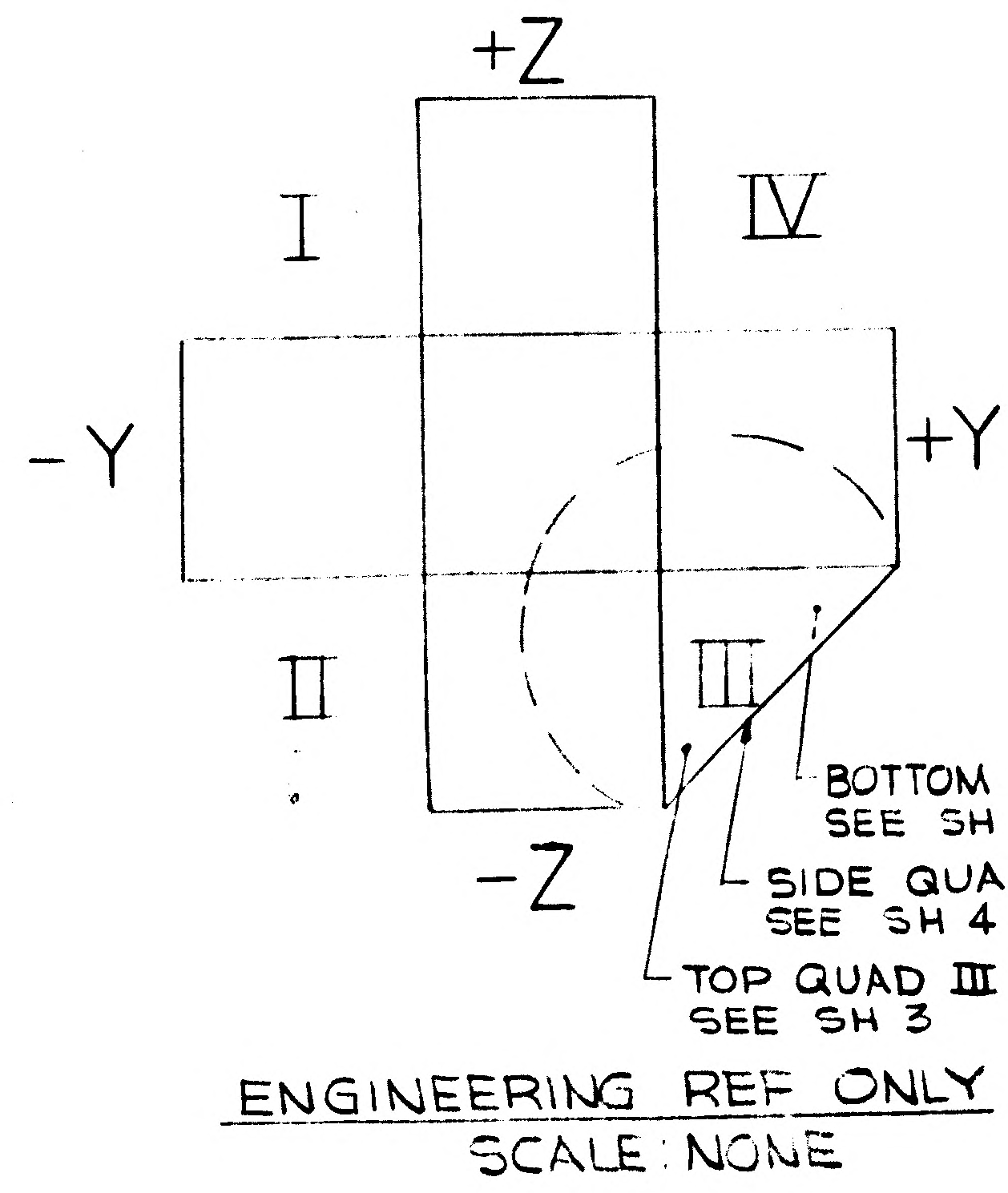
DWG SIZE 40 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X) SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) SQ. FT.
PRINT TRIM LINE

NOTES:

~~1. SEW TAPE, GT535G LCS & GT535L HA AT 3/16 ± 1/16 FROM EDGE OF TAPE IN ACCORDANCE WITH FEDERAL STD *751a & STITCH TYPE 301. THREAD TO BE STAGE GREEN SIZE E SPEC MIL-T-7807, TYPE II, CLASS I. NYLON THREAD MAY BE PURCHASED FROM THREADS INC. GASTONIA, NORTH CAROLINA, CODE IDENT NO. 19937~~

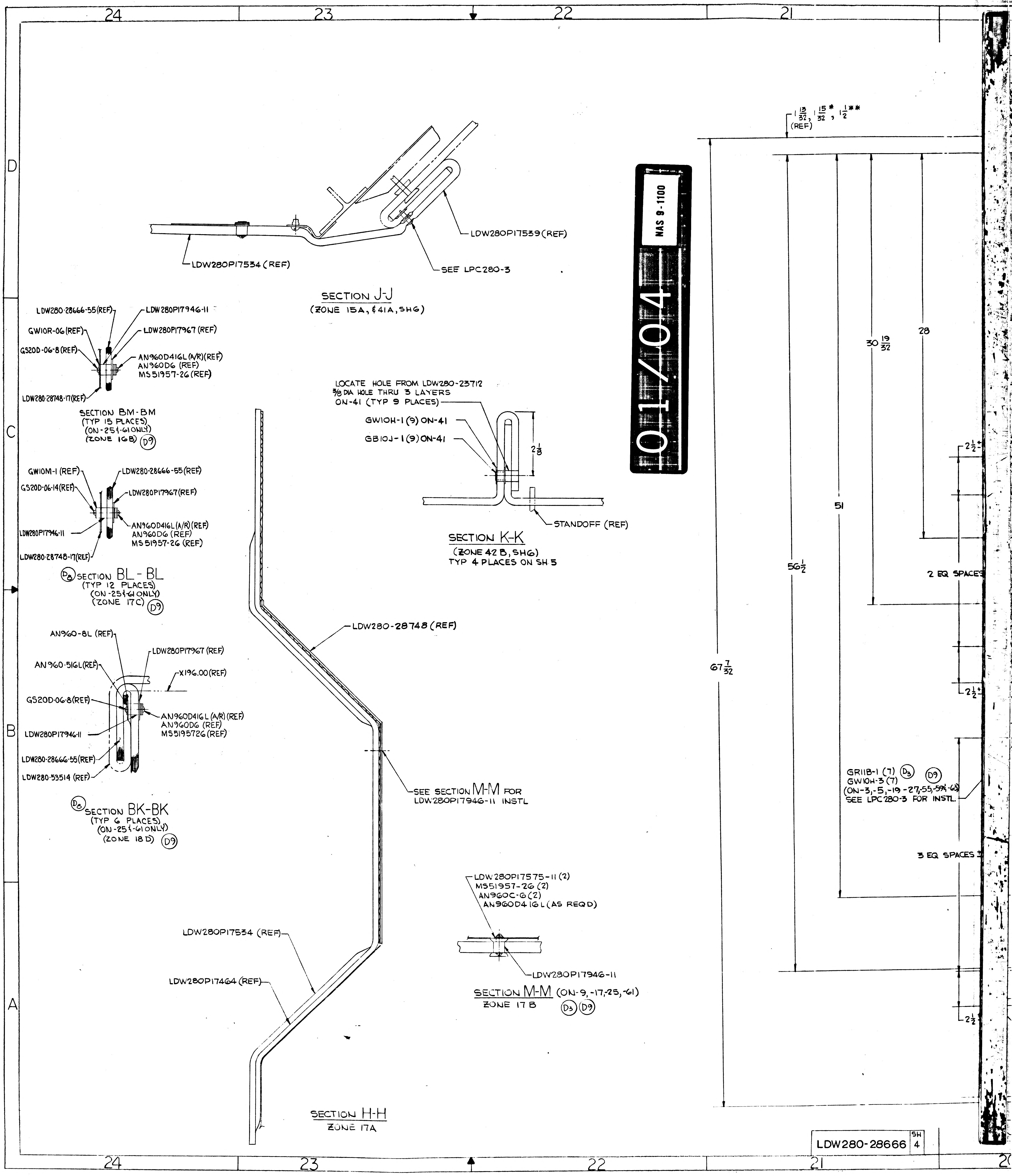
2. BOND LDW280P17946-11 TO STRAPS USING EPON *934 ADHESIVE PER LSP14-22500
3. HOLE SIZES AT STANDOFF SHALL BE AS FOLLOWS.
   STRAP - .233-.239 (39/64 DRILL)
   BLANKETS - 3/8 DIA PUNCHED HOLE
   PLUME IMPINGEMENT SHIELD - .139-.145 (*28 DRILL)
4. FINAL SIZE (WITH FOLD & SEAM LOCATION) OF BLANKET ASSYS SHALL BE DETERMINED FROM APPROVED MASTER TEMPLATE (AND/OR FULL SIZE MOCKUP)
5. BLANKET ASSY TO BE MANUFACTURED IN ACCORDANCE WITH LPC 280-1.
6. FABRICATION OF BLANKET VENTS TO BE DONE IN ACCORDANCE WITH LFC-280-2
7. WRAP STRAPS WITH GT835M-8, TAPE
8. SEW TAPE (GT535L-HA) AT 3/16 ± 1/16 FROM EDGE OF TAPE IN ACCORDANCE WITH FEDERAL STD *751a & STITCH TYPE *301. ASTROQUARTZ RQ754-12 THREAD MAY BE PURCHASED FROM DODGE FIBERS CORP., P.O. BOX 124, HOOSICK FALLS, N.Y., CODE IDENT NO. 07512
9. THIS DRAWING AFFECTED BY THE FOLLOWING LFM *26. SEE LFM FOR EFFECTIVITY AND MODIFICATION.
10. THIS DRAWING AFFECTED BY LFM-155 WHICH MAY BE USED ON LM-3(33)


+Z
I
IV
-Y
+Y
II
III
-Z
BOTTOM QUAD III
SEE SH 5
SIDE QUAD III
SEE SH 4 & 6
TOP QUAD III
SEE SH 3

ENGINEERING REF ONLY
SCALE: NONE

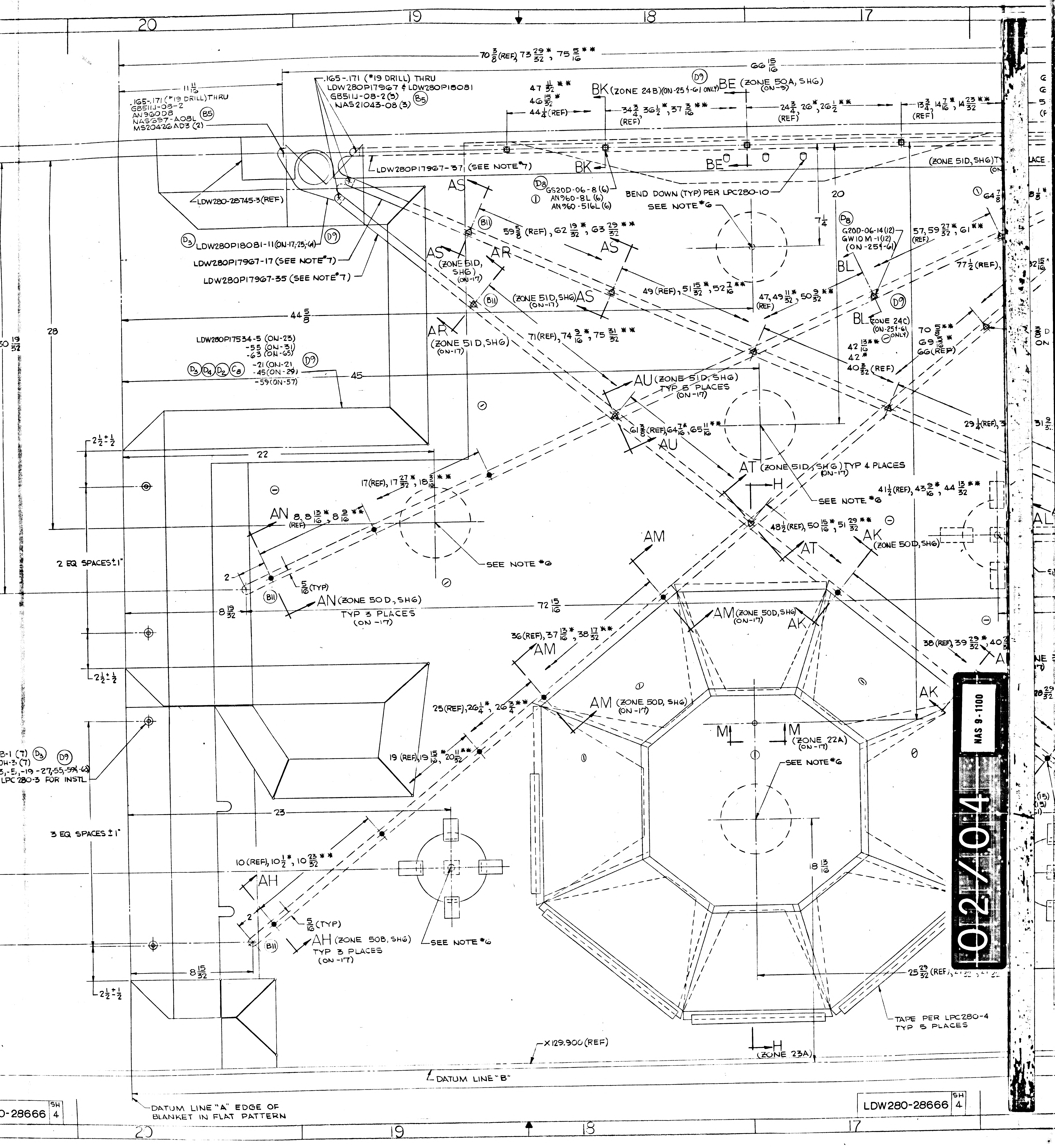
SYMBOL LEDGER
△ ▢ ● SYMBOL'S ARE FOR LOCATION AND QUANTITY ONLY

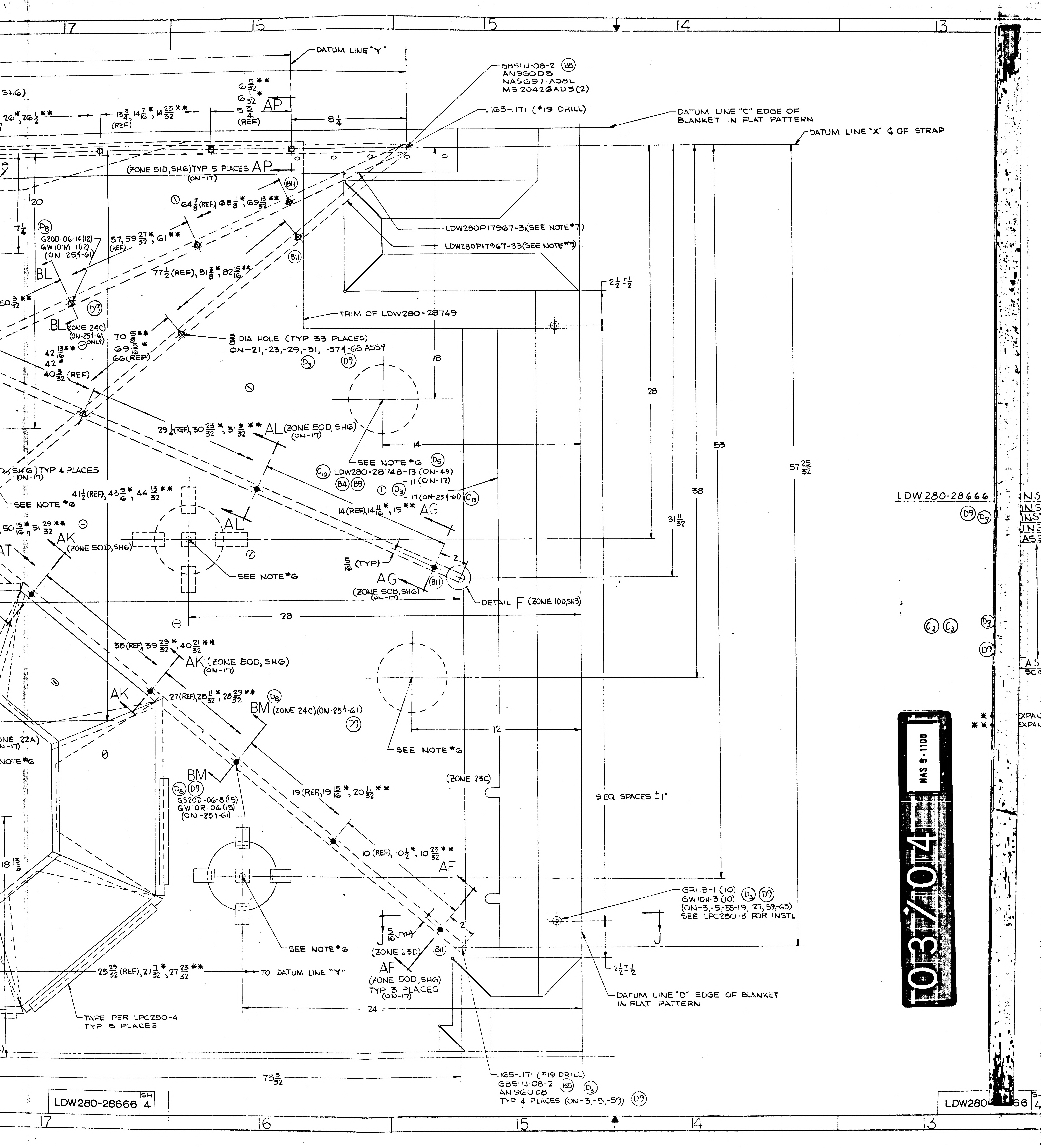
	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
	SIZE K	CODE IDENT NO. 26512	LDW280-28666 D
MODEL OR END ITEM	SCALE		SHEET 3

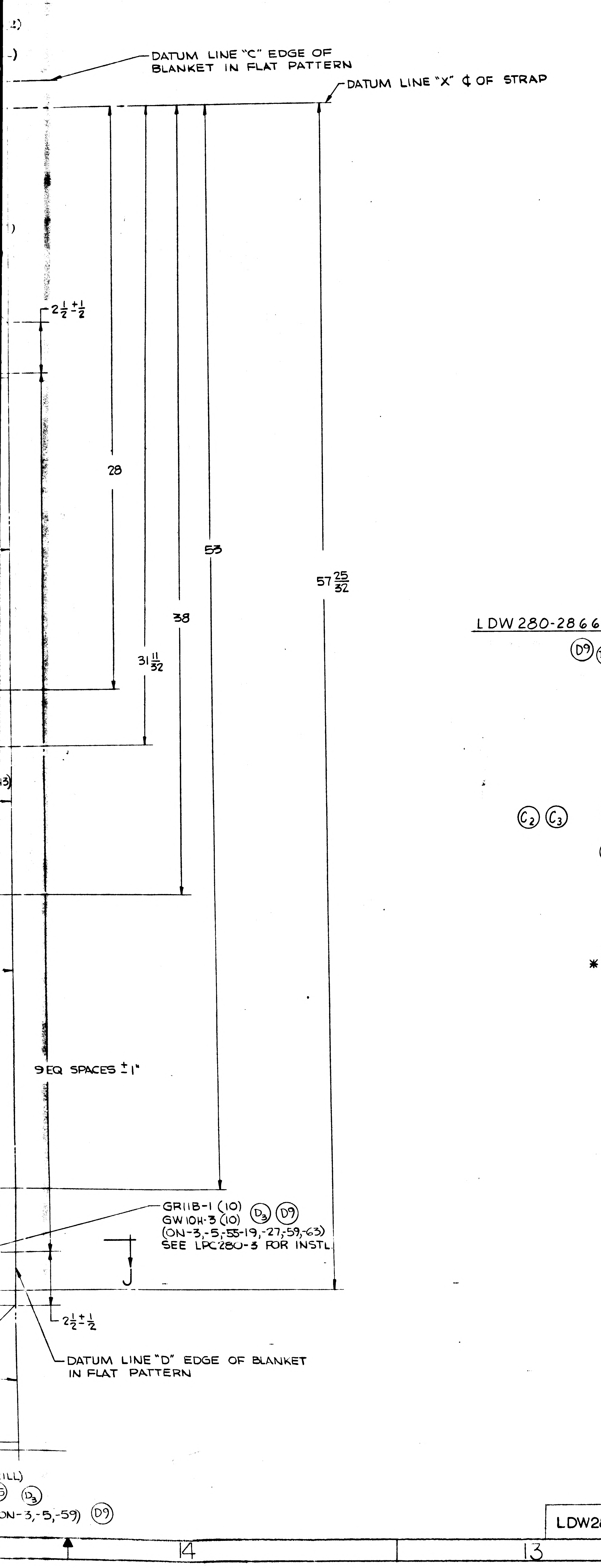


24
23
22
21
20
D
C
B
A
LDW280P17534 (REF)
LDW280P17539 (REF)
SEE LPC280-3
SECTION J-J
(ZONE 15A, & 41A, SH6)
LDW280-28666-55(REF)
GW10R-06 (REF)
GS20D-06-8 (REF)
LDW280P17946-11
LDW280P17967 (REF)
AN960D416L (A/R)(REF)
AN960D6 (REF)
MS51957-26 (REF)
LDW280-28748-17(REF)
SECTION BM-BM
(TYP 15 PLACES)
(ON-25 & -61 ONLY)
(ZONE 16B) (D9)
GW10M-1 (REF)
GS20D-06-14(REF)
LDW280-28666-55(REF)
LDW280P17967(REF)
LDW280P17946-11
AN960D416L (A/R) (REF)
AN960D6 (REF)
MS51957-26 (REF)
LDW280-28748-17(REF)
(D8) SECTION BL - BL
(TYP 12 PLACES)
(ON -25 & -61 ONLY)
(ZONE 17C) (D9)
AN960-8L (REF)
AN960-516L(REF)
LDW280P17967 (REF)
X196.00(REF)
GS20D-06-8(REF)
AN960D416L (A/R) (REF)
AN960D6 (REF)
MS5195726 (REF)
LDW280P17946-11
LDW280-28666-55(REF)
LDW280-53514 (REF)
(D8) SECTION BK-BK
(TYP 6 PLACES)
(ON -25 & -61 ONLY)
(ZONE 18D) (D9)
LOCATE HOLE FROM LDW280-23712
5/8 DIA HOLE THRU 3 LAYERS
ON-41 (TYP 9 PLACES)
GW10H-1 (9) ON-41
GB10J-1 (9) ON-41
2 1/8
STANDOFF (REF)
SECTION K-K
(ZONE 42 B, SH6)
TYP 4 PLACES ON SH 5
LDW280-28748 (REF)
SEE SECTION M-M FOR
LDW280P17946-11 INSTL
LDW280P17575-11 (2)
MS51957-26 (2)
AN960C-6 (2)
AN960D416L (AS REQD)
LDW280P17946-11
SECTION M-M (ON-9, -17, -25, -61)
ZONE 17 B (D3) (D9)
LDW280P17534 (REF)
LDW280P17464 (REF)
SECTION H-H
ZONE 17A
1 13/32, 1 15/32 *, 1 1/2 **
(REF)
67 7/32
56 1/2
51
30 19/32
28
2 1/2
2 EQ SPACES
2 1/2
GR11B-1 (7) (D3) (D9)
GW10H-3 (7)
(ON-3, -5, -19 -27, -55, -59 & -63)
SEE LPC 280-3 FOR INSTL.
3 EQ SPACES
LDW280-28666
SH
4

01/04
NAS 9-1100


20
19
18
17
70 3/8 (REF), 73 29/32 *, 75 5/16 **
66 15/16
.165-.171 (#19 DRILL) THRU
GB511J-08-2
AN960D8
NAS697-A08L
MS20426AD3 (2)
(B5)
11 11/16
.165-.171 (#19 DRILL) THRU
LDW280P17967 & LDW280P18081
GB511J-08-2 (3)
NAS21043-08 (3)
(B5)
47 11/32 **
46 15/32 *
44 1/4 (REF)
BK (ZONE 24B)(ON-25 & -61 ONLY)
34 3/4, 36 1/2 *, 37 3/16 **
(REF)
(D9)
BE (ZONE 50A, SH6)
(ON-9)
24 3/4, 26 *, 26 1/2 **
(REF)
13 3/4, 14 7/16, 14 23/32 **
(REF)
LDW280P17967-37 (SEE NOTE 7)
BK
BE
LDW280-28745-3 (REF)
(D8)
GS20D-06-8 (6)
① AN960-8L (6)
AN960-516L (6)
BEND DOWN (TYP) PER LPC280-10
SEE NOTE 6
(ZONE 51D, SH6) TYP
PLACE
① 64 7/8
(D3) LDW280P18081-11 (ON-17, 25, 61) (D9)
LDW280P17967-17 (SEE NOTE 7)
LDW280P17967-35 (SEE NOTE 7)
AS
(B11)
59 5/8 (REF), 62 19/32 *, 63 29/32 **
AS
AS
(ZONE 51D, SH6) (ON-17)
AR
(B11)
(ZONE 51D, SH6) AS (ON-17)
49 (REF), 51 15/32 *, 52 7/16 **
47, 49 11/32 *, 50 9/32 **
(REF)
20
7 1/4
(D8)
G20D-06-14 (12)
GW10M-1 (12)
(ON-25 & -61)
57, 59 27/32 *, 61 **
(REF)
77 1/2 (REF),
BL
BL
(D9)
(ZONE 24C)
(ON-25 & -61 ONLY)
70 5/8 **
69 3/16 *
66 (REF)
42 13/16 **
42 *
40 3/32 (REF)
44 5/8
28
50 19/32
AR
(ZONE 51D, SH6)
(ON-17)
71 (REF), 74 9/16 *, 75 31/32 **
LDW280P17534-5 (ON-23)
-55 (ON-31)
-63 (ON-65)
(D3)(D4)(D2)(C8) -21 (ON-21)
-45 (ON-29)
-59 (ON-57)
(D9)
45
AU (ZONE 51D, SH6)
TYP 5 PLACES
(ON-17)
61 3/8 (REF), 64 7/16 *, 65 11/16 **
AU
29 1/4 (REF),
2 1/2 ± 1/2
22
AT (ZONE 51D, SH6) TYP 4 PLACES
(ON-17)
H
SEE NOTE 6
41 1/2 (REF), 43 9/16 *, 44 13/32 **
17 (REF), 17 27/32 *, 18 3/16 **
AN 8, 8 13/16 *, 8 9/16 **
(REF)
48 1/2 (REF), 50 15/16 *, 51 29/32 **
AT
AK
(ZONE 50D, SH6)
AL
SEE NOTE 6
2 EQ SPACES ± 1"
2
5/16 (TYP)
(B11)
AN (ZONE 50D, SH6)
TYP 3 PLACES
(ON-17)
8 19/32
72 15/16
AM
AM (ZONE 50D, SH6)
(ON-17)
AK
36 (REF), 37 13/16 *, 38 17/32 **
AM
38 (REF), 39 29/32 *, 40
2 1/2 ± 1/2
AK
25 (REF), 26 1/4 *, 26 3/4 **
AM (ZONE 50D, SH6)
(ON-17)
M
M (ZONE 22A)
(ON-17)
SEE NOTE 6
19 (REF), 19 15/16 *, 20 11/32 **
8-1 (7) (D3) (D9)
04-3 (7)
3, -5, -19, -27, -55, -59 & -63
LPC 280-3 FOR INSTL
23
3 EQ SPACES ± 1"
10 (REF), 10 1/2 *, 10 23/32 **
AH
18 13/16
2
5/16 (TYP)
(B11)
AH (ZONE 50B, SH6)
TYP 3 PLACES
(ON-17)
SEE NOTE 6
8 15/32
2 1/2 ± 1/2
25 29/32 (REF),
TAPE PER LPC280-4
TYP 5 PLACES
X129.900 (REF)
H
(ZONE 23A)
DATUM LINE "B"
DATUM LINE "A" EDGE OF
BLANKET IN FLAT PATTERN
LDW280-28666 SH 4
LDW280-28666 SH 4
02/04
NAS 9-1100


17
16
15
14
13
DATUM LINE "Y"
GB511J-08-2 (B5)
AN960D8
NAS697-A08L
MS 20426AD3(2)
.165-.171 (#19 DRILL)
DATUM LINE "C" EDGE OF BLANKET IN FLAT PATTERN
DATUM LINE "X" ℄ OF STRAP
SHG)
26*, 26½**
13¾, 14 7/16*, 14 23/32** (REF)
6 5/32**
6 1/32*
5¾ (REF)
AP
8¼
(ZONE 51D, SHG) TYP 5 PLACES AP (ON-17)
(B11)
① 64⅞ (REF), 68⅛*, 69 13/32**
20
7¼
(D8)
G20D-06-14(12)
GW10M-1(12)
(ON-254-61)
57, 59 27/32*, 61** (REF)
LDW280P17967-31 (SEE NOTE *7)
LDW280P17967-33 (SEE NOTE *7)
BL
77½ (REF), 81⅜*, 82 15/16**
2½ +½ -½
TRIM OF LDW280-28749
BL (ZONE 24C) (ON-254-61) ⊖ ONLY)
(D9)
70 5/16**
69 ⅝*
66 (REF)
42 13/16**
42*
40 3/32 (REF)
⅜ DIA HOLE (TYP 33 PLACES) ON-21, -23, -29, -31, -574-65 ASSY
(D3) (D9)
18
28
29¼ (REF), 30 23/32*, 31 9/32** AL (ZONE 50D, SHG) (ON-17)
14
53
57 25/32
38
31 11/32
SEE NOTE *6 (D5)
(C10) LDW280-28748-13 (ON-49)
(B4) (B9)
① (D3) -11 (ON-17)
-17 (ON-254-61) (C13)
14 (REF), 14 11/16*, 15** AG
SHG) TYP 4 PLACES (ON-17)
SEE NOTE *6
41½ (REF), 43 9/16*, 44 13/32**
50 15/16*, 51 29/32**
AK (ZONE 50D, SHG)
AL
5/16 (TYP)
2
AG
(ZONE 50B, SHG) (ON-17)
(B11)
DETAIL F (ZONE 10D, SH3)
SEE NOTE *6
28
38 (REF), 39 29/32*, 40 21/32**
AK (ZONE 50D, SHG) (ON-17)
AK
27 (REF), 28 11/32*, 28 29/32**
(D8)
BM (ZONE 24C) (ON-254-61)
(D9)
ZONE 22A)
SEE NOTE *6
12
SEE NOTE *6
(ZONE 23C)
BM
(D8) (D9)
GS20D-06-8 (15)
GW10R-06 (15)
(ON-254-61)
19 (REF), 19 15/16*, 20 11/32**
SEQ SPACES ±1"
18 13/16
10 (REF), 10½*, 10 23/32**
AF
GR11B-1 (10) (D3) (D9)
GW10H-3 (10)
(ON-3, -5, -55-19, -27, -59, -63)
SEE LPC280-3 FOR INSTL
J
5/16 (TYP)
(ZONE 23D)
(B11)
2
SEE NOTE *6
AF
(ZONE 50D, SHG)
TYP 3 PLACES
(ON-17)
2½ +½ -½
25 29/32 (REF), 27 7/32*, 27 23/32**
TO DATUM LINE "Y"
DATUM LINE "D" EDGE OF BLANKET IN FLAT PATTERN
24
TAPE PER LPC280-4
TYP 5 PLACES
73 3/32
.165-.171 (#19 DRILL)
GB511J-08-2 (B5) (D3)
AN960D8
TYP 4 PLACES (ON-3, -5, -59) (D9)
LDW280-28666
(D9) (D3)
(C2) (C3)
(D3)
(D9)
LDW280-28666 SH 4
03/04
NAS 9-1100



14
13
12
11
DATUM LINE "C" EDGE OF BLANKET IN FLAT PATTERN
DATUM LINE "X" ¢ OF STRAP
$2\frac{1}{2} \pm \frac{1}{2}$
28
$31\frac{11}{32}$
38
53
$57\frac{25}{32}$
9 EQ SPACES ± 1"
GR11B-1 (10) (D3) (D9)
GW10H-3 (10)
(ON-3,-5,-55-19,-27,-59,-63)
SEE LPC280-3 FOR INSTL
J
$2\frac{1}{2} \pm \frac{1}{2}$
DATUM LINE "D" EDGE OF BLANKET IN FLAT PATTERN
ILL)
(D3)
ON-3,-5,-59) (D9)

LDW280-28666-3 INSTL (REF)
- -5 INSTL
- (D9) (D3) -59 INSTL
- -47 INSTL
- -17 ASSY
- -19
- -21
- -23
- -25
- -27
- -29
- -31
- (D3) -55
- -57
- -61
- (D9) -63
- -65
- -49 ASSY (REF)

HALF SCALE

(C2) (C3)

(D3)

* = 5% EXPANSION ON -23, -31, -65
** = 7% EXPANSION ON -21, -29, -57, -65

04/04
NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 ▽ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 ▽ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 40 X 112

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 x 114) 33.25 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) 8.3125 SQ. FT.

PRINT TRIM LINE

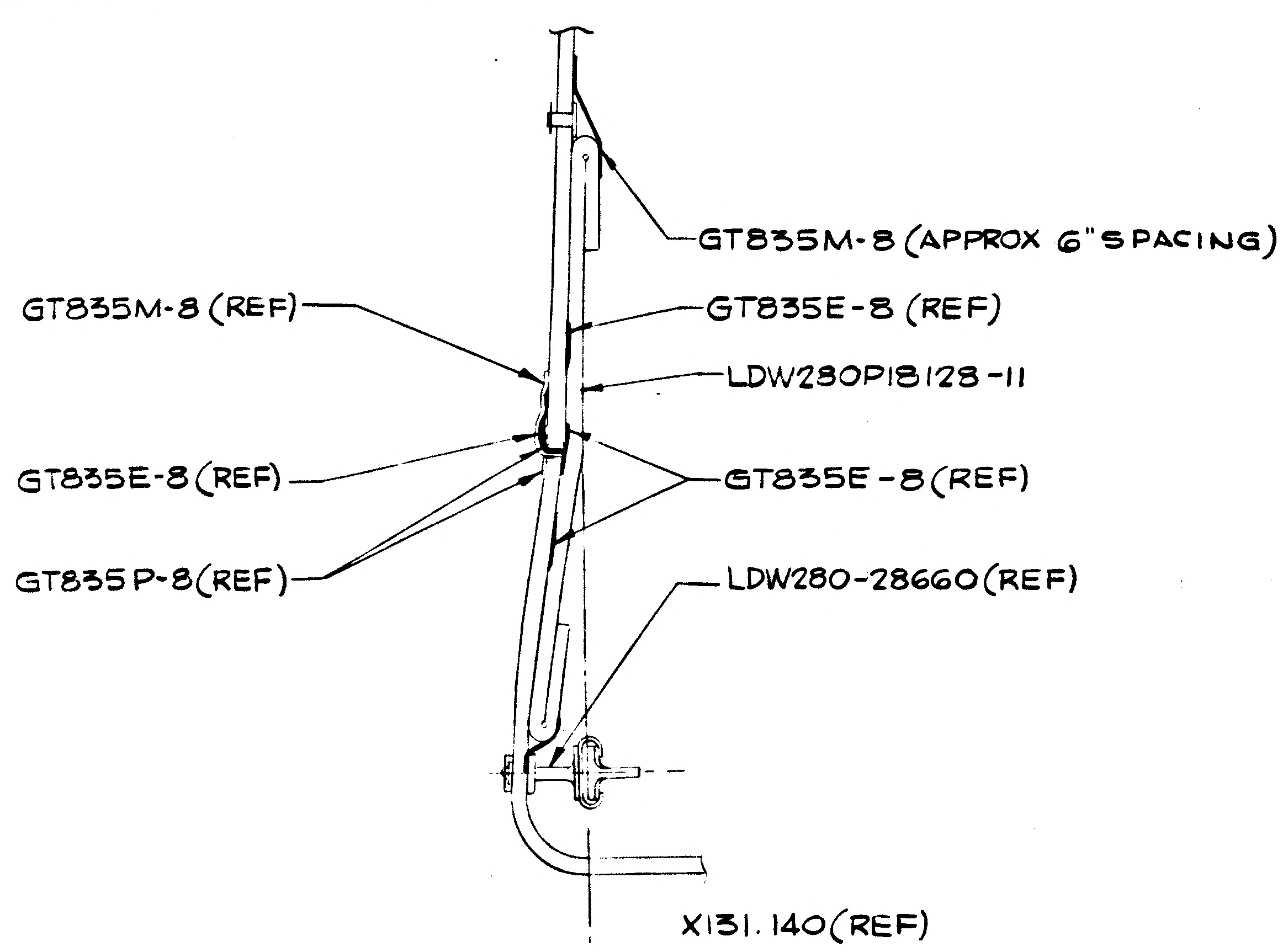
LDW280-28666 SH 4

LDW280-28666 D B

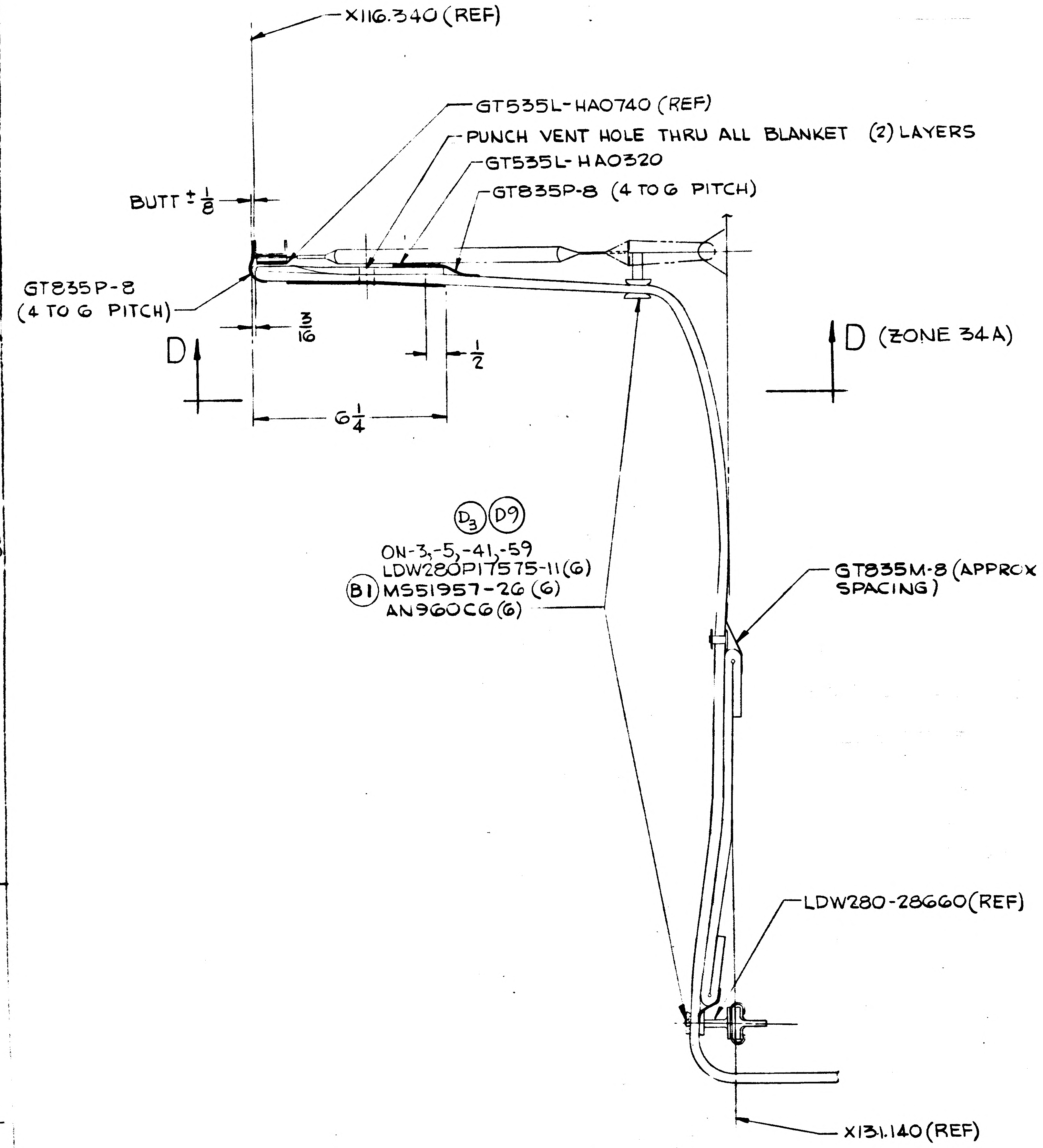
LDW280-28666 D A

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE K	CODE IDENT NO. 26512	LDW280-28666	D
LM				
MODEL OR END ITEM	SCALE FULL & NOTED		SHEET 4.00	

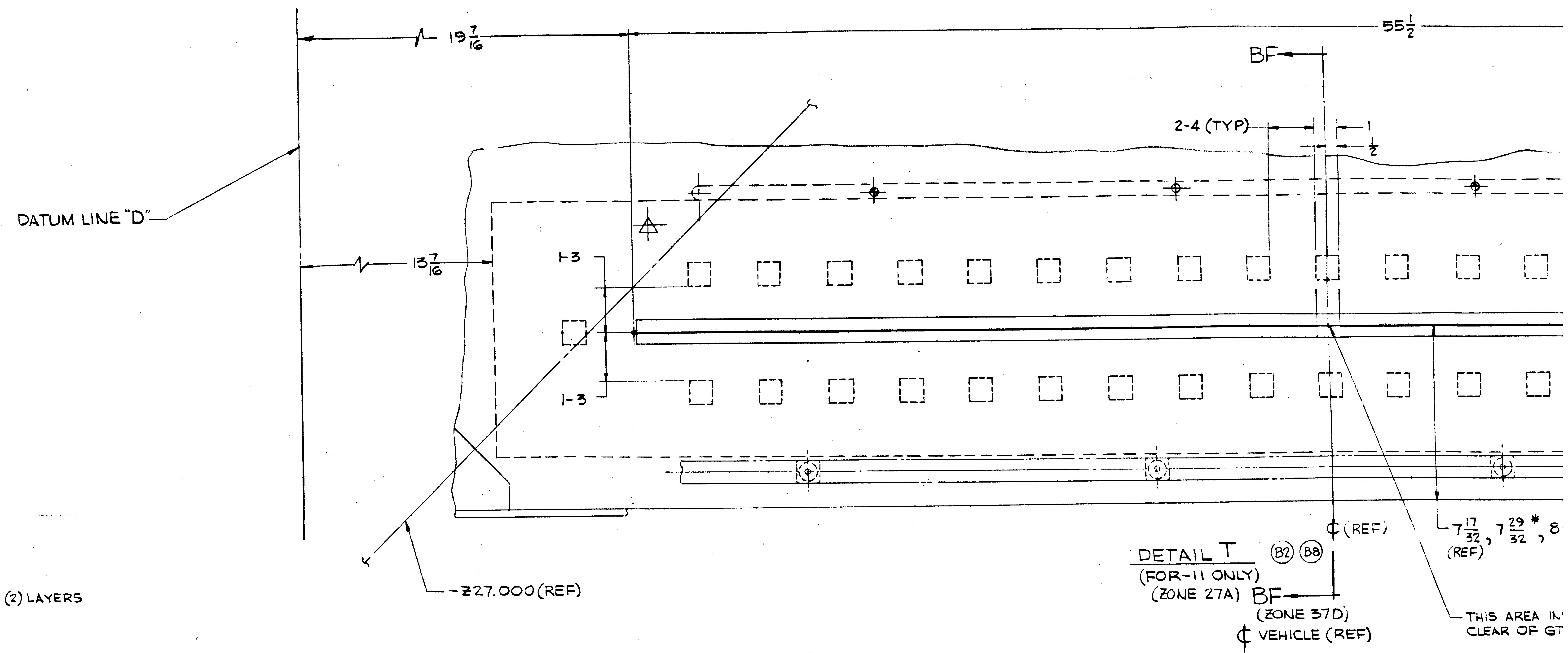
(D)


GT835M-8 (APPROX 6" SPACING)
GT835M-8 (REF)
GT835E-8 (REF)
LDW280P18128-11
GT835E-8 (REF)
GT835E-8 (REF)
GT835P-8 (REF)
LDW280-28660 (REF)
X131.140 (REF)

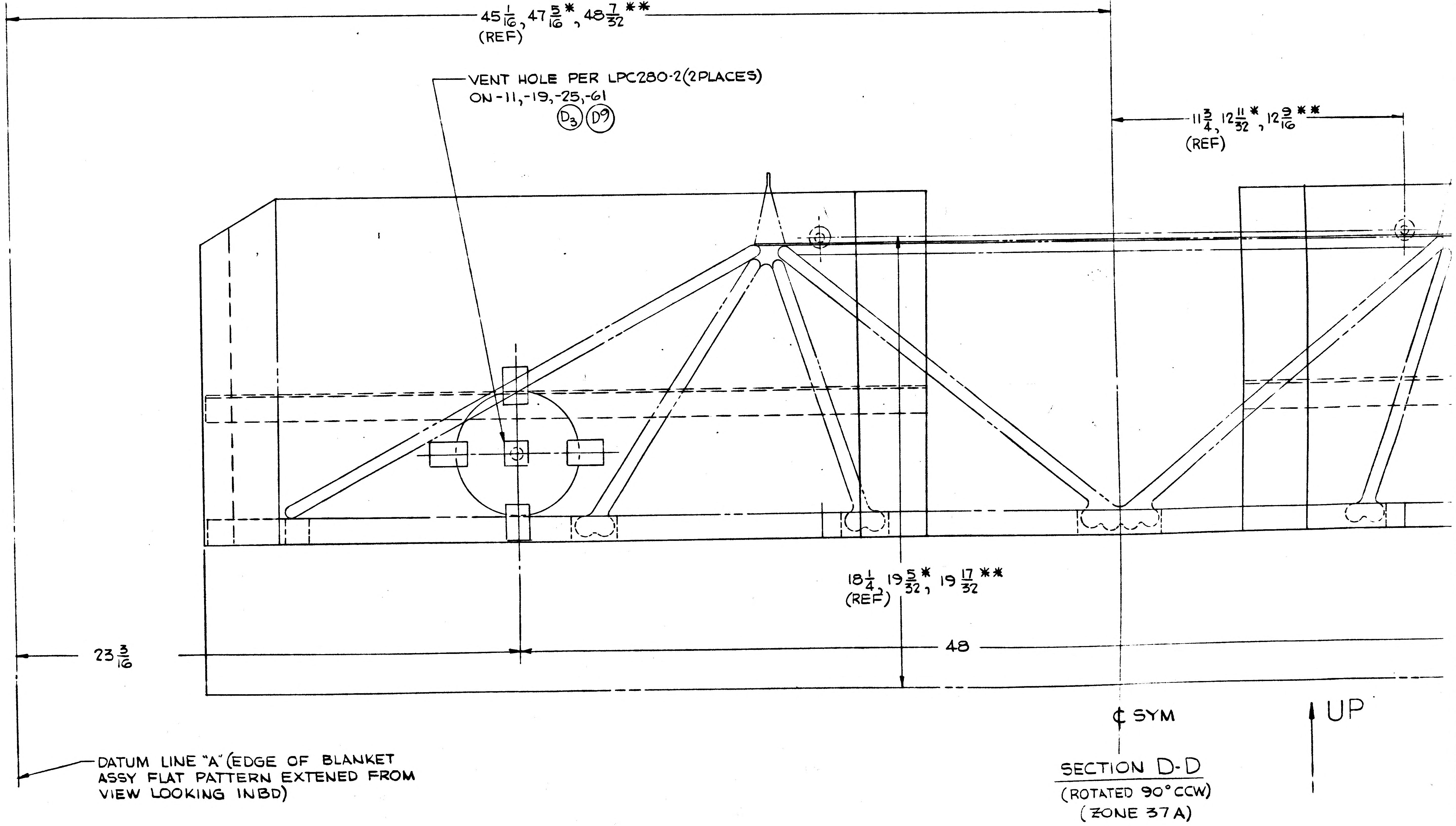
SECTION BF-BF (ON-11)
(ZONE 34C)


X116.340 (REF)
GT535L-HA0740 (REF)
PUNCH VENT HOLE THRU ALL BLANKET (2) LAYERS
GT535L-HA0320
GT835P-8 (4 TO 6 PITCH)
BUTT ± 1/8
GT835P-8
(4 TO 6 PITCH)
3/16
1/2
6 1/4
D
D (ZONE 34A)
D3 D9
ON-3,-5,-41,-59
LDW280P17575-11 (6)
B1 MS51957-26 (6)
AN960C6 (6)
GT835M-8 (APPROX 6" SPACING)
LDW280-28660 (REF)
X131.140 (REF)

SECTION C-C
(ZONE 29A)


19 7/16
55 1/2
BF
2-4 (TYP)
1
1/2
DATUM LINE "D"
13 7/16
1-3
1-3
Z27.000 (REF)
℄ (REF)
7 17/32, 7 29/32 *, 8
(REF)
BF
(ZONE 37D)
℄ VEHICLE (REF)
THIS AREA IN
CLEAR OF GT

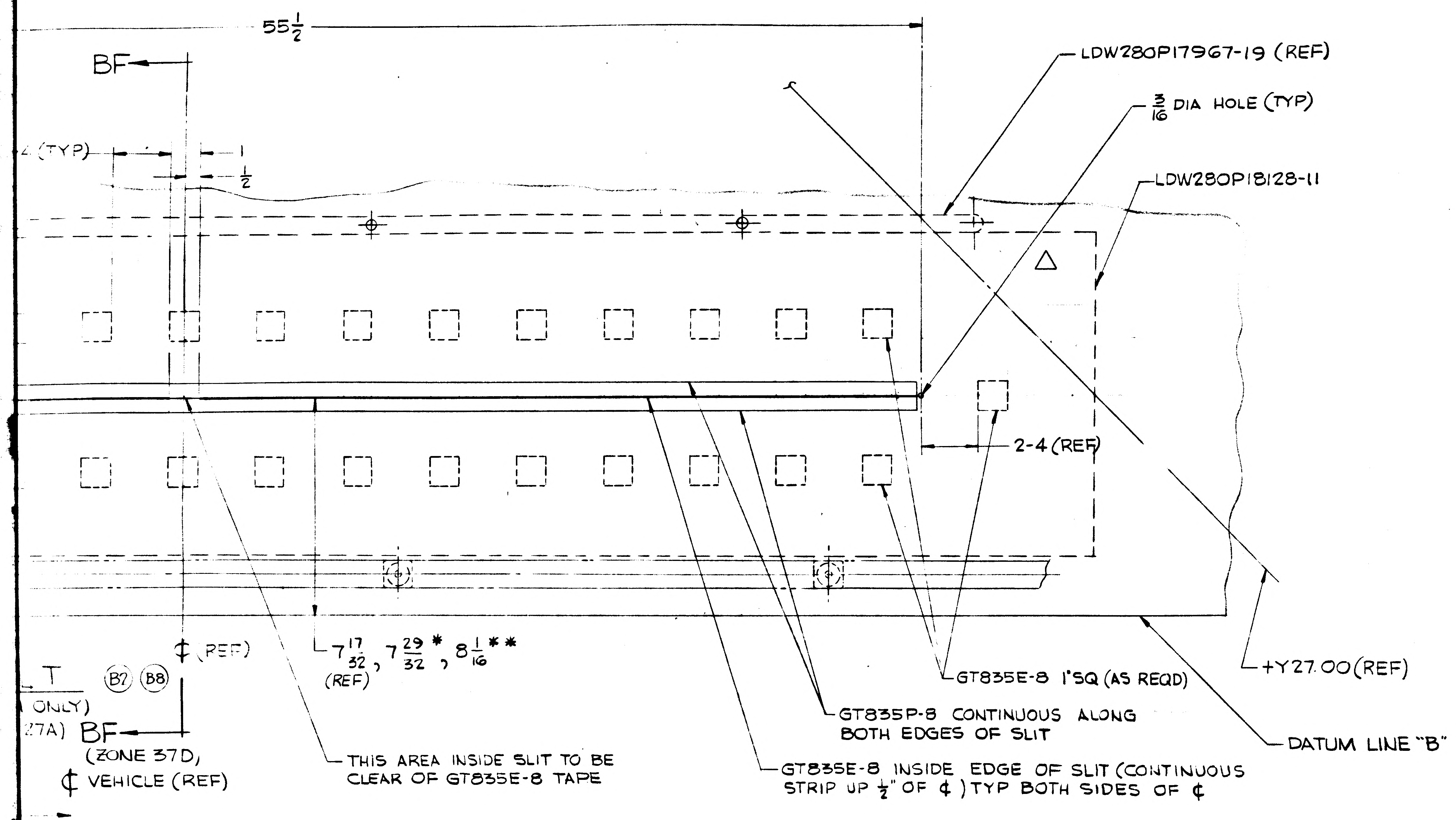
DETAIL T (B2) (B8)
(FOR-11 ONLY)
(ZONE 27A)


45 1/16, 47 3/16 *, 48 7/32 **
(REF)
VENT HOLE PER LPC280-2 (2 PLACES)
ON-11,-19,-25,-61
D3 D9
11 3/4, 12 11/32 *, 12 9/16 **
(REF)
18 1/4, 19 5/32 *, 19 17/32 **
(REF)
23 3/16
48
℄ SYM
UP
DATUM LINE "A" (EDGE OF BLANKET ASSY FLAT PATTERN EXTENED FROM VIEW LOOKING INBD)

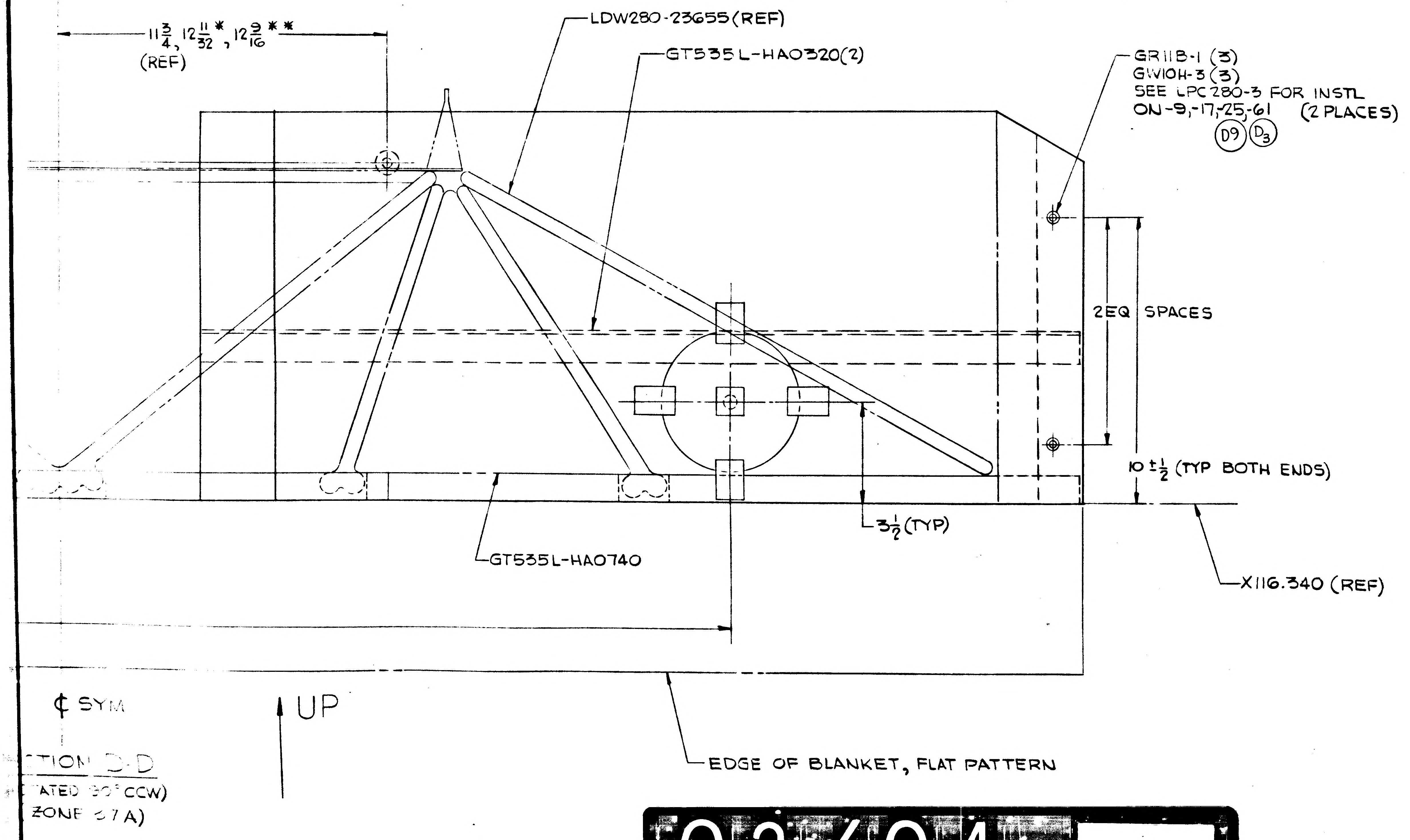
SECTION D-D
(ROTATED 90° CCW)
(ZONE 37A)

01/04 NAS 9-1100

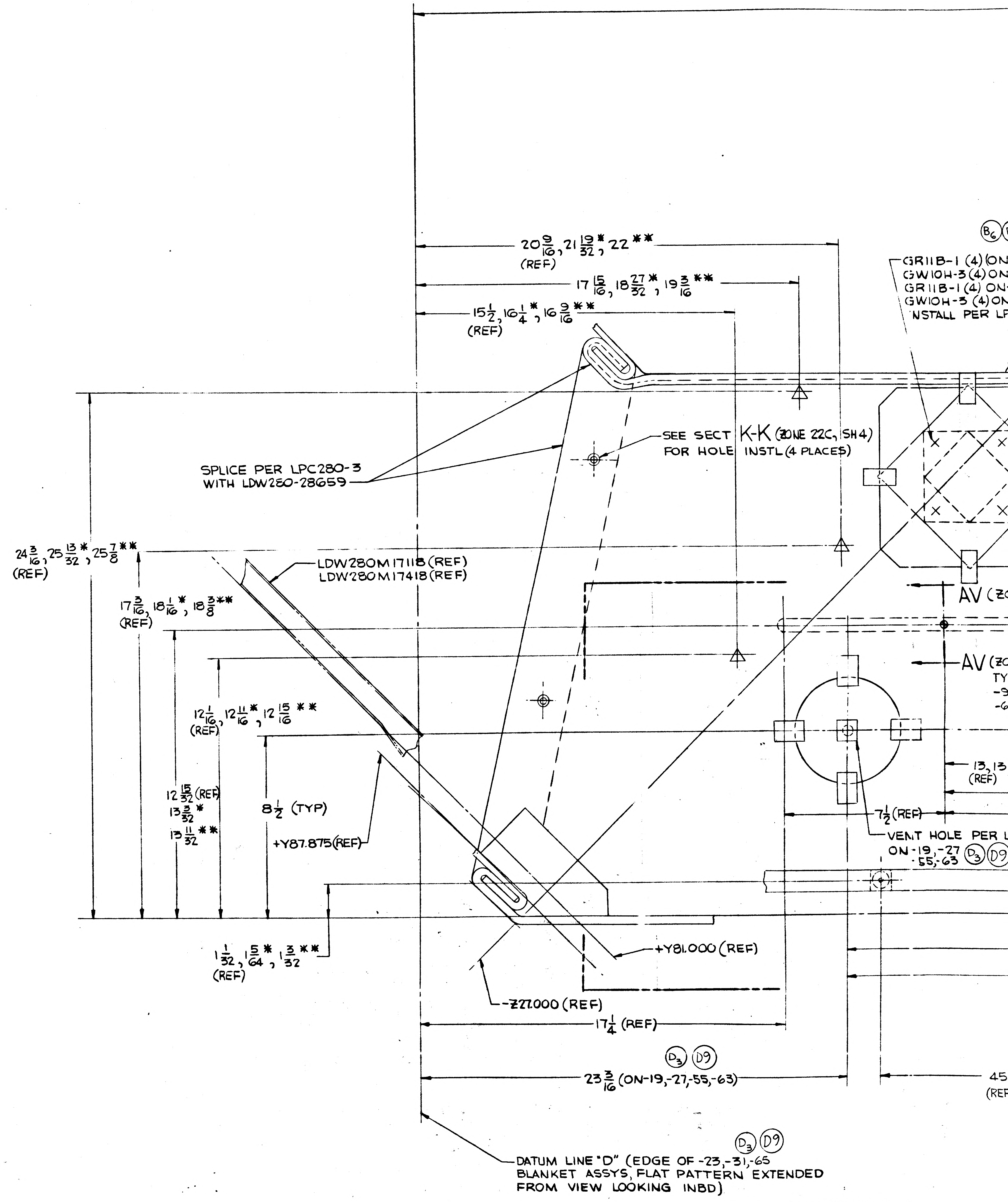
LDW280-28666 SH 5



55½
BF
(TYP)
½
LDW280P17967-19 (REF)
3/16 DIA HOLE (TYP)
LDW280P18128-11
2-4 (REF)
+Y27.00 (REF)
¢ (REF)
7 17/32, 7 29/32 *, 8 1/16 ** (REF)
GT835E-8 1"SQ (AS REQD)
DATUM LINE "B"
T (B7) (B8) ONLY)
27A) BF (ZONE 37D, ¢ VEHICLE (REF)
GT835P-8 CONTINUOUS ALONG BOTH EDGES OF SLIT
THIS AREA INSIDE SLIT TO BE CLEAR OF GT835E-8 TAPE
GT835E-8 INSIDE EDGE OF SLIT (CONTINUOUS STRIP UP ½" OF ¢) TYP BOTH SIDES OF ¢



11 3/4, 12 11/32 *, 12 9/16 ** (REF)
LDW280-23655 (REF)
GT535L-HA0320 (2)
GR118-1 (3)
GW10H-3 (3)
SEE LPC280-3 FOR INSTL ON-9,-17,-25,-61 (2 PLACES)
(D9) (D3)
2EQ SPACES
10 ±½ (TYP BOTH ENDS)
3½ (TYP)
GT535L-HA0740
X116.340 (REF)
¢ SYM
UP
EDGE OF BLANKET, FLAT PATTERN
TION D-D
TATED 90° CCW)
ZONE 37A)



(B6)
GR118-1 (4) ON
GW10H-3 (4) ON
GR118-1 (4) ON
GW10H-3 (4) ON
NSTALL PER LP
20 9/16, 21 19/32 *, 22 ** (REF)
17 15/16, 18 27/32 *, 19 3/16 **
15½, 16¼ *, 16 9/16 ** (REF)
SEE SECT K-K (ZONE 22C, SH4) FOR HOLE INSTL (4 PLACES)
SPLICE PER LPC280-3 WITH LDW280-28659
24 3/16, 25 13/32 *, 25 7/8 ** (REF)
LDW280M17118 (REF)
LDW280M17418 (REF)
17 3/16, 18 1/16 *, 18 3/8 ** (REF)
AV (ZO
AV (ZO
TY
12 1/16, 12 11/16 *, 12 15/16 ** (REF)
12 15/32 (REF)
13 3/32 *
13 11/32 **
8½ (TYP)
+Y87.875 (REF)
13, 13 (REF)
7½ (REF)
VENT HOLE PER L ON-19,-27 (D3) (D9) -55,-63
1 1/32, 1 5/64 *, 1 3/32 ** (REF)
+Y81.000 (REF)
-Z27.000 (REF)
17¼ (REF)
(D3) (D9)
23 3/16 (ON-19,-27,-55,-63)
45 (REF)
(D3) (D9)
DATUM LINE "D" (EDGE OF -23,-31,-65 BLANKET ASSYS, FLAT PATTERN EXTENDED FROM VIEW LOOKING INBD)

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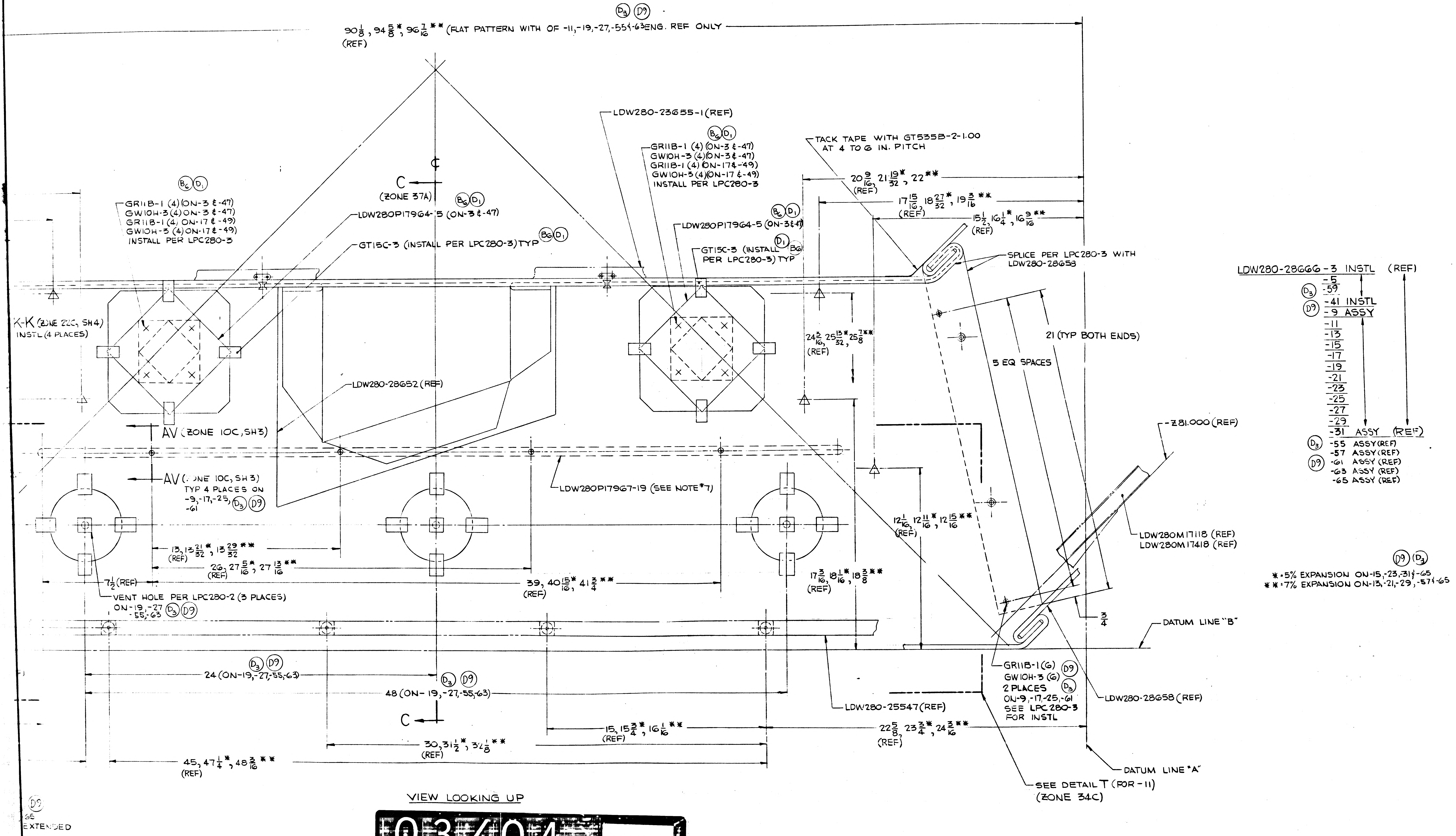

D3 D9
90 1/8, 94 5/8*, 96 7/16** (FLAT PATTERN WITH OF -11,-19,-27,-55 & -63 ENG. REF ONLY
(REF)
C
(ZONE 37A)
B6 D1
GR11B-1 (4) (ON-3 & -47)
GW10H-3 (4) ON-3 & -47)
GR11B-1 (4, ON-17 & -49)
GW10H-3 (4) ON-17 & -49)
INSTALL PER LPC280-3
B6 D1
LDW280P17964-5 (ON-3 & -47)
GT15C-3 (INSTALL PER LPC280-3) TYP
B6 D1
LDW280-23655-1 (REF)
B6 D1
GR11B-1 (4) (ON-3 & -47)
GW10H-3 (4) (ON-3 & -47)
GR11B-1 (4) (ON-17 & -49)
GW10H-3 (4) (ON-17 & -49)
INSTALL PER LPC280-3
B6 D1
LDW280P17964-5 (ON-3 & -47)
GT15C-3 (INSTALL PER LPC280-3) TYP
D1 B6
TACK TAPE WITH GT535B-2-1.00
AT 4 TO 6 IN. PITCH
20 9/16, 21 19/32*, 22**
(REF)
17 15/16, 18 27/32*, 19 3/16**
(REF)
15 1/2, 16 1/4*, 16 9/16**
(REF)
SPLICE PER LPC280-3 WITH
LDW280-28658
K-K (ZONE 22C, SH4)
INSTL (4 PLACES)
LDW280-28652 (REF)
AV (ZONE 10C, SH3)
24 3/16, 25 13/32*, 25 7/8**
(REF)
21 (TYP BOTH ENDS)
5 EQ SPACES
-Z81.000 (REF)
AV (ZONE 10C, SH 3)
TYP 4 PLACES ON
-9, -17, -25, D3 D9
-61
LDW280P17967-19 (SEE NOTE *7)
12 1/16, 12 11/16*, 12 15/16**
(REF)
LDW280M17118 (REF)
LDW280M17418 (REF)
13, 13 21/32*, 13 29/32**
(REF)
26, 27 5/16*, 27 13/16**
(REF)
7 1/2 (REF)
39, 40 15/16*, 41 3/4**
(REF)
17 3/16, 18 1/16*, 18 3/8**
(REF)
VENT HOLE PER LPC280-2 (3 PLACES)
ON-19, -27
-55, -63 D3 D9
3/4
DATUM LINE "B"
D3 D9
24 (ON-19, -27, -55, -63)
D3 D9
48 (ON- 19, -27, -55, -63)
GR11B-1 (6) D9
GW10H-3 (6)
2 PLACES D3
ON-9, -17, -25, -61
SEE LPC280-3
FOR INSTL
LDW280-28658 (REF)
LDW280-25547 (REF)
C
15, 15 3/4*, 16 1/16**
(REF)
22 5/8, 23 3/4*, 24 3/16**
(REF)
30, 31 1/2*, 32 1/8**
(REF)
45, 47 1/4*, 48 3/16**
(REF)
DATUM LINE "A"
SEE DETAIL T (FOR -11)
(ZONE 34C)

LDW280-28666-3 INSTL (REF)
-5
D3 -59
-41 INSTL
D9 -9 ASSY
-11
-13
-15
-17
-19
-21
-23
-25
-27
-29
-31 ASSY (REF)
D3 -55 ASSY (REF)
-57 ASSY (REF)
D9 -61 ASSY (REF)
-63 ASSY (REF)
-65 ASSY (REF)

D9 D3

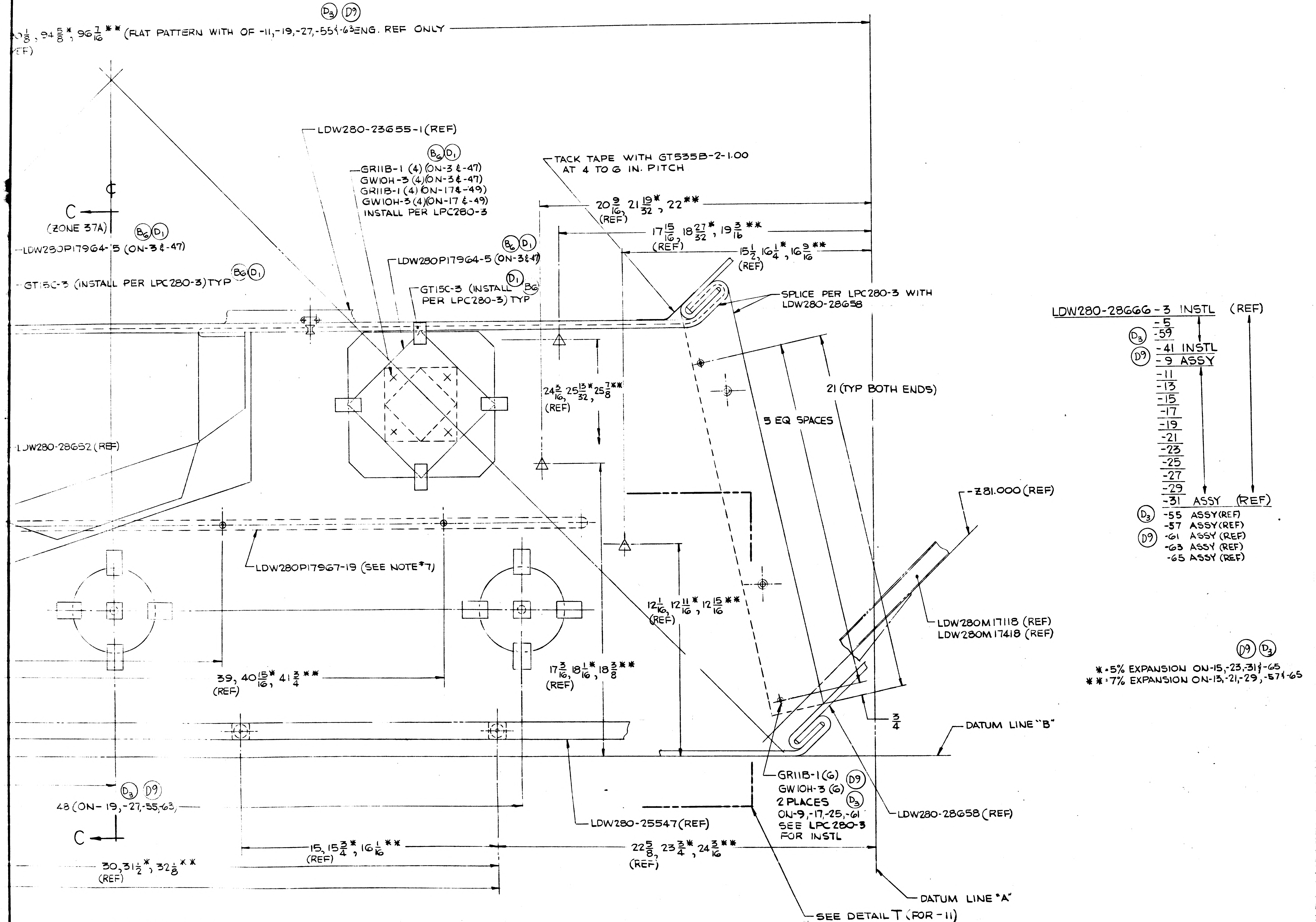
* = 5% EXPANSION ON -15, -23, -31 & -65
** = 7% EXPANSION ON -13, -21, -29, -57 & -65

VIEW LOOKING UP

D9
-65
EXTENDED

03/04 NAS 9-1100

28 27 26 25


(D3) (D9)
0 1/8, 94 5/8*, 96 7/16** (FLAT PATTERN WITH OF -11,-19,-27,-55 & -63 ENG. REF ONLY
(REF)
LDW280-23655-1 (REF)
(B6) (D1)
GR11B-1 (4) (ON-3 & -47)
GW10H-3 (4) (ON-3 & -47)
GR11B-1 (4) (ON-17 & -49)
GW10H-3 (4) (ON-17 & -49)
INSTALL PER LPC280-3
TACK TAPE WITH GT535B-2-1.00 AT 4 TO 6 IN. PITCH
20 9/16, 21 19/32*, 22** (REF)
17 15/16, 18 27/32*, 19 3/16** (REF)
15 1/2, 16 1/4*, 16 9/16** (REF)
C
(ZONE 37A)
(B6) (D1)
LDW280P17964-5 (ON-3 & -47)
GT15C-3 (INSTALL PER LPC280-3) TYP (B6) (D1)
(B6) (D1)
LDW280P17964-5 (ON-3 & -47)
(D1) (B6)
GT15C-3 (INSTALL PER LPC280-3) TYP
SPLICE PER LPC280-3 WITH LDW280-28658
24 3/16, 25 13/32*, 25 7/8** (REF)
21 (TYP BOTH ENDS)
5 EQ SPACES
LDW280-28652 (REF)
-Z81.000 (REF)
LDW280P17967-19 (SEE NOTE *7)
12 1/16, 12 11/16*, 12 15/16** (REF)
LDW280M17118 (REF)
LDW280M17418 (REF)
39, 40 15/16*, 41 3/4** (REF)
17 3/16, 18 1/16*, 18 3/8** (REF)
3/4
DATUM LINE "B"
(D3) (D9)
48 (ON-19,-27,-55,-63,
C
GR11B-1 (6) (D9)
GW10H-3 (6) (D3)
2 PLACES
ON-9,-17,-25,-61
SEE LPC280-3 FOR INSTL
LDW280-25547 (REF)
LDW280-28658 (REF)
15, 15 3/4*, 16 1/16** (REF)
22 5/8, 23 3/4*, 24 3/16** (REF)
30, 31 1/2*, 32 1/8** (REF)
DATUM LINE "A"
SEE DETAIL T (FOR -11) (ZONE 34C)
LDW280-28666-3 INSTL (REF)
-5
(D3) -59
-41 INSTL
(D9) -9 ASSY
-11
-13
-15
-17
-19
-21
-23
-25
-27
-29
-31 ASSY (REF)
(D3) -55 ASSY (REF)
-57 ASSY (REF)
(D9) -61 ASSY (REF)
-63 ASSY (REF)
-65 ASSY (REF)
(D9) (D3)
* = 5% EXPANSION ON -15,-23,-31 & -65
** = 7% EXPANSION ON -13,-21,-29,-57 & -65

VIEW LOOKING UP

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MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 144

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 146) = 36.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 9.125 SQ. FT.

PRINT TRIM LINE

D C B A

LDW280-28666 D

LDW280-28666 D

LDW280-28666	SH 5		

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-28666	D
LM MODEL OR END ITEM	SCALE HALF			SHEET 5.00

(D)

28 27 26 25

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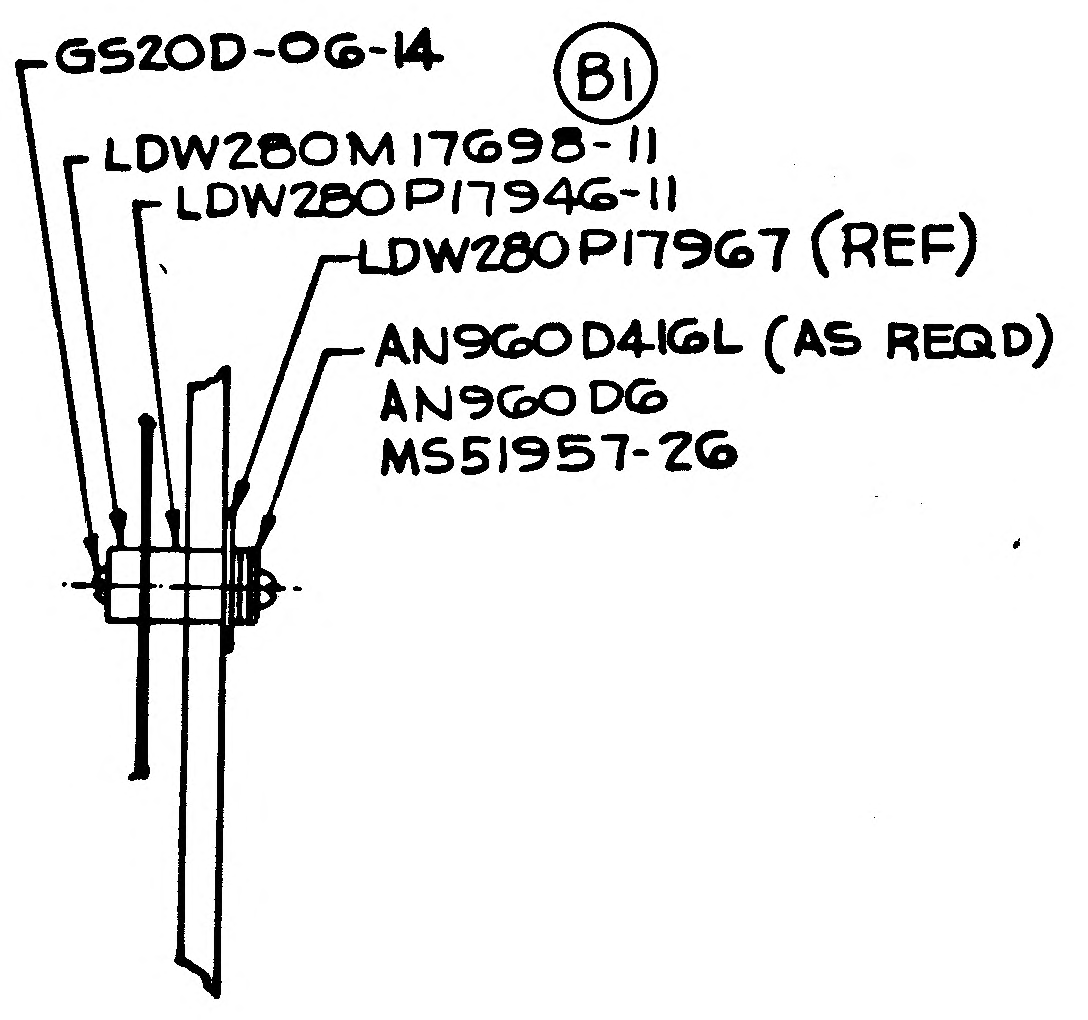
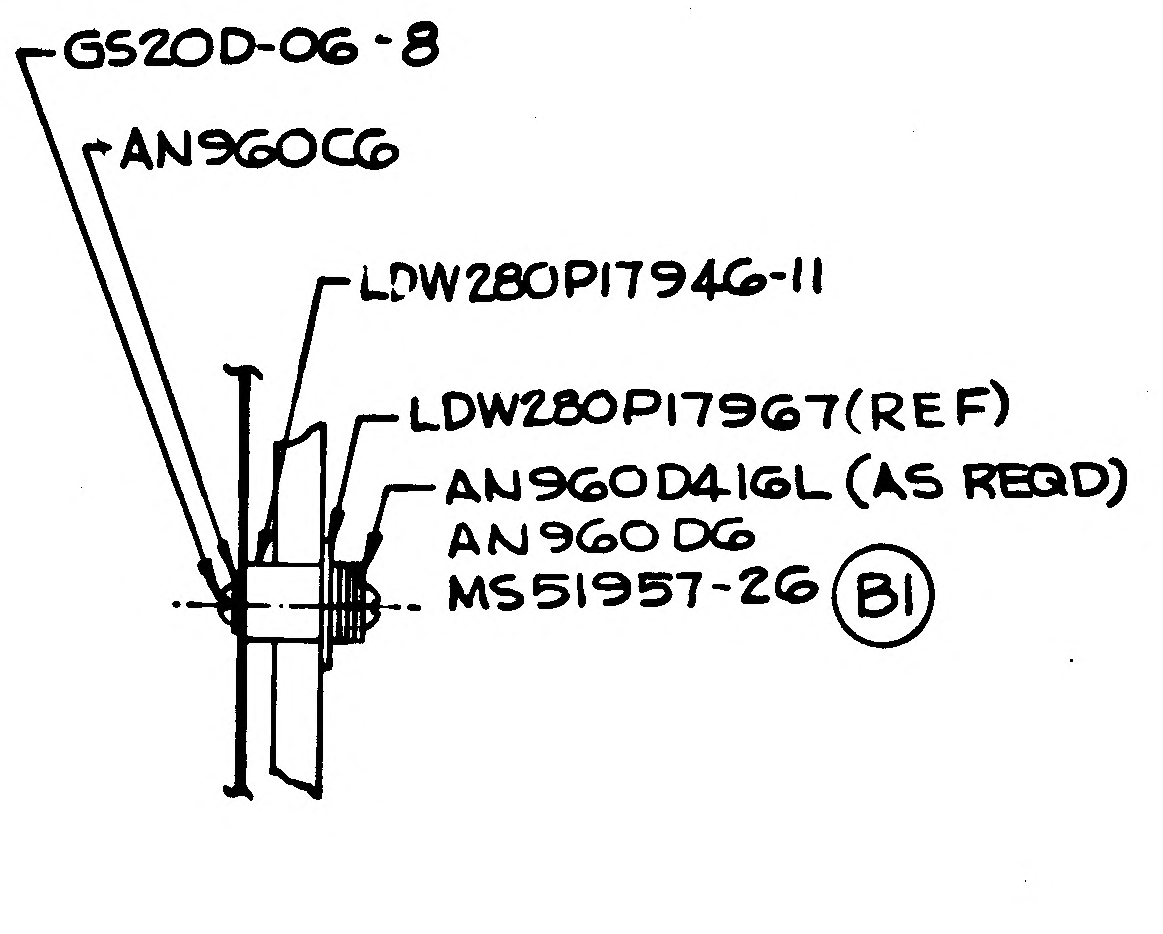
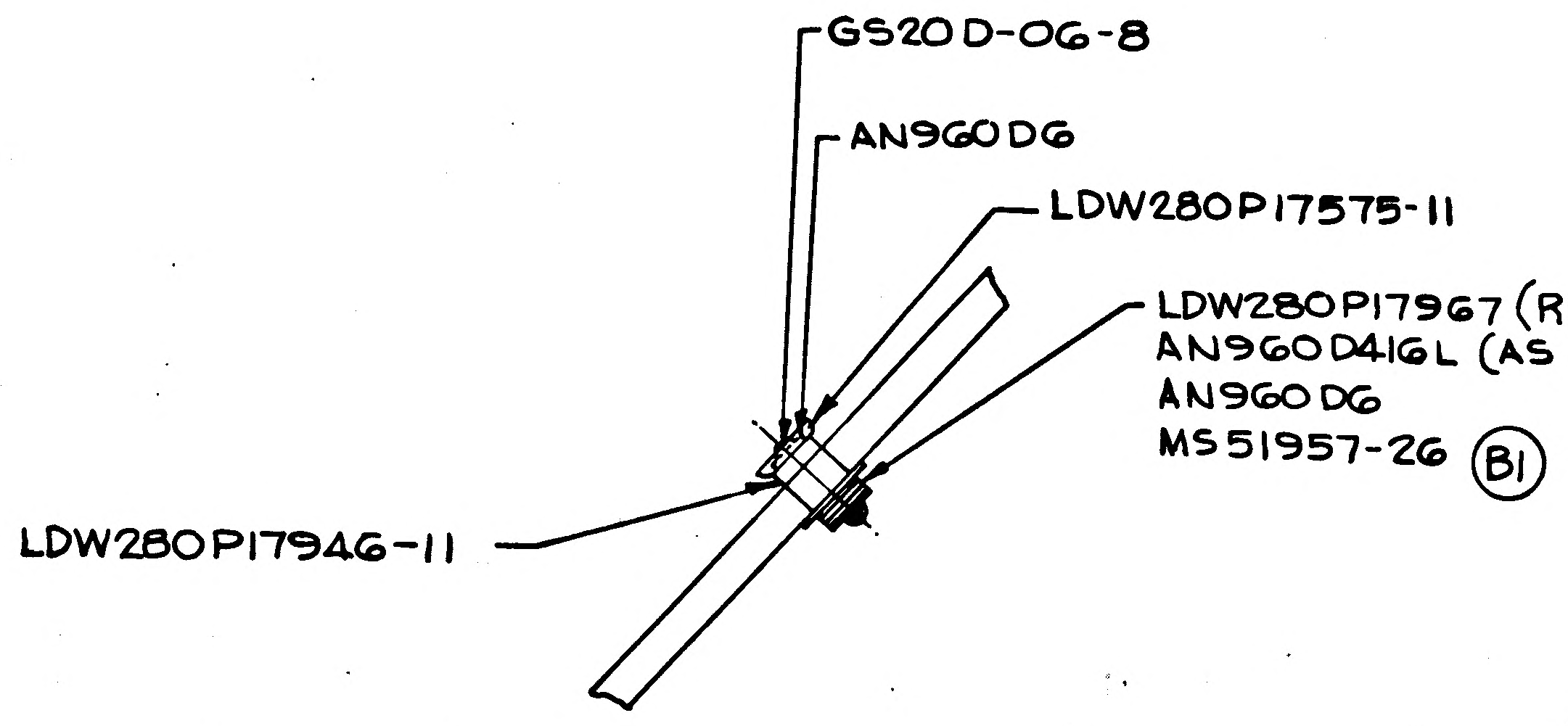
01/04


GS20D-06-14 (B1)
LDW280M17698-11
LDW280P17946-11
LDW280P17967 (REF)
AN960D416L (AS REQD)
AN960DG
MS51957-26

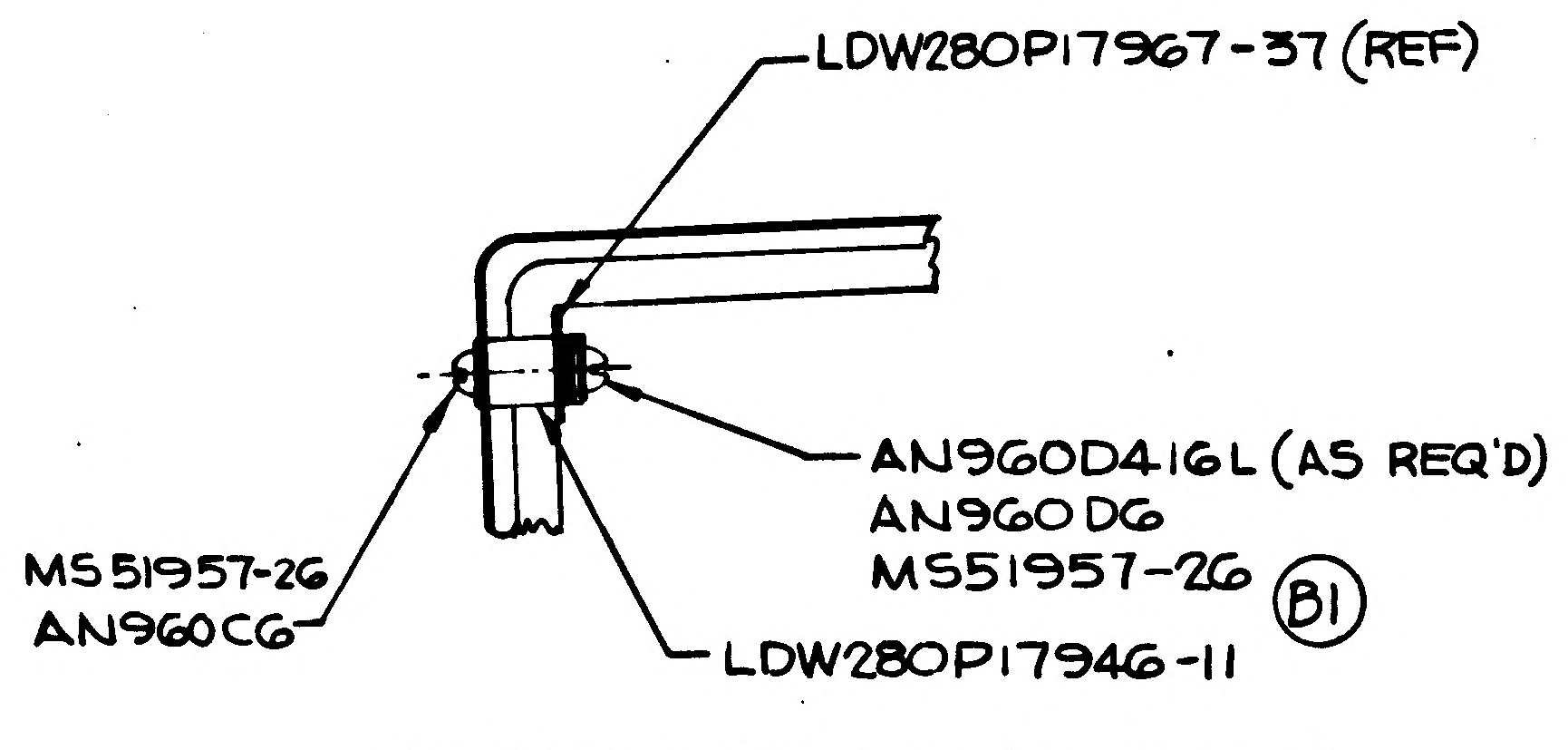
SECTION AP-AP (ZONE 16D, SH4) 5 PLACES
AR-AR (ROTATED CW 45°) ZONE 18C, SH4
AS-AS (ROTATED CW 30°) ZONE 18B, SH4 (2 PLACES)
AT-AT (ROTATED CW 140°) ZONE 18B, SH4 (4 PLACES)
AU-AU (ROTATED CW 160°) ZONE 18C, SH4 (5 PLACES)
(D8)(D3) ON-17


GS20D-06-8
AN960C6
LDW280P17946-11
LDW280P17967 (REF)
AN960D416L (AS REQD)
AN960DG
MS51957-26 (B1)

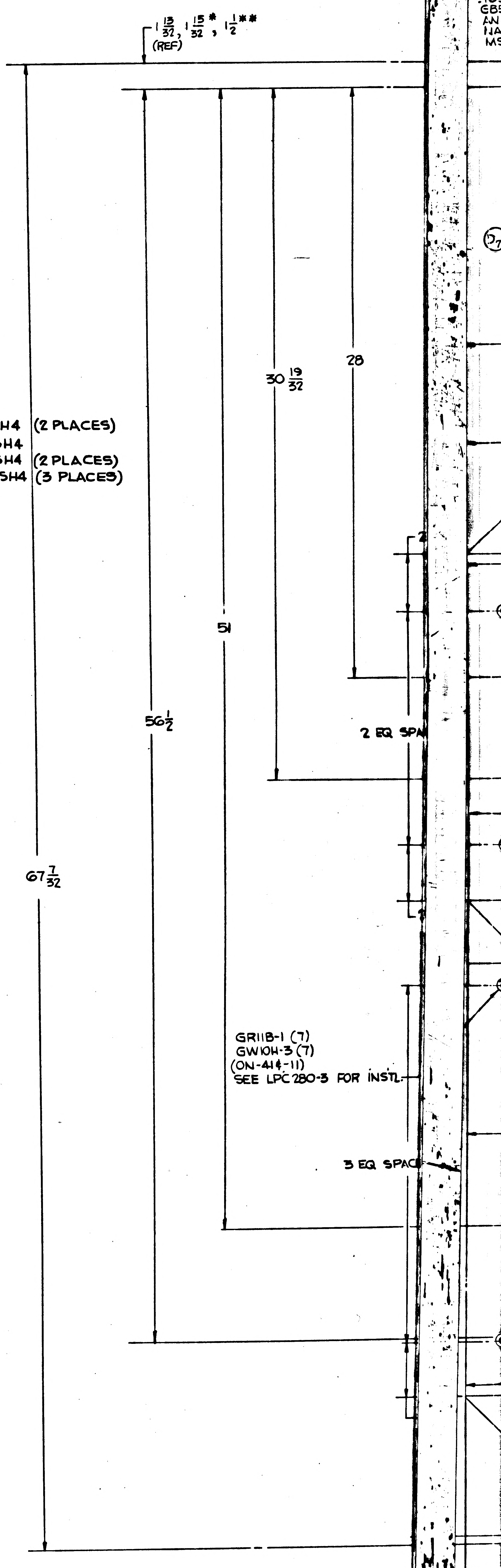
SECTION (C8) AK-AK (ROTATED CW 45°) ZONE 16B, SH4 (2 PLACES)
AL-AL (ROTATED CW 30°) ZONE 16C, SH4
AM-AM (ROTATED CW 140°) ZONE 18B, SH4 (2 PLACES)
AN-AN (ROTATED CW 160°) ZONE 19B, SH4 (3 PLACES)
(D8)(D3) ON-17,


GS20D-06-8
AN960DG
LDW280P17575-11
LDW280P17967 (REF)
AN960D416L (AS REQD)
AN960DG
MS51957-26 (B1)
LDW280P17946-11

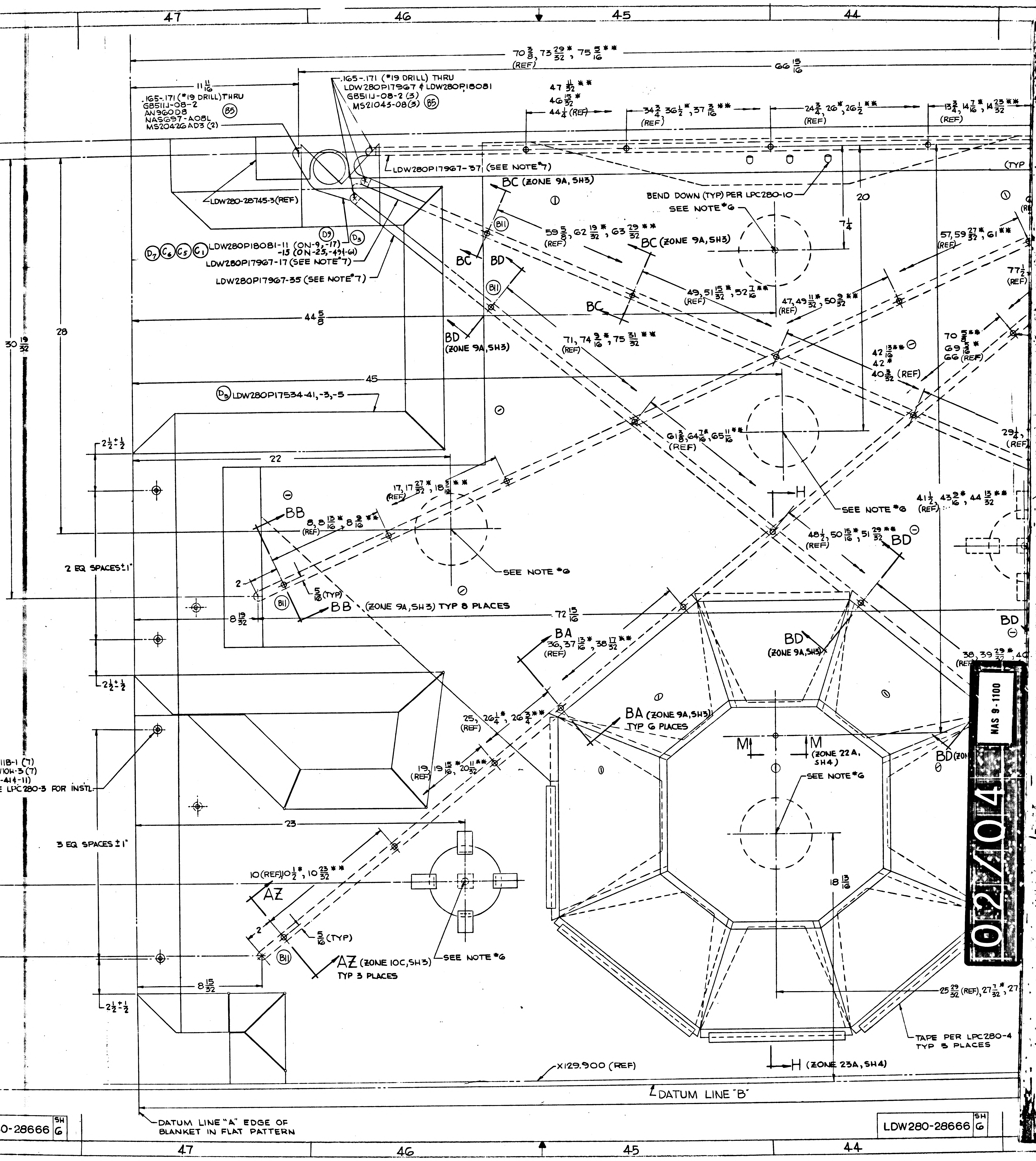
SECTION AF-AF (ZONE 15A, SH4) 3 PLACES
AG-AG (ROTATED CCW 30°) ZONE 15 B, SH4
AH-AH (ROTATED CW 90°) ZONE 19 A, SH4 (3 PLACES)
(D8)(D3) ON-17,


LDW280P17967-37 (REF)
AN960D416L (AS REQ'D)
AN960DG
MS51957-26 (B1)
LDW280P17946-11
MS51957-26
AN960C6

SECTION BE-BE (ZONE 43D)
6 PLACES ON-9


$1\frac{13}{32}$, $1\frac{15}{32}$*, $1\frac{1}{2}$**
(REF)
$67\frac{7}{32}$
$56\frac{1}{2}$
51
$30\frac{19}{32}$
28
2 EQ SPA
GR118-1 (7)
GW104-3 (7)
(ON-414-11)
SEE LPC 280-3 FOR INSTL.
3 EQ SPAC

LDW280-28666 SH 6


47
46
45
44
70 3/8, 73 29/32*, 75 5/16** (REF)
66 15/16
11 11/16
.165-.171 (#19 DRILL) THRU
GB511J-08-2
AN960D8
NAS697-A08L
MS20426AD3 (2)
(B5)
.165-.171 (#19 DRILL) THRU
LDW280P17967 & LDW280P18081
GB511J-08-2 (3)
MS21043-08(3) (B5)
47 11/32**
46 15/32*
44 1/4 (REF)
34 3/4, 36 1/2*, 37 3/16** (REF)
24 3/4, 26*, 26 1/2** (REF)
13 3/4, 14 7/16*, 14 23/32** (REF)
LDW280P17967-37 (SEE NOTE #7)
BC (ZONE 9A, SH3)
LDW280-28745-3 (REF)
BEND DOWN (TYP) PER LPC280-10
SEE NOTE #6
20
7 1/4
(D7)(C6)(C5)(C1) LDW280P18081-11 (ON-9,-17)
-15 (ON-25,-49,-61)
(D9) (D3)
LDW280P17967-17 (SEE NOTE #7)
LDW280P17967-35 (SEE NOTE #7)
59 5/8, 62 19/32*, 63 29/32** (REF)
BC (ZONE 9A, SH3)
57, 59 27/32*, 61** (REF)
77 1/2 (REF)
49, 51 15/32*, 52 7/16** (REF)
47, 49 11/32*, 50 9/32** (REF)
BC BD (B11)
44 5/8
28
30 19/32
BD (ZONE 9A, SH3)
71, 74 9/16*, 75 31/32** (REF)
42 13/16** 42* 40 3/32 (REF)
70 5/8** 69 5/16* 66 (REF)
45
(D3) LDW280P17534-41,-3,-5
61 3/8, 64 7/16*, 65 11/16** (REF)
29 1/4 (REF)
2 1/2 ± 1/2
22
17, 17 27/32*, 18 3/16** (REF)
BB
8, 8 13/16*, 8 9/16** (REF)
SEE NOTE #6
41 1/2, 43 3/16*, 44 13/32** (REF)
H
48 1/2, 50 15/16*, 51 29/32** (REF)
BD
2 EQ SPACES ± 1"
2
5/16 (TYP)
(B11)
BB (ZONE 9A, SH3) TYP 8 PLACES
SEE NOTE #6
8 19/32
72 15/16
BA
36, 37 13/16*, 38 17/32** (REF)
BD (ZONE 9A, SH3)
38, 39 29/32*, 40 (REF)
25, 26 1/4*, 26 3/4** (REF)
BA (ZONE 9A, SH3) TYP 6 PLACES
M M (ZONE 22A, SH4)
SEE NOTE #6
BD
19, 19 15/16*, 20 11/32** (REF)
118-1 (7)
104-3 (7)
-414-11)
LPC280-3 FOR INSTL.
23
3 EQ SPACES ± 1"
10 (REF), 10 1/2*, 10 23/32**
AZ
2
5/16 (TYP)
(B11)
AZ (ZONE 10C, SH3) TYP 3 PLACES
SEE NOTE #6
18 13/16
8 15/32
25 29/32 (REF), 27 7/32*, 27
TAPE PER LPC280-4 TYP 5 PLACES
X129.900 (REF)
H (ZONE 23A, SH4)
DATUM LINE "B"
DATUM LINE "A" EDGE OF BLANKET IN FLAT PATTERN
0-28666 SH 6
LDW280-28666 SH 6

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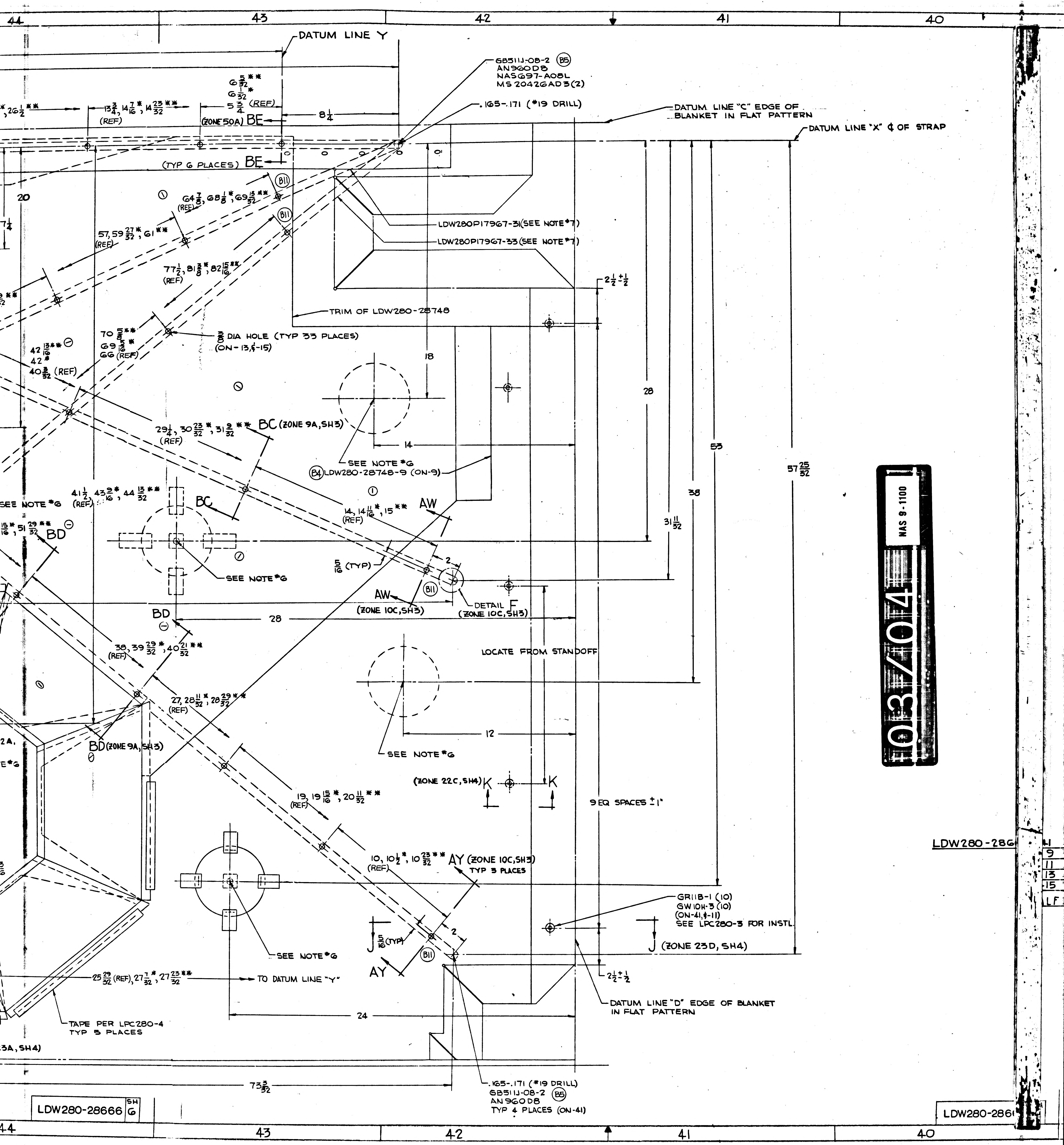
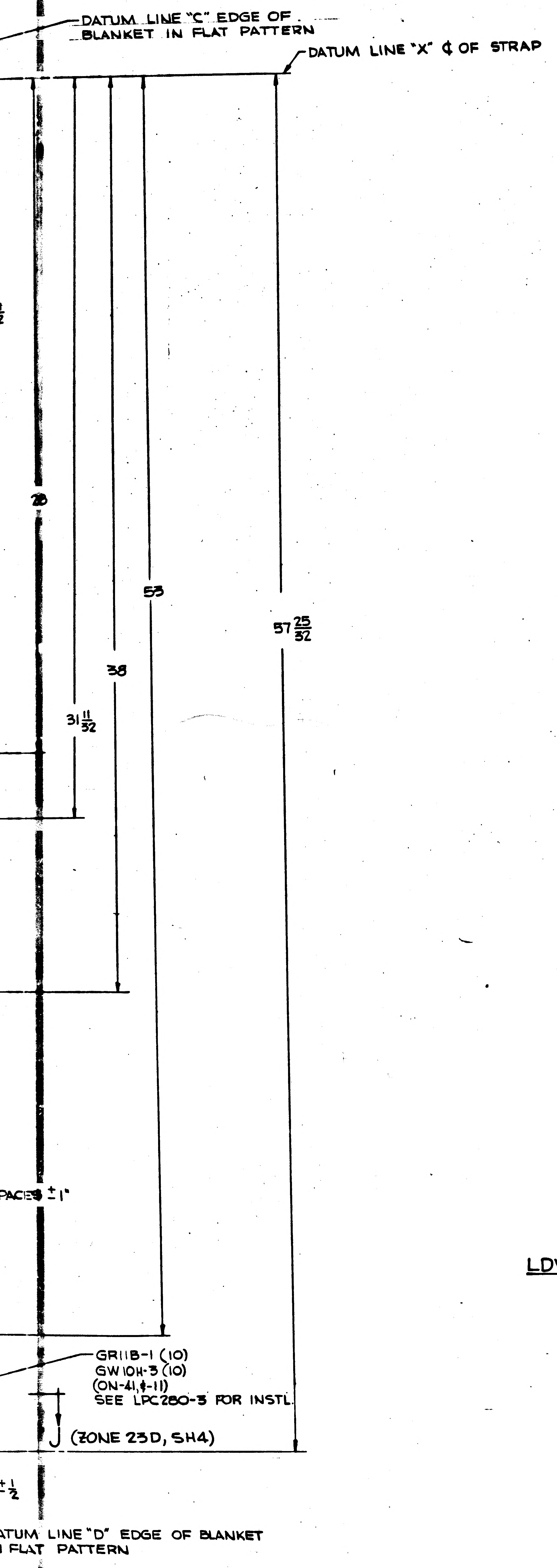

DATUM LINE Y
GB511J-08-2 (B5)
AN960D8
NAS697-A08L
MS 20426AD3(2)
.165-.171 (#19 DRILL)
DATUM LINE "C" EDGE OF BLANKET IN FLAT PATTERN
DATUM LINE "X" ℄ OF STRAP
6 5/32 **
6 1/32 *
5 3/4 (REF)
8 1/4
13 3/4, 14 7/16 *, 14 23/32 ** (REF)
26 1/2 **
(ZONE 50A) BE
(TYP 6 PLACES) BE
20
7 1/4
64 7/8, 68 1/8 *, 69 15/32 ** (REF)
(B11)
57, 59 27/32 *, 61 ** (REF)
77 1/2, 81 3/8 *, 82 15/16 ** (REF)
LDW280P17967-31(SEE NOTE #7)
LDW280P17967-33(SEE NOTE #7)
2 1/2 ±1/2
TRIM OF LDW280-28748
70 5/8 **
69 3/16 *
66 (REF)
3/8 DIA HOLE (TYP 33 PLACES) (ON-13,+-15)
42 13/16 **
42 *
40 3/32 (REF)
18
28
53
57 25/32
38
31 11/32
29 1/4, 30 23/32 *, 31 9/32 ** BC (ZONE 9A, SH3) (REF)
14
SEE NOTE #6
(B4) LDW280-28748-9 (ON-9)
41 1/2, 43 9/16 *, 44 13/32 ** (REF)
SEE NOTE #6
BC
51 29/32 ** BD
14, 14 11/16 *, 15 ** (REF)
AW
5/16 (TYP)
2
SEE NOTE #6
AW (ZONE 10C, SH3)
DETAIL F (ZONE 10C, SH3)
BD
28
38, 39 29/32 *, 40 21/32 ** (REF)
LOCATE FROM STANDOFF
27, 28 11/32 *, 28 29/32 ** (REF)
BD (ZONE 9A, SH3)
12
SEE NOTE #6
(ZONE 22C, SH4) K
K
9 EQ SPACES ±1"
19, 19 15/16 *, 20 11/32 ** (REF)
10, 10 1/2 *, 10 23/32 ** AY (ZONE 10C, SH3) TYP 3 PLACES (REF)
GR11B-1 (10)
GW10H-3 (10)
(ON-41,+-11)
SEE LPC280-3 FOR INSTL.
J 5/16 (TYP)
J (ZONE 23D, SH4)
SEE NOTE #6
AY
2
25 29/32 (REF), 27 7/32 *, 27 23/32 ** TO DATUM LINE "Y"
2 1/2 ±1/2
DATUM LINE "D" EDGE OF BLANKET IN FLAT PATTERN
24
TAPE PER LPC280-4 TYP 5 PLACES
3A, SH4)
73 3/32
.165-.171 (#19 DRILL)
GB511J-08-2 (B5)
AN960D8
TYP 4 PLACES (ON-41)
LDW280-28666 SH 6
LDW280-286
44
43
42
41
40

03/04 NAS 9-1100


DATUM LINE "C" EDGE OF
BLANKET IN FLAT PATTERN
DATUM LINE "X" ¢ OF STRAP
28
$31\frac{11}{32}$
38
53
$57\frac{25}{32}$
PACES ±1"
GR11B-1 (10)
GW10H-3 (10)
(ON-41,$-11)
SEE LPC280-3 FOR INSTL.
J (ZONE 23D, SH4)
±½
ATUM LINE "D" EDGE OF BLANKET
FLAT PATTERN

LDW280-28666-41 INSTL (REF)
-9 ASSY (REF)
-11 ASSY (REF)
-13 ASSY (REF)
-15 ASSY (REF)

HALF SCALE

* = 5% EXPANSION ON-15
** = 7% EXPANSION ON-15

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 ▽ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
250 ▽ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 40 X 112

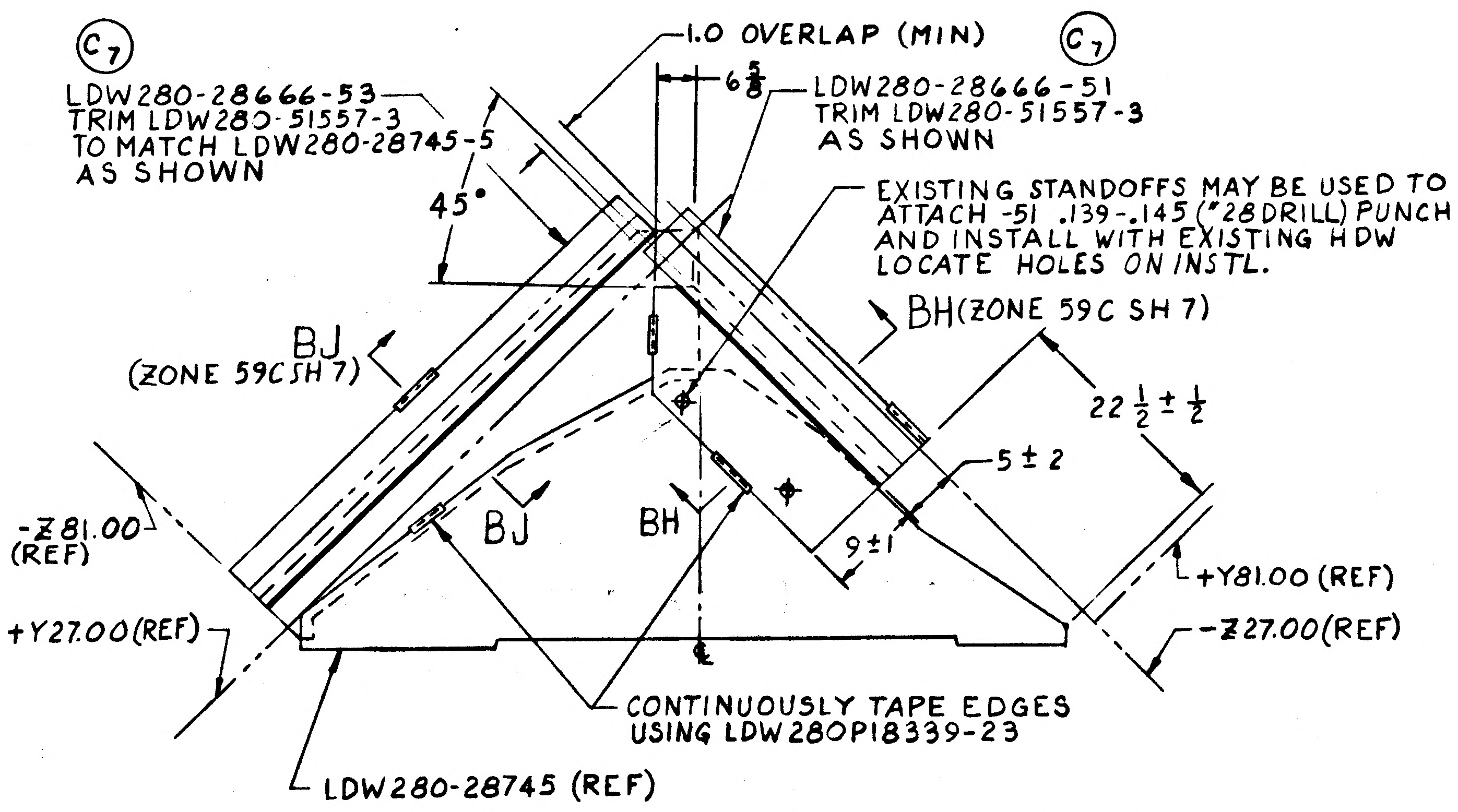
PRINTING INFO ONLY
FULL SIZE SHEET AREA 42 x 114 = 33.25 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 8.3125 SQ. FT.
PRINT TRIM LINE

04/04 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE K	CODE IDENT NO. 26512	LDW280-28666	D
LM				
MODEL OR END ITEM	SCALE FULL & NOTED		SHEET 6.00	

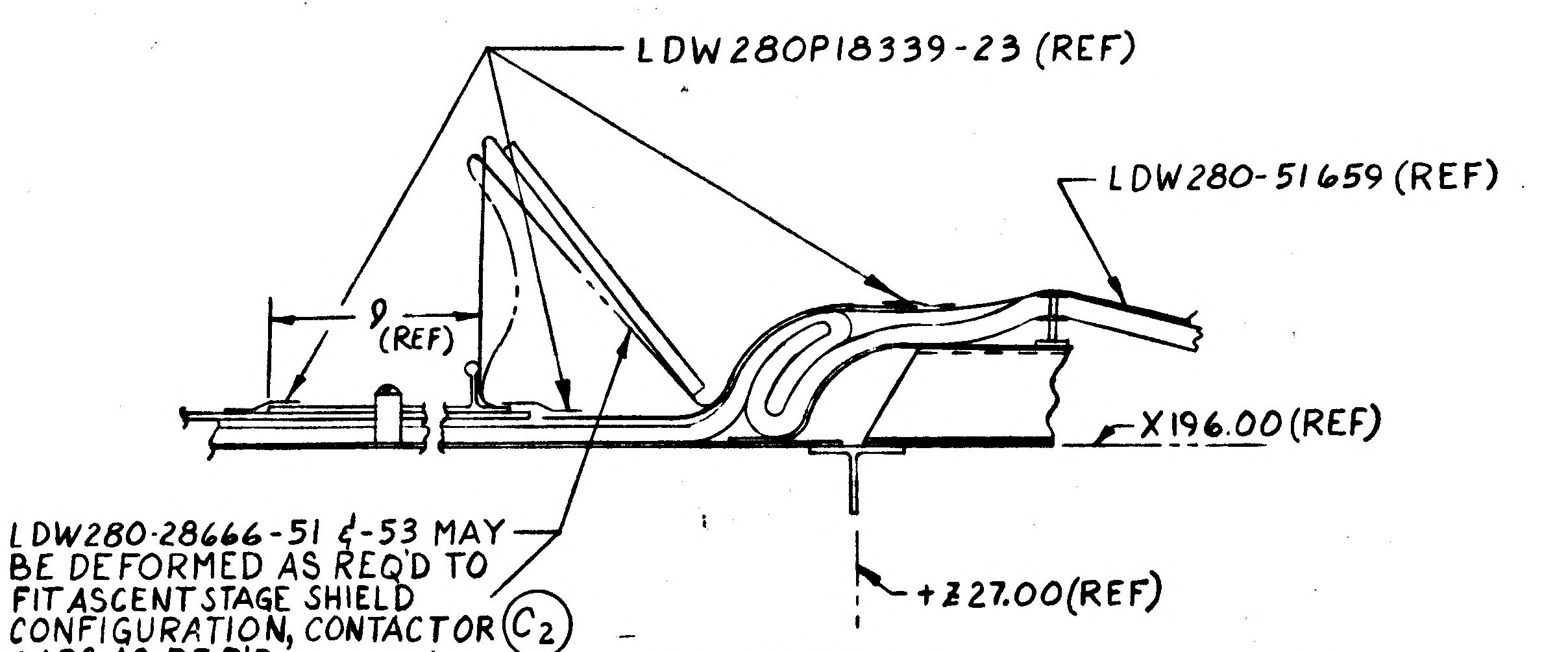
Ⓓ

LDW280-28666 SH 6



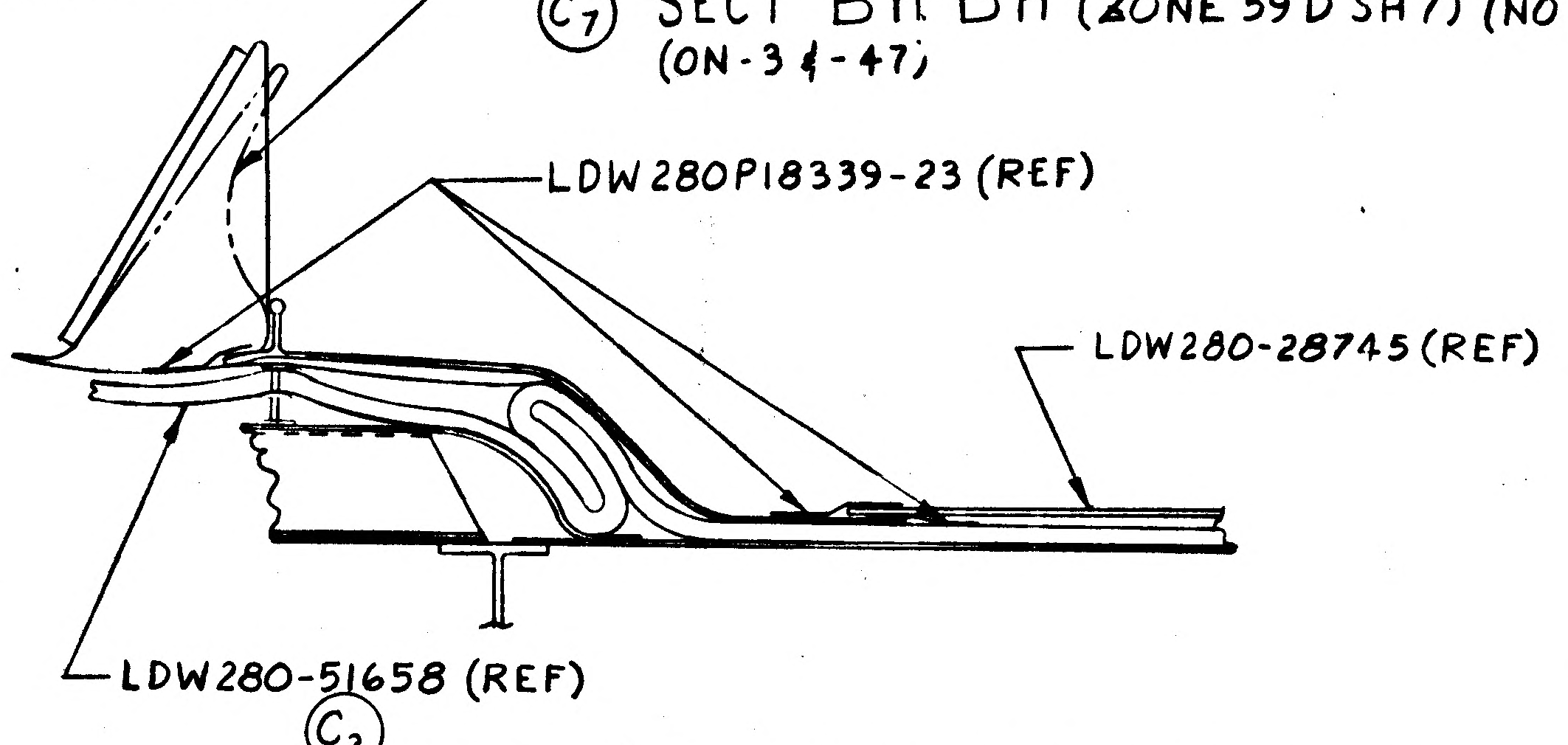
C7
LDW280-28666-53
TRIM LDW280-51557-3
TO MATCH LDW280-28745-5
AS SHOWN
1.0 OVERLAP (MIN)
C7
6 5/8
LDW280-28666-51
TRIM LDW280-51557-3
AS SHOWN
45°
EXISTING STANDOFFS MAY BE USED TO ATTACH -51 .139-.145 (#28 DRILL) PUNCH AND INSTALL WITH EXISTING HDW LOCATE HOLES ON INSTL.
BH (ZONE 59C SH 7)
BJ (ZONE 59C SH 7)
22 1/2 ± 1/2
5 ± 2
D
-Z81.00 (REF)
BJ
BH
9 ± 1
+Y81.00 (REF)
+Y27.00 (REF)
-Z27.00 (REF)
CONTINUOUSLY TAPE EDGES USING LDW280P18339-23
LDW280-28745 (REF)

C2 DETAIL BG (ZONE 7D SH 3) (NO SCALE)
(ON -3 & -47)



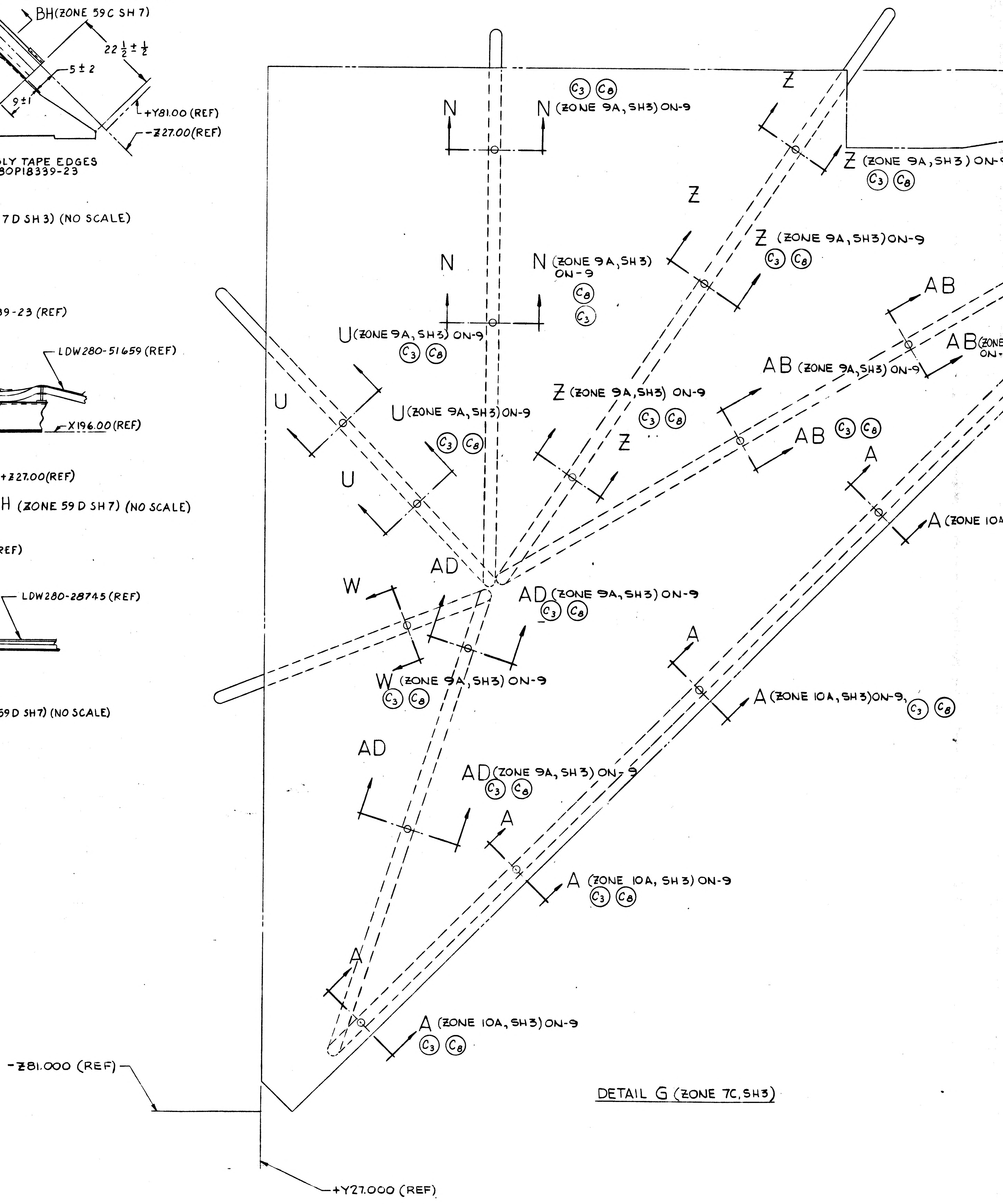
LDW280P18339-23 (REF)
LDW280-51659 (REF)
9 (REF)
C
X196.00 (REF)
LDW280-28666-51 & -53 MAY BE DEFORMED AS REQ'D TO FIT ASCENT STAGE SHIELD CONFIGURATION, CONTACTOR GAPS AS REQ'D.
C2
+Z27.00 (REF)

C7 SECT BH-BH (ZONE 59 D SH 7) (NO SCALE)
(ON -3 & -47)



LDW280P18339-23 (REF)
LDW280-28745 (REF)
LDW280-51658 (REF)

C2
C7 SECT BJ-BJ (ZONE 59D SH7) (NO SCALE)
(ON -3 & -47)

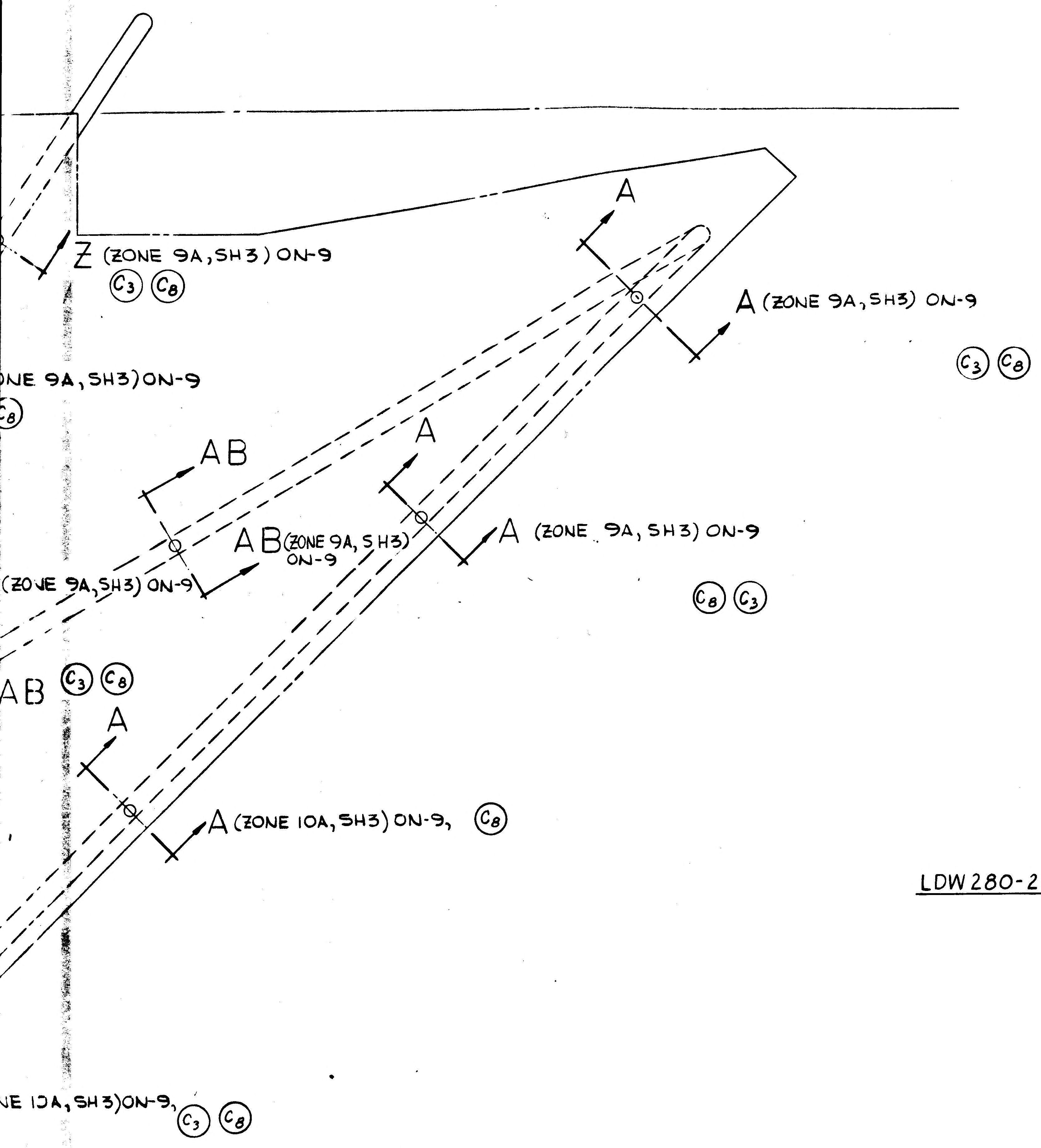


C3 C8
N
N (ZONE 9A, SH3) ON-9
Z
Z (ZONE 9A, SH3) ON-
C3 C8
Z
Z (ZONE 9A, SH3) ON-9
C3 C8
N
N (ZONE 9A, SH3) ON-9
C8
C3
AB
AB (ZONE ON-
U (ZONE 9A, SH3) ON-9
C3 C8
AB (ZONE 9A, SH3) ON-9
U
Z (ZONE 9A, SH3) ON-9
U (ZONE 9A, SH3) ON-9
C3 C8
C3 C8
AB C3 C8
Z
A
U
A (ZONE 10A
AD
W
AD (ZONE 9A, SH3) ON-9
C3 C8
W (ZONE 9A, SH3) ON-9
C3 C8
A
A (ZONE 10A, SH3) ON-9, C3 C8
AD
AD (ZONE 9A, SH3) ON-9
C3 C8
A
A (ZONE 10A, SH3) ON-9
C3 C8
A
A (ZONE 10A, SH3) ON-9
C3 C8
-Z81.000 (REF)
+Y27.000 (REF)

DETAIL G (ZONE 7C, SH3)

01/02
NAS 9-1100

55 54 53 52



LDW280-28666-3 INSTL (REF)
-5
Ⓓ3 -59
-41
Ⓓ9 -47 INSTL
-9 ASSY
-11
-13
-15
-17
-19
-21
-23
-25
-27
-29
-31
Ⓓ3 -61
Ⓒ2 Ⓒ3 Ⓓ9 -63
-65
-49
-51
-53 ASSY (REF)

~~MANUFACTURING OPERATIONS~~
~~UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.~~

~~PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.~~

~~FILLET AND INSIDE CORNER RADII TOLERANCES~~
~~.016R TO .062R ± .010~~
~~.063R TO .250R ± .015~~
~~OVER .250R ± .030~~

~~DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.~~

~~EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.~~

~~DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.~~

~~MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.~~

~~DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING~~

~~HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.~~

~~ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES~~

~~125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10~~

~~200 FOR ALL DRILLED HOLES~~

~~REMOVE ALL BURRS. BREAK ALL EDGES .015-.031~~

~~INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS~~

~~SYMBOL √ DENOTES SURFACE TO BE MACHINED~~

~~UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32~~

~~LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.~~

~~TOLERANCE ON LOFTED DELINEATIONS IS~~

DWG SIZE 40 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (42 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

D C B

LDW280-28666 D

LDW280-28666 D

02/02

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	K	26512	LDW280-28666	D
SCALE HALF			SHEET 7.00	

Ⓓ

…30-28666 SH 7

55 54 53 52

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280		EO NO. 1283
CONTROL INFO NO. LDW280B7109		

IN MOD BLK: ✱ ADD

LFM 326 N/A LDW200-55503 LM 3(33) 1 REQD/MOD

ON THE FOLLOWING DWGS

DWG NO	DASH ✱ NO	TITLE	EO NO.
✓ LDW280-28727	-15 -16	SEE DWG	C4
✓ LDW280-28666	-61	↓	E1
LDW280-56745	-1		A2
LDW280-66645	-5		A2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3796 PKS PG1 ECP B120

(5)

REASON FOR EO

TO PROVIDE SHIELDING FOR REWORK IN Q III

DESCRIPTION OF EO

IN MOD BLK ✱ ADDED LFM 326 N/A LDW200-55503 LM3(33) 1/MOD

GAEC EO RELEASE: ® JC 2/7/69

EFFECTIVITY

MODEL	EI ~~PROCURING ACTIVITY~~ NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 363	LM 3(33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
✓ REVISE DWG	RECORD EO	NOT REWORK	REQD SCRAP	APPROVED BY / DATE	JaP 2/5/69 VDI	2/6/69 MCM ~~SUPPORT~~	RELIAB. GROUP	2/5/69 GROUP LEADER	2/6/69 STRESS GROUP	RLT KSC LIAISON ENGRG	JaP 2/6/69 PROJ ENGRG	2-7-69 ~~CCM~~ C

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	1283

CDR 020669
ISSUED BY DON RAGAS X86046 SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
		4.00 2.00							RETRACED SH4.00 NO CHANGE LAST REV. N.C RETRACED SH2.00 NO CHANGE LAST REV. N.C.	NOT REQ'D	NOT	REQ'D	Backofen 10/4/66		
A	1	4.00 3.00 2.00 1.00							REMOVED -1, NOTES 5 & 7, SECT'S. C-C, D-D, F-F, DIMEN'SIONS SECT. E-E. ADDED -3 THRU -33, SECT. J-J, K-K, L-L NOTES 8 & 9 & 10	LTA-8(18) LM-1 (31)		✓	Backofen 10/4/66	RMC (E)	10/20/66
	2	5.00 2.01 1.10 1.00							ADDED SHEETS 5.00, 2.01, 1.10 SHEET 1.00 OF 7 WAS 1.00 OF 4	NOT REQ'D	NOT	REQ'D			
B	1	1.10, 2.00, 2.01, 2.02, 3.00 & 4.00						EO B1	IN NOTE 2 "LDW280P17946-11 STAND-OFFS" WAS "WASHERS," ADDED SECT M-M, ON-7 MS51957-26(42) WAS AN515-6-4(42), ON-9 ADDED LDW280M17698-11 (13), GS20D-06-14(13) & MS51957-26(29) WAS AN515-6-4 (42), ON-11 & -13 MS51957-26(8) WAS AN515-6-4(8).	LTA-8 LM-1	✓		P. BURTON 12-12-67		
	2	1.10, 2.00 & 3.00						EO B2	IN B/M IN CALLOUT FOR THREAD P/N SEE NOTE 6 (AS REQD) ON-3 & -5 WAS P/N SEE NOTE 7 (AS REQD) ON -7 & -9	LTA-8 LM-1	NOT	REQD			
	3	1.10, 2.00 & 4.00					✓	EO B3	IN F/D ADDED GT835P-8 TAPE & GT835M-8 TAPE ON-19; IN F/D & B/M ADDED GT835E-8 TAPE (AS REQD) ON-19 & -11, ADDED SECTICN N-N.	LTA-8	✓				
	4	1.00, 1.10 3.00 & 4.00						EO B4	ADDED -35, -37, SECT P-P	LM-2 THRU LM-15	NOT	REQD	RMS		

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES I	STRUCT	STRUCT	WEIGHTS	RELIABILITY	THERMO				
A		JB 10/7/66	W/H 10/12/66				C Lee 10-14/66				
C											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28667	C
SCALE NONE		SHEET 1.10	

ⓒ

ENG 37.16 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.12

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
B	5	1.11,200 201,202 300					✓	EOB5	ON-3,-5 & -35 REMOVED MS20470AD4(3), AN960D4(3), NAS1131V2(2) & SEE NOTE 2 (3 PLACES). ADDED GB511J-064(3), NAS680C06 (3), MS20426AD3(6), GB511J-06-2(2) & .139-.145(#28 DRILL) 3 PLACES. ON-7 & -9 REMOVED MS20470AD4 (2), AN960D4(2), & SEE NOTE 2 (2 PLACES). ADDED GS20D-06-14(2). LDW280M17698-11(2), LDW280P17946-11 (2), MS51957-26(2), AN960D416L(4), AN960D6(2) & SEE NOTE 2; ON-3 & -5 REMOVED GS20D-06-14(2) MS51957-26(2), LDW280M17698-11(2), LDW280P17946-11 (2). ADDED GB511J-06-2 (2), NAS680C06(2), MS20426AD3 (4) & .139-.145(#28 DRILL) 2 PLACES. REVISED NOTE #6 REPLACED "SAGE GREEN SIZE E, MIL-T-7807, TYPE II CLASS I, NYLON THREAD, MAY BE PURCHASED FROM ETC", WITH "ASTROQUARTZ RQ754-12 THREAD MAY BE PURCHASED FROM DODGE FIBERS CORP. P.O. BOX 124, HOOSICK FALLS N.Y. CODE IDENT NO 07512" ADDED SH 1.11	LTA-8 LM-1 THRU LM-15	✓		P BURTON 12-12-67		
	6	1.11,2.01 2.02 & 5.00					✓	EOB6	REMOVED -29 ASSY FROM -21, CREATED -39 ASSY IDENT TO -29 EXCEPT AS NOTED, ON-39 LDW280P17478-25 REPLACED LDW280P17478-5	LM-1 THRU LM-15	✓	-29			
	7	1.11,201, 4.00						EOB7	ON-5 IN F/D & B/M ADDED LDW280P17964-5 COVER 2 REQD, GR11B-1 RETAINER(8), GW10H-3 WASHER (8). ON-21 ADDED GR11B-1 RETAINER(8) GW10H-3 WASHER(8) & INSTALL PER LPC 280-3 CALLOUT(2)	LM-1	✓		RMS		

CHG APPROVED

LTR	GROUP LDR	VEH DES I	STRUCT	STRUCT	WEIGHTS	RELIABILITY	THERMO				
C											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28667	C

SCALE NONE SHEET 1.11

ENG 77.16 3-66

0 1

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
B	8	1.00 1.12,2.02						EO B8	ON-35 REMOVED EFF LM-3 THRU LM-15, ADDED -41-43-45 & -47 ADDED SH 1.12	LM-3 THRU LM-15	✓		P BURTON 12-12-67		
	9						✓	EO B9	CANCELLED BY EO B10		✓				
	10	1.12,2.01 2.02,3.00 &5.00					✓	EO B10 LCD—1135	CANCELLED EO B9, IN F/D & BM FOR-5 ADDED-49 (MAKE FROM LDW280-51557-1), FOR-35 & -47 ADDED-51 (MAKE FROM LDW280-51557-1), IN F/D ADDED SECT R-R	LM-1 THRU LM-15	✓				
C	1	1.12,2.01 3.00 & 4.00					✓	EO C1 LCD-1244	IN B/M & F/D FOR-5 REMOVED GB511J-06-2(7); FOR-9 REMOVED LDW280P17967-11(1), -13(1), -15(1), -23(1), -25(1), -27(1), -29(1), LDW280P17946 -11(20) & MS51957-26(20)	LM-1	-9				
	2	1.12 2.01 2.02, 3.00 4.00 & 5.00				✓		EO C2 LCD-1244	REMOVED FROM-35: GB511J-06-2(2), GB511J-02-4(3), AN960 D6 (4); REMOVED FROM-37: LDW280P17967-11(1), -13(1), -15(1), -23(1), -25(1), -29(1), LDW280P17946-11(18) & MS51957-26(18)	LM-2	✓				
	3	1.12 2.01 2.02, 3.00 4.00 & 5.00				✓		EO C3 LCD 1847	FOR-5 REMOVED -49; ADDED -53 & -55; FOR-35 REMOVED -51; ADDED -53 & -57; REVISED SECT R-R (REF EO B10) ADDED SECT S-S. ADDED NOTE NO. 11	LM-1 LM-2	✓				
	4	1.12, 2.03 4.00				✓		EO C4 LCD-1244	IN F/D, B/M & MOD BLK FOR-47 REMOVED -45, -43, -41 & -51	LM-3 THRU LM-15	✓	-41-43 -45-51			
	5	1.12,3.00				✓		EO C5 ® LCD-10774 B&C	ADDED EO TO RECORD BLOCK FOR LM-1	NOTED	NO	TED	RMS		

CHG APPROVED											
LTR	GROUP LDR	VEH DES I	STRUCT	STRUCT	WEIGHTS	WEIGHTS	RELIABILITY	THERMO			
C											

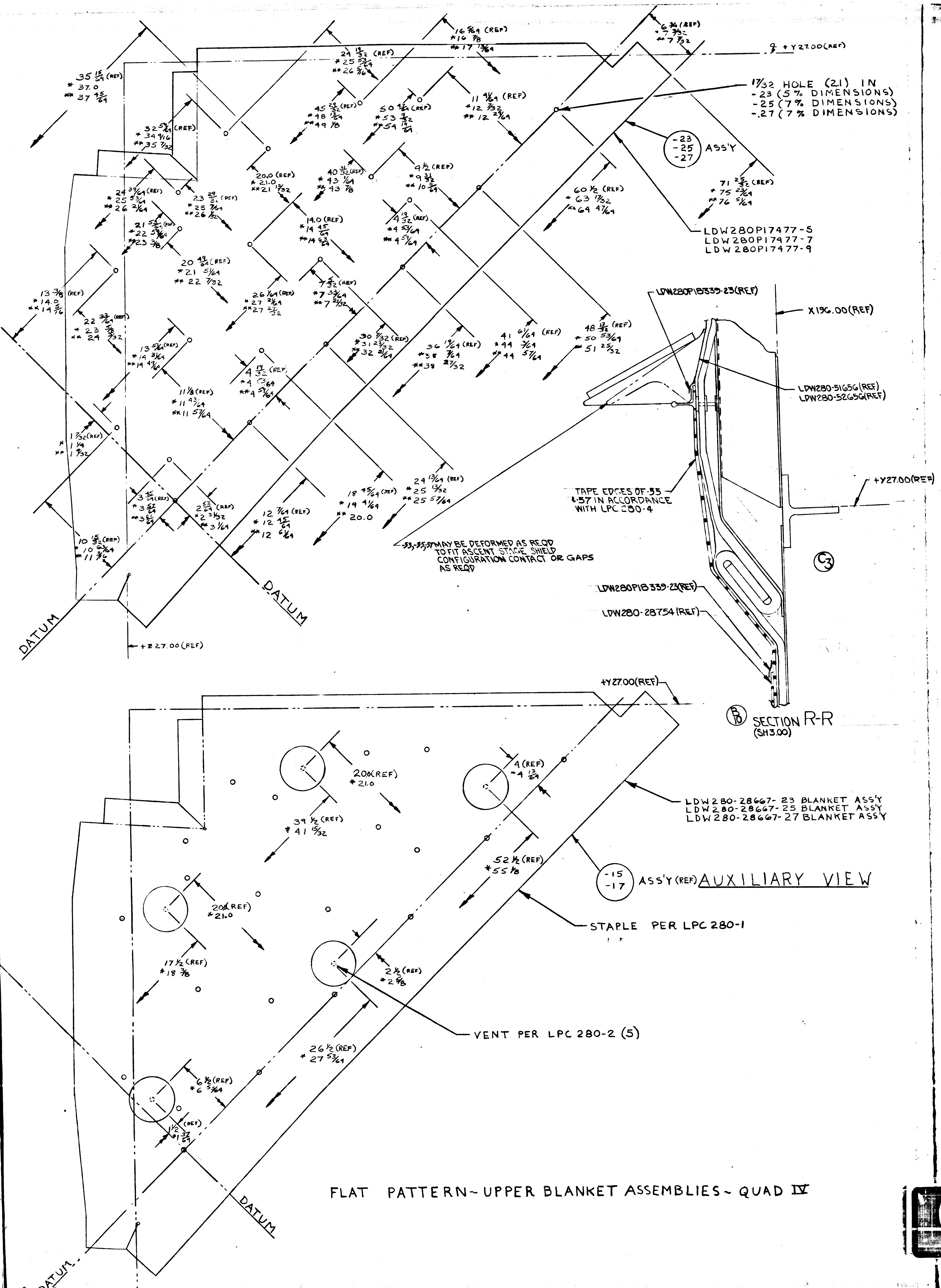
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW 280-28667	C
SCALE NONE		SHEET 1.12	

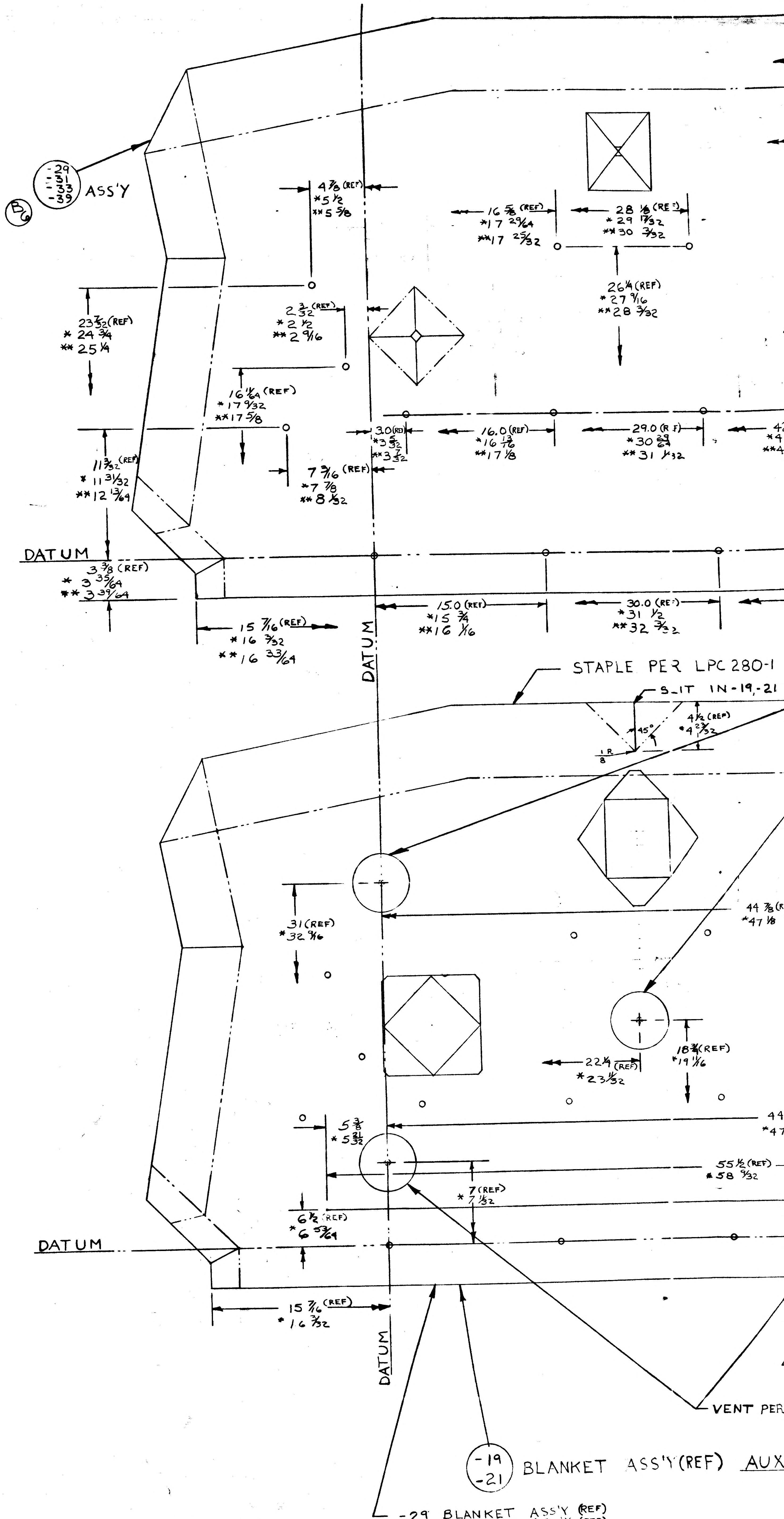
ENG 77.16 3-66

01

NAS 9-1100

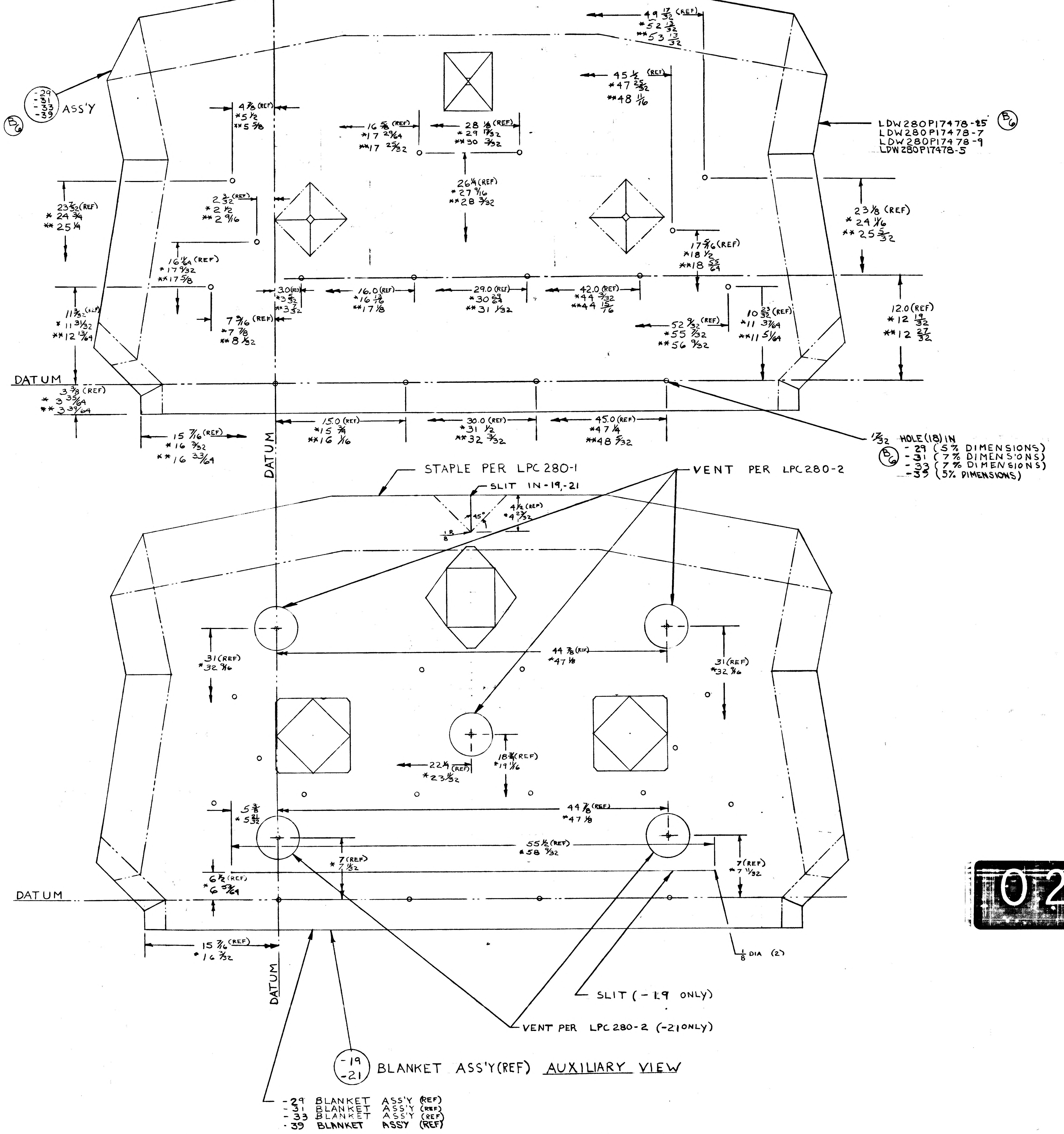

35 15/64 (REF)
* 37.0
** 37 45/64
16 5/64 (REF)
* 16 7/8
** 17 13/64
24 19/32 (REF)
* 25 53/64
** 26 5/16
6 3/16 (REF)
* 7 3/32
** 7 7/32
+Y27.00 (REF)
17/32 HOLE (21) IN
-23 (5% DIMENSIONS)
-25 (7% DIMENSIONS)
-27 (7% DIMENSIONS)
32 57/64 (REF)
* 34 9/16
** 35 7/32
45 23/32 (REF)
* 48 13/64
** 49 1/8
50 47/64 (REF)
* 53 9/32
** 54 19/64
11 41/64 (REF)
* 12 7/32
** 12 29/64
-23
-25
-27
ASS'Y
20.0 (REF)
* 21.0
** 21 17/32
40 31/32 (REF)
* 43 1/64
** 43 7/8
9 1/2 (REF)
* 9 31/32
** 10 11/64
71 25/32 (REF)
* 75 23/64
** 76 5/64
24 39/64 (REF)
* 25 53/64
** 26 2/64
23 29/32 (REF)
* 25 7/64
** 26 1/32
60 1/2 (REF)
* 63 17/32
** 64 47/64
14.0 (REF)
* 14 45/64
** 14 63/64
4 13/32 (REF)
* 4 53/64
** 4 59/64
21 53/64 (REF)
* 22 59/64
** 23 3/8
LDW280P17477-5
LDW280P17477-7
LDW280P17477-9
20 49/64 (REF)
* 21 5/64
** 22 7/32
13 3/8 (REF)
* 14.0
** 14 5/16
26 1/64 (REF)
* 27 21/64
** 27 27/32
7 5/32 (REF)
* 7 33/64
** 7 21/32
LDW280P18339-23 (REF)
X196.00 (REF)
22 33/64 (REF)
* 23 5/8
** 24 7/32
30 7/32 (REF)
* 31 23/32
** 32 21/64
36 19/64 (REF)
* 38 7/64
** 38 27/32
41 61/64 (REF)
* 44 7/64
** 44 57/64
48 13/32 (REF)
* 50 53/64
** 51 25/32
13 51/64 (REF)
* 14 3/64
** 14 49/64
4 17/32 (REF)
* 4 53/64
** 4 59/64
11 1/8 (REF)
* 11 43/64
** 11 57/64
LDW280-51656 (REF)
LDW280-52656 (REF)
1 7/32 (REF)
* 1 1/4
** 1 7/32
3 45/64 (REF)
* 3 57/64
** 3 61/64
2 53/64 (REF)
* 2 31/32
** 3 1/64
12 7/64 (REF)
* 12 45/64
** 12 61/64
18 45/64 (REF)
* 19 41/64
** 20.0
24 13/64 (REF)
* 25 13/32
** 25 57/64
TAPE EDGES OF -55
& -57 IN ACCORDANCE
WITH LPC 280-4
+Y27.00 (REF)
10 15/32 (REF)
* 10 63/64
** 11 3/16
-53,-55,-57 MAY BE DEFORMED AS REQD
TO FIT ASCENT STAGE SHIELD
CONFIGURATION CONTACT OR GAPS
AS REQD
C3
LDW280P18339-23 (REF)
LDW280-28754 (REF)
DATUM
DATUM
+Z27.00 (REF)
+Y27.00 (REF)
B10 SECTION R-R
(SH3.00)
4 (REF)
* 4 13/64
20.0 (REF)
* 21.0
LDW280-28667-23 BLANKET ASS'Y
LDW280-28667-25 BLANKET ASS'Y
LDW280-28667-27 BLANKET ASS'Y
39 1/2 (REF)
* 41 17/32
52 1/2 (REF)
* 55 1/8
-15
-17
ASS'Y (REF) AUXILIARY VIEW
20.0 (REF)
* 21.0
STAPLE PER LPC 280-1
17 1/2 (REF)
* 18 3/8
2 1/2 (REF)
* 2 5/8
VENT PER LPC 280-2 (5)
26 1/2 (REF)
* 27 53/64
6 1/2 (REF)
* 6 53/64
1/2 (REF)
* 1
DATUM
DATUM
7.00 (REF)

FLAT PATTERN ~ UPPER BLANKET ASSEMBLIES ~ QUAD IV


-29
-31
-33
-39
ASS'Y
B6
4 7/8 (REF)
* 5 1/2
** 5 5/8
16 5/8 (REF)
* 17 29/64
** 17 25/32
28 1/8 (REF)
* 29 17/32
** 30 3/32
23 7/32 (REF)
* 24 3/4
** 25 1/4
2 3/32 (REF)
* 2 1/2
** 2 9/16
26 1/4 (REF)
* 27 9/16
** 28 3/32
16 1/64 (REF)
* 17 9/32
** 17 5/8
3.0 (REF)
* 3 5/32
** 3 7/32
16.0 (REF)
* 16 13/16
** 17 1/8
29.0 (REF)
* 30 29/64
** 31 1/32
11 3/32 (REF)
* 11 31/32
** 12 13/64
7 3/16 (REF)
* 7 7/8
** 8 1/32
DATUM
3 3/8 (REF)
* 3 35/64
** 3 39/64
15 7/16 (REF)
* 16 3/32
** 16 33/64
15.0 (REF)
* 15 3/4
** 16 1/16
30.0 (REF)
* 31 1/2
** 32 3/32
DATUM
STAPLE PER LPC 280-1
SLIT IN -19,-21
45°
1/8 R
4 1/2 (REF)
* 4 23/32
31 (REF)
* 32 9/16
44 7/8 (REF)
* 47 1/8
22 1/4 (REF)
* 23 11/32
18 3/4 (REF)
* 19 11/16
5 3/8
* 5 21/32
55 1/2 (REF)
* 58 9/32
7 (REF)
* 7 1/32
6 1/2 (REF)
* 6 53/64
DATUM
15 7/16 (REF)
* 16 3/32
DATUM
VENT PER
-19
-21
BLANKET ASS'Y (REF) AUX
-29 BLANKET ASS'Y (REF)
-31 BLANKET ASS'Y (REF)
-33 BLANKET ASS'Y (REF)
-39 BLANKET ASSY (REF)

FLAT PATTERN ~ LOWER BLANKET ASSEM

01/02 NAS 9-1100



-29
-31
-33
-39
ASS'Y
B6
4 7/8 (REF)
*5 1/2
**5 5/8
16 5/8 (REF)
*17 29/64
**17 25/32
28 1/8 (REF)
*29 17/32
**30 3/32
49 17/32 (REF)
*52 13/32
**53 13/32
45 1/2 (REF)
*47 25/32
**48 11/16
LDW280P17478-25
LDW280P17478-7
LDW280P17478-9
LDW280P17478-5
B6
26 1/4 (REF)
*27 9/16
**28 3/32
23 7/32 (REF)
*24 3/4
**25 1/4
2 3/32 (REF)
*2 1/2
**2 9/16
23 1/8 (REF)
*24 1/16
**25 5/32
17 5/16 (REF)
*18 1/2
**18 55/64
16 11/64 (REF)
*17 9/32
**17 5/8
3.0 (REF)
*3 5/32
**3 7/32
16.0 (REF)
*16 13/16
**17 1/8
29.0 (REF)
*30 29/64
**31 1/32
42.0 (REF)
*44 3/32
**44 15/16
11 3/32 (REF)
*11 31/32
**12 13/64
7 3/16 (REF)
*7 7/8
**8 1/32
52 9/32 (REF)
*55 7/32
**56 9/32
10 23/32 (REF)
*11 37/64
**11 51/64
12.0 (REF)
*12 19/32
**12 27/32
DATUM
3 3/8 (REF)
*3 35/64
**3 39/64
15 7/16 (REF)
*16 3/32
**16 33/64
15.0 (REF)
*15 3/4
**16 1/16
30.0 (REF)
*31 1/2
**32 3/32
45.0 (REF)
*47 1/4
**48 5/32
DATUM
17/32 HOLE (18) IN
B6
-29 (5% DIMENSIONS)
-31 (7% DIMENSIONS)
-33 (7% DIMENSIONS)
-39 (5% DIMENSIONS)
STAPLE PER LPC 280-1
SLIT IN -19, -21
VENT PER LPC 280-2
4 1/2 (REF)
*4 23/32
45°
1/8 R
31 (REF)
*32 9/16
44 7/8 (REF)
*47 1/8
31 (REF)
*32 9/16
22 1/4 (REF)
*23 11/32
18 3/4 (REF)
*19 11/16
5 3/8
*5 21/32
44 7/8 (REF)
*47 1/8
55 1/2 (REF)
*58 9/32
7 (REF)
*7 11/32
7 (REF)
*7 11/32
6 1/2 (REF)
*6 53/64
DATUM
15 7/16 (REF)
*16 3/32
1/8 DIA (2)
DATUM
SLIT (-19 ONLY)
VENT PER LPC 280-2 (-21 ONLY)
-19
-21
BLANKET ASS'Y (REF) AUXILIARY VIEW
-29 BLANKET ASS'Y (REF)
-31 BLANKET ASS'Y (REF)
-33 BLANKET ASS'Y (REF)
-39 BLANKET ASSY (REF)

FLAT PATTERN - LOWER BLANKET ASSEMBLIES QUAD IV

02/02 NAS 9-1100

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

- PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.
- FILLET AND INSIDE CORNER RADII TOLERANCES
  - .016R TO .062R ± .010
  - .063R TO .250R ± .015
  - OVER .250R ± .030
- DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.
- EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.
- DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.
- MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.
- DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING
- HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.
- ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES
- 125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10
- 200√ FOR ALL DRILLED HOLES
- REMOVE ALL BURRS. BREAK ALL EDGES .015-.031
- INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS
- SYMBOL √ DENOTES SURFACE TO BE MACHINED
- UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32
- LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.
- TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X

PRINTING INFO ONLY

FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

LDW280-28667C

LDW280-28667-23, -29 (REF) (MYLAR, STANDOFF HOLES ASS'Y)
LDW280-28667-25, -27, -31, -33 (REF) (POLY., STANDOFF HOLES ASS'Y)
LDW280-28667-15, -17, -19, -21 (REF) (STAPLE & VENT HOLE ASS'Y & SPLICE SNAPS)

LAYOUT RELEASE TO BE REDRAWN
ON PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-28667	C
LM MODEL OR END ITEM	SCALE 1/4		SHEET 5.00	

ⓒ

LDW280-28667C

LDW280-28667 D

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53553	NOTE 13	1
LDW280-28667-67			
LM	LDW280-52553	LM-2(32)	1
PART NO. LDW280-28667-35		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53553	LM-3 (33)	1
LDW280-28667-59			
L M	LDW28 51553	LM-1(31)	1
PART NO. LDW280-28667-5		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
L M	LDW280-28553	LTA-8(18)	1
PART NO. LDW280-28667-3		GAEC SCH NO. 52	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	1.13	2.00	2.03		3.00		
REV	D	C	D	D	D		D		
SHEET		1.11		2.01			4.00		
REV		C		D			D		
SHEET		1.12		2.02			~~5.00~~		
REV		C		D			~~C~~		

LAST SECT LTR USED	S	GRUMMAN REL INFO © D	
LAST DASH NO. USED	-73	PRIM NO.	
		207	MP-1D-10/7/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 ±.030 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	E.HERCZEG 7-18-66	RELIABILITY	
LAYOUT BY	J.BACKOFEN 7-21	THERMO	10-26-66
CHECKED BY			
GR LEADER	7/21/66		
VEH DES INT	7/23		
STRUCTURES	W/H 7/23	PROJ ENGR	
STRUCTURES	7/23	REL GROUP	10/28/66
WEIGHTS	7-5		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTL
DESCENT STAGE QUAD IV FIXED
THERMAL

SIZE	CODE IDENT NO.		
B	26512	LDW280-28667	D
SCALE	NONE	SHEET 1.00 OF 11	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED SH 3.00 & 4.00 NO CHANGE LAST REV "C". REMOVED SH 5.00 (INFORMATION ON SH 5.00 RETRACED WITHOUT CHANGE ON SHS 3.00 & 4.00. ADDED NOTES 14, 15 & 16. LEVINE 8-15-68						
D	1	1.13, 2.02, 4.00, 1.00	13B 15B	P		✓		EO D1 LCD 2223 CCA 745	ON -35 IN FLD & B/M: ADDED LDW280P17964-5(2), GR11B-1 (8), GW10H-3 (8). ON -41 ADDED GR11B-1(8), GW10H-3(8) & "INSTALL PER LPC-280-3" CALLOUT (2). ADDED GT15C-3 (ADDED SH 1.13 & 2.03)	LM-2	✓		AUGIELLO-(LEVINE) 10-2-68 ES		
	2	2.02, 4.00	13B 15B			✓		EO D2 LCD 2223 CCA 745	REF EO D1: ON EOD1, -41 CALLOUT SHOULD BE -35						
	3	3.00					✓	LEO 280-820	REVISED NOTE 6: "SAGE (OR STAGE) GREEN SIZE E ... ETC" SHOULD BE "TEFLON GLASMO TEE, P5040 & ASTROQUARTZ".	LM-2 THRU LM-15					
	4	1.00, 2.00, 2.01, 2.02, 4.00	9D 10C 14A	P		✓		EO D4 LCD 2360	ADDED -59, -61, -63 & -65 & LDW280P17478-31. REMOVED -13, -21, -33 & -47 & LDW280P17478-7	LM-3 THRU LM-15		-13, -21, -33, -47			
	5	1.00, 2.02, 4.00	9D	P		✓		EO D5 LCD 2360	IN FLD & B/M: RESTRICTED -59 TO LM-3(33) WAS LM-3(33) THRU LM-15(45). ON -59 ADDED LDW280P17478-29(1)			-59			
	6	1.00, 2.00, 2.01, 2.02, 3.00, 4.00	9D 10C 14A	LFM 155		✓		EO D6 LCD 2899	ADDED -67, -69, -71 & -73 (1 EA) & NOTE 13)	LM-3	NOT	REQD			

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY	THERMO				
D											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28667	D

SCALE NONE SHEET 1.13

ENG 77.16 3-66

01

NAS 9-1100

/// CL	19	17	15	13	11	9	7	5	3	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
QTY PER ASSEMBLY																				
									4	GB511J-06-2	E		BOLT	GRUMMAN STD						
									3	GB511J-06-4			BOLT	GRUMMAN STD						
								AR	AR	SEE NOTE 6			THREAD							
								AR	AR	SEE NOTE 2			ADHESIVE							
								2	2	NAS697A06L			PLATE NUT	STD PART						
								5	5	NAS680C06			PLATE NUT	STD PART						
	14	17	17					39	31	GW10H-3			WASHER	GRUMMAN STD						
	AR	AR	AR	AR		AR	AR	AR	AR	GT835P-8			TAPE							
	AR	AR	AR	AR		AR	AR	AR	AR	GT835M-8			TAPE							
								2	2	GT535L-HA0740			TAPE FASTENER							
	14	17	17					39	31	GR11B1			RETAINER	GRUMMAN STD						
								2	2	AN960D4			WASHER	STD PART						
						11	11	12	12	AN515-6-4			SCREW	STD PART						
				4	4	2	2	12	12	LDW280P17575-11			CAP	SEE DWG						12A
C										LDW280-28667-67			SHIELD INST'L					NONE	NONE	14A
C										-35			SHIELD INST'L					NONE	NONE	7A
	1									-29			LWR BLKT ASSY							10C
	1									-31			LWR BLKT ASSY							10C
		1								-27			UPPER BLKT ASSY							3C
			1							-25			UPPER BLKT ASSY							3C
		1	1							-23			UPPER BLKT ASSY							3C
				1						-21			LWR BLKT ASSY							14A
					1					-19			LWR BLKT ASSY							14A
						1				-17			UPPER BLKT ASSY							7A
							1			-15			UPPER BLKT ASSY							7A
								1		-13			LWR SHIELD ASSY							14A
									1	-11			LWR SHIELD ASSY							14A
								1		-9			TOP SHIELD ASSY							7A
									1	-7			TOP SHIELD ASSY							7A
C										-5			SHIELD INST'L					NONE	NONE	7A
C										LDW280-28667-3	E		SHIELD INST'L					NONE	NONE	7A

CL: CLEANLINESS LEVEL PER LSP-14-0011

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28667	D
SCALE NONE			SHEET 2.00

G 77.2 5-64

01

NAS 9-1100

QTY PER ASSEMBLY																				
	25	23	21	19	13	-11	-9	-7	-5	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
									AR	GT15C-3	E		TAPE	GRUMMAN STD						
									1	LDW280P18339-23			TAPE ASSY	SEE DWG						7B
			1							LDW280-28667-39			LWR BLKT ASSY							10C
			22							GW10H-3			WASHER	GRUMMAN STD						
			22							GR11B-1			RETAINER	GRUMMAN STD						
	1									LDW280P17477-7			BLKT ASSY	SEE DWG						4B
		1								LDW280P17477-5			BLKT ASSY	SEE DWG						4B
			1							LDW280-28667-33			LWR BLKT ASSY							10C
				AS REQD		AR				GT835E-8			TAPE	GRUMMAN STD						
								1		LDW280P17967-29			STRAP	SEE DWG						7C
								1		-27										7B
								1		-25										7C
								1		-23										7B
					1	1				-19										14B
								1		-15										7A
								1		-13										6C
								1		LDW280P17967-11			STRAP							7C
						1				LDW280P18128-11			COVER	SEE DWG						13A
									1	LDW280-28667-57			SHIELD ASSY	MAKE FROM	LDW280-51557-3					5D
							1			LDW280-28754-7			SHIELD ASSY	SEE DWG						7A
							15	2		LDW280M17698-11			WASHER	SEE DWG						
							15	2		GS20D-06-14			SCREW	GRUMMAN STD						
					8	8	29	44		MS51957-26			SCREW	STD PART						
					4	4	40	40		AN960D6			WASHER	STD PART						
					16	16	86	86		AN960D416L			WASHER	STD PART						
					4	4		20		LDW280P1794611			STAND OFF	SEE DWG						6A
								1		LDW280-28754-5			SHIELD ASSY	SEE DWG						7A
									1	LDW280-28667-55			SHIELD ASSY	MAKE FROM	LDW280-51557-3					5D
									1	LDW280-28667-53			SHIELD ASSY	MAKE FROM	LDW280-51557-3					7B
									2	LDW280P17964-5	E		COVER	SEE DWG						13B 15B

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28667	D
SCALE NONE		SHEET 2.01	

ENG 77.2 5-64

01

NAS 9-1100

	33	29	59	67	39	37	35	31	27	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
							1			LDW280P18339-23	E		TAPE ASSY	SEE DWG						7B
						15				LDW280M17698-11	↑		WASHER	SEE DWG						
						15				GS20D-06-14			SCREW	GRUMMAN STD						
		1								LDW280P17478-5			BLANKET ASSY	SEE DWG						9D
	1									LDW280P17478-7			BLANKET ASSY	SEE DWG						9D
					1					LDW280P17478-25			BLANKET ASSY	SEE DWG						9D
						29				MS51957-26			SCREW	STD PART						
						40				AN960D6			WASHER	STD PART						
						86				AN960D416L			WASHER	STD PART						
							2			LDW280P17964-5			COVER	SEE DWG						13B 15B
						1				LDW280-28754-9			SHIELD ASSY	SEE DWG						7A
						1				LDW280-28667-17			UPPER BLKT ASSY							7A
							1			LDW280-28667-57			SHLD ASSY	MAKE FROM	LDW280-51557-	3				5D
							1			LDW280-28667-53			SHLD ASSY	MAKE FROM	LDW280-51557-	3				7B
			AR	AR			AR			SEE NOTE 6			THREAD							
			AR	AR			AR			SEE NOTE 2			ADHESIVE							
			2	2			2			NAS697A06L			NUT PLATE	STD PART						
			3	3			3			NAS680C06			NUT PLATE	STD PART						
							1			LDW280-28667-37			TOPSHIELD ASSY							7A
							1			LDW280-28667-13			LWR SHIELD ASSY							14A
							1			LDW280-28667-9			TOPSHIELD ASSY							7A
			31	31			31			GW10H-3			WASHER	GRUMMAN STD						
						AR	AR			GT835P-8			TAPE	↑						
						AR	AR			GT835M-8			TAPE							
			2	2			2			GT535L-HA0740			TAPE FASTENER	↓						
			31	31			31			GR11B-1			RETAINER	GRUMMAN STD						
			2	2			2			AN960D4			WASHER	STD PART						
			12	12		11	12			AN515-6-4			SCREW	STD PART						
			12	12		2	12			LDW280P17575-11			CAP	SEE DWG						12A
								1		LDW280P17478-9	↓		BLANKET ASSY	SEE DWG						9D
									1	LDW280P17477-9	E		BLANKET ASSY	SEE DWG						4B

QTY PER ASSEMBLY

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28667	D

SCALE NONE

SHEET 2.02

ENG 77.2 5-64

01

NAS 9-1100

▨			-65	-63	-61	-59	-73	-67	-35	-71	-3	-69	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C			QTY PER ASSEMBLY																				
			AR									AR		GT835P-8	E	TAPE	GRUMMAN STD						
			AR									AR		GT835M-8		TAPE	GRUMMAN STD						
									AR					GT15C-3		TAPE	GRUMMAN STD						
			16									16		AN960D416L		WASHER	STD PART						
			4								4	4		AN960D6		WASHER	STD PART						
			8									8		MS51957-26		SCREW	STD PART						
				22						22				GW10H-3		WASHER	GRUMMAN STD						
				22						22				GR11B-1		RETAINER	GRUMMAN STD						
					1									LDW280P17478-31		BRACKET ASSY	SEE DWG						9D
			4									4		LDW280P17946-11		STANDOFF							6A
			4									4		LDW280P17575-11		CAP							12A
			1									1		LDW280P17967-19		STRAP							14B
						1		1						LDW280P17478-29		BLANKET ASSY							9D
							1							LDW280P17478-33		BLANKET ASSY	SEE DWG						9D
C														LDW280-28667-59		SHIELD INSTL					NONE	NONE	14A
			1											-63		LWR BLKT ASSY							14A
				1										-61		LWR BLKT ASSY							1CC
				1										-39		LWR BLKT ASSY							1CC
						1								-65		LWR SHIELD ASSY							14A
								1						-69		LWR SHIELD ASSY							14A
									1					-55		SHIELD ASSY	MAKE FROM	LDW280-515	57-3				5D
										1				-73		LWR BLKT ASSY							10C
												1		LDW280-28667-71	E	LWR BLKT ASSY							14A

CL= CLEANLINESS LEVEL PER LSP-14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28667	D

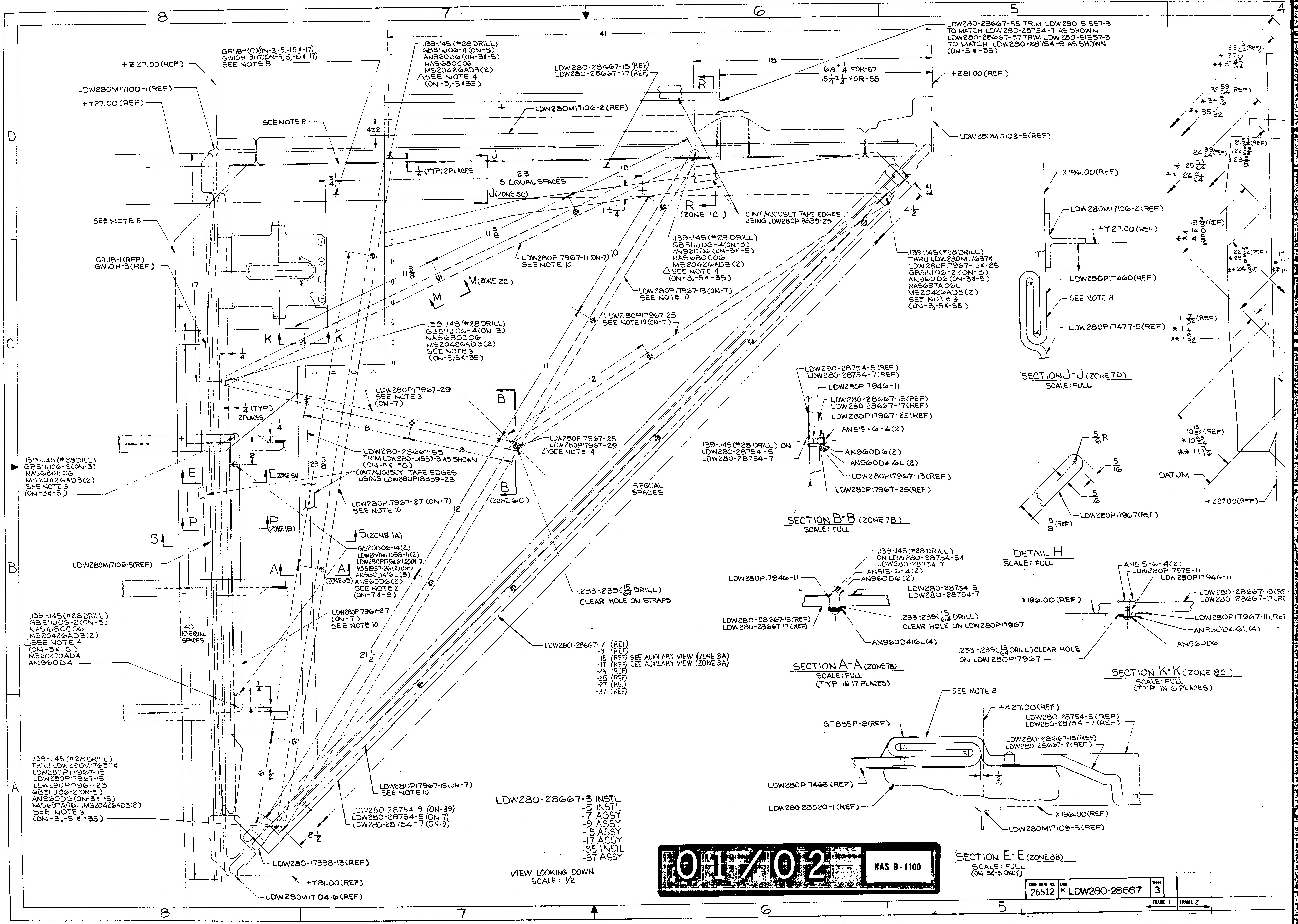
SCALE NONE

SHEET 2.03

ENG 77.2 7-66

01

NAS 9-1100

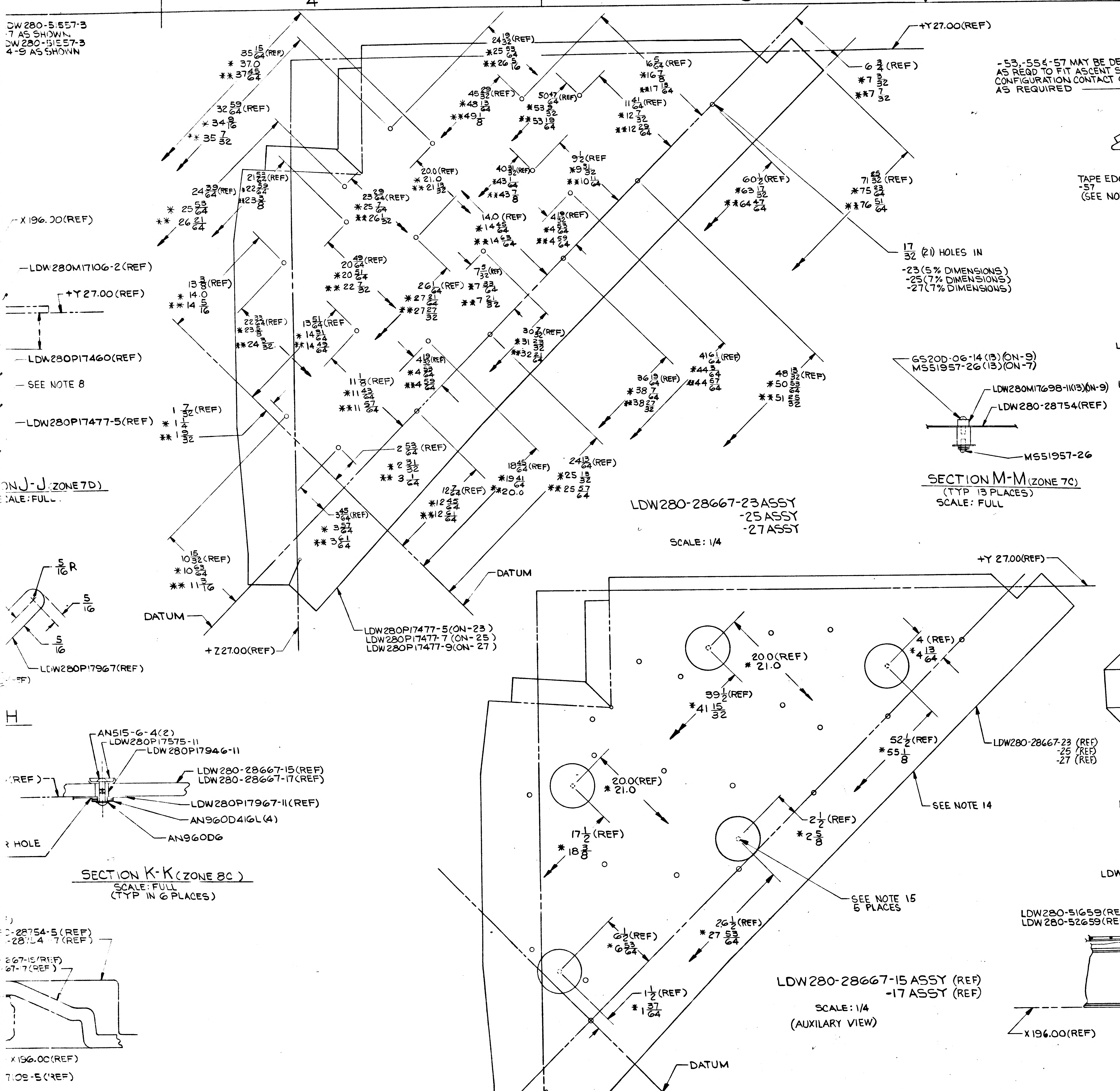

8
7
6
5
4
D
C
B
A
41
18
LDW280-28667-55 TRIM LDW280-51557-3 TO MATCH LDW280-28754-7 AS SHOWN
LDW280-28667-57 TRIM LDW280-51557-3 TO MATCH LDW280-28754-9 AS SHOWN (ON-5 & -35)
16 3/8 ± 1/4 FOR-57
15 1/4 ± 1/4 FOR-55
+Z81.00 (REF)
LDW280M17102-5 (REF)
LDW280-28667-15 (REF)
LDW280-28667-17 (REF)
.139-.145 (#28 DRILL) GB511J06-4 (ON-3) AN960D6 (ON-3 & -5) NAS680C06 MS20426AD3(2) △SEE NOTE 4 (ON-3,-5 & 35)
GR11B-1(17)(ON-3,-5,-15 & -17)
GW10H-3(17)(ON-3,-5,-15 & -17)
SEE NOTE 8
+Z27.00 (REF)
LDW280M17100-1 (REF)
+Y27.00 (REF)
LDW280M17106-2 (REF)
SEE NOTE 8
4±2
1/4 (TYP) 2 PLACES
3/4
23
5 EQUAL SPACES
J (ZONE 5C)
J
R
R (ZONE 1C)
1 ± 1/4
10
CONTINUOUSLY TAPE EDGES USING LDW280P18339-23
.139-.145 (#28 DRILL) GB511J06-4 (ON-3) AN960D6 (ON-3 & -5) NAS680C06 MS20426AD3(2) △SEE NOTE 4 (ON-3,-5 & -35)
.139-.145 (#28 DRILL) THRU LDW280M17637 & LDW280P17967-15 & -25 GB511J06-2 (ON-3) AN960D6 (ON-3 & -5) NAS697A06L MS20426AD3(2) SEE NOTE 3 (ON-3,-5 & -35)
41/64
4 1/2
SEE NOTE 8
GR11B-1 (REF)
GW10H-3 (REF)
11 3/8
11 3/8
LDW280P17967-11 (ON-7) SEE NOTE 10
LDW280P17967-13 (ON-7) SEE NOTE 10
M
M (ZONE 2C)
LDW280P17967-25 SEE NOTE 10 (ON-7)
17
K
K
.139-.148 (#28 DRILL) GB511J06-4 (ON-3) NAS680C06 MS20426AD3(2) SEE NOTE 3 (ON-3; 5 & -35)
1/4
1/4 (TYP) 2 PLACES
LDW280P17967-29 SEE NOTE 3 (ON-7)
B
B (ZONE 6C)
LDW280P17967-25
LDW280P17967-29
△SEE NOTE 4
11
12
8
8
1/4
2
23 5/8
LDW280-28667-53 TRIM LDW280-51557-3 AS SHOWN (ON-5 & -35)
CONTINUOUSLY TAPE EDGES USING LDW280P18339-23
.139-.148 (#28 DILL) GB511J06-2 (ON-3) NAS680C06 MS20426AD3(2) SEE NOTE 3 (ON-3 & -5)
E
E (ZONE 5A)
LDW280P17967-27 (ON-7) SEE NOTE 10
5 EQUAL SPACES
S
P
P (ZONE 1B)
S (ZONE 1A)
12
GS20D06-14(2) LDW280M17698-11(2) LDW280P17946-11(2)(ON-7) MS51957-26(2)(ON-7) AN960D416L(8) AN960D6(2) SEE NOTE 2 (ON-7 & -9)
A
A (ZONE 6B)
LDW280M17109-5 (REF)
.233-.239 (15/64 DRILL) CLEAR HOLE ON STRAPS
.139-.145 (#28 DRILL) GB511J06-2 (ON-3) NAS680C06 MS20426AD3(2) △SEE NOTE 4 (ON-3 & -5) MS20470AD4 AN960D4
40 10 EQUAL SPACES
LDW280P17967-27 (ON-7) SEE NOTE 10
LDW280-28667-7 (REF) -9 (REF) -15 (REF) SEE AUXILARY VIEW (ZONE 3A) -17 (REF) SEE AUXILARY VIEW (ZONE 3A) -23 (REF) -25 (REF) -27 (REF) -37 (REF)
21 1/2
1/4
1
6 1/2
.139-.145 (#28 DRILL) THRU LDW280M17637 & LDW280P17967-13 LDW280P17967-15 LDW280P17967-23 GB511J06-2 (ON-3) AN960D6 (ON-3 & -5) NAS697A06L MS20426AD3(2) SEE NOTE 3 (ON-3,-5 & -35)
LDW280P17967-15 (ON-7) SEE NOTE 10
LDW280-28754-9 (ON-39)
LDW280-28754-5 (ON-7)
LDW280-28754-7 (ON-9)
2 1/2
LDW280-17398-13 (REF)
+Y81.00 (REF)
LDW280M17104-6 (REF)
LDW280-28667-3 INSTL -5 INSTL -7 ASSY -9 ASSY -15 ASSY -17 ASSY -35 INSTL -37 ASSY
VIEW LOOKING DOWN SCALE: 1/2
X196.00 (REF)
LDW280M17106-2 (REF)
+Y27.00 (REF)
LDW280P17460 (REF)
SEE NOTE 8
LDW280P17477-5 (REF)
SECTION J-J (ZONE 7D) SCALE: FULL
LDW280-28754-5 (REF)
LDW280-28754-7 (REF)
LDW280P17946-11
LDW280-28667-15 (REF)
LDW280-28667-17 (REF)
LDW280P17967-25 (REF)
AN515-6-4(2)
.139-.145 (#28 DRILL) ON LDW280-28754-5 LDW280-28754-7
AN960D6(2)
AN960D416L(2)
LDW280P17967-13 (REF)
LDW280P17967-29 (REF)
SECTION B-B (ZONE 7B) SCALE: FULL
5/16 R
5/16
5/16
5/8 (REF)
LDW280P17967 (REF)
DETAIL H SCALE: FULL
.139-.145 (#28 DRILL) ON LDW280-28754-5 & LDW280-28754-7
AN515-6-4(2)
AN960D6(2)
LDW280P17946-11
LDW280-28754-5
LDW280-28754-7
LDW280-28667-15 (REF)
LDW280-28667-17 (REF)
.233-.239 (15/64 DRILL) CLEAR HOLE ON LDW280P17967
AN960D416L(4)
SECTION A-A (ZONE 7B) SCALE: FULL (TYP IN 17 PLACES)
AN515-6-4(2)
LDW280P17575-11
LDW280P17946-11
X196.00 (REF)
LDW280-28667-15 (REF)
LDW280-28667-17 (REF)
LDW280P17967-11 (REF)
AN960D416L(4)
AN960D6
.233-.239 (15/64 DRILL) CLEAR HOLE ON LDW280P17967
SECTION K-K (ZONE 8C) SCALE: FULL (TYP IN 6 PLACES)
SEE NOTE 8
+Z27.00 (REF)
LDW280-28754-5 (REF)
LDW280-28754-7 (REF)
GT835P-8 (REF)
LDW280-28667-15 (REF)
LDW280-28667-17 (REF)
1/2
LDW280P17468 (REF)
LDW280-28520-1 (REF)
X196.00 (REF)
LDW280M17109-5 (REF)
SECTION E-E (ZONE 8B) SCALE: FULL (ON-3 & -5 ONLY)
55 5/64 (REF)
* 27.0
** 3 45/64
32 59/64 (REF)
* 34 9/16
** 35 7/32
24 39/64 (REF)
* 25 53/64
** 26 21/64
13 3/8 (REF)
* 14.0
** 14 5/16
1 7/32 (REF)
* 1 1/4
** 1 9/32
10 15/32 (REF)
* 10 23/64
** 11 3/16
DATUM
+Z27.00 (REF)

01/02

NAS 9-1100

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-28667	3

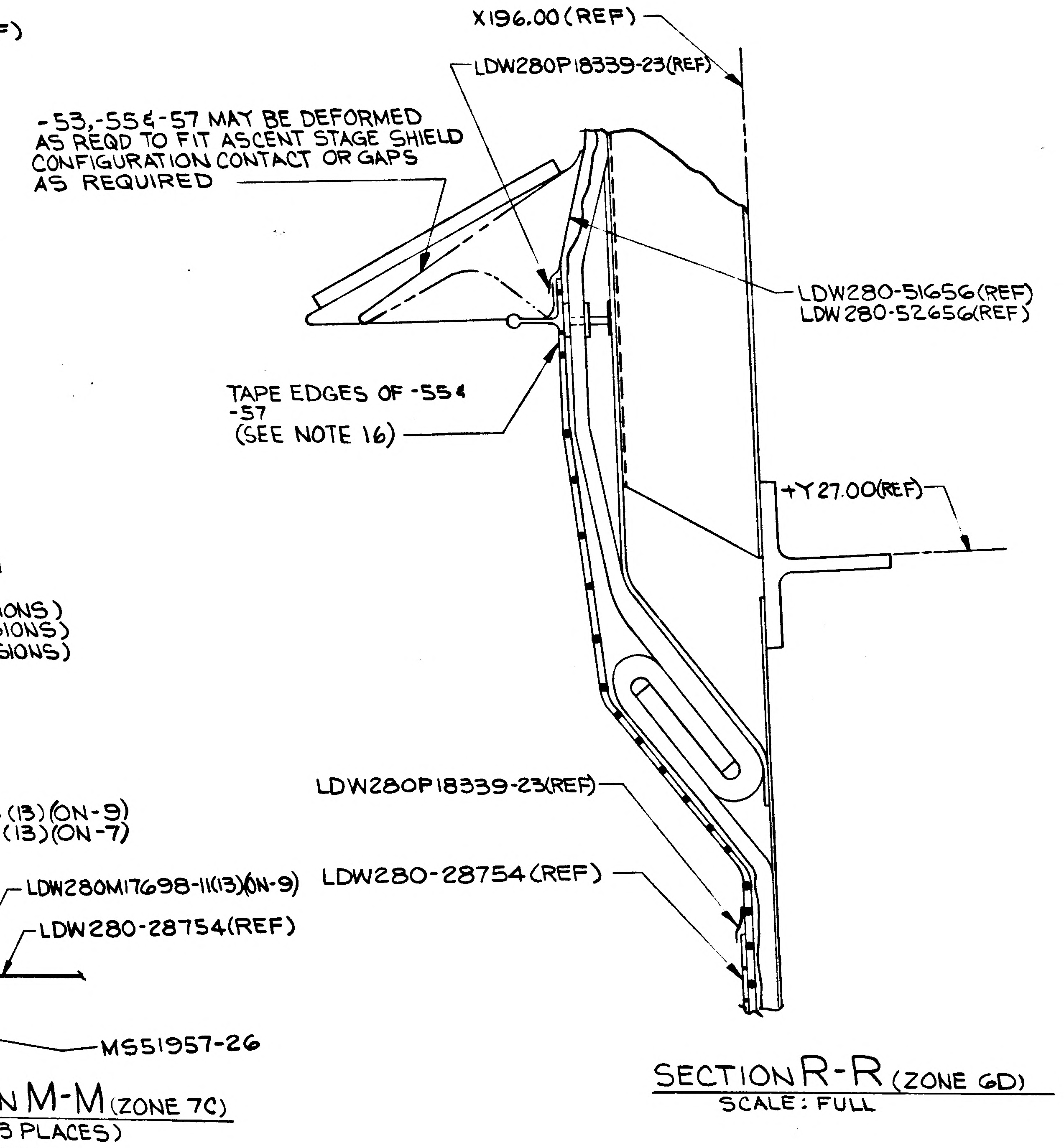
FRAME 1 FRAME 2



DW280-5:557-3
-7 AS SHOWN
DW280-151E57-3
4-9 AS SHOWN
+Y 27.00(REF)
X 196.00(REF)
LDW280M17106-2(REF)
+Y 27.00 (REF)
LDW280P17460(REF)
SEE NOTE 8
LDW280P17477-5(REF)
ON J-J (ZONE 7D)
CALE: FULL
5/16 R
5/16
5/16
LDW280P17967(REF)
DATUM
+Z 27.00(REF)
LDW280P17477-5(ON-23)
LDW280P17477-7 (ON-25)
LDW280P17477-9(ON-27)
DATUM
17/32 (21) HOLES IN
-23 (5% DIMENSIONS)
-25 (7% DIMENSIONS)
-27 (7% DIMENSIONS)
LDW280-28667-23 ASSY
-25 ASSY
-27 ASSY
SCALE: 1/4
H
AN515-6-4(2)
LDW280P17575-11
LDW280P17946-11
LDW280-28667-15(REF)
LDW280-28667-17(REF)
LDW280P17967-11(REF)
AN960D416L(4)
AN960D6
(REF)
R HOLE
SECTION K-K (ZONE 8C)
SCALE: FULL
(TYP IN 6 PLACES)
-28754-5 (REF)
-28754-7 (REF)
267-15 (REF)
67-7 (REF)
X 196.00 (REF)
7.09-5 (REF)
3B)
+Y 27.00(REF)
20.0(REF)
* 21.0
39 1/2(REF)
* 41 15/32
4 (REF)
* 4 13/64
52 1/2(REF)
* 55 1/8
LDW280-28667-23 (REF)
-25 (REF)
-27 (REF)
SEE NOTE 14
20.0(REF)
* 21.0
17 1/2 (REF)
* 18 3/8
2 1/2 (REF)
* 2 5/8
SEE NOTE 15
5 PLACES
6 1/2 (REF)
* 6 53/64
26 1/2 (REF)
* 27 53/64
1 1/2 (REF)
* 1 37/64
LDW280-28667-15 ASSY (REF)
-17 ASSY (REF)
SCALE: 1/4
(AUXILARY VIEW)
GS20D-06-14(13)(ON-9)
MS51957-26(13)(ON-7)
LDW280M17698-11(13)(ON-9)
LDW280-28754(REF)
MS51957-26
SECTION M-M (ZONE 7C)
(TYP 13 PLACES)
SCALE: FULL

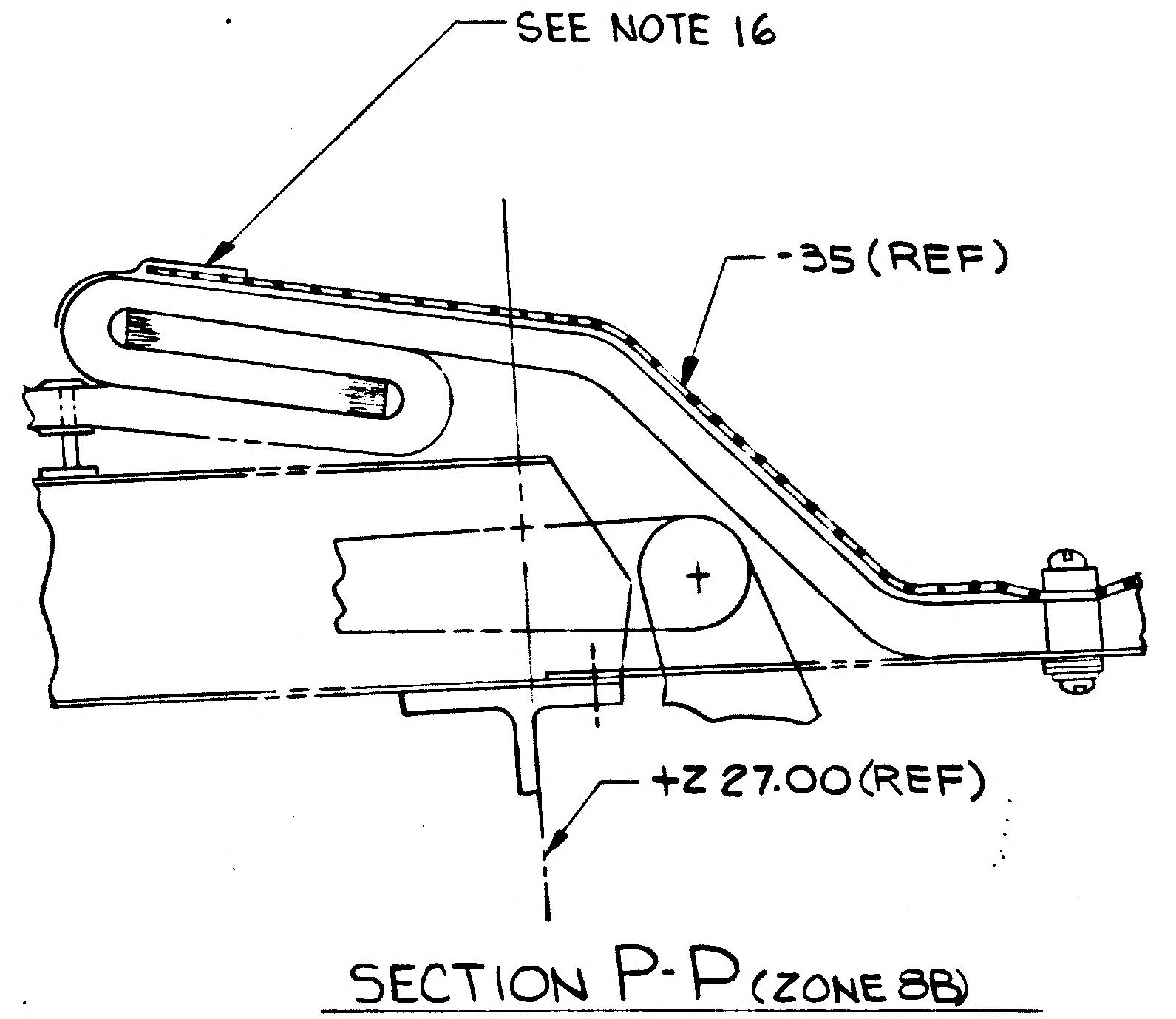
DATUM

+Z 27.00(REF)



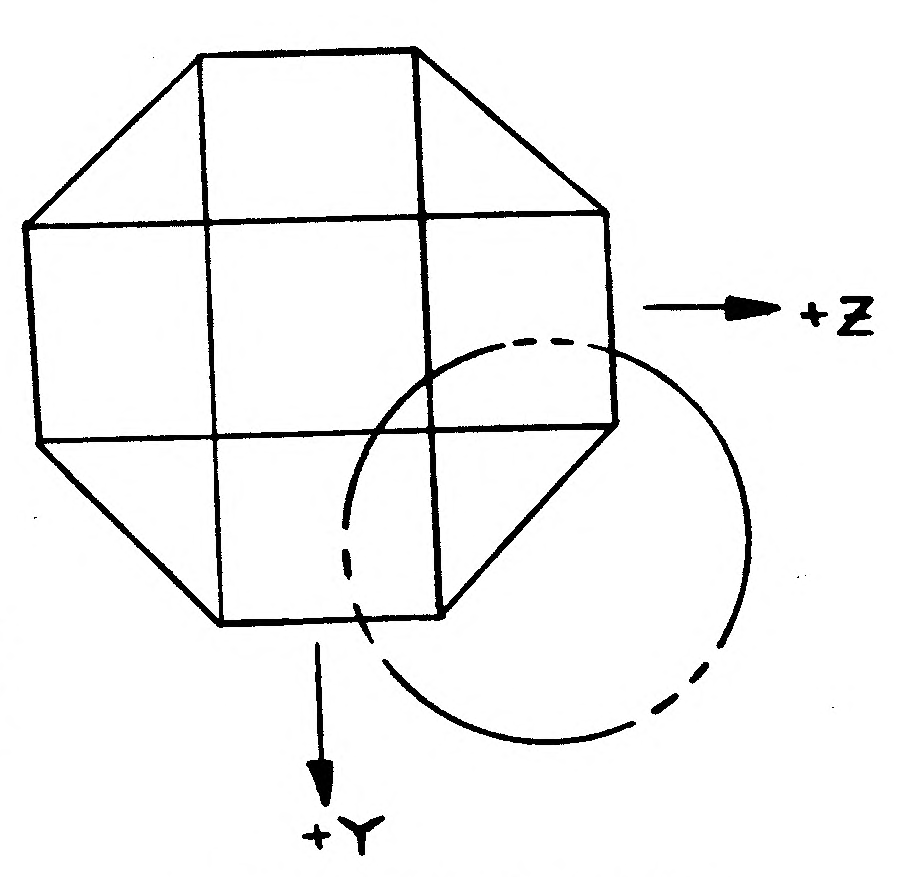
X196.00 (REF)
LDW280P18339-23(REF)
-53, -55 & -57 MAY BE DEFORMED
AS REQD TO FIT ASCENT STAGE SHIELD
CONFIGURATION CONTACT OR GAPS
AS REQUIRED
LDW280-51656(REF)
LDW280-52656(REF)
TAPE EDGES OF -55 &
-57
(SEE NOTE 16)
+Y 27.00(REF)
LDW280P18339-23(REF)
LDW280-28754 (REF)

SECTION R-R (ZONE 6D)
SCALE: FULL

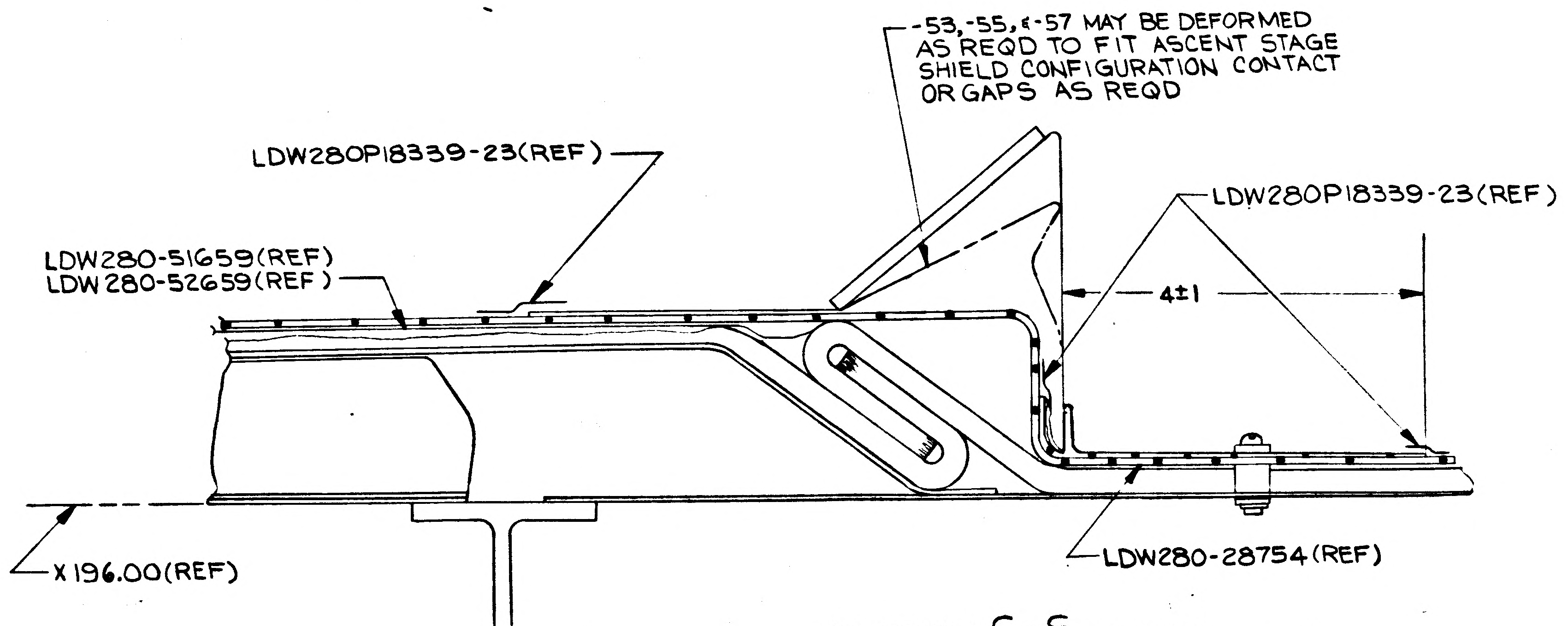


SEE NOTE 16
-35 (REF)
+Z 27.00(REF)

SECTION P-P (ZONE 8B)
FOR -35 ONLY
SCALE: FULL



VIEW LOOKING DOWN
FOR ENGRG REF ONLY



-53, -55, & -57 MAY BE DEFORMED
AS REQD TO FIT ASCENT STAGE
SHIELD CONFIGURATION CONTACT
OR GAPS AS REQD
LDW280P18339-23(REF)
LDW280P18339-23 (REF)
LDW280-51659(REF)
LDW280-52659 (REF)
4±1
LDW280-28754 (REF)
X 196.00(REF)

SECTION S-S (ZONE 7B)
SCALE: FULL

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
INSTALL RIVETS IN ACCORDANCE WITH LSP-14-15302	✓

DWG SIZE 14X 8.0
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 98) = 20.5 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 5.5 SQ FT
PRINT TRIM LINE

NOTES:
1. DELETED
2. BOND LDW280P17946-11 STANDOFFS TO STRAPS USING EPON#934 ADHESIVE PER LSP 14-22500.
3. TRIM STRAPS AS REQD ON-3 & -5 INSTL (SEE DETAIL "H")
4. HOLE IN STRAP TO BE AT LOCATION MARKED △.
5. DELETED
6. SEW TAPE AT 3/16 ± 1/16 FROM EDGE OF TAPE IN ACCORDANCE WITH FED-STD-751a & STITCH TYPE 301. ASTROQUARTZ RQ754-12 THREAD MAY BE PURCHASED FROM DODGE FIBERS CORP. PO BOX 124, HOOSICK FALLS, N.Y. CODE IDENT NO. 07512. (LM-1, LTA-8).
7. DELETED
8. SPLICES BETWEEN QUAD BLANKETS & DECK BLANKETS TO BE DONE PER LPC 280-3.
9. * DENOTES DIMENSIONS EXPANDED 5%
** DENOTES DIMENSIONS EXPANDED 7%
10. WRAP STRAPS WITH GT835M-8 TAPE.
11. THIS DRAWING AFFECTED BY THE FOLLOWING LFM. SEE LFM-26 FOR EFF & MODIFICATION.
12. SEW TAPE AT 3/16 ± 1/16 FROM EDGE OF TAPE IN ACCORDANCE WITH FED-STD-751a & STITCH TYPE 301. TEFLON GLASMO TEE F-E24 THREAD, MAY BE PURCHASED FROM BELDING CORTICELLI CO. INC., 1407 B'WAY, N.Y., N.Y. 10018, CODE IDENT #94448. AS AN ALTERNATE ASTROQUARTZ RQ754-12 THREAD, MAY BE PURCHASED FROM DODGE FIBERS CORP. P.O. BOX 124, HOOSICK FALLS, N.Y. CODE IDENT #05712 OR P5040-3 THREAD, MAY BE PURCHASED FROM OWENS-CORNING FIBERGLASS CORP., TOLEDO, OHIO, CODE IDENT #45255. THIS THREAD MAY BE USED FOR ALL REPLACEMENT & SPARES ON (LM-1, LTA-8).
13. THIS DWG AFFECTED BY LFM-155 WHICH MAY BE USED ON LM-3(33).
14. STAPLE PER LPC 280-1.
15. VENT PER LPC 280-2.
16. TAPE PER LPC 280-4.

02/02

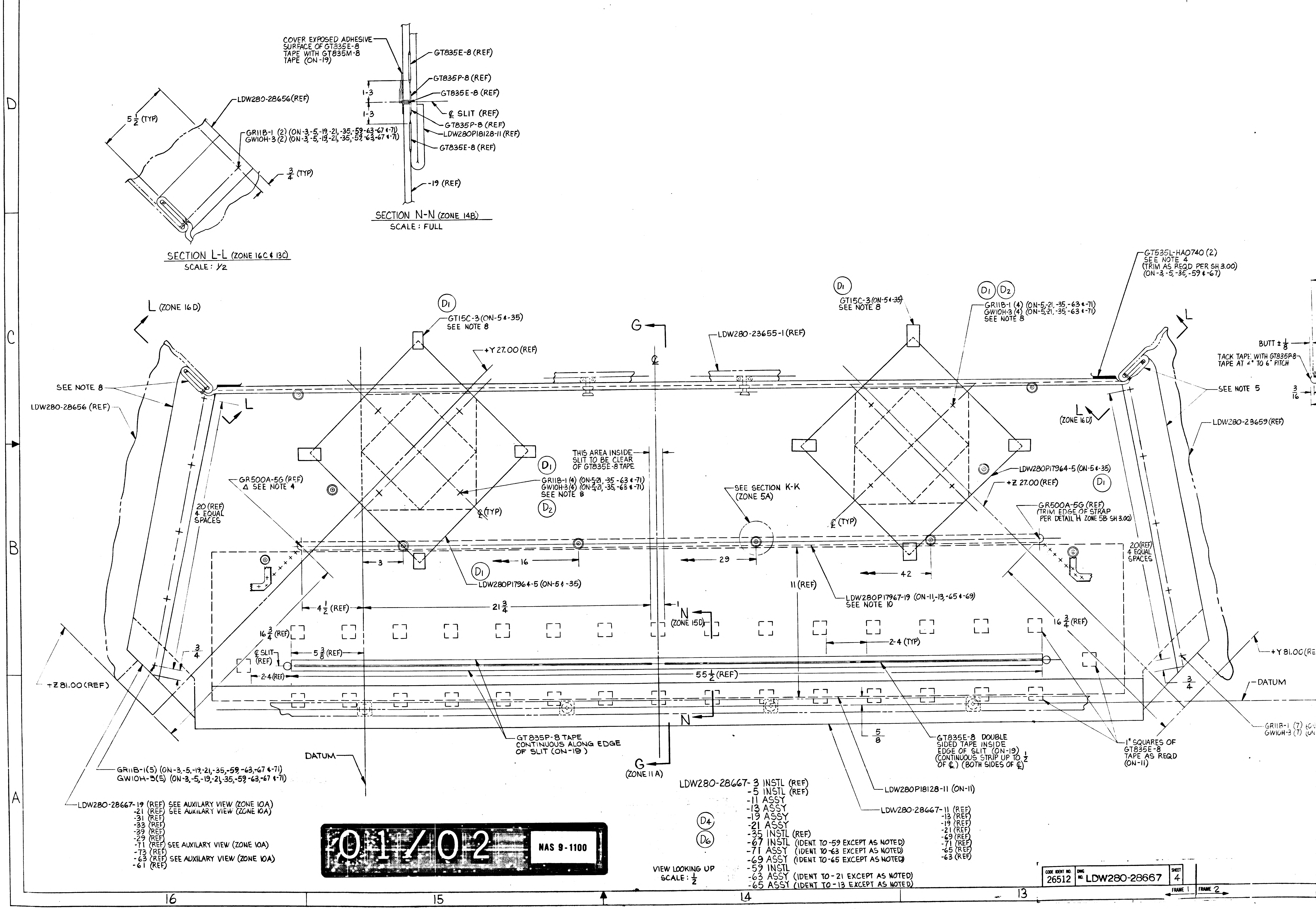
NAS 9-1100

RECORD DATA		
MODEL	EO NO.	EFFECTIVITY
LM	C-5	LM-1

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
J	26512	LDW280-28667	D
SCALE NOTED		SHEET 3.CO	

SUPERSEDES LDW280-28667 REV C 12-12-67 2FR

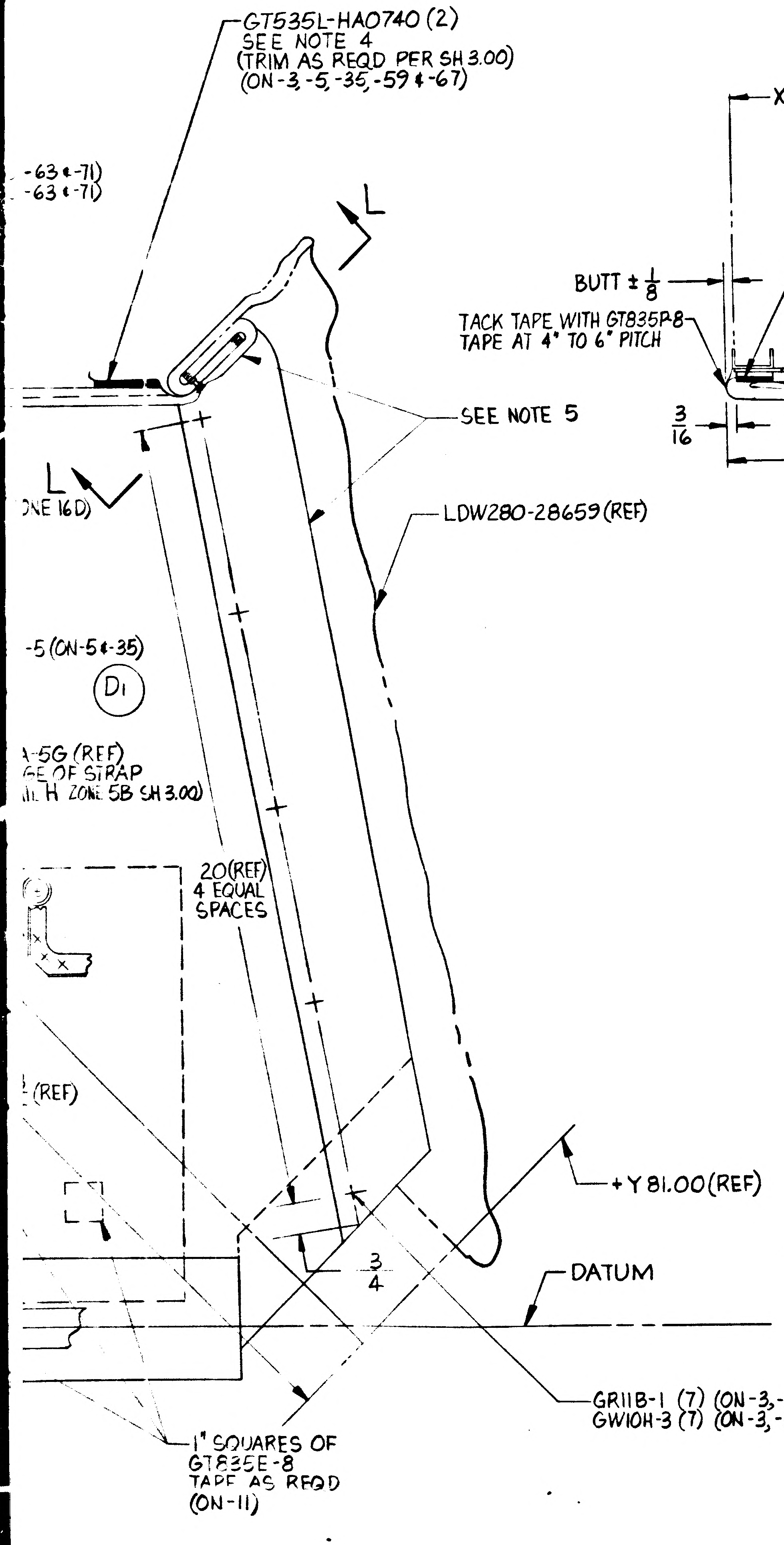

16
15
14
13
D
C
B
A
COVER EXPOSED ADHESIVE SURFACE OF GT835E-8 TAPE WITH GT835M-8 TAPE (ON-19)
GT835E-8 (REF)
GT835P-8 (REF)
GT835E-8 (REF)
℄ SLIT (REF)
GT835P-8 (REF)
LDW280P18128-11 (REF)
GT835E-8 (REF)
-19 (REF)
1-3
1-3
SECTION N-N (ZONE 14B)
SCALE : FULL
LDW280-28656(REF)
5 1/2 (TYP)
GR11B-1 (2) (ON-3,-5,-19,-21,-35,-59,-63,-67 & -71)
GW10H-3 (2) (ON-3,-5,-19,-21,-35,-59,-63,-67 & -71)
3/4 (TYP)
SECTION L-L (ZONE 16C & 13C)
SCALE : 1/2
L (ZONE 16D)
D1
GT15C-3 (ON-5 & -35)
SEE NOTE 8
+Y 27.00 (REF)
G
℄
LDW280-23655-1 (REF)
D1
GT15C-3 (ON-5 & -35)
SEE NOTE 8
D1 D2
GR11B-1 (4) (ON-5,-21,-35,-63 & -71)
GW10H-3 (4) (ON-5,-21,-35,-63 & -71)
SEE NOTE 8
GT535L-HA0740 (2)
SEE NOTE 4
(TRIM AS REQD PER SH 3.00)
(ON-3,-5,-35,-59 & -67)
L
BUTT ± 1/8
TACK TAPE WITH GT835P8 TAPE AT 4" TO 6" PITCH
SEE NOTE 5
3/16
L (ZONE 16D)
LDW280-23659 (REF)
SEE NOTE 8
LDW280-28656 (REF)
L
THIS AREA INSIDE SLIT TO BE CLEAR OF GT835E-8 TAPE
D1
GR11B-1 (4) (ON-5,-21,-35,-63 & -71)
GW10H-3 (4) (ON-5,-21,-35,-63 & -71)
SEE NOTE 8
D2
GR500A-5G (REF)
Δ SEE NOTE 4
℄ (TYP)
SEE SECTION K-K (ZONE 5A)
℄ (TYP)
LDW280P17964-5 (ON-5 & -35)
+Z 27.00 (REF)
D1
GR500A-5G (REF)
(TRIM EDGE OF STRAP PER DETAIL H ZONE 5B SH 3.00)
20 (REF) 4 EQUAL SPACES
20 (REF) 4 EQUAL SPACES
3
16
29
42
D1
LDW280P17964-5 (ON-5 & -35)
11 (REF)
LDW280P17967-19 (ON-11,-13,-65 & -69)
SEE NOTE 10
4 1/2 (REF)
21 3/4
1
N (ZONE 15D)
16 3/4 (REF)
16 3/4 (REF)
2-4 (TYP)
3/4
℄ SLIT (REF)
5 3/8 (REF)
2-4 (REF)
55 1/2 (REF)
+Y 81.00 (REF)
DATUM
3/4
+Z 81.00 (REF)
N
5/8
GT835P-8 TAPE CONTINUOUS ALONG EDGE OF SLIT (ON-19)
GT835E-8 DOUBLE SIDED TAPE INSIDE EDGE OF SLIT (ON-19) (CONTINUOUS STRIP UP TO 1/2 OF ℄) (BOTH SIDES OF ℄)
1" SQUARES OF GT835E-8 TAPE AS REQD (ON-11)
GR11B-1 (7)
GW10H-3 (7)
DATUM
G (ZONE 11 A)
GR11B-1 (5) (ON-3,-5,-19,-21,-35,-59,-63,-67 & -71)
GW10H-3 (5) (ON-3,-5,-19,-21,-35,-59,-63,-67 & -71)
LDW280P18128-11 (ON-11)
LDW280-28667-19 (REF) SEE AUXILARY VIEW (ZONE 10A)
-21 (REF) SEE AUXILARY VIEW (ZONE 10A)
-31 (REF)
-33 (REF)
-39 (REF)
-29 (REF)
-71 (REF) SEE AUXILARY VIEW (ZONE 10A)
-73 (REF)
-63 (REF) SEE AUXILARY VIEW (ZONE 10A)
-61 (REF)
LDW280-28667-3 INSTL (REF)
-5 INSTL (REF)
-11 ASSY
-13 ASSY
-19 ASSY
-21 ASSY
-35 INSTL (REF)
-67 INSTL (IDENT. TO -59 EXCEPT AS NOTED)
-71 ASSY (IDENT. TO -63 EXCEPT AS NOTED)
-69 ASSY (IDENT. TO -65 EXCEPT AS NOTED)
-59 INSTL
-63 ASSY (IDENT TO -21 EXCEPT AS NOTED)
-65 ASSY (IDENT TO -13 EXCEPT AS NOTED)
D4
D6
LDW280-28667-11 (REF)
-13 (REF)
-19 (REF)
-21 (REF)
-69 (REF)
-71 (REF)
-65 (REF)
-63 (REF)
VIEW LOOKING UP
SCALE : 1/2

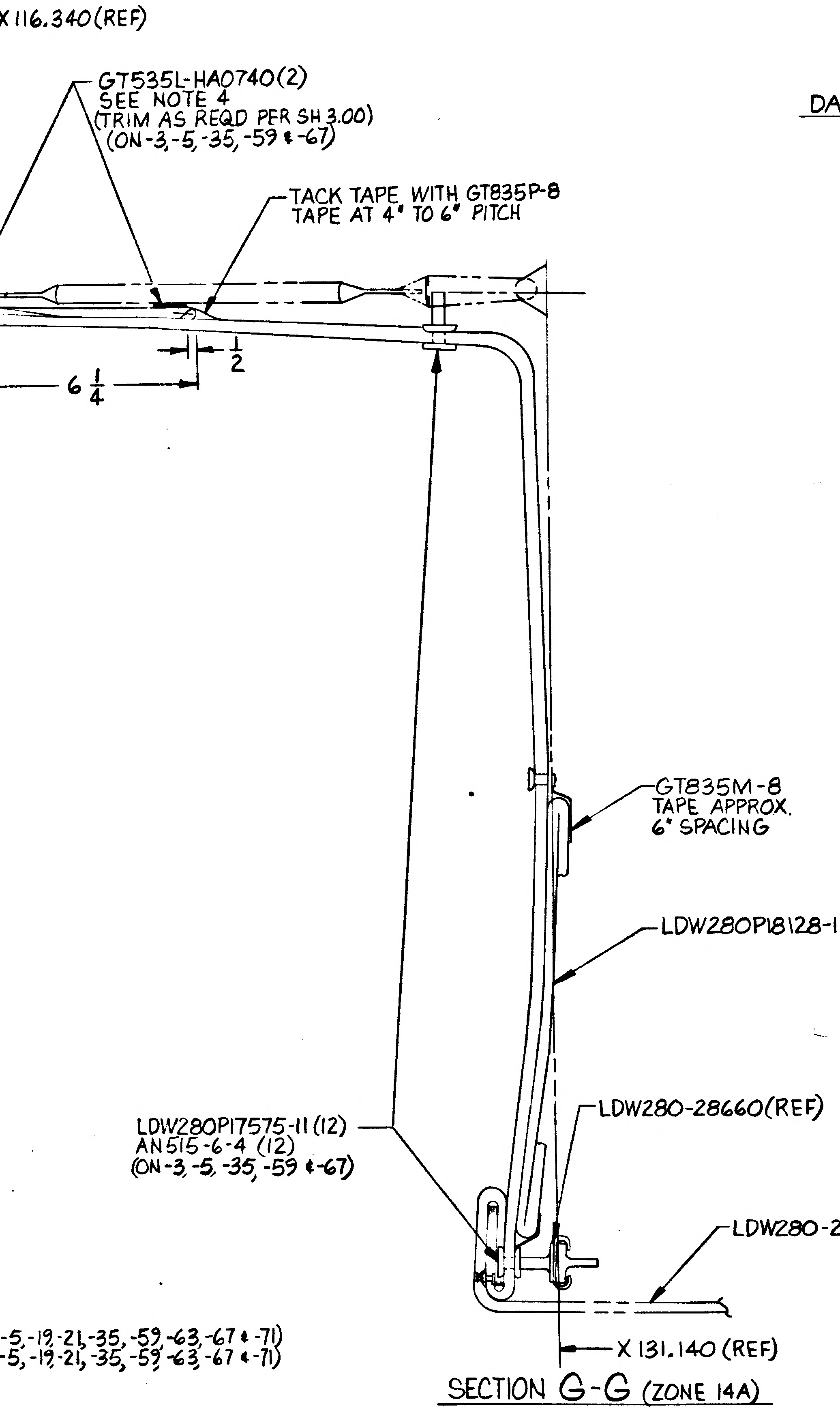
01/02

NAS 9-1100

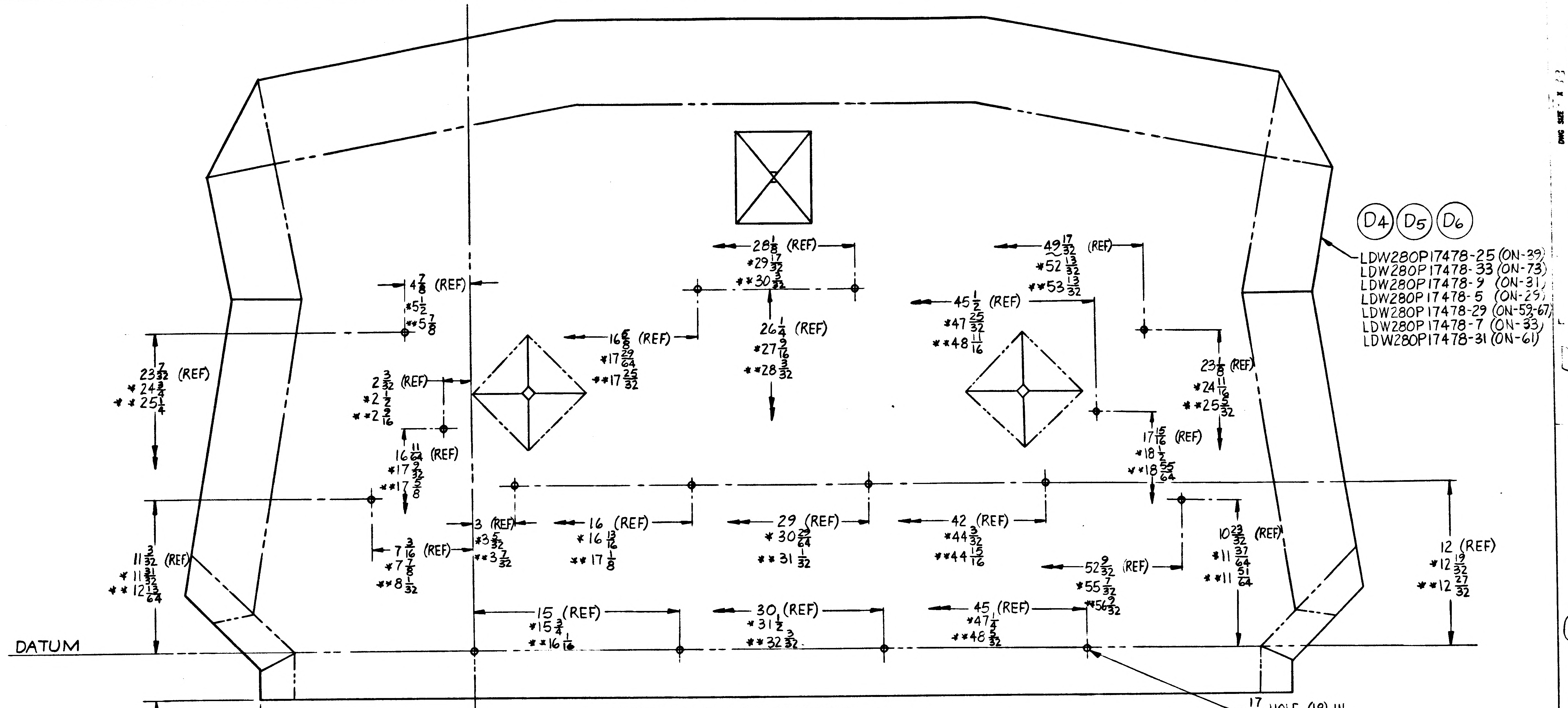
CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-28667	4

FRAME 1 FRAME 2

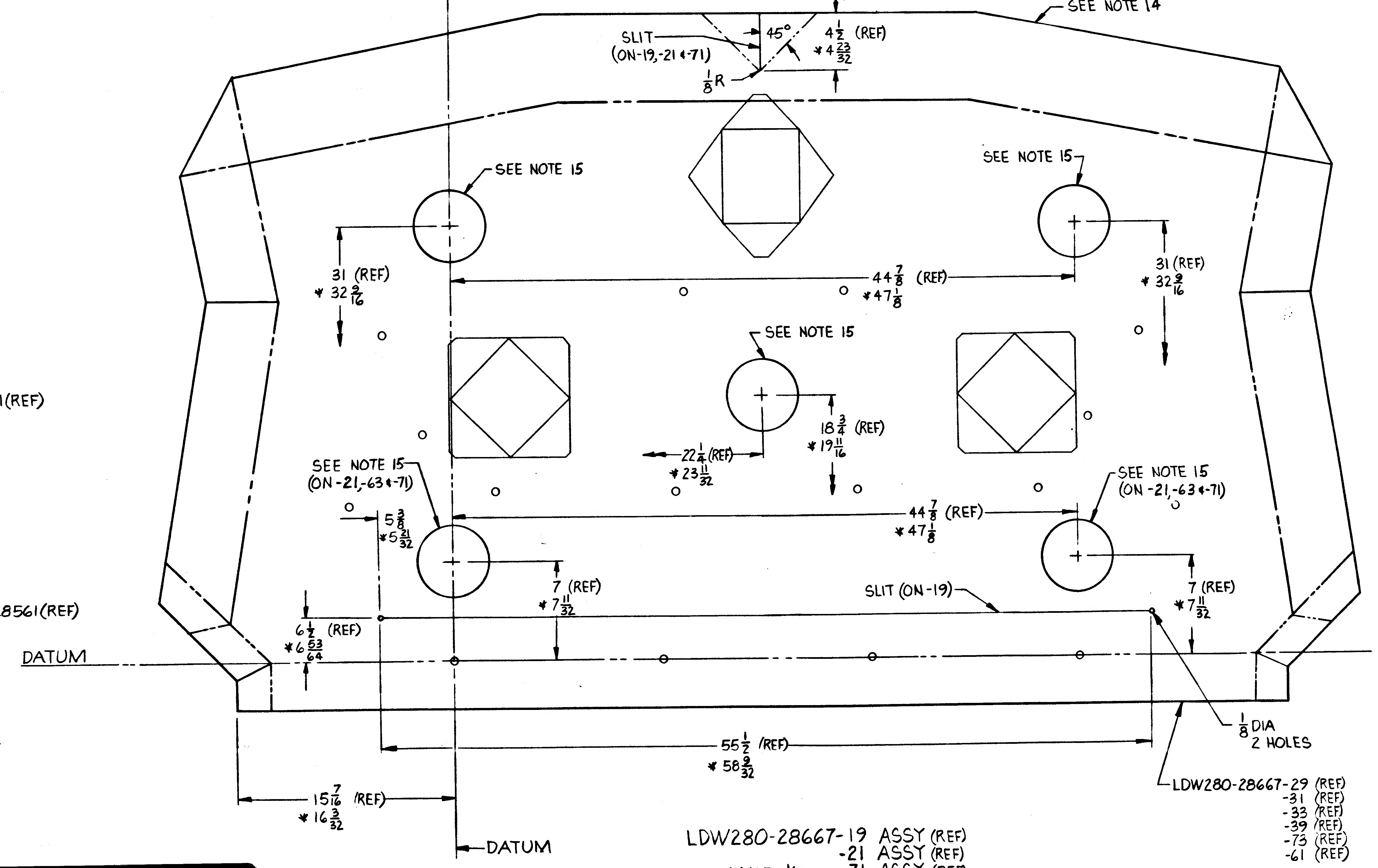

GT535L-HA0740 (2)
SEE NOTE 4
(TRIM AS REQD PER SH 3.00)
(ON-3,-5,-35,-59 & -67)
-63 & -71)
-63 & -71)
L
L
SEE NOTE 5
LDW280-28659 (REF)
-5 (ON-5 & -35)
D1
-5G (REF)
OF STRAP
ZONE 5B SH 3.00)
20 (REF)
4 EQUAL
SPACES
(REF)
+Y 81.00 (REF)
DATUM
3/4
1" SQUARES OF
GT835E-8
TAPE AS REQD
(ON-11)
GR11B-1 (7) (ON-3,-5,-19,-21,-35,-59,-63,-67 & -71)
GW10H-3 (7) (ON-3,-5,-19,-21,-35,-59,-63,-67 & -71)


X 116.340 (REF)
GT535L-HA0740 (2)
SEE NOTE 4
(TRIM AS REQD PER SH 3.00)
(ON-3,-5,-35,-59 & -67)
BUTT ± 1/8
TACK TAPE WITH GT835P-8
TAPE AT 4" TO 6" PITCH
TACK TAPE WITH GT835P-8
TAPE AT 4" TO 6" PITCH
3/16
6 1/4
1/2
GT835M-8
TAPE APPROX.
6" SPACING
LDW280P18128-11 (REF)
LDW280-28660 (REF)
LDW280P17575-11 (12)
AN515-6-4 (12)
(ON-3,-5,-35,-59 & -67)
LDW280-28561 (REF)
X 131.140 (REF)

SECTION G-G (ZONE 14A)
SCALE : 1/2


D4 D5 D6
LDW280P17478-25 (ON-29)
LDW280P17478-33 (ON-73)
LDW280P17478-9 (ON-31)
LDW280P17478-5 (ON-29)
LDW280P17478-29 (ON-53,-67)
LDW280P17478-7 (ON-33)
LDW280P17478-31 (ON-61)
DATUM
17/32 HOLE (18) IN
-29 (5% DIMENSIONS)
-31 (7% DIMENSIONS)
-33,-61,-73 (7% DIMENSIONS)
-39 (5% DIMENSIONS)
3 3/8 (REF)
15 7/16 (REF)
DATUM

LDW280-28667-29 ASSY (D4) (D6)
-31 ASSY
-33 ASSY
-39 ASSY
SCALE : 1/4
-61 ASSY (IDENT TO -33 EXCEPT AS NOTED)
-73 ASSY (IDENT TO -61 EXCEPT AS NOTED)


SEE NOTE 14
SLIT
(ON-19,-21 & -71)
45°
4 1/2 (REF)
1/8 R
SEE NOTE 15
SEE NOTE 15
31 (REF)
44 7/8 (REF)
31 (REF)
SEE NOTE 15
18 3/4 (REF)
22 1/4 (REF)
SEE NOTE 15
(ON-21,-63 & -71)
SEE NOTE 15
(ON-21,-63 & -71)
44 7/8 (REF)
5 3/8
7 (REF)
7 (REF)
SLIT (ON-19)
6 1/2 (REF)
DATUM
1/8 DIA
2 HOLES
55 1/2 (REF)
15 7/16 (REF)
DATUM
LDW280-28667-29 (REF)
-31 (REF)
-33 (REF)
-39 (REF)
-73 (REF)
-61 (REF)

LDW280-28667-19 ASSY (REF)
-21 ASSY (REF)
SCALE: 1/4 -71 ASSY (REF)
(AUXILARY VIEW) -63 ASSY (REF)

02/02 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
J	26512	LDW280-28667	D
SCALE NOTED		SHEET 4.00	

SUPERSEDES LDW280-28667 REV C 12-12-67 ZFR

LDW280-28667 D

12 LDW280-28667 SHEET 4

FRAME 1 FRAME 2

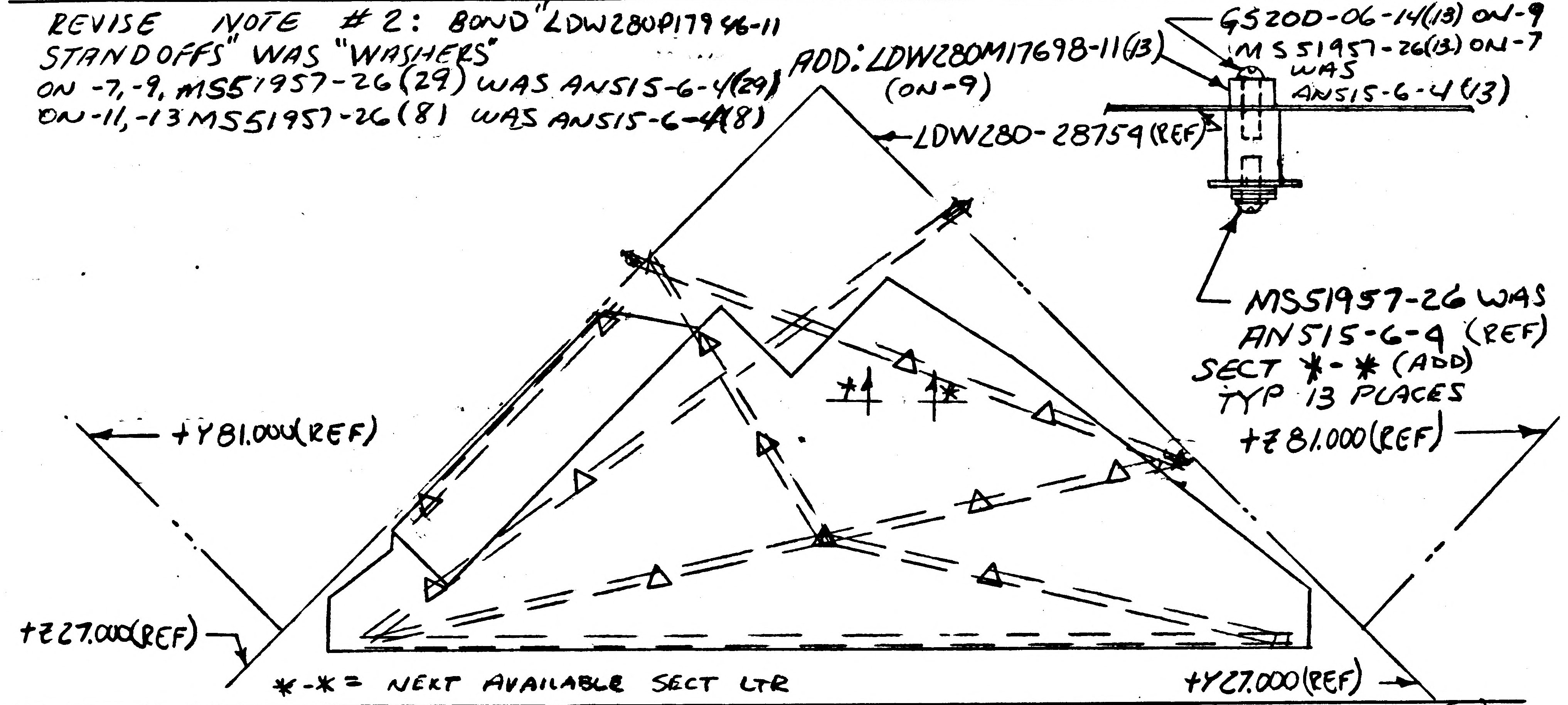
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28667
EO NO. B1
CONTROL INFO NO. LDW280A-3328

REVISE NOTE #2: BOND "LDW280P17946-11 STANDOFFS" WAS "WASHERS"
ON -7, -9, MS51957-26 (29) WAS AN515-6-4(29)
ON -11, -13 MS51957-26 (8) WAS AN515-6-4(8)



ADD: LDW280M17698-11(13)
(ON-9)
GS200-06-14(13) ON-9
MS51957-26(13) ON-7
WAS
AN515-6-4(13)
LDW280-28759(REF)
MS51957-26 WAS
AN515-6-4 (REF)
SECT *-* (ADD)
TYP 13 PLACES
+Y81.000(REF)
+Z81.000(REF)
+Z27.000(REF)
+Y27.000(REF)
*1
*1

- = NEXT AVAILABLE SECT LTR

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		(5)

REASON FOR EO: ADD SUFFICIENT HEAT SINK CAPACITY

DESCRIPTION OF EO: IN NOTE 2: "LDW280P17946-11 STAND-OFFS" WAS "WASHERS" ADDED SECT *-* ON-7 MS51957-26 (48) WAS AN515-6-4(42) ON-9 ADDED LDW280M17698-11(13), GS200-06-14(13) & MS51957-26 (29) WAS AN515-6-4(42). ON-11, & 13 MS51957-26(8) WAS AN515-6-4(8)

GAEC EO RELEASE: LE 11/15

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	JAS	W. Sloan		JAS	WJH			
DATE	11/14/66	11/15/66		11/14/66	11/15/66		11-15-66	11/15/66
5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~QUAL~~

PRIORITY: C
DRAWING TITLE: SHIELD INSTL D/S QUAD IV THERMAL
DRAWING NO.: LDW280-28667
EO NO.: B1

ISSUED BY AMBROSIO / STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

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GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28667
EO NO. B2
CONTROL INFO NO. LM-5-9717

IN B/M CALLOUT FOR "THREAD"
P/N SEE NOTE 7 (AS REQD) ON -7 & -9 (S/B)
P/N SEE NOTE 6 (AS REQD) ON -3 & -5

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☐

5

REASON FOR EO
INCORRECT NOTE REFERENCE & ASSEMBLY

DESCRIPTION OF EO
IN B/M
IN CALLOUT FOR "THREAD" P/N SEE NOTE 6 (AS REQD) ON -3 & -5 WAS P/N SEE NOTE 7 (AS REQD) ON -7 & -9

GAEC C EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY						DV	DV	RMC	
DATE	12/15/66					11/15	11/15	11-21-66	11-15-66
1	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER		STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: SHIELD INSTL D/S QUAD IV FIXED THERMAL

DRAWING NO.: LDW280-28667

EO NO.: B2

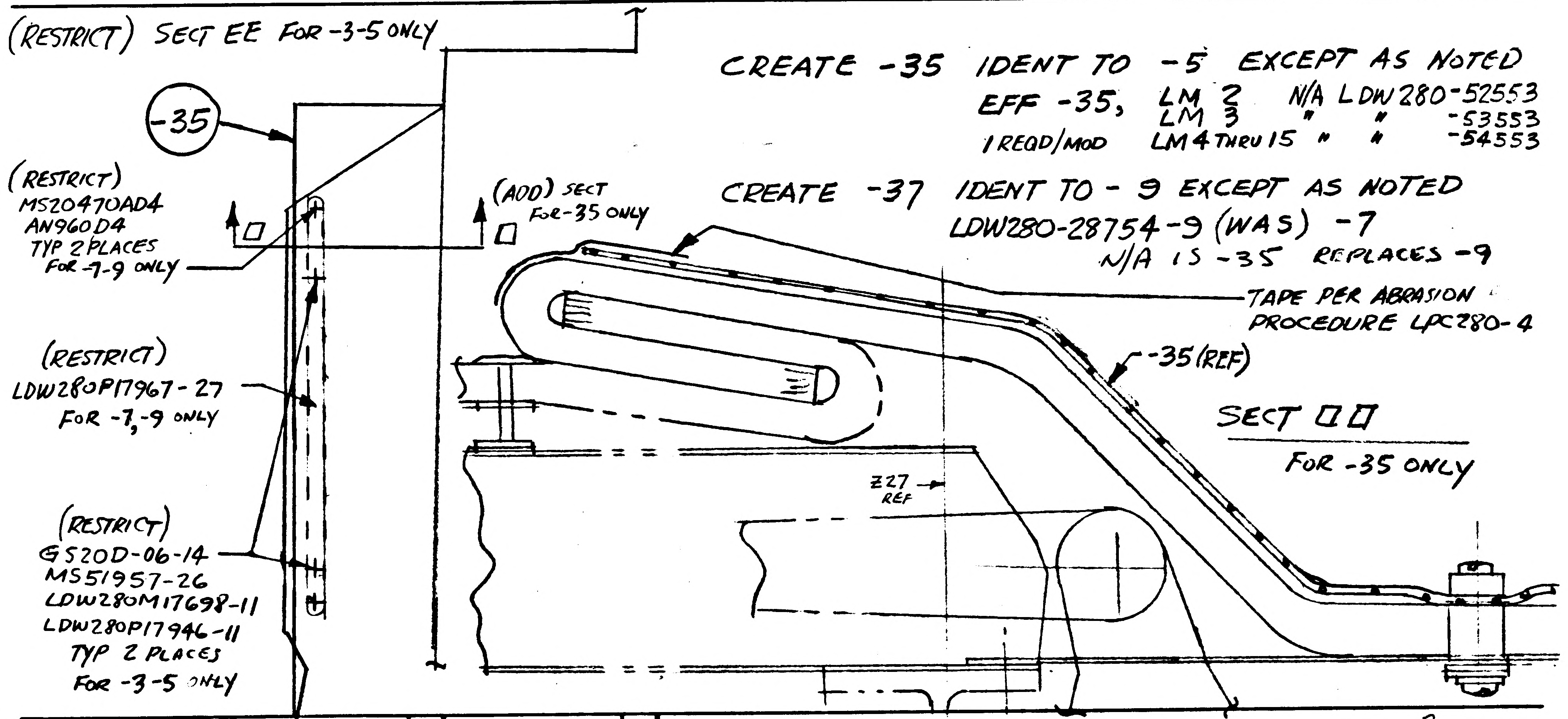
ISSUED BY LIAISON J. McGILL X6452 SECTION J. STRAKOSCH GROUP NO.____ PL 35

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LDW280-28667		EO NO. B4
CONTROL INFO NO. LDW280A-2417		


(RESTRICT) SECT EE FOR -3-5 ONLY
-35
(RESTRICT)
MS20470AD4
AN960D4
TYP 2 PLACES
FOR -7-9 ONLY
(ADD) SECT
☐ FOR -35 ONLY
(RESTRICT)
LDW280P17967-27
FOR -7,-9 ONLY
(RESTRICT)
GS20D-06-14
MS51957-26
LDW280M17698-11
LDW280P17946-11
TYP 2 PLACES
FOR -3-5 ONLY
TAPE PER ABRASION
PROCEDURE LPC280-4
-35 (REF)
SECT ☐☐
FOR -35 ONLY
227
REF

CREATE -35 IDENT TO -5 EXCEPT AS NOTED

EFF -35, LM 2 N/A LDW280-52553
LM 3 " " -53553
1 REQD/MOD LM 4 THRU 15 " " -54553

CREATE -37 IDENT TO -9 EXCEPT AS NOTED
LDW280-28754-9 (WAS) -7
N/A IS -35 REPLACES -9

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	2

REASON FOR EO: STRUCTURE DIFFERENT FROM PREVIOUS VEHICLES

DESCRIPTION OF EO: ADDED -35,-37, SECT ☐☐

GAEC EO RELEASE: LE 12/1

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LEM	LM 2-(32) THRU LM 15 (45)		

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
✓		NOT REQD	

APPROVED BY									
DATE	11/19/66	11/23		11/18/66	11/23		11-29-66	11-30-66
5	VDI	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL DESCENT STAGE QUAD IV FIXED THERMAL	LDW280-28667	B4

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 35

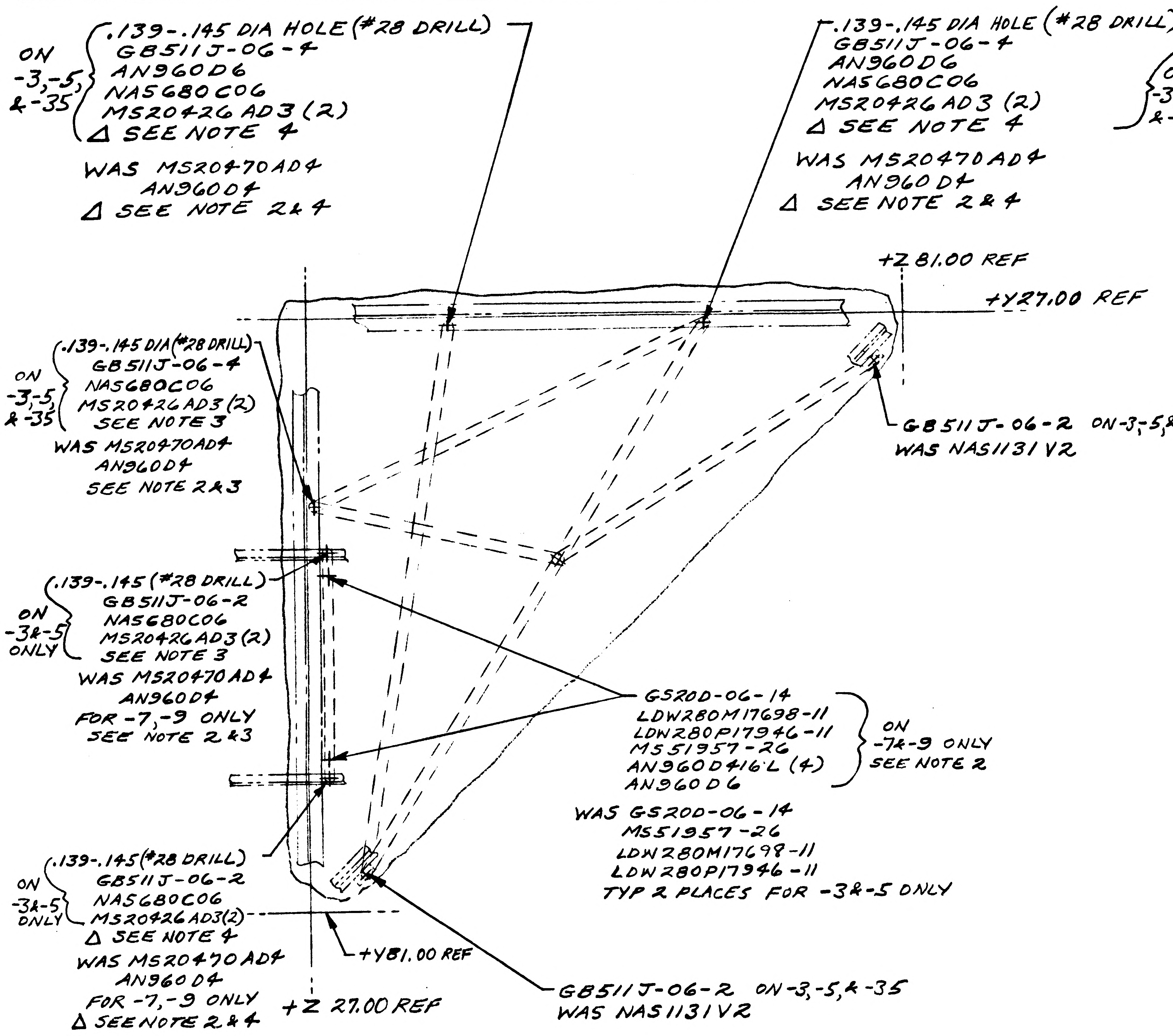
01 NAS 9-1100

01 NAS 9-1100

NG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28667		EO NO. B5	
CONTROL INFO NO. LDW280A-4228			


ON -3,-5, & -35
.139-.145 DIA HOLE (#28 DRILL)
GB511J-06-4
AN960D6
NAS680C06
MS20426AD3 (2)
Δ SEE NOTE 4
WAS MS20470AD4
AN960D4
Δ SEE NOTE 2 & 4
.139-.145 DIA HOLE (#28 DRILL)
GB511J-06-4
AN960D6
NAS680C06
MS20426AD3 (2)
Δ SEE NOTE 4
ON -3,-5, & -35
WAS MS20470AD4
AN960D4
Δ SEE NOTE 2 & 4
+Z 81.00 REF
+Y27.00 REF
ON -3,-5, & -35
.139-.145 DIA (#28 DRILL)
GB511J-06-4
NAS680C06
MS20426AD3 (2)
SEE NOTE 3
WAS MS20470AD4
AN960D4
SEE NOTE 2 & 3
GB511J-06-2 ON -3,-5, & -35
WAS NAS1131V2
ON -3 & -5 ONLY
.139-.145 (#28 DRILL)
GB511J-06-2
NAS680C06
MS20426AD3 (2)
SEE NOTE 3
WAS MS20470AD4
AN960D4
FOR -7,-9 ONLY
SEE NOTE 2 & 3
GS20D-06-14
LDW280M17698-11
LDW280P17946-11
MS51957-26
AN960D416L (4)
AN960D6
ON -7 & -9 ONLY
SEE NOTE 2
WAS GS20D-06-14
MS51957-26
LDW280M17698-11
LDW280P17946-11
TYP 2 PLACES FOR -3 & -5 ONLY
ON -3 & -5 ONLY
.139-.145 (#28 DRILL)
GB511J-06-2
NAS680C06
MS20426AD3 (2)
Δ SEE NOTE 4
WAS MS20470AD4
AN960D4
FOR -7,-9 ONLY
Δ SEE NOTE 2 & 4
+Y81.00 REF
+Z 27.00 REF
GB511J-06-2 ON -3,-5, & -35
WAS NAS1131V2

LDW280-28667-3,-5,-35 INSTL (REF)

VIEW LOOKING DOWN

REVISE NOTE #6 TO READ AS SHOWN BELOW

SEW TAPE AT $\frac{3}{16} \pm \frac{1}{16}$ FROM EDGE OF TAPE IN ACCORDANCE WITH FEDERAL STD. #751a & STITCH TYPE #301. ASTROQUARTZ RQ754-12 THREAD MAY BE PURCHASED FROM DODGE FIBERS CORP. P.O. BOX 124, HOOSICK FALLS, N.Y. CODE IDENT. NO. 07512

DESCRIPTION CONT'D
& SEE NOTE 2 (2 PLACES). ADDED GS20D-06-14 (2), LDW280M17698-11 (2), LDW280P17946-11 (2), MS51957-26 (2), AN960D416L (4), AN960D6 (2), & SEE NOTE 2 ON -3 & -5 REMOVED GS20D-06-14 (2), MS51957-26 (2), LDW280M17698-11 (2), LDW280P17946-11 (2), ADDED GB511J-06-2 (2), NAS680C06 (2), MS20426AD3 (4), & .139-.145 (#28 DRILL) 2 PLACES.
REVISED NOTE #6 REPLACED; SAGE GREEN SIZE E, MIL-T-7807, TYPE II, CLASS I, NYLON THREAD, MAY BE PURCHASED FROM ETC.; WITH: ASTROQUARTZ RQ754-12 THREAD MAY BE PURCHASED FROM DODGE FIBERS CORP., P.O. BOX 124, HOOSICK FALLS, N.Y. CODE IDENT NO. 07512

REVISE B/M TO AGREE WITH ABOVE CHANGES

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO
ASTROQUARTZ THREAD REQ'D TO PREVENT DETERIORATION AT HIGH TEMP. SCREWS MUST REPLACE RIVETS TO PREVENT DAMAGE WHEN INSTALLING SHLD.	ON -3,-5, & -35 REMOVED MS20470AD4 (3), AN960D4 (3), NAS1131V2 (2) & SEE NOTE 2 (3 PLACES). ADDED GB511J-06-4 (3), NAS680C06 (3), MS20426AD3 (6), GB511J-06-2 (2), & .139-.145 (#28 DRILL) 3 PLACES ON -7 & -9 REMOVED MS20470AD4 (2), AN960D4 (2), (DESCR. CONT'D ABOVE)

GAEC EO RELEASE: FR 12/14/66

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-1 (31) THRU LM-15 (45)		
LM	LTA-8 (18)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	JAP	B	RM	JMS	W/U		HW	
DATE	12/14/66	12/14/66	12/14/66		12/14/66		12-14-66	12/14/66
5	VDI	~~SUPPORT~~ THERMO	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL D.S. QUAD IV FIXED THERMAL	LDW280-28667	B5

ISSUED BY J. [illegible] SECTION VDI GROUP NO. 335 PL 35

B

ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-28667		EO NO. B6
CONTROL INFO NO. LDW 280 A-4650		

REMOVE LDW280-28667-29 ASSY FROM LDW280-28667-21
CREATE LDW280-28667-39 ASSY (N/A ON-21) IDENT TO LDW280-28667-29 ASSY EXCEPT AS NOTED. ON -39 ASSY LDW 280P17478-25 (1 REQ'D) REPLACES LDW280P17478-5
EFF. LM-1(31) THRU LM-15(45)

(2)
TS

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: TO AGREE WITH FABRICATED PARTS

DESCRIPTION OF EO: REMOVED -29 ASSY FROM -21
CREATED -39 ASSY IDENT TO -29 EXCEPT AS NOTED ON -39
LDW280P17478-25 REPLACED LDW 280P17478-5

GAEC EO RELEASE: 1/9/

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	-29

APPROVED BY								
DATE	1/3/67	1/4		12/29	1/5/67		1/9/67	1-9-67
/	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL D/S QUAD IV - FIXED - THERMAL	LDW280-28667	B6

ISSUED BY V.A. CHRISTINA / J. STRAKOSCH SECTION VDI x1153 GROUP NO. 335 PL 35

01 NAS 9-1100

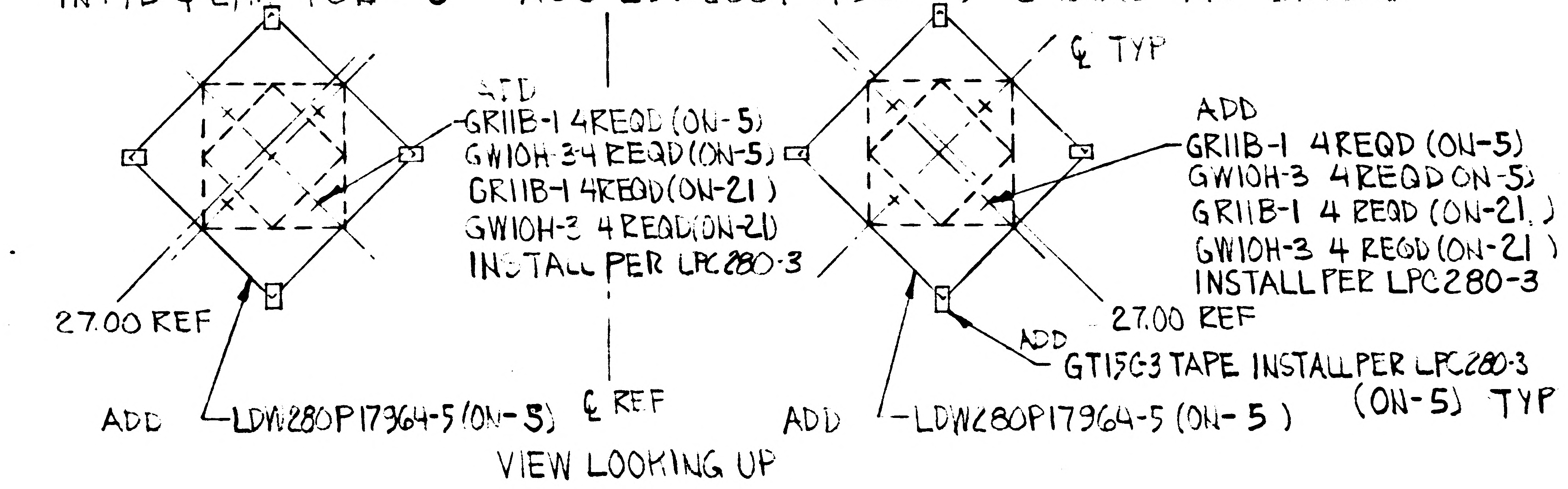
B
A 6

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28667
EO NO. B7
CONTROL INFO NO. LM-27-1032

IN F/D & L/M FOR -5 ADD LDW280P17964-5 2 REQD AS SHOWN


ADD
GR11B-1 4 REQD (ON-5)
GW10H-3 4 REQD (ON-5)
GR11B-1 4 REQD (ON-21)
GW10H-3 4 REQD (ON-21)
INSTALL PER LPC280-3
27.00 REF
ADD LDW280P17964-5 (ON-5)
℄ REF
℄ TYP
ADD
GR11B-1 4 REQD (ON-5)
GW10H-3 4 REQD ON-5)
GR11B-1 4 REQD (ON-21)
GW10H-3 4 REQD (ON-21)
INSTALL PER LPC280-3
27.00 REF
ADD GT15C-3 TAPE INSTALL PER LPC280-3 (ON-5) TYP
ADD LDW280P17964-5 (ON-5)

VIEW LOOKING UP

DESCRIPTION CONT.
ON -21, ADDED GR11B-1 RETAINER (8), GW10H-3 WASHER (8) & "INSTALL PER LPC 280-3" CALLOUT(2).

THIS IS AN ORIGINAL E.O.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO: LANDING GEAR REMOVAL ON LM-1 CCA-398

DESCRIPTION OF EO: ON -5 IN F/D & L/M ADDED LDW280P17964-5 COVER 2 REQD GR11B-1 RETAINER (8), GW10H-3 WASHER (8) CONT ABOVE

GAEC EO RELEASE: C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: ✓ REWORK ☐ SCRAP

APPROVED BY					~	W. 7	RME	
DATE	1/25				~	1-11-	1-11-67	1-10-67
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C 27
DRAWING TITLE: SHIELD INSTL - DESCENT STAGE QUAD IV FIXED THERMAL
DRAWING NO.: LDW280-28667
EO NO.: B7

ISSUED BY LIAISON J. [illegible] ZEMAN 1153 SECTION VDI GROUP NO. 335-25

01
NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-28667 | EO NO. B8
CONTROL INFO NO. LDW280A-5188

ON -35 REMOVE EFF LM-3(33) THRU LM-15(45)

ADD -41 ASS'Y IDENT. TO -27 ASS'Y EXCEPT LDW280P17977-33
WAS LDW280P17977-9

ADD -43 ASSY IDENT. TO -17 ASS'Y EXCEPT -41 REPLACES -27

ADD -45 ASSY IDENT. TO -37 ASS'Y EXCEPT -43 REPLACES -17

ADD -47 INSTL. IDENT TO -35 INSTL EXCEPT -45 REPLACES -37

EFF -47, LM-3 N/A LDW280-53553 1 REQ'D/MOD
LM-4 THRU LM-15 N/A LDW280-54553 1 REQ'D/MOD

DETAIL SPEC RQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☐ 2

REASON FOR EO: NEW ASSY NEEDED TO AGREE WITH FABRICATED PARTS

DESCRIPTION OF EO: ON-35 REMOVED EFF LM-3 THRU LM-15
ADDED: -41, -43, -45 & -47

GAEC EO RELEASE: FK 1/25/67

MODEL	PROCURING ACTIVITY NO	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	
LM		THRU	
LM		LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CUST~~
✓		✓		1/23/67							1/23/67	1/24/67
				6	VDI	SUPPORT	RELIAB. GROUP					

PRIORITY: C
DRAWING TITLE: SHIELD INSTL D/S QUAD IV FIXED THERMAL
DRAWING NO.: LDW280-28667
EO NO.: B8

ISSUED BY T. AMBROSIO / STRAKOSCH X1392 SECTION V.D.1 GROUP NO. 335 PL 35

01

NAS 9-1100

A

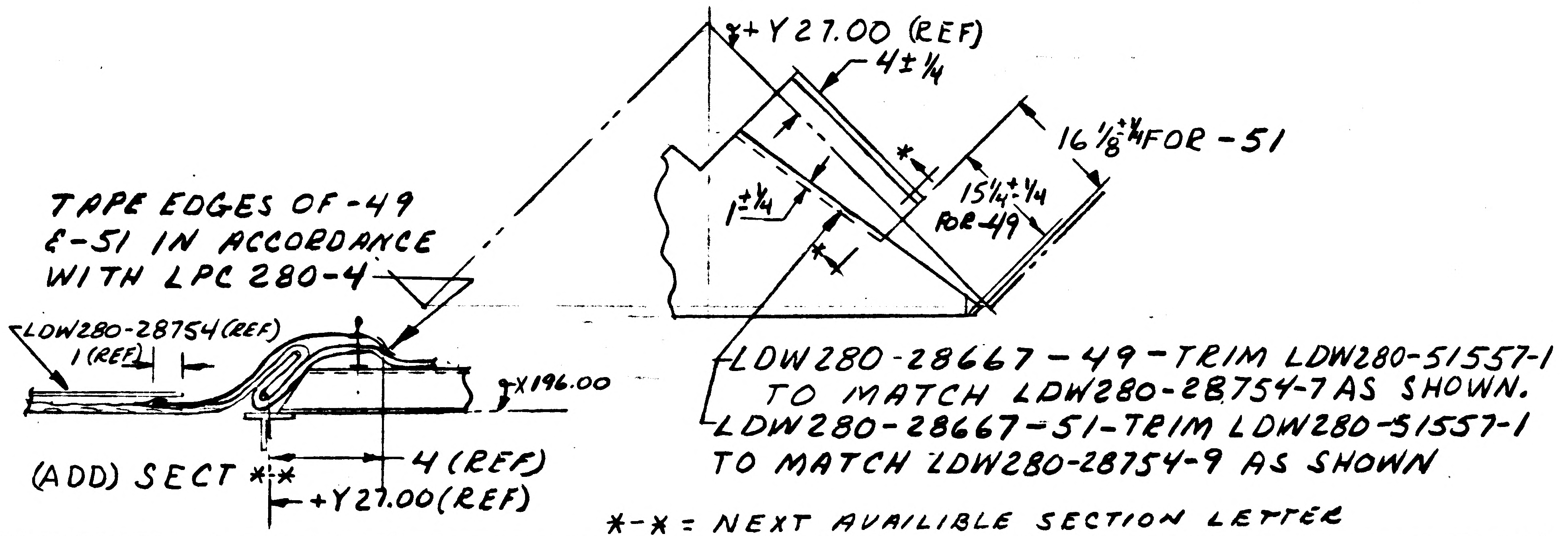
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-28667		EO NO. B10
CONTROL INFO NO. LDW280A 5928		

CANCEL E.O. B9

IN F/D & B/M FOR -5 ADD -49 SHIELD ASSY (MAKE FROM LDW280-51557-1)
FOR -35 & -47 ADD -51 SHIELD ASSY (MAKE FROM LDW280-51557-1)



TAPE EDGES OF -49 & -51 IN ACCORDANCE WITH LPC 280-4

LDW280-28667-49-TRIM LDW280-51557-1 TO MATCH LDW280-28754-7 AS SHOWN.
LDW280-28667-51-TRIM LDW280-51557-1 TO MATCH LDW280-28754-9 AS SHOWN

(ADD) SECT *-*

- = NEXT AVAILIBLE SECTION LETTER

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 19-1135 5

REASON FOR EO ADDITIONAL THERMAL PROTECTION	DESCRIPTION OF EO CANCELLED E.O. B9 IN F/D & B/M FOR -5 ADDED -49 (MAKE FROM LDW280-51557-1) FOR -35 & -47 ADDED -51 (MAKE FROM LDW280-51557-1) IN F/D ADDED SECT *-*

Ⓡ GAEC EO RELEASE C
JK 4/5/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-1 (31)	
		THRU	
		LM-15 (45	

	DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY									JAS	WJH		Dam	
DATE					4/3/67				4/1/67	4/3/67		4/3/67	4567
	✓		✓		5	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL DESCENT STAGE QUAD IV FIXED THERMAL	LDW280-28667	B10

ISSUED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

FITH

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

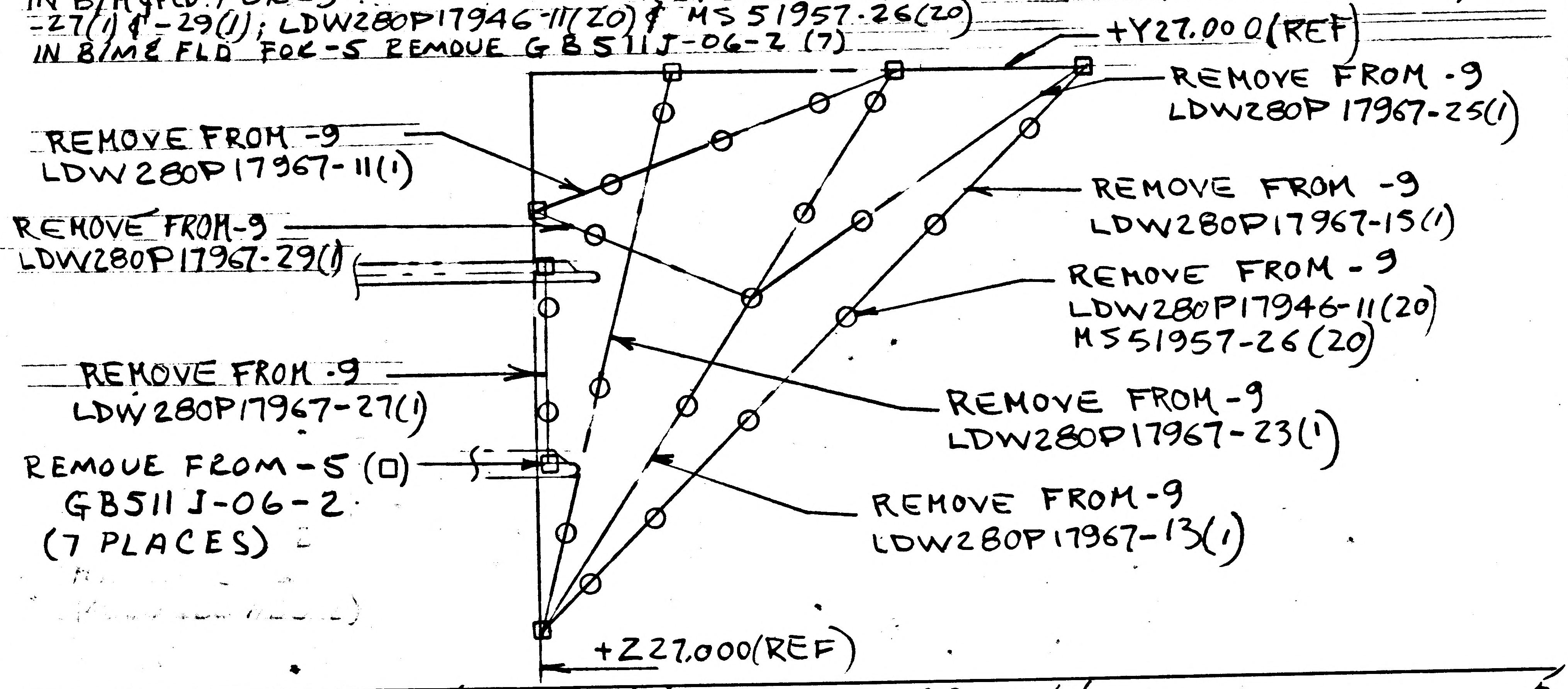
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28667 EO NO. C1

CONTROL INFO NO. LDW280A6699

IN B/M & FLD. FOR -9 REMOVE LDW 280P17967-11(1), -13(1), -15(1), -23(1), -25(1) -27(1) & -29(1); LDW280P17946-11(20) & MS 51957-26(20)
IN B/M & FLD FOR -5 REMOVE GB511J-06-2 (7)



+Y27.000(REF)
REMOVE FROM -9 LDW280P 17967-25(1)
REMOVE FROM -9 LDW280P17967-11(1)
REMOVE FROM -9 LDW280P17967-15(1)
REMOVE FROM -9 LDW280P17967-29(1)
REMOVE FROM -9 LDW280P17946-11(20) MS51957-26(20)
REMOVE FROM -9 LDW280P17967-27(1)
REMOVE FROM -9 LDW280P17967-23(1)
REMOVE FROM -5 (□) GB511J-06-2 (7 PLACES)
REMOVE FROM -9 LDW280P17967-13(1)
+Z227.000(REF)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	LCD-1244

5 C

REASON FOR EO: TO PROVIDE FOR FITH SHIELD

DESCRIPTION OF EO: IN B/M & FLD FOR -5 REMOVED GB511J-06-2(7); FOR -9 REMOVED LDW280P 17967-11(1), -13(1) -15(1) -23(1), -25(1) -27(1); -29(1); LDW280P17946-11(20) & MS51957-26(20)

GAEC EO RELEASE: JK 5/2/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: √-9 REWORK | SCRAP

APPROVED BY									
DATE	5/2/67	5/2/67		5/2/67	5/2/67		5/2/67	5-2-67
5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY C

DRAWING TITLE: SHIELD INSTL DESCENT STAGE QUAD IV FIXED THERM

DRAWING NO. LDW280-28667 EO NO. C1

ISSUED BY STEA/STRAKOSCH X1156 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

B

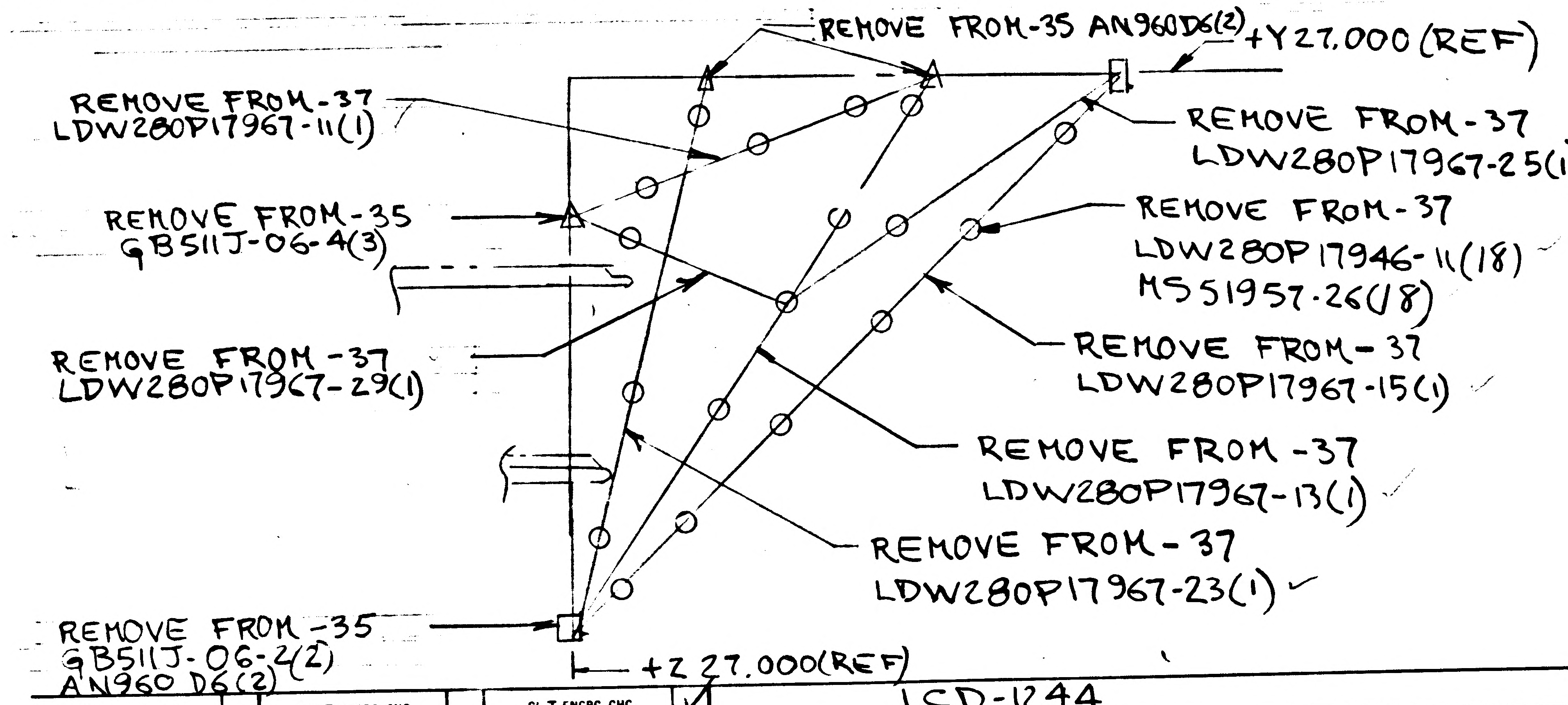
ENG 32.1 REV 3-65

FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28667 | EO NO. C2
CONTROL INFO NO. LDW280A7361

REMOVE FROM-35: GB511J-06-2(2) GB511J-06-4(3) AN960D6(4). REMOVE FROM-37: LDW280P17967-11(1), -13(1), -15(1), -23(1), -25(1), & -29(1) LDW280P17946-11(18) MS51957-26(18)



REMOVE FROM-35 AN960D6(2)

REMOVE FROM-37
LDW280P17967-11(1)

REMOVE FROM-35
GB511J-06-4(3)

REMOVE FROM-37
LDW280P17967-29(1)

REMOVE FROM-35
GB511J-06-2(2)
AN960 D6(2)

REMOVE FROM-37
LDW280P17967-25(1) ✓

REMOVE FROM-37
LDW280P17946-11(18) ✓
MS51957-26(18)

REMOVE FROM-37
LDW280P17967-15(1) ✓

REMOVE FROM-37
LDW280P17967-13(1) ✓

REMOVE FROM-37
LDW280P17967-23(1) ✓

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | LCD-1244 | 5

REASON FOR EO: TO PROVIDE FOR FITH SHIELD

DESCRIPTION OF EO: REMOVED FROM-35: GB511J-06-2(2), GB511J-02-4(3) AN960 D6(4) REMOVED FROM-37: LDW280P17967-11(1), -13(1), -15(1), -23(1), -25(1) & -29(1). LDW280P17946-11(18) MS51957-26(18).

Ⓡ GAEC EO RELEASE C: JK 6/16/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ -35 -37 | SCRAP

APPROVED BY	Jap								
DATE	6/12/67			6/12/67	6/13/67		6/15/67	6/16/67
5	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: SHIELD INSTL DESCENT STAGE~QUAD IV FIXED TH

DRAWING NO. LDW280-28667 | EO NO. C2

ISSUED BY STEA/STRAKOSCH X1156 SECTION VD I GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

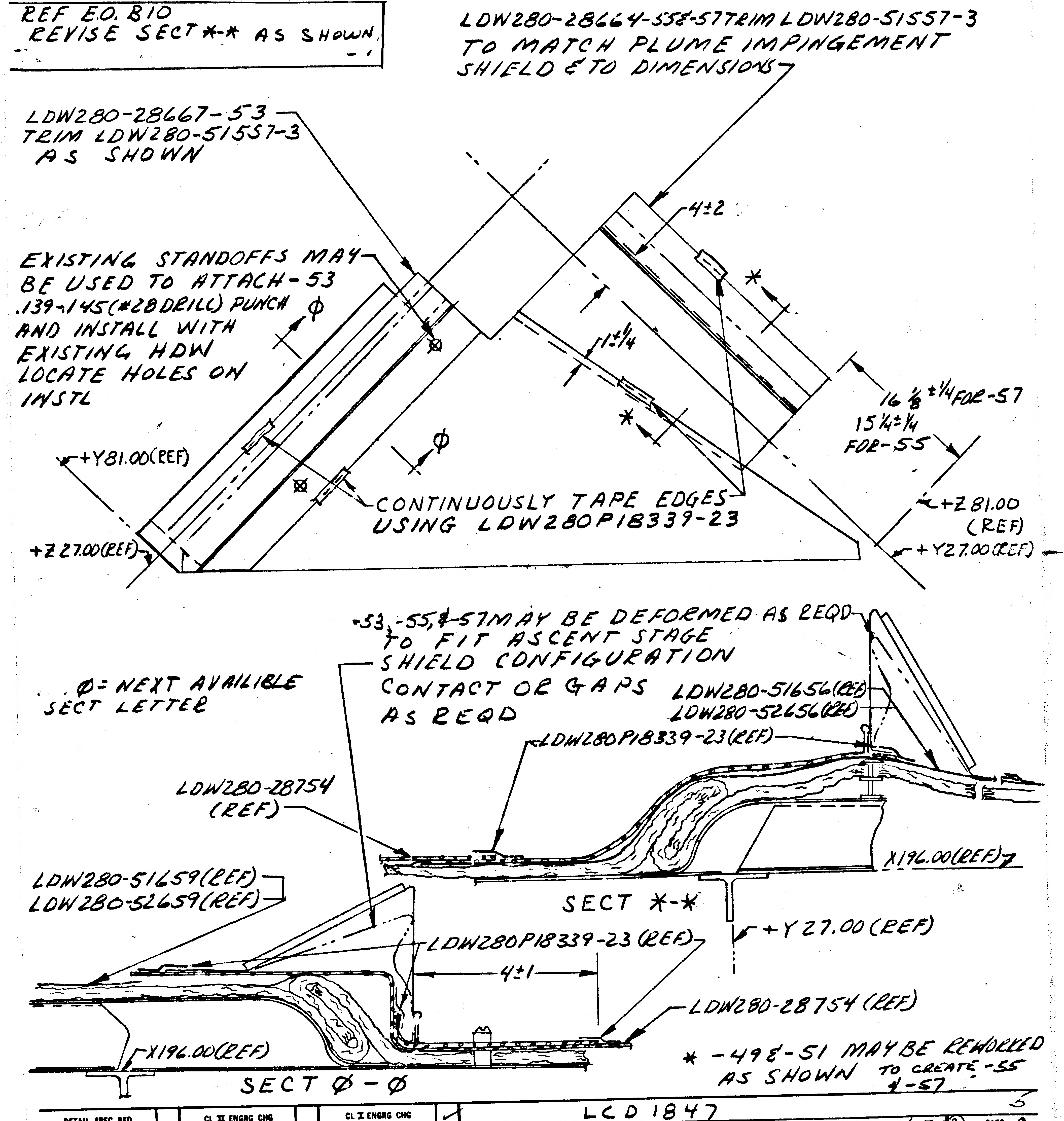
LM

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28667	EO NO. C3
CONTROL INFO NO. LDW280A B100	

FOR -5 REMOVE -49 ADD -53 & -55 SHIELD ASSY
(MAKE FROM LDW280-51557-3) TYP FOR BOTH
FOR -35 REMOVE -51 ADD -53 & -57 SHIELD ASSY
(MAKE FROM LDW280-51557-3)
-53, -55 & -57 CONTAIN LDW280P18339-23 TAPE ASSY AS REQ

REF E.O. B10
REVISE SECT *-* AS SHOWN


LDW280-28664-55 & -57 TRIM LDW280-51557-3
TO MATCH PLUME IMPINGEMENT
SHIELD & TO DIMENSIONS
LDW280-28667-53
TRIM LDW280-51557-3
AS SHOWN
4±2
EXISTING STANDOFFS MAY
BE USED TO ATTACH -53
.139-.145 (#28 DRILL) PUNCH
AND INSTALL WITH
EXISTING HDW
LOCATE HOLES ON
INSTL
Ø
*
1±1/4
16 1/8 ±1/4 FOR -57
15 1/4 ±1/4
FOR -55
*
Ø
+Y81.00 (REF)
CONTINUOUSLY TAPE EDGES
USING LDW280P18339-23
+Z81.00
(REF)
+Z27.00 (REF)
+Y27.00 (REF)
-53, -55, & -57 MAY BE DEFORMED AS REQD
TO FIT ASCENT STAGE
SHIELD CONFIGURATION
CONTACT OR GAPS
AS REQD
Ø = NEXT AVAILIBLE
SECT LETTER
LDW280-51656 (REF)
LDW280-52656 (REF)
LDW280P18339-23 (REF)
LDW280-28754
(REF)
X196.00 (REF)
SECT *-*
LDW280-51659 (REF)
LDW280-52659 (REF)
LDW280P18339-23 (REF)
+Y27.00 (REF)
4±1
LDW280-28754 (REF)
X196.00 (REF)
SECT Ø-Ø

* -49 & -51 MAY BE REWORKED AS SHOWN TO CREATE -55 & -57

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1847	
REASON FOR EO PROVIDE ADDITIONAL THERMAL SHIELDING				DESCRIPTION OF EO FOR -5 REMOVED -49 ADDED -53 & -55 FOR -35 REMOVED -51 ADDED -53 & -57 REVISED SECT *-* (REF EO.B10) ADDED SECT Ø-Ø			GAEC EO RELEASE C JK 8/2/67

MODEL	EFFECTIVITY ~~PROCURING ACTIVITY NO.~~ F.I.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY						
LM	LFM-26	LM-1(31)		✓ REVISE DWG	RECORD EO	-49 -51 REWORK	SCRAP	DATE 8/1/67 (VD)	SUPPORT	8/1/67 THERMAL GROUP	8/1/67 LEADER	8/1/67 STRESS GROUP
		LM-2(32)										

ARC FOR HG PROJ KSK	8/1 PROJ ENGRG	8/2/67		
PRIORITY C	DRAWING TITLE SHIELD INSTL QUAD IV FIXED THERMAL D.S	DRAWING NO. LDW280-28667	EO NO. C3	

8/1
ISSUED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28667
EO NO. C4
CONTROL INFO NO. LDW280A 7876

FOR -47 INSTL. REMOVE -45
" -43
" -41
" -51

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓

LCD 1244 OK

3

REASON FOR EO: TO PROVIDE FOR FITH SHIELD

DESCRIPTION OF EO: IN F/D, B/M & MOD/BLK FOR -47 REMOVED -45, -43, -41 & -51

GAEC EO RELEASE: JK 9/7/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM3 (33)	
		THRU	
		LM15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓ -47	-41, -43 -45-51

APPROVED BY									
DATE	8/30/67			8/30/67	8/31/67		8/31/67	9/2/67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: SHIELD INSTL. D/S QUAD IV FIXED THERMAL

DRAWING NO.: LDW280-28667

EO NO.: C4

9/1
ISSUED BY D. THOMAS / STRAKOSCH x1156   SECTION V.D.I.   GROUP NO. 335   PL 25

01

NAS 9-1100

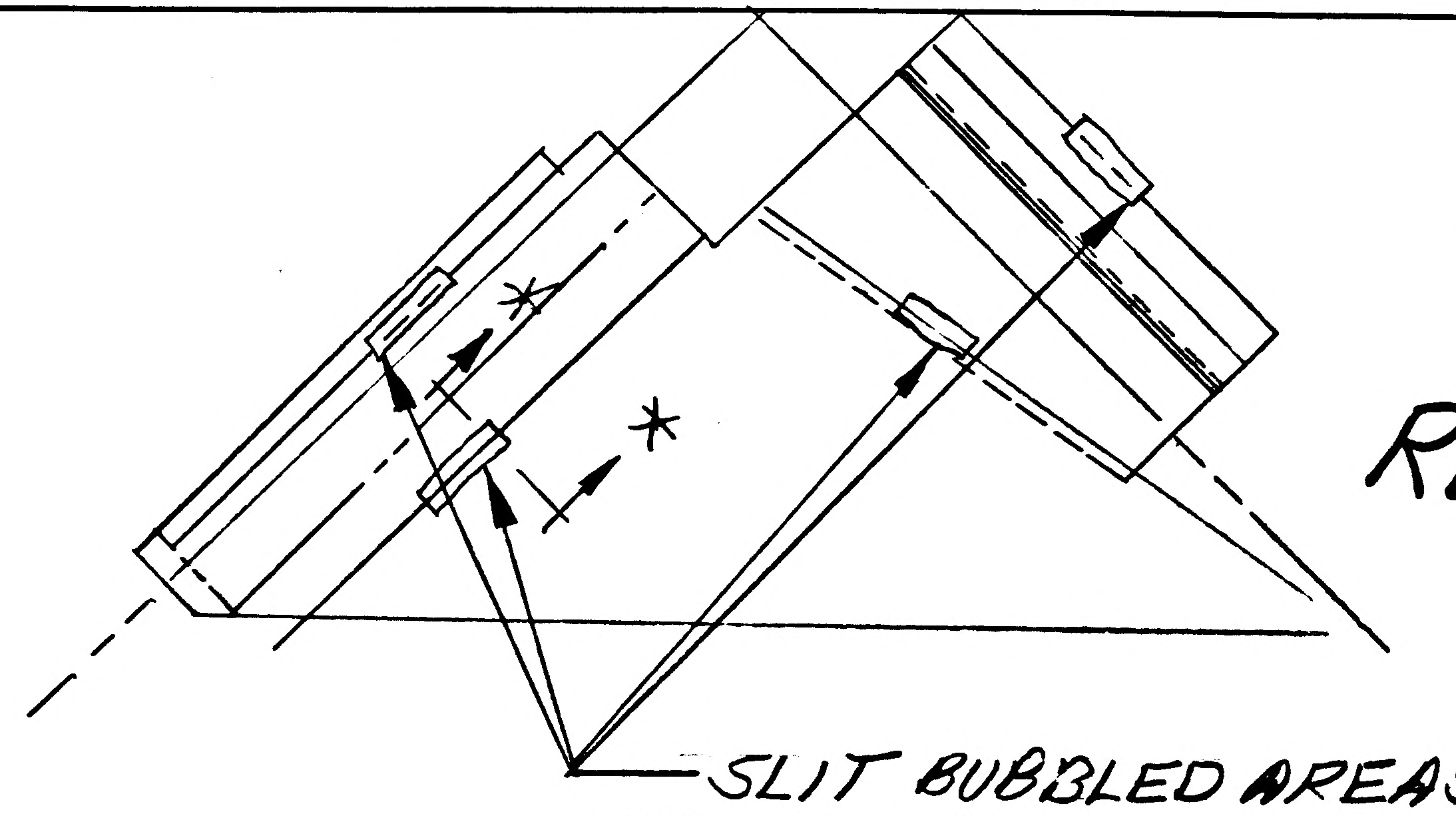
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

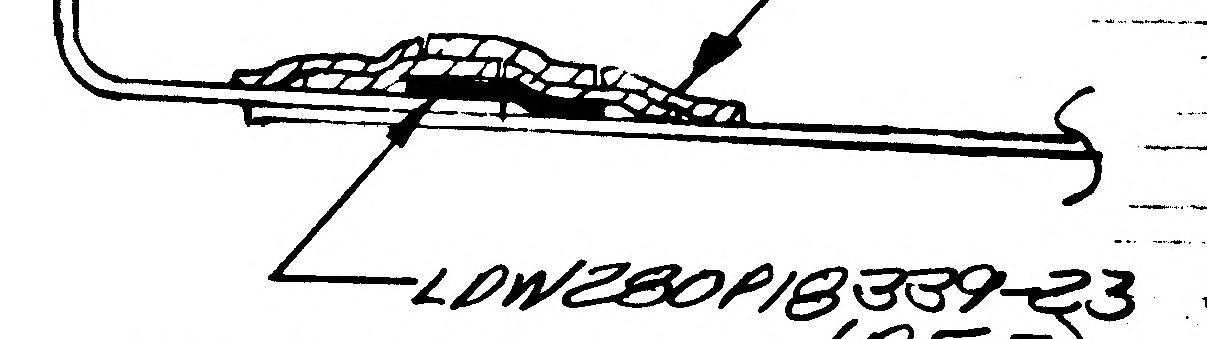
ENGINEERING ORDER

DWG. NO. LDW280-28667 | EO NO. C5
CONTROL INFO NO. LM-83-2177

ON-5



RECORD E.O.



SECT *-* (REF)

SLIT BUBBLED AREAS OF LDW280P18339-23 TAPE WHERE IT DOES NOT ADHERE. TO CONTOUR. WIPE DOWN BOTH SIDES OF EXISTING TAPE WITH A FREON DAMPENED CLOTH. APPLY (5) PIECES OF GT 835P-8 TAPE IN AN OVERLAPPING PATTERN AS SHOWN.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 10774	83

REASON FOR EO: TO ASSURE TAPE ADHERES TO BADLY WRINKLED SKIN S/C DR# 470

DESCRIPTION OF EO: ADDED EO TO RECORD BLOCK FOR LM-1.

GAEC C EO RELEASE: JK 11-3-67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING CHANGE REQD: REVISE DWG ☐ RECORD EO ✓
DISPOSITION OF PARTS: REWORK ✓ SCRAP ☐

APPROVED BY		JaP	JWC PE	WD 11/1		NAK		
DATE	11/1/67	11/1/67			11/1/67	10/31/67	1Nov67	11/1/67
	SYS	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SHIELD INSTL D/S QUAD IV AXED THERMAL.
DRAWING NO.: LDW280-28667
EO NO.: C5

ISSUED BY LIAISON ~ J. KOSLOSKI x2818 SECTION V. D. I. GROUP NO. 816 PL 830

01

NAS 9-1100

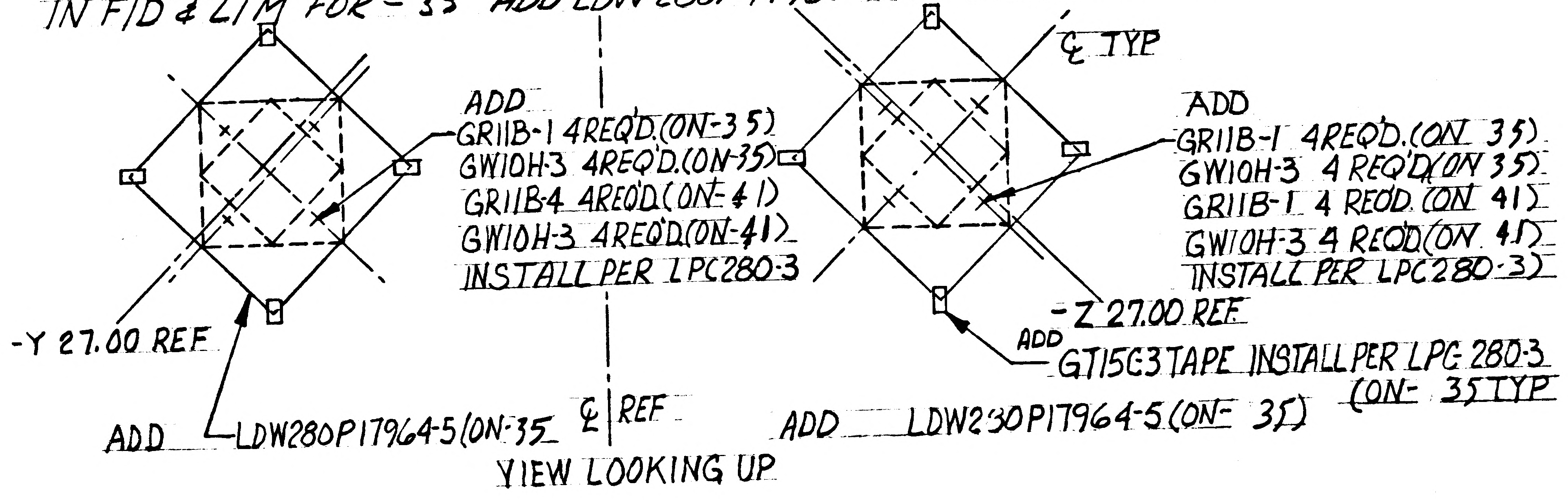
B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO LDW280-28667		EO NO. D1
* CONTROL INFO NO. LDW 280B0161		

IN F/D & L/M FOR -35 ADD LDW 280P17964-5 2 REQD AS SHOWN


℄ TYP
ADD
GR11B-1 4REQ'D.(ON-35)
GW10H-3 4REQ'D.(ON-35)
GR11B-4 4REQ'D(ON-41)
GW10H-3 4REQ'D(ON-41)
INSTALL PER LPC280-3
ADD
GR11B-1 4REQ'D.(ON 35)
GW10H-3 4 REQ'D(ON 35)
GR11B-1 4 REQD.(ON 41)
GW10H-3 4 REQD(ON 41)
INSTALL PER LPC280-3)
-Y 27.00 REF
-Z 27.00 REF
ADD
GT15C3 TAPE INSTALL PER LPC 280-3
(ON- 35 TYP
ADD LDW280P17964-5(ON-35
℄ REF
ADD LDW230P17964-5(ON- 35)

VIEW LOOKING UP

DESCRIPTION ABOVE
ON -41., ADDED GR11B-1 RETAINER (8) GW10H-3 WASHER (8) & "INSTAL PER LPC 280-3"
CALLOUT (2) ADD GT15C-3 TAPE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2223 CCA745 (5)

REASON FOR EO: LANDING GEAR REMOVAL ON LM-2

DESCRIPTION OF EO: ON-35 IN F/D & L/M ADDED LDW 280P17964-5 COVER ~ 2 REQD. GR11B-1 RET.(8) GW10H-3 WASHER(8) CONT. ABOVE

GAEC EO RELEASE: C JK 11/16/67

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP	DATE	11/10/67			11-10-67	11/13/67	11/14/67	11-15-67
				P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	

PRIORITY: C

DRAWING TITLE: SHIELD INSTL. ~ DESCENT STAGE QUAD FIXED THERMAL

DRAWING NO.: LDW 280-28667

EO NO.: D1

121567
ISSUED BY E.V.R. CASE X1153

SECTION V.D.I.

GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65 B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28667
EO NO. D2
CONTROL INFO NO. LMS-17414

THIS IS A REVISION OF EO D1

ON EO D1 FIELD OF EO AND DESCRIPTION BOX

-41 CALLED OUT SHOULD BE -35

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2223 CCA745

REASON FOR EO: LANDING GEAR REMOVAL ON LM-2 -41 WAS USED ON LM-3-15 BEFORE BEING CANCELLED BY C4. COMPLETE REWORK CAN BE DONE ON -35. ANS PTE 05131-334

DESCRIPTION OF EO: REF EO D1 ON EO D1 -41 CALLED OUT BECAME -35

GAEC EO RELEASE: JA

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG ✓ · RECORD EO

DISPOSITION OF PARTS: REWORK ✓ · SCRAP

APPROVED BY	JHS			—	JFJ	JFJ	JP	
DATE	12/2/67				11-24-67	11-24-67	12/2/67	11/30/67
11-22-67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL ~ DESCENT STAGE QUAD FIXED THERMAL	LDW280-28667	D2

ISSUED BY [illegible] J.GRASSIANO X86755 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

my

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 820
CONTROL INFO NO. LM-29-1128

REVISE NOTE # * AS FOLLOWS:

REMOVE - SAGE (OR STAGE) GREEN SIZE "E" PER MIL ---- ETC. S/B

ADD - TEFLON GLASMO TEE F-E24 THREAD, MAY BE PURCHASED FROM BELDING CORTICELLI CO. INC., 1407 BWAY, NEW YORK, N.Y. 10018. CODE IDENT. NO. 94448, AS AN ALTERNATE ASTROQUARTZ RQ754-12 THREAD, MAY BE PURCHASED FROM DODGE FIBERS CORP. P.O. BOX 124, HOOSICK FALLS, N.Y., CODE IDENT. NO. 05712, OR P5040-3 THREAD, MAY BE PURCHASED FROM OWENS-CORNING FIBERGLASS CORP. TOLEDO, OHIO, CODE IDENT. NO. 45255. THIS THREAD MAYBE USED FOR ALL REPLACEMENT & SPARES. (LM-1 LTA-8)

DWG NO.	TITLE	APPLICABLE NOTE *	EFFECTIVITY	CHG NO.
✓ LDW280-25662	SEE DWG	NOTE # 11	LM-2(32) THRU LM-15(45)	G2
✓ LDW280-28652	↕	NOTE # 1	↕	B10
✓ LDW280-28667	↕	NOTE # 6	↕	D3
LDW280-51589	SEE DWG	NOTE # 2	LM-2(32) THRU LM-15(45)	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: TO FACILITATE SEWING OF BLANKETS & IMPROVE THERMAL CAPABILITY

DESCRIPTION OF EO: REVISE NOTE # * SAGE (OR STAGE) GREEN SIZE "E" -- ETC. S/B TEFLON GLASMO TEE, P5040 & ASTROQUARTZ.

(29) Ⓡ GAEC EO RELEASE: VK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				—	JFS	CH		
DATE	12/20/67	12/30/67		—	12-14-67	12-14-67	12/30/67	12-20-67
12-14-67	MATL	~~SUPPORT~~ VDI	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C29
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO 280
EO NO.: 820

ISSUED BY LIAISON C. J. MONTEBELLO X7930 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28667
EO NO. D4
CONTROL INFO NO. LDW280 B0628 ✓

CREATE -59, -61, -63 & -65 REPLACING -47, -33, -21 & -13 RESPECTIVELY.

-59 IDENT TO -47 EXCEPT -65 REPLACES -13.

-61 IDENT TO -33 EXCEPT LDW280P17478-31 REPLACES LDW280P17478-7.

-63 IDENT TO -21 EXCEPT -61 REPLACES -33.

-65 IDENT TO -13 EXCEPT -63 REPLACES -21.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2360

(5)

REASON FOR EO: PLUME HEATING PROTECTION

DESCRIPTION OF EO: ADDED -59, -61, -63, -65 & LDW280P17478-31. REMOVED -13, -21, -33, -47 & LDW280P17478-7.

GAEC EO RELEASE: VK 12/21/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: REWORK ✓ SCRAP -13, -21, -33, -47

PRIORITY: C

APPROVED BY					R. Thorjusen			JOP	Bott
DATE	12/18/67				12-18-67	12/20/67		12/18/67	12-20-67
P	VD1	SUPPORT	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

DRAWING TITLE: SHIELD INSTL D/S - QUAD IV - FIXED THERMAL
DRAWING NO. LDW280-28667
EO NO. D4

1-6-68
ISSUED BY S. TAMRES/P. THORJUSEN x1153 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

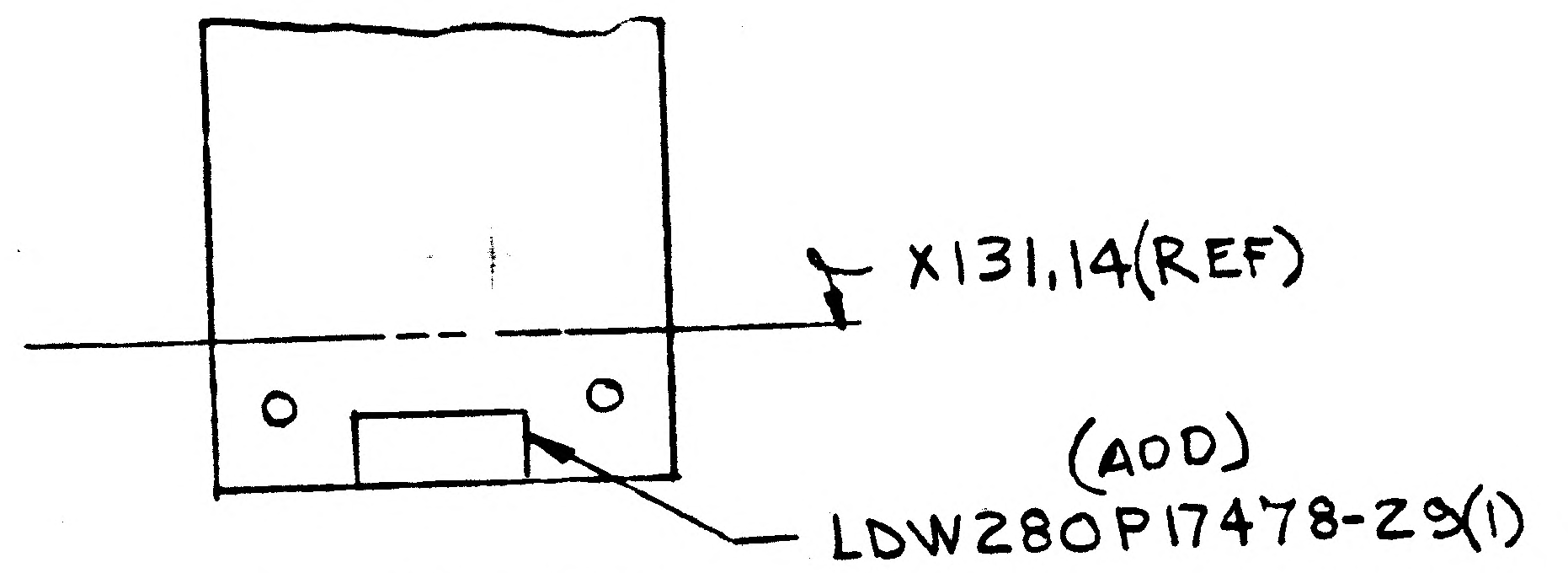
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28667 | EO NO. D5
CONTROL INFO NO. LDW280B2799

IN FIELD & B M OF DWG

RESTRICT -59 TO LM-3 (33) EFF.
WAS LM-3(33) THRU LM-15 (45)

ON-59 INSTL ADD LDW280P17478-29(1)



-59 INSTL

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	J	LCD 2360

PKG 30 (5)

REASON FOR EO: FOR EASE OF INSTL

DESCRIPTION OF EO: IN FIELD & BH OF DWG RESTRICTED -59 TO LM-3(33) WAS LM-3(33) THRU LM-15(45) ON-59 ADDED LDW280P17478-29(1)

GAEC EO RELEASE: JK 4/23/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	-59

APPROVED BY									
DATE	4/12/68	4/15/68		4-12-68	4/15/68		4/18/68	4-24-68
P	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C
DRAWING TITLE: SHIELD INSTL - D.S. - QUAD IV FIXED THERMAL
DRAWING NO.: LDW280-28667
EO NO: D5

041768
ISSUED BY V.A. CHRISTINA/P. THORJUSEN SECTION VDI X1153 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28667
EO NO. 06
CONTROL INFO NO. LDW280B3059

ADD -73 IDENT TO -61 EXCEPT LDW280P17478-33(1) ON-73 REPLACES LDW280P17478-31 ON-61

ADD -71 IDENT TO -63 EXCEPT -73(1) ON-71 REPLACES -39 & -61 ON-63

ADD -69 IDENT TO -65 EXCEPT -71(1) ON-69 REPLACES -63 ON-65

ADD -67 INSTL IDENT TO -59 EXCEPT -69(1) ON-67 REPLACES -65 ON ~~59~~

-67 INSTL (1REQD/MOD) N/A TO
LDW230-53553 1EA

ADD NOTE * (USE NEXT AVAILABLE NOTE NUMBER)
THIS DWG AFFECTED BY LFM-155 WHICH MAY BE USED ON LM-3(33)

LFM

USE GT835P-8 TAPE (AS REQD)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2899	(PKG 1) (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PLUME IMPINGEMENT PROTECTION — SECOND DOCKING	ADDED -67, -69, -71, -73 (1 EACH REQD); NOTE *	JK 4/23/68

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 155	LM-3(33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	4/19/68	7/24/68		4/19/68	4/22/68		4/22/68	4-29-68
✓		NOT REQD			VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~SOFT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL D/S QUAD IV FIXED THERMAL	LDW280-28667	06

0112668
ISSUED BY V.A. CHRISTINA / P. THORJUSEN SECTION VDI X1153 GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28668

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-54553	LEM-6(36)	1EA
LEM	LDW280-54553	LEM-5(35)	1EA
LEM	LDW280-54553	LEM-4(34)	1EA
LEM	LDW280-32553	LEM-3(33)	1EA
LEM	LDW280-52553	LEM-2(32)	1EA
LEM	LDW280-51553	LEM-1(31)	1EA
PART NO. LDW280-28668-3		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-23553	LTA-8(18)	1EA
PART NO. LDW280-28668-1		GAEC SCH NO. 52	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED: C
AST DASH NO. USED: -3

GRUMMAN REL INFO
PRIM NO. 1E(001)
207 MP-8-5-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/4 ±.200 ± 30'
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY		THERMO	AB 11/8/66
LAYOUT BY	ED WALLACE	RELIABILITY	
CHECKED BY			
GR LEADER	7/30/66		
VEH DESIGN	Bischoff		
STRUCTURES	9/1/66	PROJ ENGR	
STRUCTURES	H. Idleman 8/1	REL GROUP	11/10/66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOOR INSTL
DESCENT STAGE - QUAD IV
EXTERNAL PWR PLUG ACCESS

SIZE B
CODE IDENT NO. 26512
LDW280-28668
SCALE NONE
SHEET 1.00 OF 3

12-65

01

NAS 9-1100

QTY PER ASSEMBLY						CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				-3	-1											
					AS REQD		GTS35B-1-100	E	TAPE	STD PART						
				AS REQD			LDW280P17590-11	E	TAPE	SEE DWG						
				3	3		GTS35G-HCS-0017	E	TAPE	STD PART						
				1	1		LDW280P17559-17	E	PLUG	SEE DWG						
				1			LDW280P17559-3	E	BLANKET ASSY	SEE DWG						
					1		LDW280P17559-1	E	BLANKET ASSY	SEE DWG						
				1	1		LDW280-28779-1	E	FRAME	SEE DWG						
							-3	E	DOOR INSTL							
							LDW280-28668-1	E	DOOR INSTL							

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28668

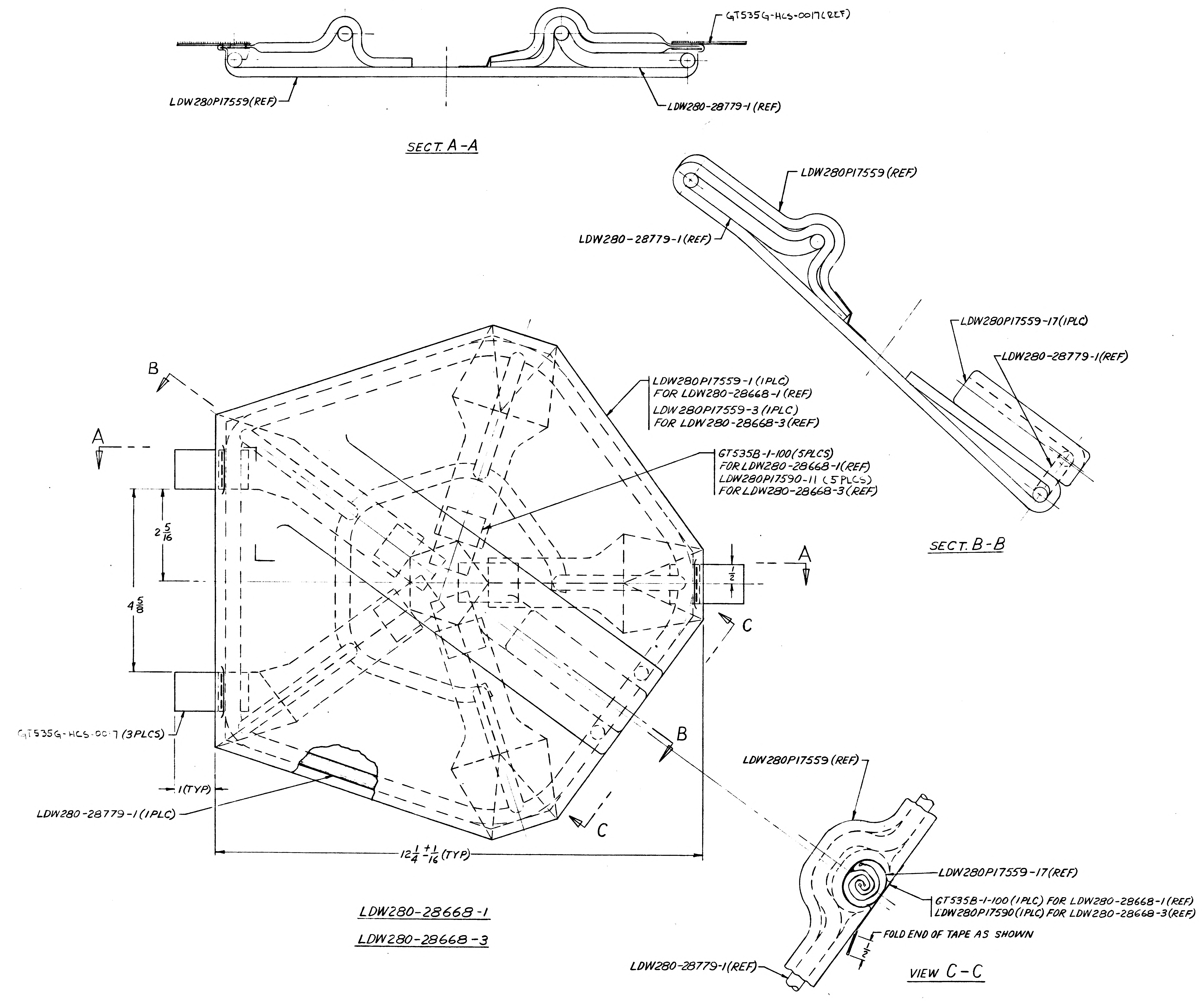
SCALE NONE

SHEET 2

ENG 77.2 7-65

01

NAS 9-1100


GT535G-HCS-0017(REF)
LDW280P17559(REF)
LDW280-28779-1(REF)
LDW280P17559(REF)
LDW280-28779-1(REF)
LDW280P17559-17(1PLC)
LDW280-28779-1(REF)
B
A
LDW280P17559-1 (1PLC)
FOR LDW280-28668-1 (REF)
LDW280P17559-3 (1PLC)
FOR LDW280-28668-3 (REF)
GT535B-1-100(5PLCS)
FOR LDW280-28668-1(REF)
LDW280P17590-11 (5PLCS)
FOR LDW280-28668-3(REF)
2 5/16
4 5/8
1/2
A
C
B
C
GT535G-HCS-0017(3PLCS)
1(TYP)
LDW280-28779-1(1PLC)
12 1/4 +1/16 (TYP)
LDW280P17559(REF)
LDW280P17559-17(REF)
GT535B-1-100(1PLC) FOR LDW280-28668-1(REF)
LDW280P17590(1PLC) FOR LDW280-28668-3(REF)
FOLD END OF TAPE AS SHOWN
1/4
LDW280-28779-1(REF)

SECT. A-A

SECT. B-B

LDW280-28668-1

LDW280-28668-3

VIEW C-C

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

LAYOUT RELEASE - TO BE REDRAWN
ON PRODUCTION FORMAT.

01

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK		
	SIZE E	CODE IDENT NO. 26512	LDW280-286
LEM MODEL OR END ITEM	SCALE 1/1		SHEET

ENG 73-4 6-64

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28668
EO NO. A1
CONTROL INFO NO. LDW280A-0907

IN F/D & B/M ADD -5 DOOR ASS'Y TO -1 DOOR INSTL. & -7 DOOR ASS'Y TO -3 DOOR INSTL.
REMOVE LDW280-28779-1 FROM -1 & -3 AND ADD TO -5 & -7 1REQ'D
REMOVE LDW280P17559-3 FOR -3 ADD LDW280P17559-7 TO -7 1REQ'D
REMOVE LDW280P17559-1 FOR -1 ADD LDW280P17559-5 TO -5 1REQ'D.
REMOVE TAPE & THREAD CALLOUTS FROM -1 & -3 ADD TO -5 & -7
REMOVE LDW280P17559-17 FROM -3 ADD LDW280P17559-9 1REQ'D.
IN N/A BLOCK -1 N/A LDW280-28553 LTA8(18) 1REQ'D/MOD
LDW280-51553 LEM1(31) 1REQ'D/MOD
LDW280-52553 LEM2(32) 1REQ'D/MOD
WAS LTA8(18) ONLY

-3 N/A LDW280-53553 LEM3(33) 1REQ'D/MOD
LDW280-54553 LEM4(34) THRU LEM6(36) 1REQ'D/MOD
WAS LEM1(31) THRU LEM6(36)

IN F/D & B/M REMOVE LDW280P17559-17 FROM -1 ADD LDW280P17559-29

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: DUE TO ADDITIONAL THERMAL REQUIREMENTS

DESCRIPTION OF EO: ADDED -5 & -7, LDW280P17559-5 & -7 REPLACED -1 & -3 RESPECTIVELY LDW280-28778-1 REMOVED FROM -1 & -3 ADDED TO -5-7 REMOVED TAPE & THREADS FROM -1 & -3 ADDED TO -5 & -7, LDW280P17559-29 REPLACED -17 ON -1 & LDW280P17559-9 REPLACED -17 ON -3 IN N/A -1 ADDED LEM1 & 2 REMOVED FROM -3

GAEC EO RELEASE: C 16 10.8

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18) LEM1(31)	THRU LEM6(36)

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO
DISPOSITION OF PARTS: ✓ REWORK / SCRAP

APPROVED BY					WJH		RMC (E)	
DATE	10/1/66				10/4/66		10-8	10-7-66
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: DOOR INSTL D/S QUAD IV EXTERNAL PWR PLUG ACCESS
DRAWING NO. LDW280-28668
EO NO. A1

ISSUED BY P. WESSLITZ/S. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 315
EMF

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28668
EO NO. A2
CONTROL INFO NO. LDW280A4853

IN MODEL BLOCK
REMOVE LM-4 THRU LM-6 FROM -3 EFF.

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO PROVIDE PROPER CLEARANCE FOR ASTRONAUT ACCESS LCR 661

DESCRIPTION OF EO: IN M/B REMOVED LM-4 THRU LM-6 FROM -3

GAEC EO RELEASE: GE 1/27/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	
		THRU	
		LM-6 (36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			✓
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	[illegible]				[illegible]		RMC (E)	UC
DATE	1/23/67				1-2-67		1-26-67	1-26-67
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DOOR INSTL D/S QUAD IV EXTERNAL PWR PLUG ACCESS	LDW280-28668	A2

ISSUED BY R. CLARK / J STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

LDW280-28669 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54553	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5 (35)	1
	LDW280-54553	LM-4 (34)	1
LM	LDW280-53553	LM-3 (33)	1
PART NO. LDW280-28669-3		GAEC SCH NO. 52 –	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52553	LM-2 (32)	1
LM	LDW280-51553	LM-1 (31)	1
LM	LDW280-28553	LTA-8 (18)	1
PART NO. LDW280-28669-1		GAEC SCH NO. 52 –	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED A

LAST DASH NO. USED -7

GRUMMAN REL INFO A

PRIM NO. 207 JK(001) MP-14A 3/14/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/4 ± .200 ± 30'
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY			THERMO	AB	11/9/66
LAYOUT BY	C.RUSSO	7/30			
CHECKED BY					
GR.LEADER	J.STRAKOSCH	8/3/66			
VEH DES INT	PAULSAURD	8/4/66			
STRUCTURE	W.J.H.	8/4/66	PROJ ENGR	R.M.CARBEE	8/7
STRUCTURE	HILDERMAN	8/5	REL GROUP	J. GROD	11/10/66
WEIGHTS	D ROBESCH	8/12			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

DOOR INSTALLATION
DESCENT STAGE - QUAD IV
S-BAND ANTENNA - CABLE ACESS

SIZE B CODE IDENT NO. 26512 LDW280-28669 A

SCALE NONE SHEET 1.00 OF 4

ENG 77.1 12-65

THIS DWG SUPERSEDES LDW280-28669 "NO CHANGE" 11-10-66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE. LAST REV. NO CHANGE. ADDED SH 1.10 H. DEUTSCH 2-16-67						
A	1	1.00, 1.10 2.00, 3.00						EO A1	ADD -5 & -7, LDW280P17558-5 & -7 REPLACED -1 & -3 RESPECTIVELY, LDW280-28778-1 REMOVED FROM -1 & -3 ADDED TO -5 & -7, REMOVED TAPE & THREAD FROM -1 & -3, ADDED TO -5 & -7. IN N/A FOR -1 ADDED LM-1 & 2 REMOVED FROM -3.	LTA-8 (18), LM-1 (31) THRU LM-6 (36)	✓		H. DEUTSCH 2-28-67		
	2	1.10, 2.00 3.00						EO A2	IN F/D & B/M FOR -3, GT535G-HCS-0016 WAS GT535G-LCS-0016, GT535G-HDS-0020 WAS GT535G-LDS-0020	LM-3 THRU LM-6	✓				
	3	1.00, 1.10						LEO 280-476	FOR -3 : ADDED LM-7 THRU LM-15 EFF	NOTED	NOT	REQ'D			
	4	1.10, 2.00 3.00						EO A4	REF. EO A2: -7 WAS -3	LM-3 (33) THRU LM-6 (36)	NOT	REQ'D			
	5	1.10, 2.00 3.00							IN F/D & BM: GT535B-2-100 WAS GT535B-1-100. IN F/D ADDED "TRACE OF +Y27.00 & +Z81.00, ADDED LOCATING DIMS. 12 5/16 ± 1/2 & 3/4 ± 1/2."	LTA-8 (18) LM-1 (31) THRU LM-15 (45)	NOT	REQ'D		aB	
	6	1.10							REF. EO A4 EFF SHOULD BE LM-7 (37) THRU LM-15 (45)	NOTED	NOT	REQ'D			
	7	1.10, 3.00						Q	IN F/D ADDED LDW280-51553 (REF) THRU LDW280-54553 (REF)	NOT REQ'D	NOT	REQ'D			

CHG APPROVED

LTR	~~GROUP~~ LDR	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS	THERMO
A		JAS 3/1/67	3/3/67			

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28669	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

-7	-5	-3	-1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AS REQD	AS REQD			SEE NOTE 1	E		THREAD							
	1			GT535G-LDS-0020			TAPE, FASTENER	GRUMMAN STD						
1				GT535G-HDS-0020										
	3			GT535G-LCS-0016										
3				GT535G-HCS-0016			TAPE, FASTENER							
AS REQD	AS REQD			GT535B-2-100			TAPE	GRUMMAN STD						
1				LDW280P17558-7			BLANKET ASSY	SEE DWG						
	1			LDW280P17558-5			BLANKET ASSY	SEE DWG						
1	1			LDW280-28778-1			FRAME ASSY	SEE DWG						
		1		LDW280-28669-7			DOOR ASSY					NONE	NONE	
			1	LDW280-28669-5			DOOR ASSY					NONE	NONE	
				LDW280-28669-3			DOOR INSTL					NONE	NONE	
				LDW280-28669-1	E		DOOR INSTL					NONE	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28669	A

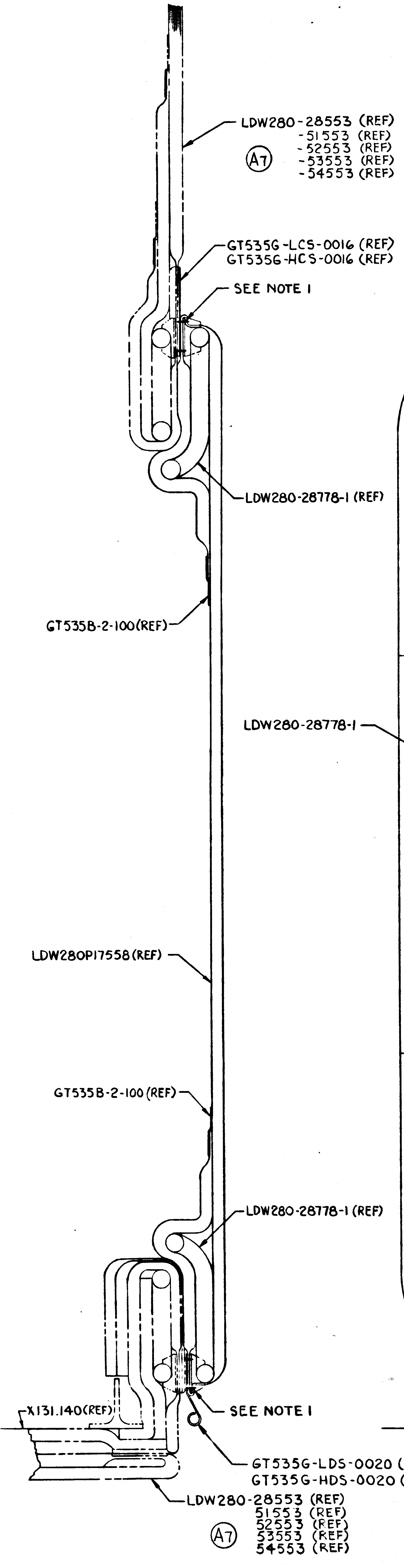
SCALE NONE

SHEET 2.00

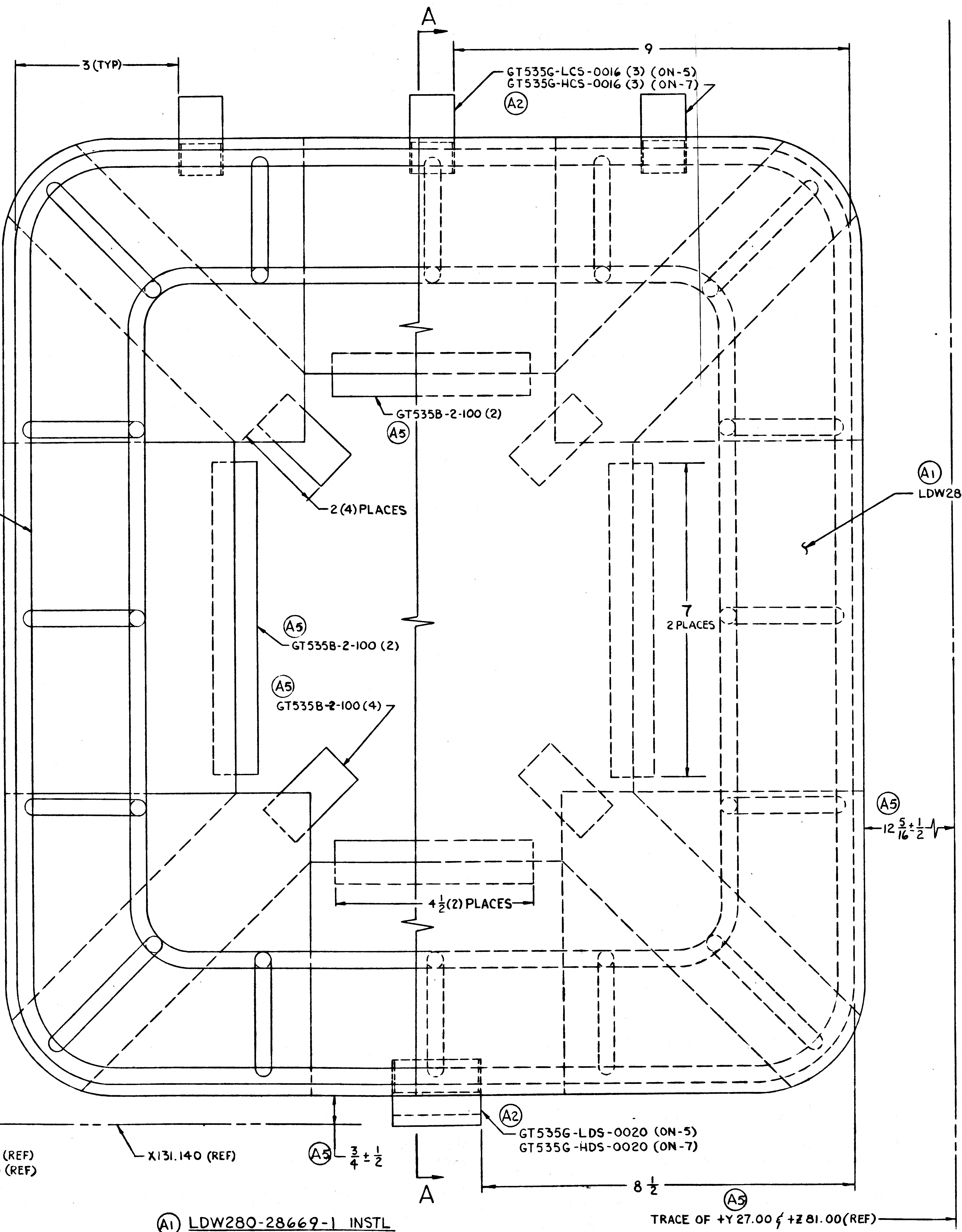
ENG 77.2 5-64

01

NAS 9-1100


LDW280-28553 (REF)
-51553 (REF)
-52553 (REF)
-53553 (REF)
-54553 (REF)
A7
GT535G-LCS-0016 (REF)
GT535G-HCS-0016 (REF)
SEE NOTE 1
LDW280-28778-1 (REF)
GT535B-2-100(REF)
LDW280-28778-1
LDW280P17558(REF)
GT535B-2-100(REF)
LDW280-28778-1 (REF)
X131.140(REF)
SEE NOTE 1
GT535G-LDS-0020 (REF)
GT535G-HDS-0020 (REF)
LDW280-28553 (REF)
51553 (REF)
52553 (REF)
53553 (REF)
54553 (REF)
A7

SECTION A-A


A
9
3 (TYP)
GT535G-LCS-0016 (3) (ON-5)
GT535G-HCS-0016 (3) (ON-7)
A2
GT535B-2-100 (2)
A5
2(4) PLACES
A1
LDW280P17558-5 (ON-5)
-7 (ON-7)
7
2 PLACES
A5
GT535B-2-100 (2)
A5
GT535B-2-100 (4)
A5
12 5/16 ± 1/2
4 1/2 (2) PLACES
A2
GT535G-LDS-0020 (ON-5)
GT535G-HDS-0020 (ON-7)
X131.140 (REF)
A5
3/4 ± 1/2
A
8 1/2
A5
TRACE OF +Y 27.00 & +Z 81.00 (REF)

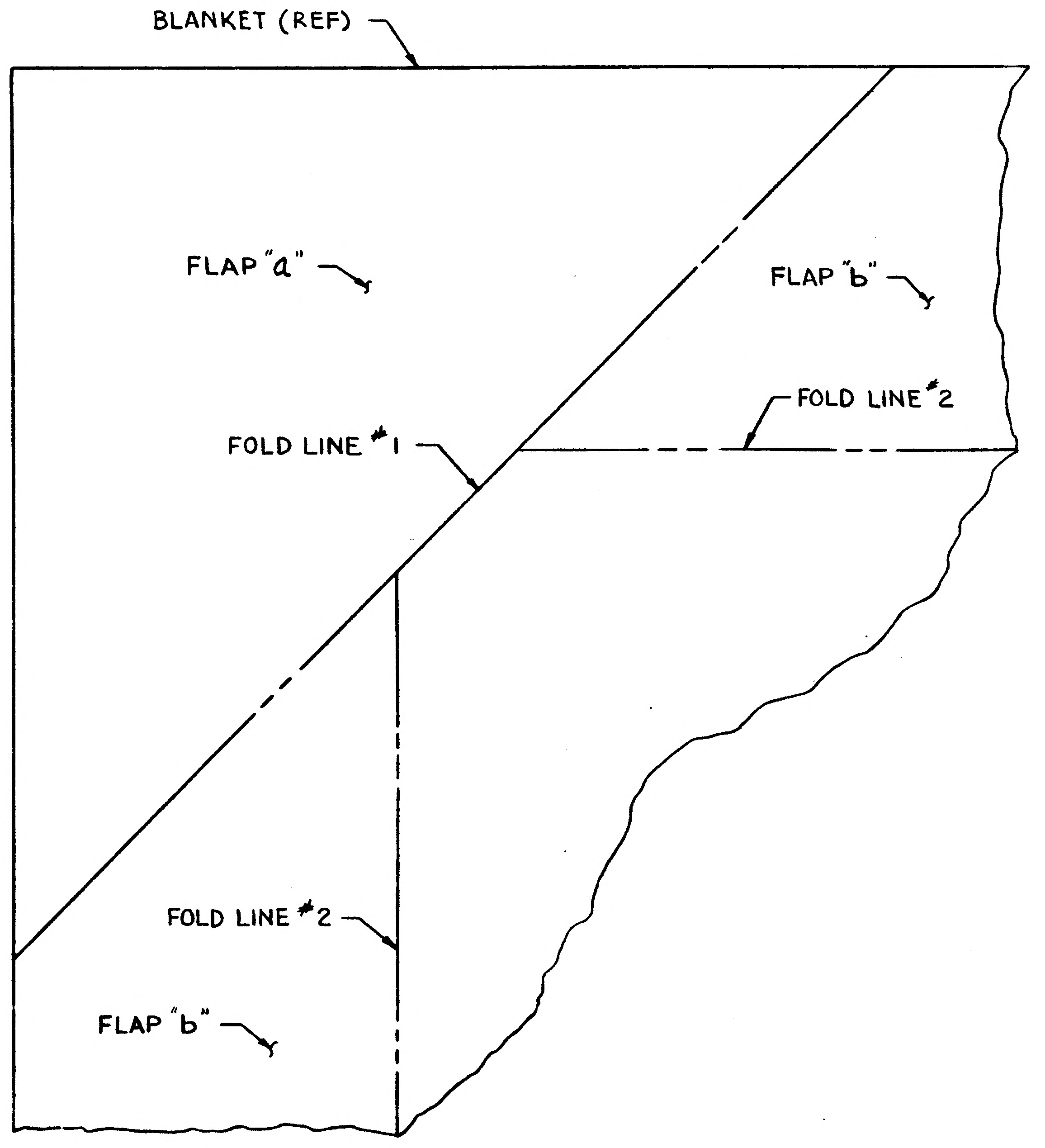
Ⓐ1 LDW280-28669-1 INSTL
-3 INSTL (IDENTICAL TO -1 EXCEPT AS NOTED)
-5 ASSY
-7 ASSY (IDENTICAL TO -5 EXCEPT AS NOTED)

NOTES:

1. THREAD TO BE SAGE GREEN, SIZE "E", SPEC. MIL T-7807 TYPE II, CLASS I, NYLON THREAD. MAY BE PURCHASED FROM THREADS, INC. GASTONIA, NORTH CAROLINA, CODE IDENT 19937. SEW TAPE GT535G-LCS, GT535G-HCS, GT535G-HDS & GT535G-LDS AT 3/16 ± 1/16 FROM EDGE OF TAPE WITH HAND STITCHING, STITCHES TO BE AT 1/4 ± 1/8 PITCH CONTINUOUS THREAD KNOTTED AT ENDS. NEEDLE HOLES MAY BE PRE PUNCHED OR DRILLED.
2. CENTER FRAME ON BLANKET & WRAP FLAP "a" ALONG FOLD LINE #1, SNUG AROUND FRAME ALLOWING AMPLE BLANKET MATERIAL TO FORM CONTOUR (SECTION "A-A") MATING WITH JAMB.
3. FOLD FLAPS "b" ALONG FOLD LINES #2 SNUG AROUND FRAME AS SHOWN.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING THICKNESS OF PLATE .0003 MIN TO .0005 MAX MIN THICKNESS TO BE .0002 ON THREADED AREAS NO ALLOWANCES FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL STD 10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

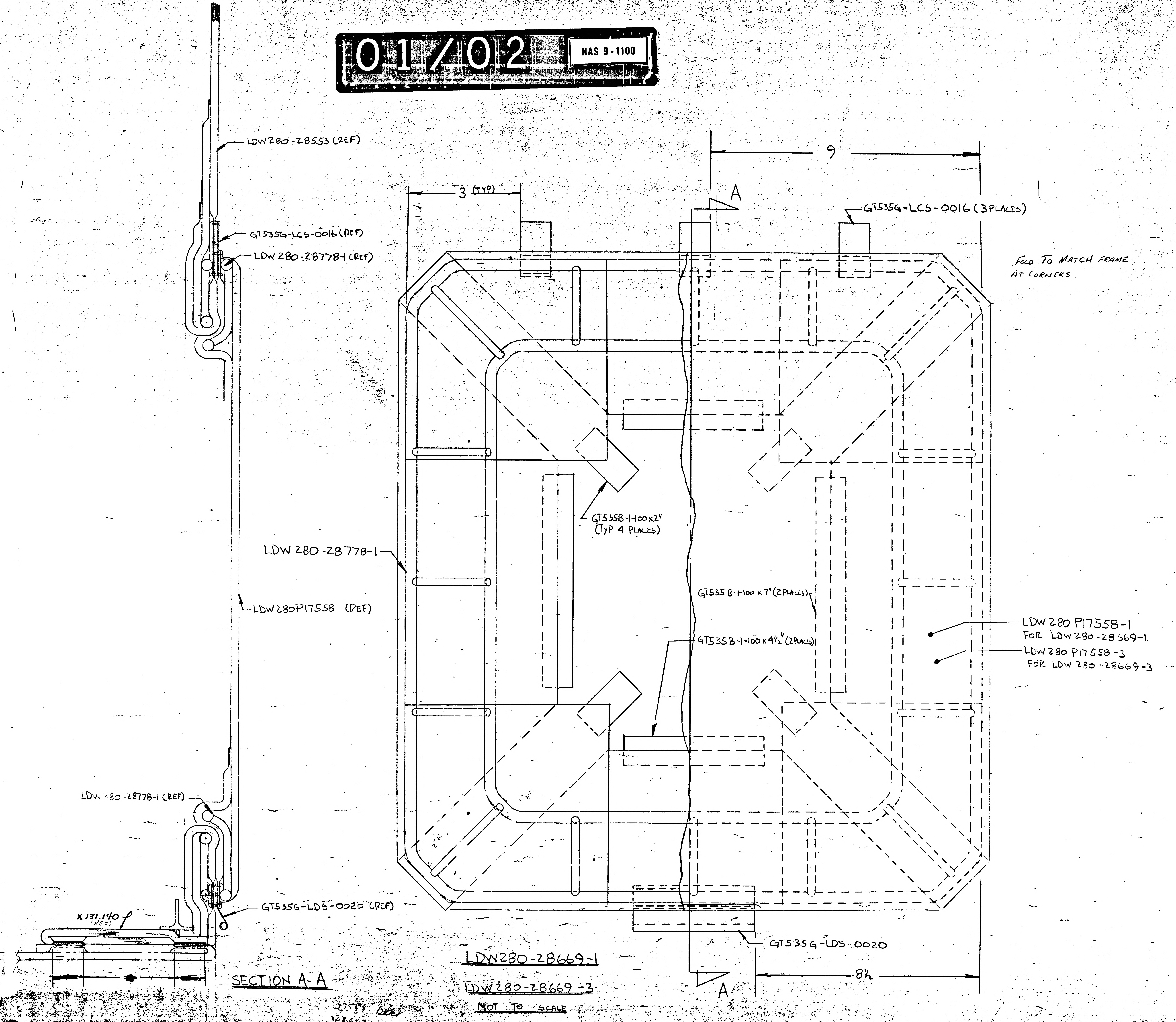
NAS 9-1100


BLANKET (REF)
FLAP "a"
FLAP "b"
FOLD LINE #2
FOLD LINE #1
FOLD LINE #2
FLAP "b"

TYPICAL CORNER FOLDING DETAIL
(SEE NOTES 2 & 3)
SCALE : NONE

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE E	CODE IDENT NO. 26512	LDW280-28669	A
MODEL OR END ITEM	SCALE FULL & NOTED		SHEET 3.00	

01/02 NAS 9-1100


LDW280-28553 (REF)
GT535G-LCS-0016 (REF)
LDW280-28778-1 (REF)
LDW280P17558 (REF)
LDW 280-28778-1 (REF)
GT535G-LDS-0020 (REF)
X 131.140 (REF)
9
3 (TYP)
A
GT535G-LCS-0016 (3 PLACES)
FOLD TO MATCH FRAME AT CORNERS
GT535B-1-100x2" (TYP 4 PLACES)
LDW 280-28778-1
GT535B-1-100 x 7" (2 PLACES)
GT535B-1-100 x 4½" (2 PLACES)
LDW 280 P17558-1 FOR LDW 280-28669-1.
LDW 280 P17558-3 FOR LDW 280-28669-3
GT535G-LDS-0020
8½
A
27558 [illegible]
28669 [illegible]

SECTION A-A

LDW280-28669-1

LDW280-28669-3

NOT TO SCALE

B

H.G.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-28669		EO NO. A2
CONTROL INFO NO. LM-29-1016		

IN F/D & L/M FOR -3

GT535G-HCS-0016 (3 PLACES)
(WAS) GT535G-LCS-0016 (3 PLACES)

GT535G-HDS-0020
(WAS) GT535G-LDS-0020

✓

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		

REASON FOR EO
TO CORRECT TAPE CALL OUT TO AGREE WITH APPLICATION

DESCRIPTION OF EO
IN F/D & L/M FOR -3
GT535G-HCS-0016 WAS GT535G-LCS-0016
GT535G-HDS-0020 WAS GT535G-LDS-0020

GAEC ✓ EO RELEASE
①
JE
217

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 THRU	
		LM-6	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	-
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JMS				~	W.F.	RMC	
DATE	2/20				~	1-6-67	1-9-67	1-6-67
1	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C29	DOOR INSTL - S-BAND ANT QUAD IV ACCESS	LDW280-28669	A2

ISSUED BY LIAISON J. ALTMAN X7930 1-5-67 H. PALLMEYER X1153 SECTION VEH DES INT GROUP NO. 335 PL 29

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER LMP 4

DWG. NO. LE0280
EO NO. 476
CONTR'L INFO NO. LDW280 L5542

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS * THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45) QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280 - 25703	A6	SEE DRAWING
-25704	B1	
-25706	B1	
-25707	B4	
-25708	B6	
-28647	C1	
-28652	B8	
-28669	A3	
-28672	C1	
-28721	A2	
-28727	B2	
-28752	B3	
-28761	A4	
-28762	A1	
-28771	B5	
-28774	A8	
-28776	A1	
-28778	A1	
-28779	A4	
-28803	A3	
-28816	A2	
-28819	A2	
-51560	C1	
-51818	A3	
-51823	A1	
-52723	A5	
LDW280		SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: FR 2/23/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQ'D: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY								
					WJH		RMC	
DATE	0	2/2/67			2/15/67		2-16-67	2-17-67
	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LE0280

EO NO.: 476

ISSUED BY M. GREY / J. STRAKOSCH X1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL 35

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NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-28669		EO NO. A4
CONTROL INFO NO. LM-5-11845		

THIS EO REVISES EO A2

"IN F/D & B/M FOR -7 (WAS) -3)

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐	5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
INCORRECT ASSY CALLED OUT	REF, EO A2 -7 WAS -3	1B C JK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	THRU
		LM-6(36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT							
✓		NOT REQ'D		DATE	2/16/67				2-18-67	2-17	2-21-67	2-18-67
REVISE DWG	RECORD EO	REWORK	SCRAP	6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	DOOR INSTL QUAD III S-BAND ANT ACCESS	LDW280-28669	A4

ISSUED BY H. PALLMEYER X 1153 X 1724 SECTION VEH DES INT GROUP NO. 335 PL 5

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280 | EO NO. 793
CONTROL INFO NO. LDW280B0053

FOR THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS* THAT ARE EFF ON LM-4(34), REMOVE LM-4(34) THRU LM-15(45) REQMTS.

DRAWING NO. *	NEXT ASSY	TITLE	CHG NO.
LDW280-28561	LDW280-54553	SEE DWG	C5
-28773	-28561		A9
-28774	-28773		B1
-28775	-28773		B8
-28820	-28561		B2
-28819	-28820		A3
-18129	-28820		A4
-28776	-28561		A2
P17465	-28776		B3
P17514	-28776		B1
P17516	-28776		B4
P17535	-28776		B3
-28669	-54553		B1
-18239	-28561		A2
-54777			A2
P17496			A8
M17698			B7
P17479			A9
P17946			B3
P17967			B10
P18091			A3
-28757	-28561		B1
LDW280	LDW280	SEE DWG	

01

NAS 9-1100

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ | *LCD 2011 CCA668 | (5)

REASON FOR EO: REDESIGN OF THERMAL SHIELDING FOR EQUIP STOWAGE.

DESCRIPTION OF EO: FOR *, REMOVED LM-4 THRU LM-15 REQMTS

Ⓡ GAEC C EO RELEASE: JK 11/8/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

	S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CUST~~
APPROVED BY		JAS							
DATE		11/7/67			11-6-67	11/7/67		11/7/67	11-7-67

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO280

EO NO.: 793

11-10

ISSUED BY S.TAMRES/P.THORJUSEN x7033 SECTION VDI GROUP NO. 335 PL 25

LDW280-28670 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
		GAEC SCH NO.	

PART NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
		GAEC SCH NO.	

PART NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28553	LTA8 (18)	1
		GAEC SCH NO. 52	

PART NO. LDW280-28670-3

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00	3.00	4.00			
REV	A	A		A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	A	GRUMMAN REL-INFO A			
		PRIM NO.	LE(001)		
LAST DASH NO. USED	-5	207	MP-A	9-16-6	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/4 ±.200 ± 1/2
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY	R.P. JEROME	RELIABILITY	
LAYOUT BY	R P JEROME	THERMO.	Lee 11/22/66
CHECKED BY			
GP LEADER	JHS per WP 8/4		
VEH. DESIGN	Paulson 8/4		
STRUCTURE	JV 8/4	PROJ ENGR	R. M. Carbee (EV) 8/7
STRUCTURE	Hilderman 8-5	REL GROUP	Good 12/7/66
WEIGHTS	A Rabach 5/1		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTL. -D.S. QUAD IV
OXIDIZER - FILL & DRAIN
THERMAL

SIZE	CODE IDENT NO.		
B	26512	LDW280-28670	A

SCALE HALF NONE
SHEET 1.00 OF 5.00

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
A	1								RETRACED - NO CHANGE REMOVED LDW280-28670-1 INST'L ADDED LDW 280-28670-3 INST'L & LDW280-28670-5 ASSY ADDED NOTE #1 & SHEETS 1.10 & 4.00	LTA-8(18)		✓	V.A. CHRISTINA 9/13/66		11-19

CHG APPROVED

LTR	~~GROUP LDR~~	VDI	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO		PROJ ENGR	REL GROUP	
A		9/13/66	9/14				11/22				

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28670	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

C.L.	QTY PER ASSEMBLY						CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					-5	-3											
					AS REQD	AS REQD		GW10H-3	E	WASHER	STD PART						
					AS REQD	AS REQD		GR11B-1	E	RETAINER	STD PART						
					AS REQD	AS REQD		GT835P-8	E	TAPE	STD PART						
					1			LDW280P18106-3	E	BLANKET ASSY	SEE DWG.						
C						1		LDW280-28670-5	E	SHIELD ASSY					NONE		
C								LDW280-28670-3	E	SHIELD INSTL.					NONE		

C.L. = CLEANLINESS LEVEL PER LSP 14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28670 A
SCALE NONE
SHEET 2 OO

ENG 77.2 7-65

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28670		EO NO.	B1
CONTROL INFO NO. LDW280-A-0976			

REPLACEMENT OF PART IN FIELD & B/M

	1		LDW280P18106-1	E	BLANKET ASSY	WAS LDW280P18106-3
C		1	LDW280-28670 -9	E	SHIELD ASSY	WAS LDW280-28670-5
C			LDW280-28670 - 7	E	SHIELD INSTL	WAS LDW280-28670-3
	-9	-7	PART NO.	I&T	DESCRIPTION	
C.L	QTY / ASSY					

LM	LDW280-28553	LTA-8(18)	1 EA
MODEL	N/A	MODULE	REQD/MOD
PART NO LDW280-28670-7 WAS-3			

3

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: REPLACEMENT OF PART NEEDED TO CONFORM WITH THERMAL REQUIREMENT

DESCRIPTION OF EO: REMOVED -3 & -5 & ADDED -7 & -9

Ⓡ GAEC EO RELEASE: 10/18

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			✓
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	10/5/66	10/17			10/10/66		10-11-66	
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL D/S QUAD IV OX FILL & DRAIN THERMAL	LDW280-28670	B1

ISSUED BY V.A.CHRISTINA/ J. STRAKOSCH x1153 SECTION LM-VDI GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28670
EO NO. B2
CONTROL INFO NO. LDW280A3865

ON - 9 ASS'Y LDW280P18106-11 WAS LDW280P18106-1

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO
REPLACEMENT OF PART NEEDED TO CONFORM WITH THERMAL REQUIREMENTS

DESCRIPTION OF EO
ON-9 ASS'Y LDW280P18106-11 WAS LDW280P18106-1

19 GAEC EO RELEASE
FR 12/2/6

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY							RM	
DATE	12/1/66	12/1/66		12/1/66			12-1-66	12-1-66
6	VDI	~~SUPPORT~~ THERMAL	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INST'L D/S QUAD IV OX FILL & DRAIN THERMAL	LDW280-28670	B2

ISSUED BY AMBROSIO / STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01 NAS 9-1100

LDW280-28671

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28553	LTA-8(18)	1
PART NO. LDW280-28671-1		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED F
LAST DASH NO. USED -1

GRUMMAN REL INFO
PRIM NO. LE(001)
207 MP-8-7-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/64 ± .030 ± 1/2
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY	[illegible]	[illegible]	
LAYOUT BY		THERMO	AB 11/9/66
CHECKED BY			
[illegible]	8/2/66		
LEM DES I	8/2/66		
STRUCT.		PROJ ENGR	R. M. Carbee 8/7
STRUCT.	8/6	REL GROUP	11/10/66
WEIGHTS	8-9		

E
GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INST'L - D/S QUAD IV
GUILLOTINE ACCESS COVER
THERMAL

SIZE B
CODE IDENT NO. 26512
LDW280-28671
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

THIS IS AN ORIGINAL DWG.

01

NAS 9-1100

C.L.	QTY PER ASSEMBLY					-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						AS REQ D		GT835P-8	E	TAPE (POLYIMIDE)	STD PART						
						AS REQ'D		GT535B-1-100		TAPE (MYLAR)	STD PART						
						1		LDW280P17586-5		BLANKET							
						1		LDW280P17586-1		BLANKET							
C								LDW280-28671-1	E	SHIELD INST'L					NONE	NONE	

C.L. = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28671

SCALE NONE

SHEET 2 00

ENG 77.2 7-65

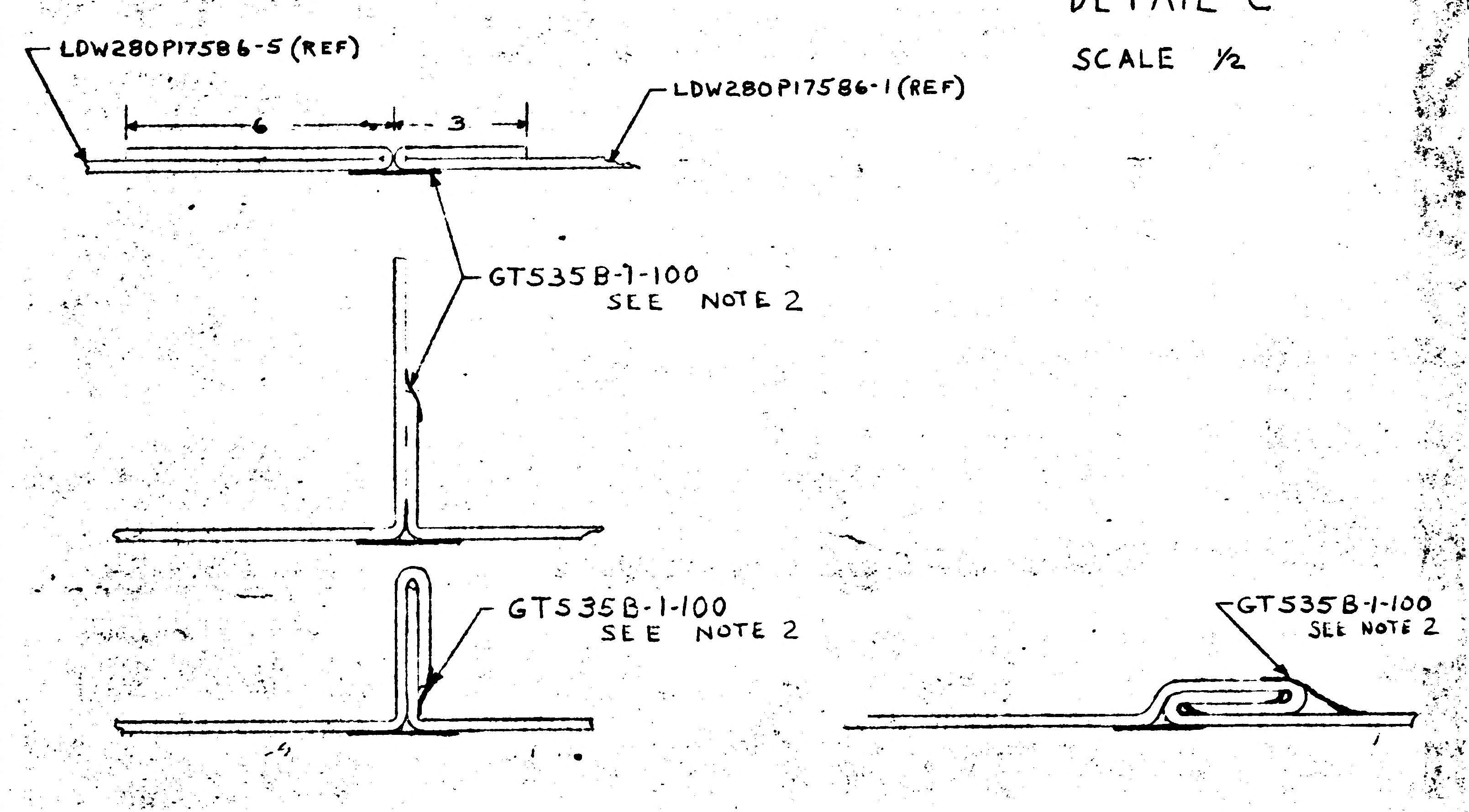
THIS IS AN ORIGINAL DWG

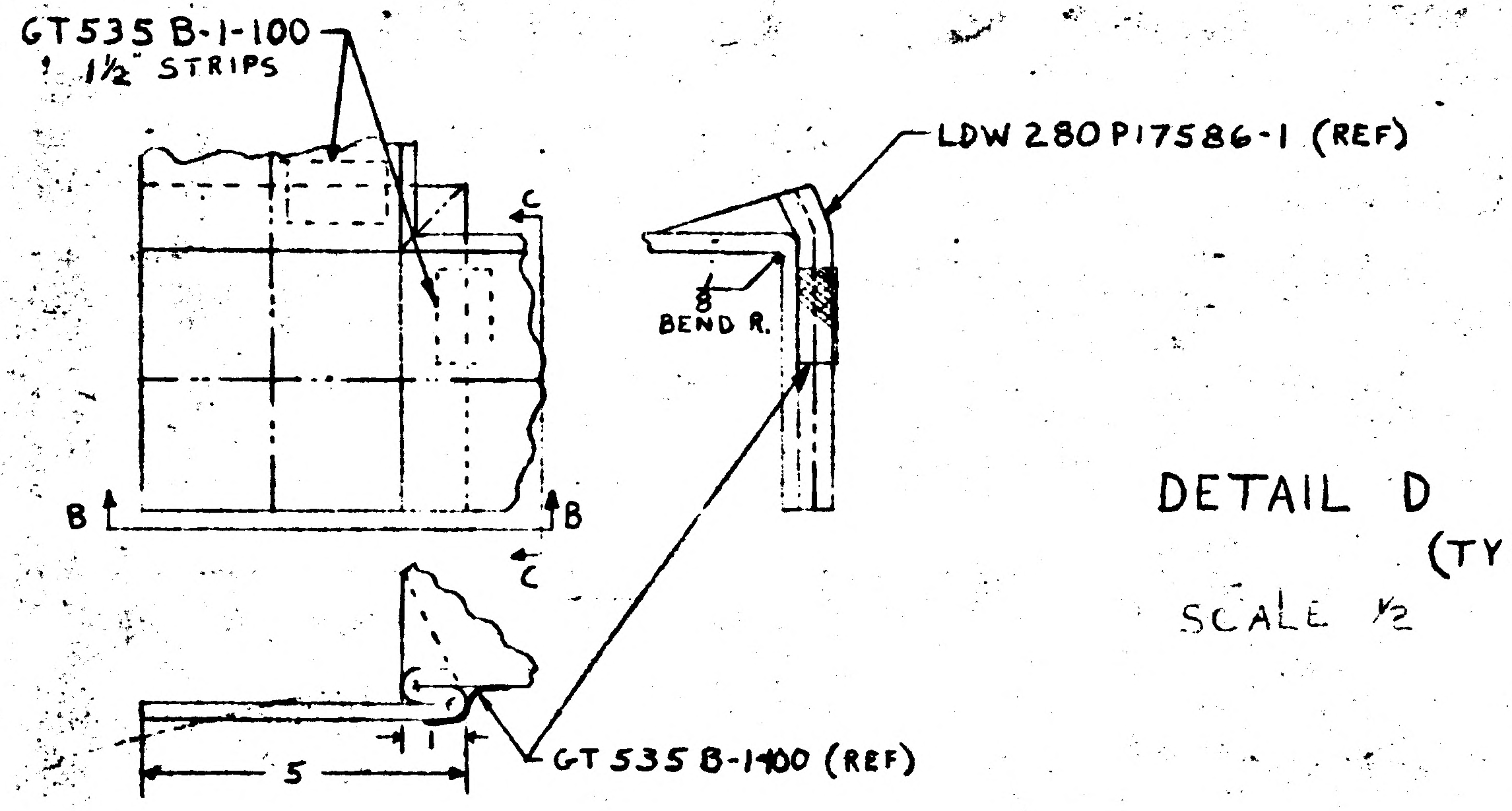
01

NAS 9-1100

DETAIL C

SCALE 1/2


LDW280P17586-5 (REF)
LDW280P17586-1 (REF)
6
3
GT535B-1-100
SEE NOTE 2
GT535B-1-100
SEE NOTE 2
GT535B-1-100
SEE NOTE 2


GT535B-1-100
1 1/2 STRIPS
C
C
B
B
LDW280P17586-1 (REF)
BEND R.
5
1
GT535B-1-100 (REF)

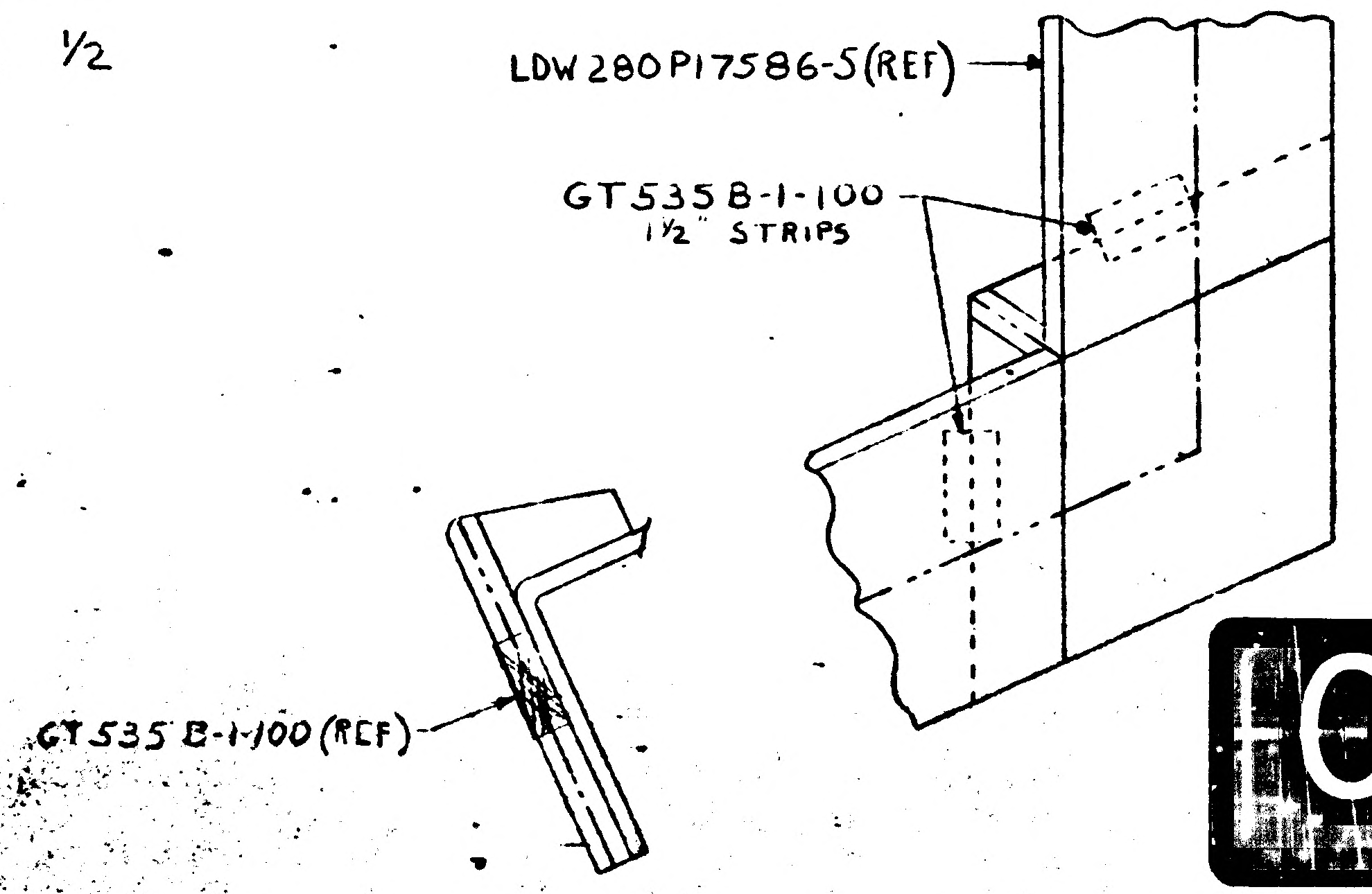
DETAIL D

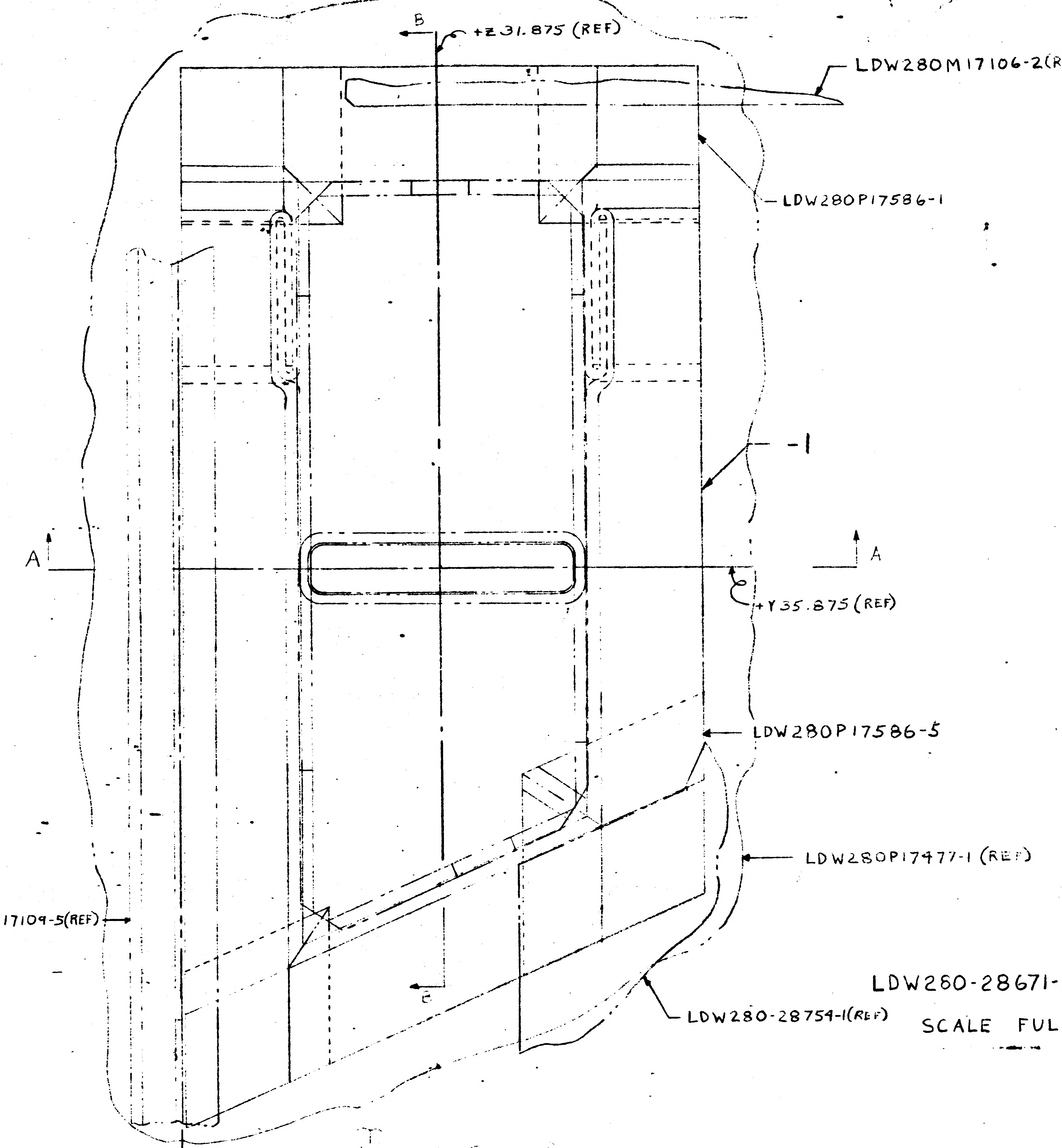
(TYP. 2 PLACES)

SCALE 1/2

DETAIL E

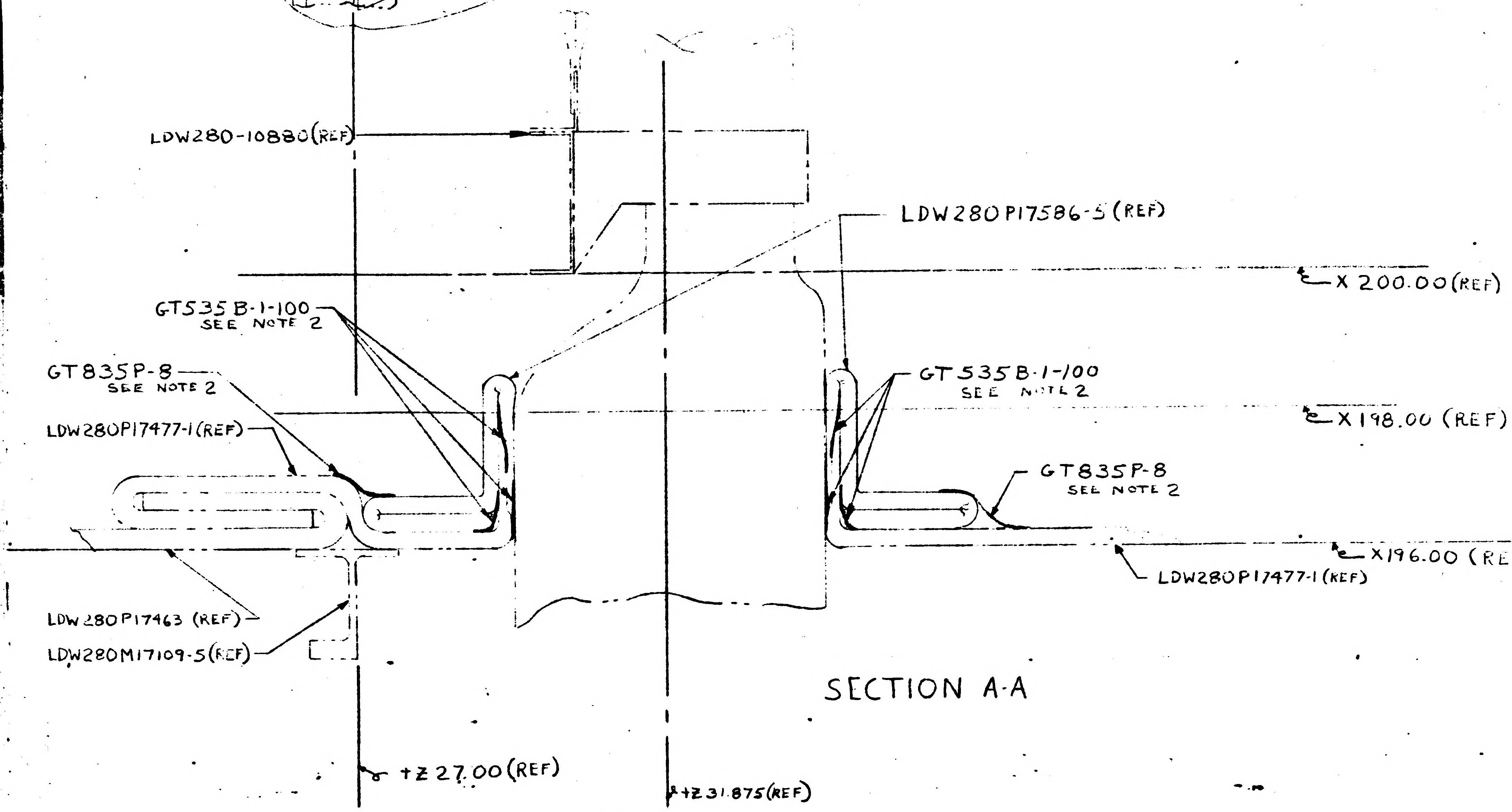
SCALE 1/2


LDW280P17586-5(REF)
GT535B-1-100
1 1/2 STRIPS
GT535B-1-100(REF)

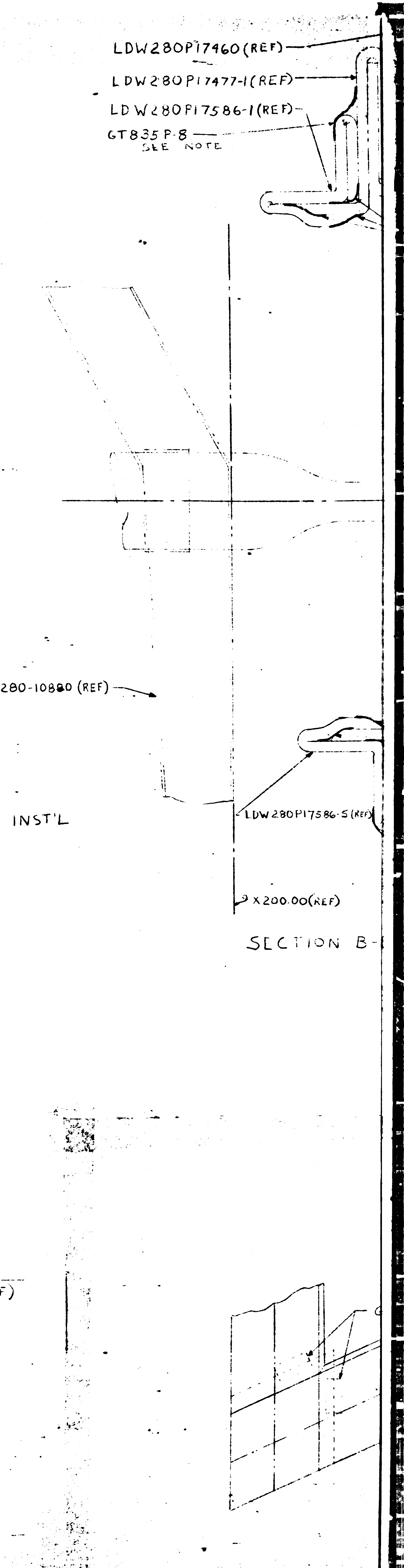

B
+Z31.875 (REF)
LDW280M17106-2(REF)
LDW280P17586-1
-1
A
A
+Y35.875 (REF)
LDW280P17586-5
LDW280P17477-1 (REF)
LDW280M17109-5(REF)
LDW280-28759-1(REF)

LDW280-28671-1 SHIELD INST'L

SCALE FULL

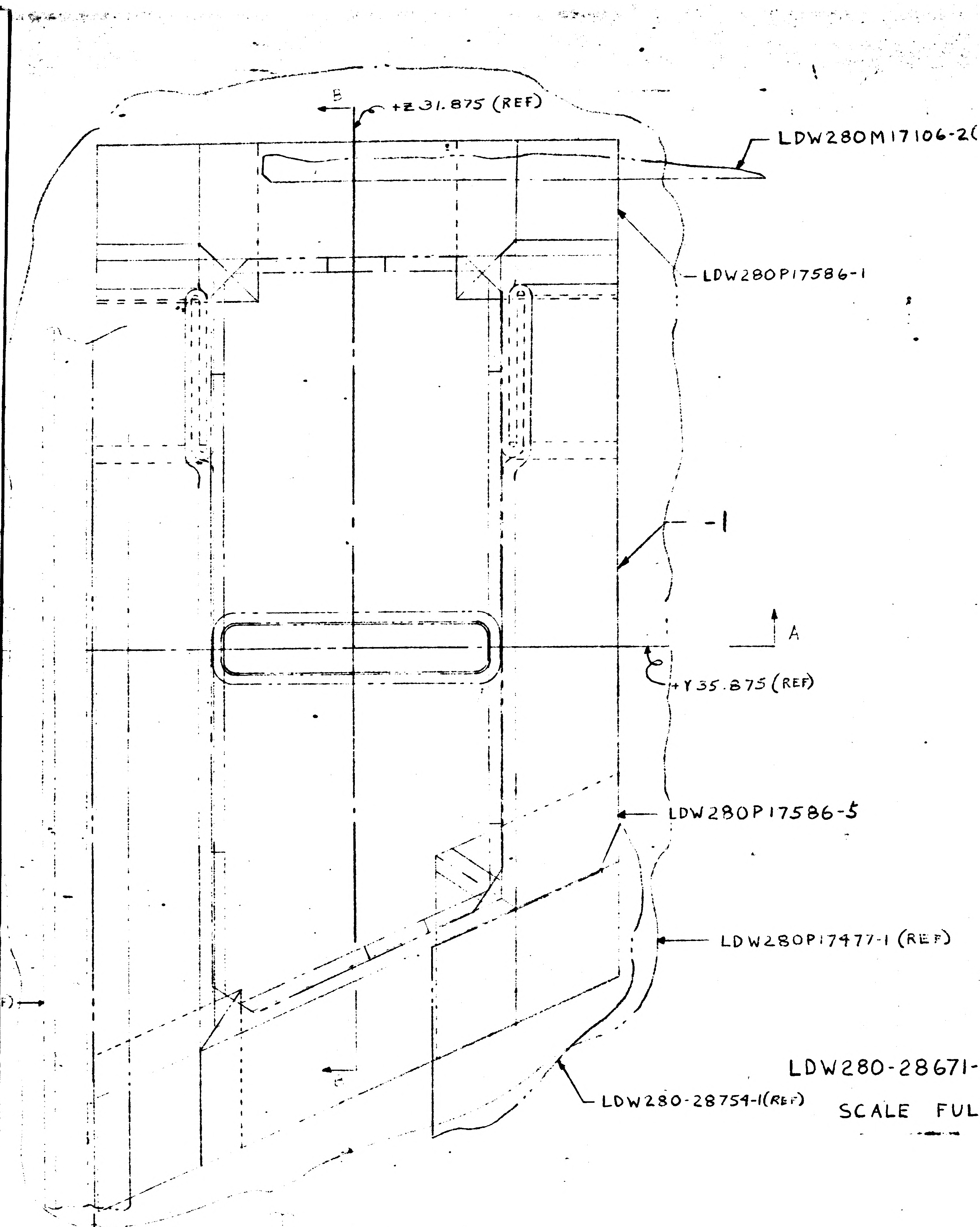

LDW280-10880(REF)
LDW280P17586-5 (REF)
X200.00(REF)
GT535B-1-100
SEE NOTE 2
GT835P-8
SEE NOTE 2
LDW280P17477-1(REF)
GT535B-1-100
SEE NOTE 2
X198.00 (REF)
GT835P-8
SEE NOTE 2
X196.00 (REF)
LDW280P17477-1 (REF)
LDW280P17463 (REF)
LDW280M17109-5(REF)
+Z27.00(REF)
+Z31.875(REF)

SECTION A-A


LDW280P17460(REF)
LDW280P17477-1(REF)
LDW280P17586-1(REF)
GT835P-8
SEE NOTE
LDW280-10880 (REF)
LDW280P17586-5(REF)
X200.00(REF)

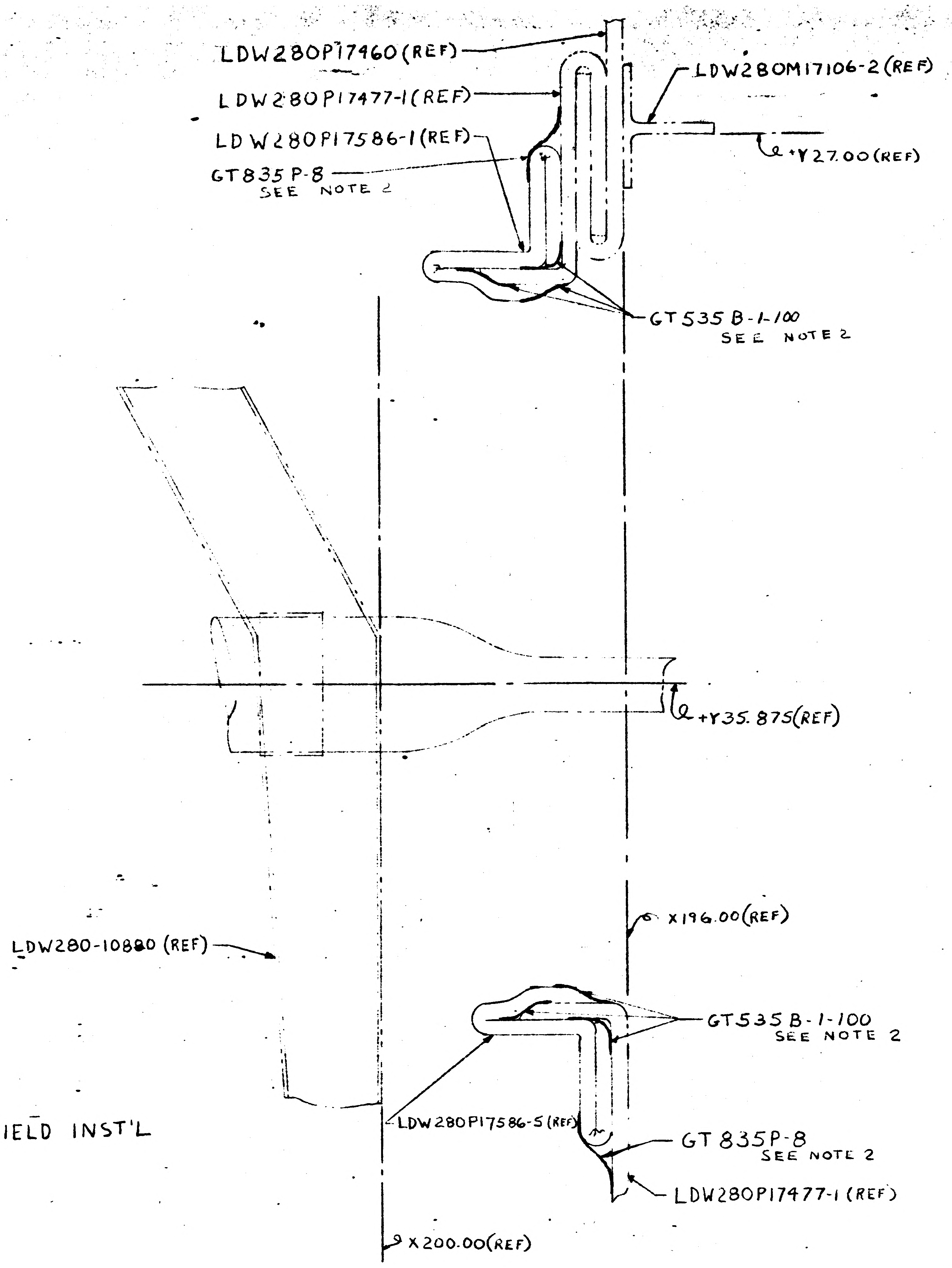
SECTION B-

01/02 NAS 9-1100

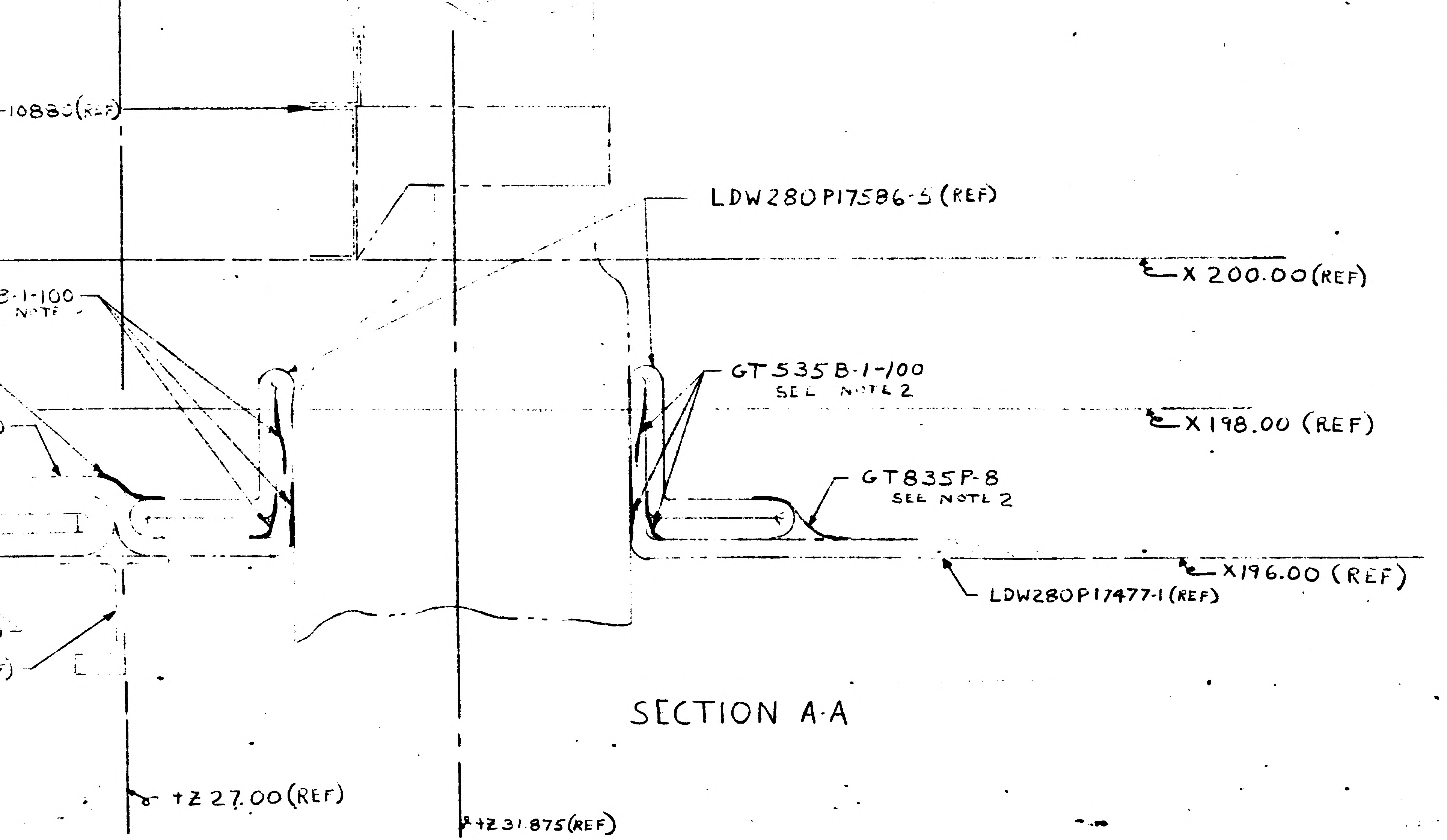

+Z 31.875 (REF)
B
LDW280M17106-2 (REF)
LDW280P17586-1
-1
A
Y 35.875 (REF)
LDW280P17586-5
LDW280P17477-1 (REF)
LDW280-28754-1 (REF)

LDW280-28671-1 SHIELD INST'L

SCALE FULL


LDW280P17460 (REF)
LDW280P17477-1 (REF)
LDW280P17586-1 (REF)
GT835P-8
SEE NOTE 2
LDW280M17106-2 (REF)
Y 27.00 (REF)
GT535B-1-100
SEE NOTE 2
+Y 35.875 (REF)
LDW280-10880 (REF)
X 196.00 (REF)
GT535B-1-100
SEE NOTE 2
LDW280P17586-5 (REF)
GT835P-8
SEE NOTE 2
LDW280P17477-1 (REF)
X 200.00 (REF)

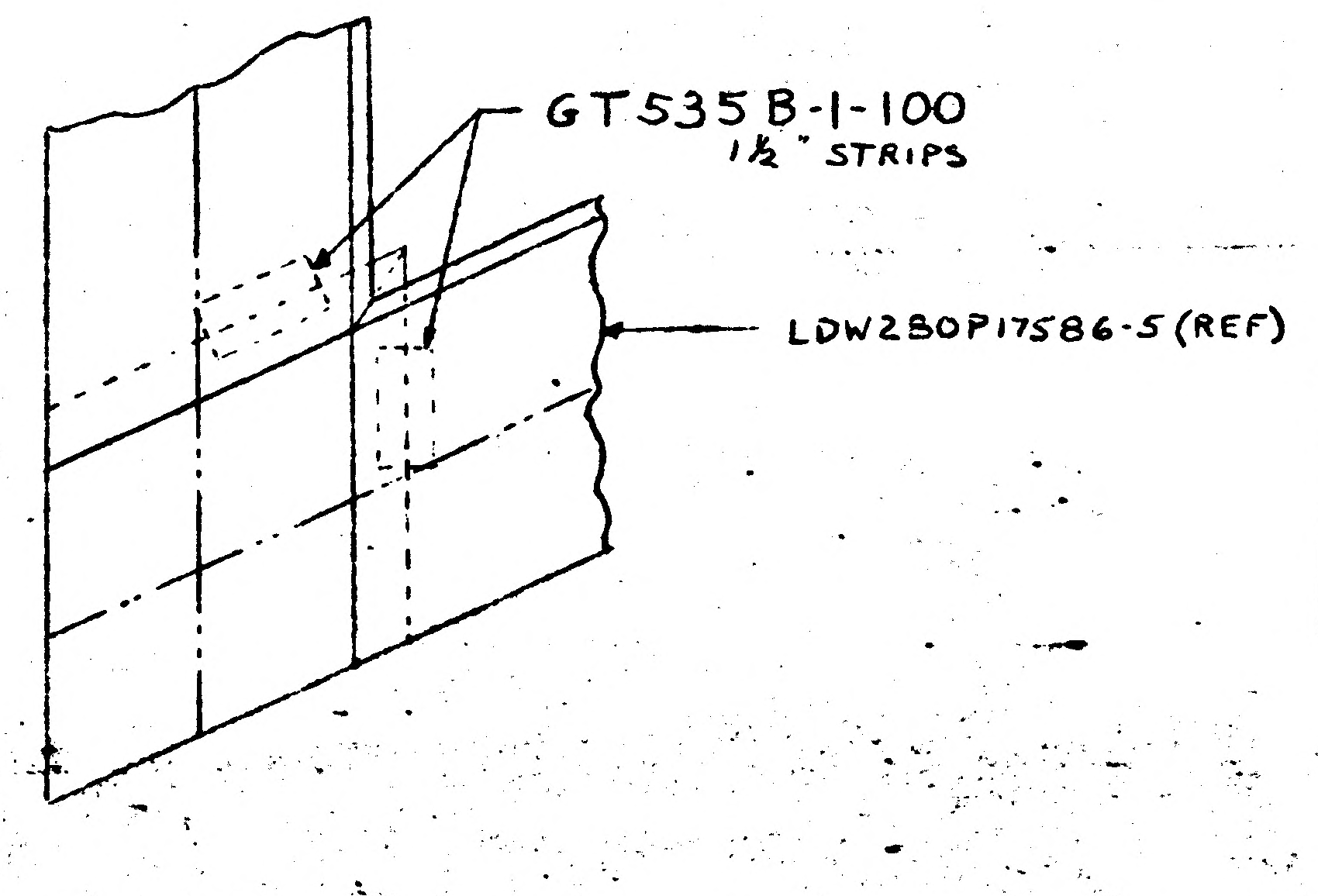
SECTION B-B


-10880 (REF)
LDW280P17586-5 (REF)
X 200.00 (REF)
B-1-100
NOTE
GT535B-1-100
SEE NOTE 2
X 198.00 (REF)
GT835P-8
SEE NOTE 2
X 196.00 (REF)
LDW280P17477-1 (REF)
+Z 27.00 (REF)
+Z 31.875 (REF)

SECTION A-A

DETAIL F

SCALE 1/2


GT535B-1-100
1½" STRIPS
LDW280P17586-5 (REF)

LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 ✓ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 ✓ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

NOTE:
1. PROCEDURE FOR INSTALATION:
   a. SPLICE LDW280P17586-1 BLANKET WITH LDW280P17586-5 BLANKET PER DETAIL 'C'.
   b. FOLD CORNERS PER DETAILS D, E, F.
   c. REMAINING FOLDS TO AGREE WITH INST'L.
2. TACK TAPE AT 4 TO 6 INCH PITCH USING 2 TO 4 INCH STRIPS.

LDW280-28671

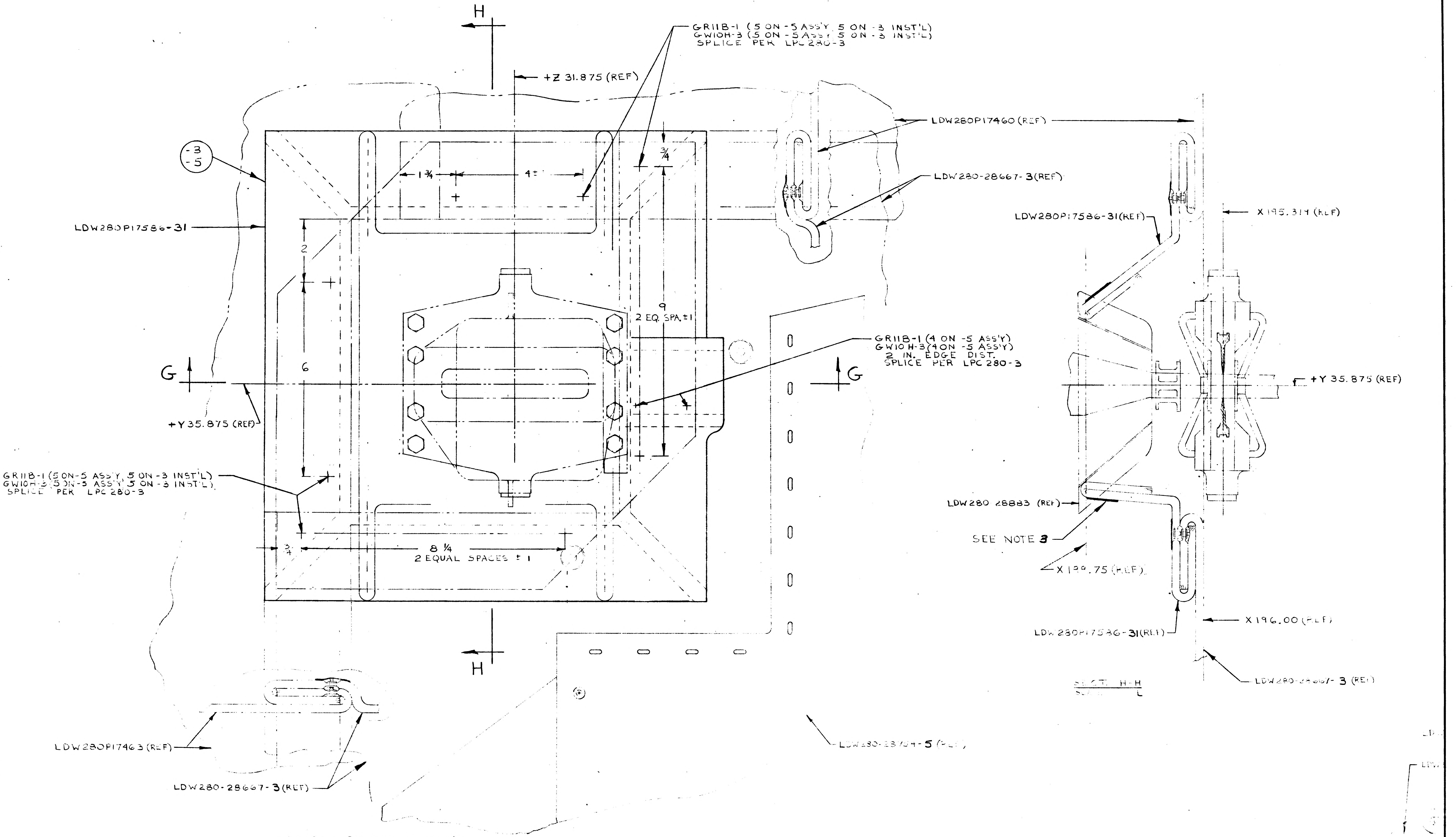
LDW280-28671

02702

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-28671
MODEL OR END ITEM	SCALE NOTED		SHEET 3 00

THIS IS AN ORIGINAL DRAWING


H
+Z 31.875 (REF)
GR11B-1 (5 ON -5 ASS'Y 5 ON -3 INST'L)
GW10H-3 (5 ON -5 ASS'Y 5 ON -3 INST'L)
SPLICE PER LPC 280-3
LDW280P17460 (REF)
LDW280-28667-3 (REF)
-3
-5
LDW280P17586-31
1¾
4±1
¾
2
6
9
2 EQ SPA ±1
GR11B-1 (4 ON -5 ASS'Y)
GW10H-3 (4 ON -5 ASS'Y)
2 IN. EDGE DIST.
SPLICE PER LPC 280-3
G
G
+Y 35.875 (REF)
GR11B-1 (5 ON -5 ASS'Y, 5 ON -3 INST'L)
GW10H-3 (5 ON -5 ASS'Y 5 ON -3 INST'L)
SPLICE PER LPC 280-3
¾
8 ¼
2 EQUAL SPACES ±1
H
LDW280P17463 (REF)
LDW280-28667-3 (REF)
LDW280-28754-5 (REF)
LDW280P17586-31 (REF)
X 195.314 (REF)
+Y 35.875 (REF)
LDW280 28883 (REF)
SEE NOTE 3
X 199.75 (REF)
X 196.00 (REF)
LDW280P17586-31 (REF)
LDW280-28667-3 (REF)
SECT. H-H
SCALE: 1/1

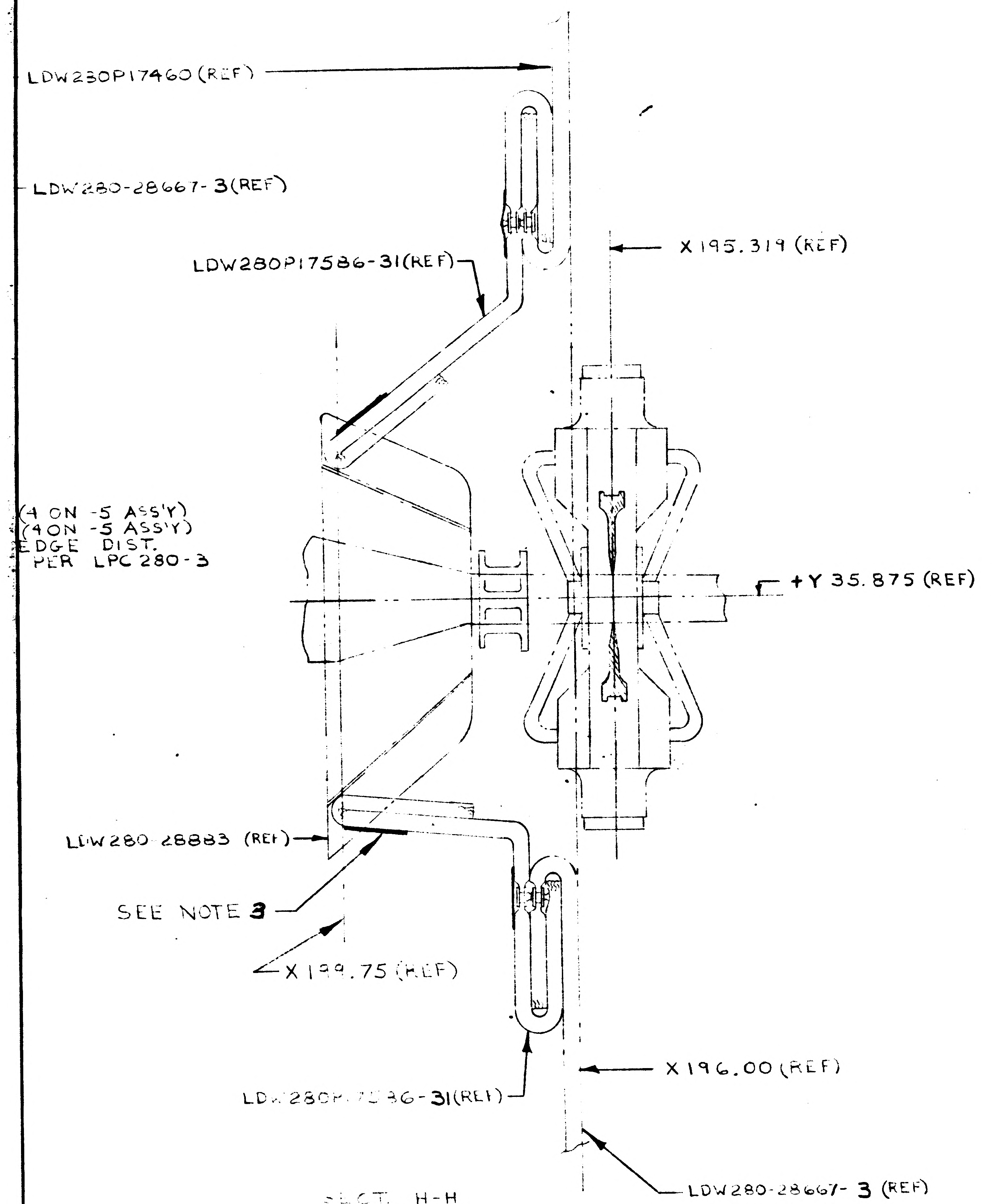
LDW280-28671-5 ASS'Y
LDW280-28671-3 INST'L
SCALE: FULL

01702 NAS 9-1100

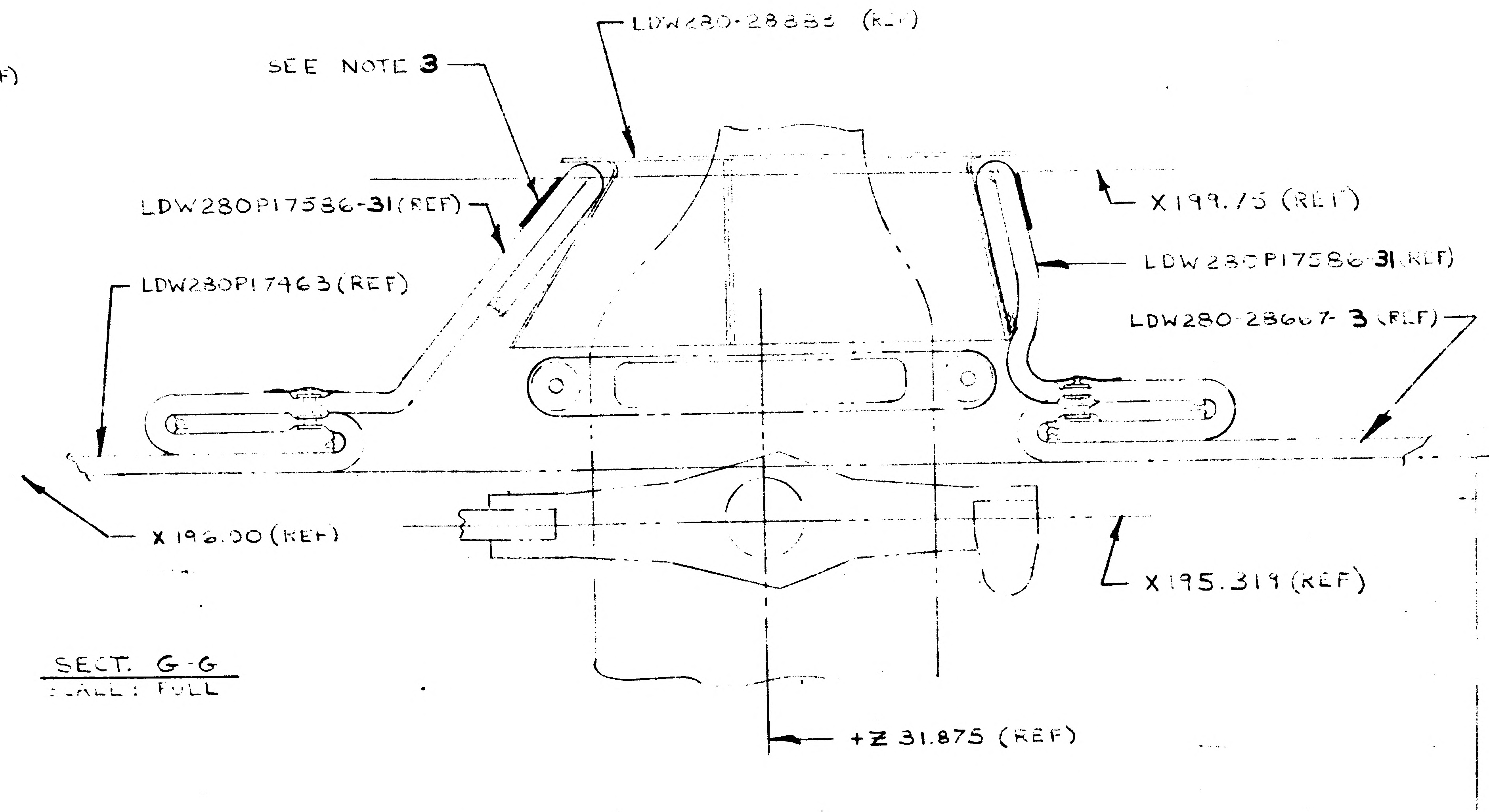
SCRAP -1
ADD -3 INST'L IDENTICAL TO -1, EXCEPT AS SHOWN.
-5 ASS'Y AS SHOWN.
REMOVE: NOTE 1 & 2, SECT'S. A-A, B-B, DETAILS C, D, E, F.
ADD: NOTE 3, SECT'S. G-G, H-H.

NOTE 3. WRAP BLANKET INTO CYLINDRICAL SHAPE AND TAPE BLANKET TO ITSELF. TAPE WITH GT835P-8.

14	10	GW10H-3	WASHER	STD. PART
14	10	GR11B-1	RETAINER	STD. PART
AS	REQ'D	GT835P-8	TAPE	STD. PART
AS	REQ'D	GT535B-2-100	TAPE	STD. PART
1		LDW280P17586-31	BLANKET	SEE DWG
	1	-5		
-5	-3			


LDW280P17460 (REF)
LDW280-28667-3 (REF)
X 195.319 (REF)
LDW280P17586-31 (REF)
(4 ON -5 ASS'Y)
(4 ON -5 ASS'Y)
EDGE DIST.
PER LPC 280-3
+Y 35.875 (REF)
LDW280 28883 (REF)
SEE NOTE 3
X 199.75 (REF)
X 196.00 (REF)
LDW280P17586-31 (REF)
LDW280-28667-3 (REF)

SECT. H-H


LDW280-28883 (REF)
SEE NOTE 3
LDW280P17586-31 (REF)
LDW280P17463 (REF)
X 199.75 (REF)
LDW280P17586-31 (REF)
LDW280-28667-3 (REF)
X 196.00 (REF)
X 195.319 (REF)
+Z 31.875 (REF)

SECT. G-G
SCALE: FULL

02/02 NAS 9-1100

DETAIL SPEC REQD | CLASS II ENGRG CHG | CLASS I ENGRG CHG
CONTROL INFO NO. LDW280A-2 78

REASON FOR EO: ADDITIONAL THERMO REQUIREMENTS

DESCRIPTION OF EO: REMOVED: -1, NOTE 1 & 2, SECT'S A-A, B-B DETAILS C, D, E, F.
ADDED: -3, -5, NOTE 3, SECT'S G-G, H-H.

GRUMMAN EO RELEASE

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING REVISION REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP -1
BY | DATE 10/11/66 | ~~SUPPORT~~ THERMO | RELIAB GROUP | GROUP LEADER | STRESS GROUP | LIAISON ENGRG | PROJ ENGR | ~~GOVT~~

PRIORITY: C

DRAWING TITLE: SHIELD INST'L D/S QUAD IV GUILLOTINE ACCESS COVER THERMAL

ENGINEERING ORDER
DRAWING NO. LDW280-28671
EO NO. A

ISSUED BY J. Backofen X1153 SECTION Veh. Des. Int GROUP NO. 335 PL 35
CODE IDENT NO. 26512
GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 32 3 REV 3-66

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED NO CHANGE LAST REVISION A B.YANOFF	ADDED SH	2.01&	4.00	12-22-67		
B	1	1.00,1.10, 3.00	5C					EOB1	REMOVED LDW280P17564-19 THRU -22 FROM -5 THRU -8 ADDED -9 THRU -12 (ON -5 THRU -8)	LTA-8(18) LM-1 THRU LM-6	✓		B. YANOFF 2/22/67		
	2	1.00,1.10, 2.00,2.01, 3.00	6A 4A 4C 5C					EOB2	ADDED -9, -10, -11, -12, -13 & -15. ALSO ADDED LDW280P17564 TO -5, -6, -7 & -8	LTA-8(18) LM-1 THRU LM-15	✓				
	3	1.00,1.10 3.00,2.00	3B 4C					EOB3	REF EOB2 IN FLD, B/M & N/A LDW280-28672-13, -14, -15, -16, -17 & -19 WERE LDW280-28672-9, -10, -11, -12, -13 & -15 RESPECTIVELY		NOT	REQD			
	4	1.00,1.10, 2.00,2.01, 3.00,4.00						EOB4	REVISED FLD & B/M ON -5 & -6: -5 (2 REQD) WAS (4), -6 (1 REQD) WAS (4) ON LDW280-28553, ADDED LDW280-18237-11, -13 & -15, NAS698A08(1), NAS697A08(4), GF510C-5-3(6), MS20426AD3 & MS20470AD5. ADDED -21 & -22. REMOVED -17. ADDED LTA-8(18) TO -19 FOR LDW280-28553. ADDED NOTES *3, 4, 5 & 6	LTA-8(18)	✓				
	5	1.00,1.10						EOB5	REF EOB4. REVISED CALLOUT -9 N/A TO -5 (REF), -10 N/A TO -6 (REF), ADDED -9 N/A TO -21, -10 TO -22 (WAS) LDW280P17564-21 & -22, ON -5 & -6 (REF) ADDED LDW280P17564-21 & -22 ON -21 & -22	LTA-8(18)	NOT	REQD			
	6	1.00,1.10 2.00							REF EOB2: ALSO ADDED LDW280P17564 TO -5, -6, -7 & -8 S/B ALSO ADDED LDW280P17564-27 TO -5, -6, -7 & -8. FOR -7 & -8: ADDED LM-7 THRU LM-15 EFFECTIVITY & LDW280-53553 WAS LDW280-52553 FOR N/A OF LM-3.	LTA-8(18) LM-1 THRU LM-15	NOT	REQD	EG		

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO
B		3/14/67	3/14/67				3/7/67

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28672	B
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

LFM 126	LDW280-66553	LTA-8 (18)	8
PART NO. LDW280-28672-45			
LFM 126	LDW280-66553	LTA-8 (18)	3
PART NO. LDW280-28672-48			
LM	LDW280-51553	LM-1 (31)	1 EA
PART NO. LDW280-28672-23 & -25			
LFM 126	LDW280-66553	LTA-8 (18)	8 EA
LM	LDW280-28553	LTA-8 (18)	8 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28672-13 & -14		GAEC SCH NO. 52	

LDW280-28672 C

LFM

LFM 126	LDW280-66553	LTA-8 (18)	2
PART NO. LDW280-28672-47			
LFM 99	LDW280-52553	LM-2 (32)	1 EA
LDW280-28672-39 & -41			
LFM 99	[illegible]	[illegible]	[illegible]
LFM 99	LDW280-51553	LM-1 (31)	[illegible]
LDW280-28672-37			
LM	LDW280-52553	LM-2 (32)	8 EA
LM	LDW280-51553	LM-1 (31)	8 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28672-15 & -16		GAEC SCH NO. 52	

LFM 126	LDW280-66553	LTA-8 (18)	1
PART NO. LDW280-28672-44			
LFM 126	LDW280-66553	LTA-8 (18)	2
PART NO LDW280-28672-43			
LM	LDW280 52553	LM-2 (32)	4 EA
LM	LDW280-51553	LM-1 (31)	4 EA
PART NO. LDW280-28672-7 & -8			
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO. 52	

WORK PACKAGE FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	2.01	3.00	4.00	5.00		
REV	C	B	C	C	C	C	C		
SHEET		1.11		2.02					
REV		C		C					
SHEET		1.12		2.03					
REV		C		C					

LAST SECT LTR USED	P	GRUMMAN REL INFO (B) C	
LAST DASH NO. USED	-48	PRIM NO. 207	JK/001 MP-16 C-8/29/[illegible]

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/4 ± .200 ± 1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO.	NAS 9-1100	LINE ITEM	DOCUMENTATION TYPE II
DRAWN BY	R. J. DICK	RELIABILITY	
LAYOUT BY		THERMO	AB FOR MT 10/26/66
CHECKED BY			
GR. LEADER	J.HS. PER H.P.		
VEH DES INT	PAULSRUD 8/4		
STRUCTURES	W. HAUCK 8/4	PROJ ENGR	R.M. CARBEE 8/8
STRUCTURES	HILDERMAN 8/5	REL GROUP	J. TAGLAVIA 10/26/66
WEIGHTS	D. ROBESCH 8/12		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTL
DESCENT STAGE UPPER OUTRIGGER
PENETRATION THERMAL

SIZE	CODE IDENT NO.		
B	26512	LDW28028672	C
SCALE	NONE	SHEET 1.00 OF	11

NG 77.1 12-65

SUPERSEDES LDW280-28672 A 10/28/66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET 1.12

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
C	1	1.00, 1.11						LEO280-476	LEO 280-476 NOT APPLICABLE. PREVIOUSLY INCORPORATED ON B2 & B6 CHANGES. ADDED SH 1.11	LM-7 THRU LM-15	NOT	REQD	C. D'AVELLA 3-4-68		
	2	1.00,2.00 2.01,3,00 4.00&5.00	4B 4C 6A 10C 5A			✓		EO-C2 LCD—1220	IN FLD, B/M AND MOD/BLK ADDED -21 & -23 SHIELD INSTL; REVISED QTY/MOD FOR -19, 6/MOD (WAS) B/MOD EFF LM-1(31) THRU LM-15(45) ADDED SH. 5.00, ADDED VIEW M-M.	LM-1 THRU LM-15		✓			
	3	2.01, 3, 4.	5A 7D 8D 8C 12B				✓	EO-C3 LCD—1136	ON -5, -6, -7 & -8 ADDED A SINGLE LAYER OF ALUMINIZED POLYIMIDE. ADDED SECT. Δ-Δ & SECT. ✱-✱ (NOT APPLICABLE) AND NOTES *7, *8 & *9.	LTA-8, LM-1 THRU LM-15	✓				
	4	2.01 & 3.	4C				✓	EO-C4 LCD—1136	REF EO-C3: FOR -5, -6, -21, -22, -7 & -8 (WAS) FOR -5, -6, -7 & -8. IN SECTION G-G LDW280P17564-27(REF) WAS LDW280P17584-27(REF). IN FLD SH 3 REMOVED "PLAN VIEW LOOKING DOWN"	LTA-8 LM-1 THRU LM-15	✓				
	5	1.00, 2.00 2.01, 3.00 4.00, 5.00	10C 6A			✓		EO-C5 LCD—1220 CCA-526	REF EO-C2: -21 SHOULD BE -25	LM-1 THRU LM-15	NOT	REQD			
	6	1.00, 2.00 2.01, 3, 4	6A	P		✓		EO-C6 LCD 2360	EFFECTIVITY OF -7, -8, -15, -16, -23 & -25 WAS LM-1(31) THRU LM-15(45). EFFECTIVITY OF -19 WAS LTA-8(18), LM-1(31) THRU LM-15(45). ADDED -27 THRU -31, -33 & -35	LM-3 THRU LM-15		✓			
	7	1.00, 2.00 2.01, 3, 4	4C 5A 6A	P LFM99		✓		EO-C7 LCD 2525	ADDED -37; REMOVED -19. ADDED NOTE #10 -37 MAY BE MADE BY REWORKING -19	LM-1 LM-2	NO	TED			
	8	1.00	6A	P		✓		EO-C8 LCD 2360	REMOVED LM-3 THRU LM-15 REQUIREMENTS FROM -27, -28, -29, -30, -31, -33 & -35.	LM-3 THRU LM-15		✓			
	9	1.00, 2.02, 3.00, 4.00 & 5.00	4C 6A 10C 4C 4F 5F 6F	P LFM99		✓		EO-C9 LCD2525	REF EOC7~N/A FOR LM-2 FOR -37, 6 REQD (WAS) 8 REQD. ADDED -39 AND -41. REMOVED -23 & -25 FOR LM-2 (32). (-39 & -41 MAY BE MADE FROM -23 & -25) ADDED SH 2.02	LM-2	NOT	ED	RMS		
	10	1.00, 3.00, 4.00, 2.02 2.03	5B 5D 6A 10A 12C 13A 13C	P LFM 126		✓		EOC10 LCD 1021-33	IN M/B FOR -13 & -14: ADDED EFF FOR LTA-8 (LFM126). IN M/B, B/M & FLD: ADDED -43, -44, -45, -47 & -48. ADDED NOTES 10 & 11 & DETAIL N (-5, -6, -19, -21 & -22 CONFIGURATION TO REMAIN ON DWG FOR RECORD PURPOSES ONLY) (ADDED SH 2.03)	LTA-8		-5, -6 -19, -21 -22	L. LEVINE L.D. 8-15-68		

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY	THERMO
	C							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28672	C
SCALE NONE			SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
C	11	1.11, 1.12, 4.00	10A	P LFM 126		✓		LCD 1021-33	REF EOC10: "IN FLD OF EO ADDED -43,-44,-47 & -48 WHICH ARE IDENTICAL WITH -5,-6,-21 & -22 RESPECTIVELY EXCEPT..." SHOULD BE "IN FLD OF EO ADDED -45 WHICH IS IDENTICAL WITH -19 RESPECTIVELY EXCEPT..." "IN FLD OF EO ADDED -45 IDENTICAL TO -19 EXCEPT..." SHOULD BE "IN FLD OF EO ADDED -43,-44,-47 & -48 IDENTICAL TO -5,-6, -21 & -22 EXCEPT..." (ADDED DETAIL P & SH 1.12) Ⓒ	LTA-8		-5,-6, -19,-21, -22	L.D. LEVINE 8-15-68	8/28/68	

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY	THERMO				
C	8-26-68	JAP 8/27/68		[illegible]			AB 8/28/68				

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28672	C Ⓒ

SCALE NONE

SHEET 1.12

ENG 77.16 3-66

01

NAS 9-1100

	-37	-25	-23	-22	-21	-19	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C			1																LDW280P17564-53	E		BLANKET ASSY	SEE DWG						4F
C									1										42										4C
C										1									-41										3B
C							1												-38										4C
C								1											-37										3B
C	1					1													-29										4A
C															1	1	1	1	-27										6B
C											1								-22										6B
C												1							-21										6B
C													1						-20										13B
C														1					19										13B
C		1																	LDW280P17564-47			BLANKET ASSY	SEE DWG						6F
C																			LDW280-28672-37			SHIELD INSTL					NONE	NONE	6A
C																			-25										
C																			-23										
C																			22										
C																			-21										
C																			-19										
C																			-16										
C																			-15										
C																			-14										
C																			-13			SHIELD INSTL							
C															1				-12			SHIELD ASSY							
C																1			-11										
C				1													1		-10										
C					1													1	-9			SHIELD ASSY							
C																			-8			SHIELD INSTL							
C																			-7										
C																			-6										
C																			LDW280-28672-5	E		SHIELD INSTL					NONE	NONE	6A
CL	QTY PER ASSEMBLY																												

C.L. = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28672	C
SCALE NONE			SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

CL	QTY PER ASSEMBLY																		PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	-37	-25	-23	-22	-21	-19	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5											
				A/R	A/R										A/R	A/R	A/R	A/R		E	24761	ALUM POLYIMIDE	SEE NOTE#7			.0005 THICK			
				A/R	A/R												A/R	A/R	SEE NOTE#6	E		SHIM							
				1	1												1	1	NAS698A08			NUT PLATE	STD PART						
				4	4												4	4	NAS697A08			NUT PLATE							
				A/R	A/R												A/R	A/R	MS20470AD5			RIVET							
				A/R	A/R												A/R	A/R	MS20470AD3			RIVET							
				A/R	A/R												A/R	A/R	MS20426AD3			RIVET							
				2	2										2	2	2	2	AN515-6R4			SCREW	STD PART						
				A/R	A/R										A/R	A/R	A/R	A/R	GT335P-8			TAPE	GRUMMAN STD						
											A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	GW10H-3			SNAP							
	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	GT15C-3			TAPE							
	8	8	8			8													GS26D-1			STANDOFF ASSY							
											A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	GR11B-1			RETAINER							
				6	6												6	6	GF510C-5-3			FASTNR-BLIND	GRUMMAN STD						4B
C	8	8	8			8													LDW280P17523-3			CAP	SEE DWG						5B
C				2	2										2	2	2	2	LDW280P17575-11			WASHER							14D
C				1	1												1	1	LDW280-18237-15			STIFFENER							14D
C				1	1												1	1	LDW280-18237-13			ANGLE							14D
C				1	1												1	1	LDW280-18237-11	E		CHANNEL	SEE DWG						

CL = CLEANLINESS LEVEL PER LSP 14-0011

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28672	C
SCALE NONE		SHEET 2.01	

ENG 77.2 5-64

01

NAS 9-1100

CL	-48	-47	-45	-44	-43	-41	-39	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	AR	AR	AR	AR	AR	AR	AR		GT15C-3	E	TAPE	GRUMMAN STD						
						8	8		GT26D-1		STANDOFF ASSY							
	AR	AR	AR	AR	AR				GT835P-8		TAPE							
	2	2	7	2	2				GS20D-06-8		SCREW							
	2	2	7	2	2				GW10R-06		WASHER							
	2	2	7	2	2				GW10P-1		WASHER							
	2	2	7	2	2				GB10J-2		BUSHING							
	2	2	7	2	2				GW10H-2		WASHER							
	6	6		6	6				GF510C-5-3		FASTNR - BLIND							
				AR	AR				GR11B-1		RETAINER	GRUMMAN STD						
C	1	1		1	1				LDW280-18237-15		STIFFENER	SEE DWG						14D
C	1	1		1	1				LDW280-18237-13		ANGLE							14D
C	1	1		1	1				LDW280-18237-11		CHANNEL							14D
C				1	1				LDW280P17564-27		BLANKET ASSY							6B
C	1	1		1	1				LDW280-18607-11		STIFFENER							10B
C			1						LDW280-18607-13		STIFFENER							10B
C						8	8		LDW280P17523-3		CAP							4B
C							1		LDW280P17564-53		BLANKET ASSY							4F
C						1			LDW280P17564-47		BLANKET ASSY							6F
C			1						LDW280P17564-83		BLANKET ASSY	SEE DWG						10A
C	1			1					LDW280 28672-10		SHIELD ASSY					NONE	NONE	6A
C		1			1				-9		SHIELD ASSY							
C									-48		SHIELD INSTL							
C									-47									
C									-45									
C									-44									
C									-43									
C									-41									
C									LDW280-28672-39	E	SHIELD INSTL					NONE	NONE	6A

QTY PER ASSEMBLY

CL=CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28672	C

SCALE NONE

SHEET 2.02

ENG 77.2 7-65

01

NAS 9-1100

CL			-48	-47	-44	-43	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			AR	AR	AR	AR	24761		E	ALUM POLYIMIDE	SEE NOTE 7			.0005 THK			
			AR	AR	AR	AR		SEE NOTE 6	E	SHIM							
					AR	AR		GW10H-3	E	SNAP	GRUMMAN STD						
			AR	AR	AR	AR		MS20426AD3	E	RIVET	STD PART						
			AR	AR	AR	AR		MS20470AD3	E	RIVET	↑						
			AR	AR	AR	AR		MS20470AD5	E	RIVET	|						
			4	4	4	4		NAS697A08	E	NUT PLATE	↓						
			1	1	1	1		NAS698A08	E	NUT PLATE	STD PART						

QTY PER ASSEMBLY

CL= CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

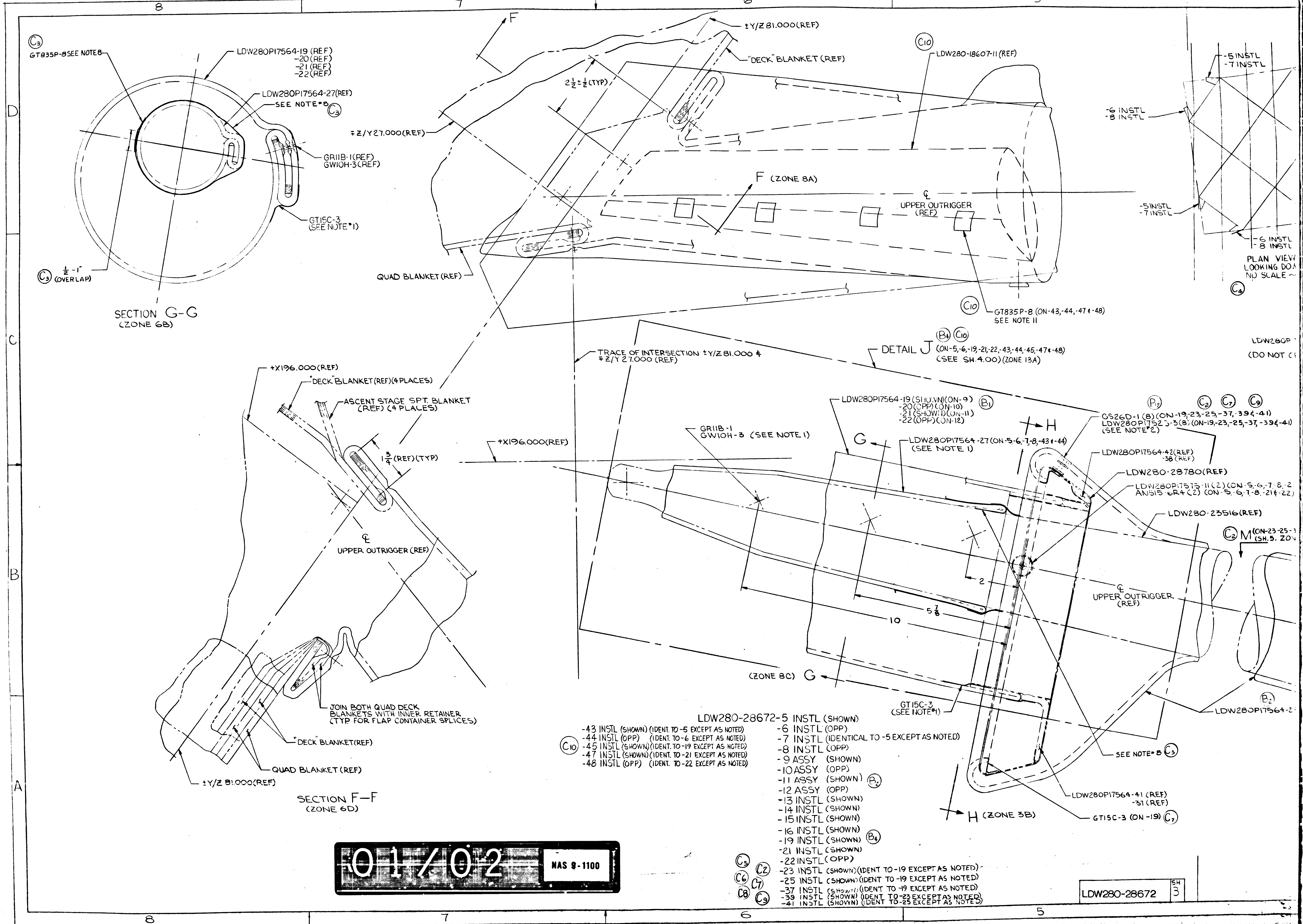
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28672	C

SCALE NONE SHEET 2.03

ENG 77.2 7-65

01 NAS 9-1100

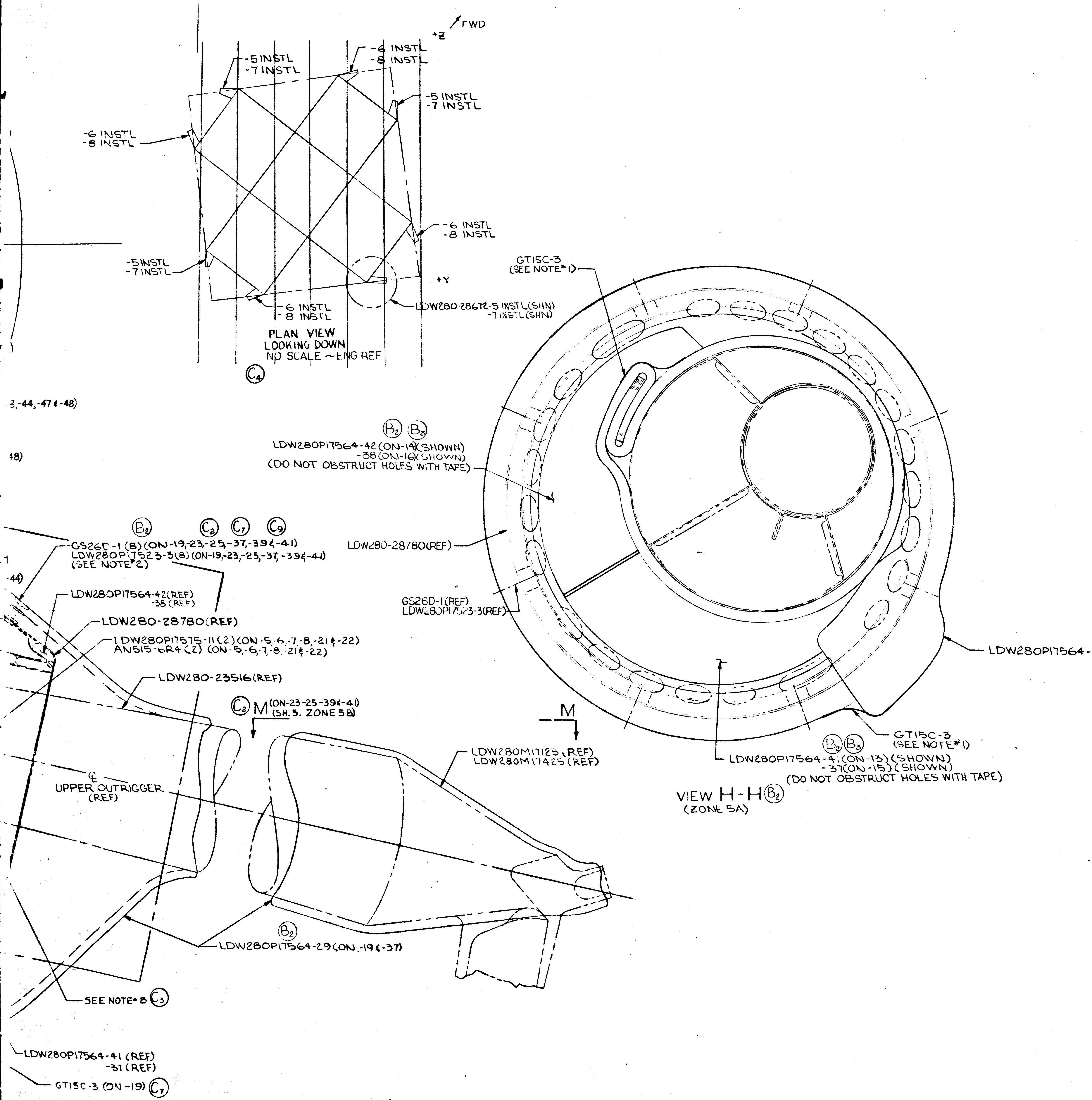

8
7
6
5
D
C
B
A
C3
GT835P-8 SEE NOTE 8
LDW280P17564-19 (REF)
-20 (REF)
-21 (REF)
-22 (REF)
LDW280P17564-27 (REF)
SEE NOTE 8 C3
GR11B-1 (REF)
GW10H-3 (REF)
GT15C-3
(SEE NOTE 1)
C3 1/2 - 1" (OVERLAP)
SECTION G-G
(ZONE 6B)
F
±Y/Z 81.000 (REF)
"DECK" BLANKET (REF)
2 1/2 ± 1/2 (TYP)
∓Z/Y 27.000 (REF)
C10
LDW280-18607-11 (REF)
F (ZONE 8A)
℄ UPPER OUTRIGGER (REF)
QUAD BLANKET (REF)
C10
GT835P-8 (ON-43,-44,-47 & -48)
SEE NOTE 11
-5 INSTL
-7 INSTL
-6 INSTL
-8 INSTL
-5 INSTL
-7 INSTL
-6 INSTL
-8 INSTL
PLAN VIEW
LOOKING DO
NO SCALE
C4
LDW280P
(DO NOT C
TRACE OF INTERSECTION ±Y/Z 81.000 & ∓Z/Y 27.000 (REF)
B4 C10
DETAIL J (ON-5,-6,-19,-21,-22,-43,-44,-45,-47 & -48)
(SEE SH. 4.00) (ZONE 13A)
+X196.000 (REF)
"DECK" BLANKET (REF) (4 PLACES)
ASCENT STAGE SPT. BLANKET (REF) (4 PLACES)
1 3/4 (REF) (TYP)
℄ UPPER OUTRIGGER (REF)
+X196.000 (REF)
LDW280P17564-19 (SHOWN) (ON-9) B1
-20 (OPP) (ON-10)
-21 (SHOWN) (ON-11)
-22 (OPP) (ON-12)
GR11B-1
GW10H-3 (SEE NOTE 1)
G
LDW280P17564-27 (ON-5,-6,-7,-8,-43 & -44)
(SEE NOTE 1)
H
P12 C2 C7 C9
GS26D-1 (8) (ON-19,-23,-25,-37,-39 & -41)
LDW280P17523-3 (8) (ON-19,-23,-25,-37,-39 & -41)
(SEE NOTE 2)
LDW280P17564-42 (REF)
-38 (REF)
LDW280-28780 (REF)
LDW280P17575-11 (2) (ON-5,-6,-7,-8,-2
AN515-6R4 (2) (ON-5,-6,-7,-8,-21 & -22)
LDW280-23516 (REF)
C2 M (ON-23-25-3
(SH. 5. ZO
2
5 7/8
10
℄ UPPER OUTRIGGER (REF)
(ZONE 8C) G
GT15C-3
(SEE NOTE 1)
B2
LDW280P17564-2
SEE NOTE 8 C3
LDW280P17564-41 (REF)
-31 (REF)
H (ZONE 3B)
GT15C-3 (ON-19) C7
JOIN BOTH QUAD DECK BLANKETS WITH INNER RETAINER (TYP FOR FLAP CONTAINER SPLICES)
"DECK" BLANKET (REF)
QUAD BLANKET (REF)
±Y/Z 81.000 (REF)
SECTION F-F
(ZONE 6D)

LDW280-28672-5 INSTL (SHOWN)
-6 INSTL (OPP)
-7 INSTL (IDENTICAL TO -5 EXCEPT AS NOTED)
-8 INSTL (OPP)
-9 ASSY (SHOWN)
-10 ASSY (OPP)
-11 ASSY (SHOWN) Ⓑ2
-12 ASSY (OPP)
-13 INSTL (SHOWN)
-14 INSTL (SHOWN)
-15 INSTL (SHOWN)
-16 INSTL (SHOWN)
-19 INSTL (SHOWN) Ⓑ4
-21 INSTL (SHOWN)
-22 INSTL (OPP)
-23 INSTL (SHOWN) (IDENT TO -19 EXCEPT AS NOTED)
-25 INSTL (SHOWN) (IDENT TO -19 EXCEPT AS NOTED)
-37 INSTL (SHOWN) (IDENT TO -19 EXCEPT AS NOTED)
-39 INSTL (SHOWN) (IDENT TO -23 EXCEPT AS NOTED)
-41 INSTL (SHOWN) (IDENT TO -25 EXCEPT AS NOTED)
Ⓒ5 Ⓒ2 Ⓒ6 Ⓒ7 Ⓒ8 Ⓒ9

Ⓒ10
-43 INSTL (SHOWN) (IDENT. TO -5 EXCEPT AS NOTED)
-44 INSTL (OPP) (IDENT. TO -6 EXCEPT AS NOTED)
-45 INSTL (SHOWN) (IDENT. TO -19 EXCEPT AS NOTED)
-47 INSTL (SHOWN) (IDENT. TO -21 EXCEPT AS NOTED)
-48 INSTL (OPP) (IDENT. TO -22 EXCEPT AS NOTED)

01/02 NAS 9-1100

LDW280-28672 SH 3


FWD
+Z
-5 INSTL
-7 INSTL
-6 INSTL
-8 INSTL
-5 INSTL
-7 INSTL
-6 INSTL
-8 INSTL
-6 INSTL
-8 INSTL
-5 INSTL
-7 INSTL
-6 INSTL
-8 INSTL
+Y
LDW280-28672-5 INSTL(SHN)
-7 INSTL(SHN)
PLAN VIEW
LOOKING DOWN
NO SCALE ~ ENG REF
C4
-3,-44,-47 & -48)
48)
-44)
GT15C-3
(SEE NOTE# 1)
B2 B3
LDW280P17564-42 (ON-14)(SHOWN)
-38 (ON-16)(SHOWN)
(DO NOT OBSTRUCT HOLES WITH TAPE)
LDW280-28780(REF)
GS26D-1(REF)
LDW280P17523-3(REF)
LDW280P17564-29(REF)
GT15C-3
(SEE NOTE#1)
B2 B3
LDW280P17564-41 (ON-13) (SHOWN)
-37 (ON-15) (SHOWN)
(DO NOT OBSTRUCT HOLES WITH TAPE)
VIEW H-H B2
(ZONE 5A)
B2 C2 C7 C9
GS26D-1 (8) (ON-19,-23,-25,-37,-39 & -41)
LDW280P17523-3 (8) (ON-19,-23,-25,-37,-39 & -41)
(SEE NOTE#2)
LDW280P17564-42 (REF)
-38 (REF)
LDW280-28780(REF)
LDW280P17575-11 (2) (ON-5,-6,-7,-8,-21 & -22)
AN515-6R4 (2) (ON-5,-6,-7,-8,-21 & -22)
LDW280-23516(REF)
C2 M (ON-23-25-39 & -41)
(SH. 5. ZONE 5B)
M
LDW280M17125 (REF)
LDW280M17425 (REF)
℄
UPPER OUTRIGGER
(REF)
B2
LDW280P17564-29 (ON -19 & -37)
SEE NOTE# 8 C3
LDW280P17564-41 (REF)
-31 (REF)
GT15C-3 (ON -19) C7

NOTES:

1. ALL SNAPS, TAPE & RETAINERS TO BE INSTALLED PER LPC280-3.
2. INSTALL PER LPC280-14
3. ON-5,-6,-21 & -22 INSTALL LDW280P17564-27, ASSEMBLE & INSTALL LDW280-18237-11,-13 & -15 BY RIVETING THRU BLANKET, ATTACH WIRE BUNDLES AS REQD, WRAP LDW280-18237-11,-13 & -15 & WIRE BUNDLES AS REQD PER LPC280-7, THEN INSTALL LDW280P17564-21 & -22 WITH LPC280-6 AS REQD.
4. PENETRATION PATCH PER LPC280-6 (D & L = AS REQD) (a) ON-5,-6,-21 & -22 (b) ON-21 & -22)
5. PROTRUSION WRAP PER LPC280-7 (W & L= AS REQD) CONTINUOUSLY WRAPPED 18" BEYOND BLANKET. (a) ON-5,-6,-21 & -22 (b) ON-5 & -6
6. SHIM AS REQD USING ALUMINUM ALLOY QQ-A-250/4, 2024-T3, FINISH #88.
7. ALUMINIZED POLYIMIDE MAY BE PURCHASED FROM McCORDI CO. MAMARONECK, N.Y CODE IDENT 24761
8. INSTALL ONE LAYER OF ALUMINIZED POLYIMIDE .0005 THICK. ALUMINIZED SURFACE MUST FACE IN TOWARD THE MYLAR. FOLD ALUMINIZED POLYIMIDE IN AT BOTH ENDS TO MATCH BLANKET. USE GT835P-8 TAPE IN CONTINUOUS STRIPS SEALING THE BLANKET TO THE STRUCTURE AS SHOWN. VENT BY PUNCHING A 1/2 DIA. HOLE THROUGH THE LAYER AT APPROXIMATELY THE SAME LOCATION AS THE VENT PATCH IN THE BLANKET AND COVER THE HOLE WITH A SINGLE 5" DIA. LAYER TAPED WITH 4 PCS. OF 2" STRIPS OF GT835P-8 TAPE 90° APART, ON-5,-6,-7,-8,-21 & -22.
9. ON-5 & -6 INSTLS LPC280-6 SLITS MAY BE CUT TO ALLOW PENETRATIONS.

10. TAPE AS SHOWN WITH 2-3 INCH SPACING.
11. TAPE INTERMITTENTLY WITH 2-4 INCH STRIPS, WITH GAPS OF 3/4-1 INCH.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 86

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 88)= 31.7 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 7.9 SQ. FT.

PRINT TRIM LINE

LDW280-28672 C

LDW280-28672 C

02/02

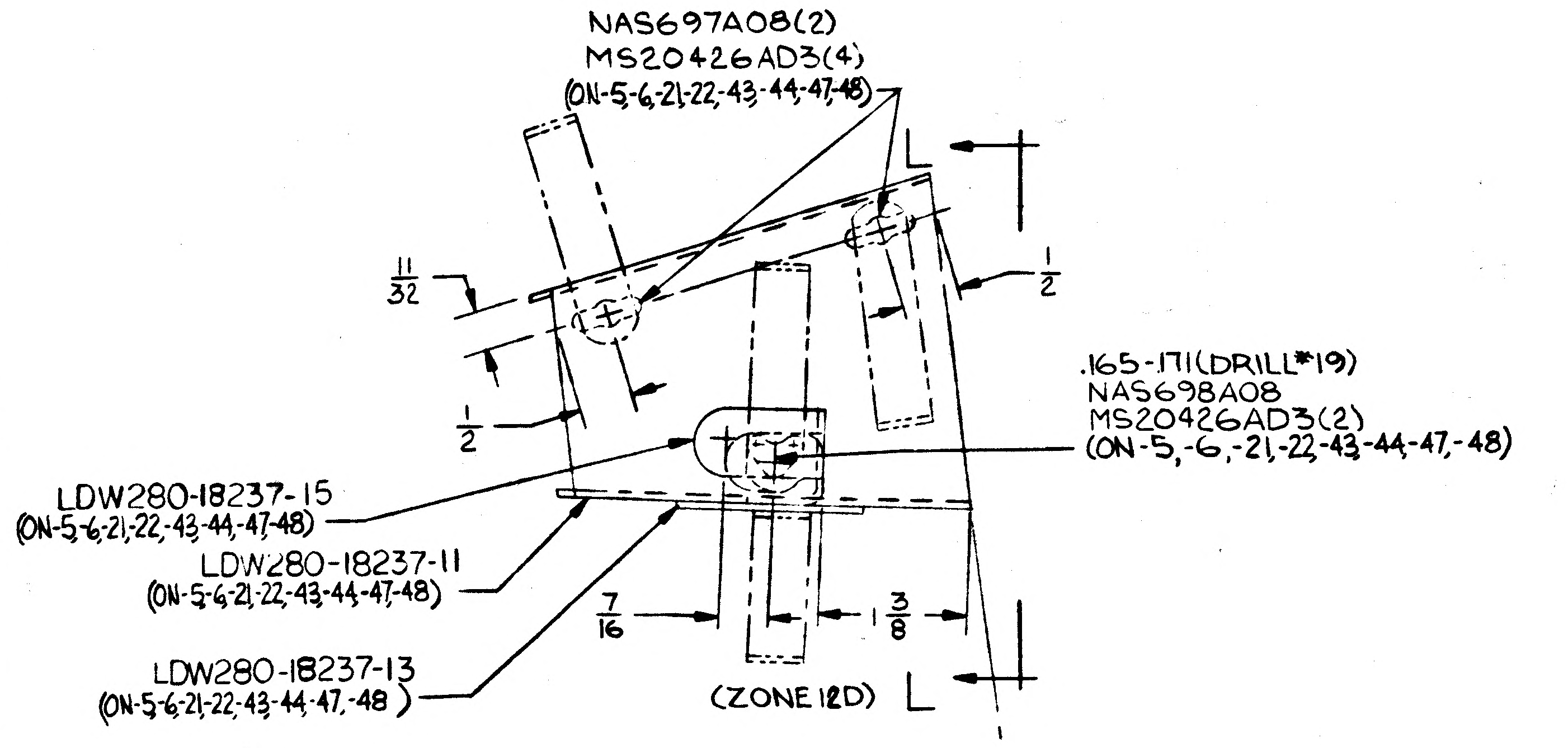
NAS 9-1100

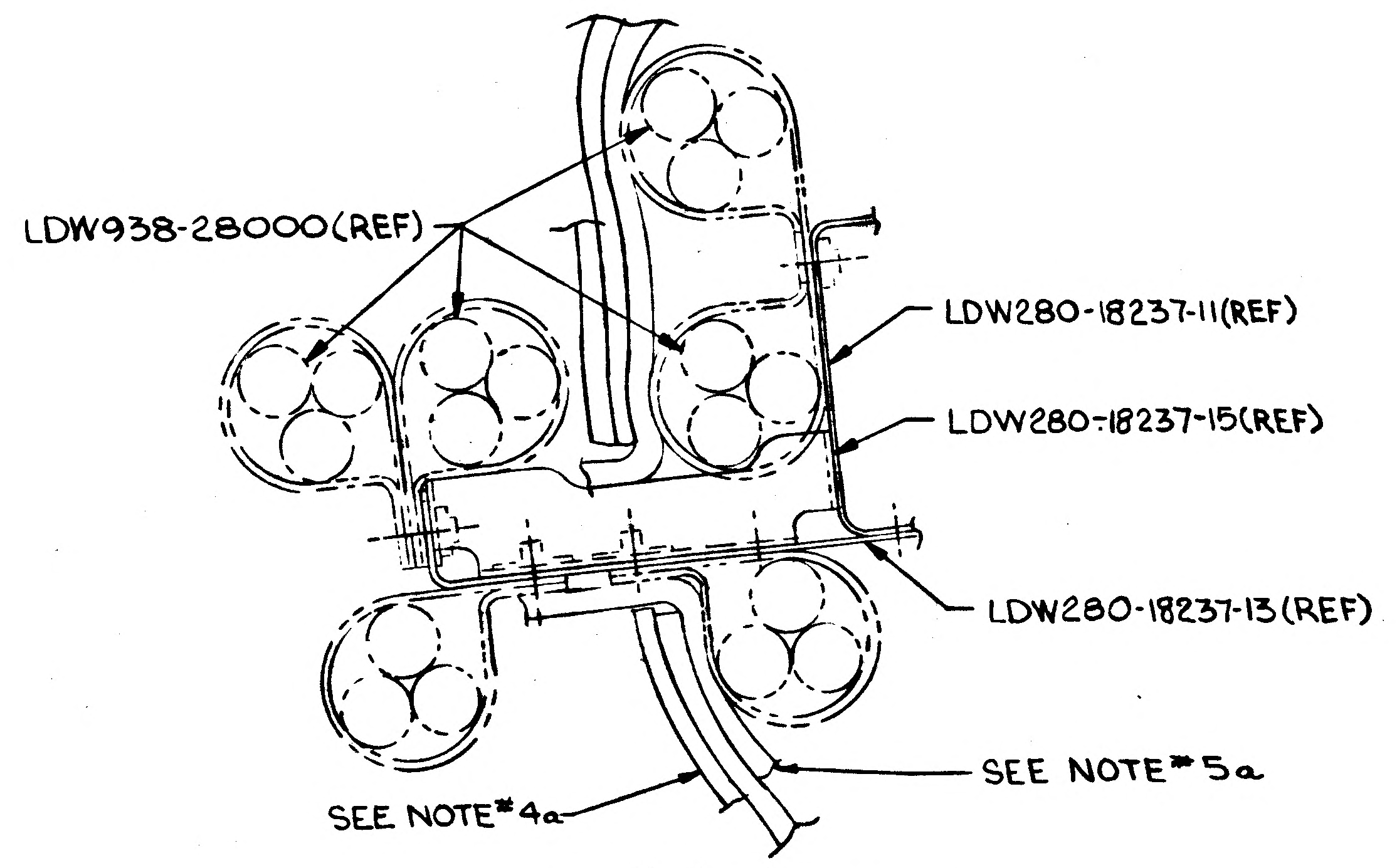
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE J	CODE IDENT NO. 26512	LDW280-28672	C
LM MODEL OR END ITEM	SCALE FULL		SHEET 3.00

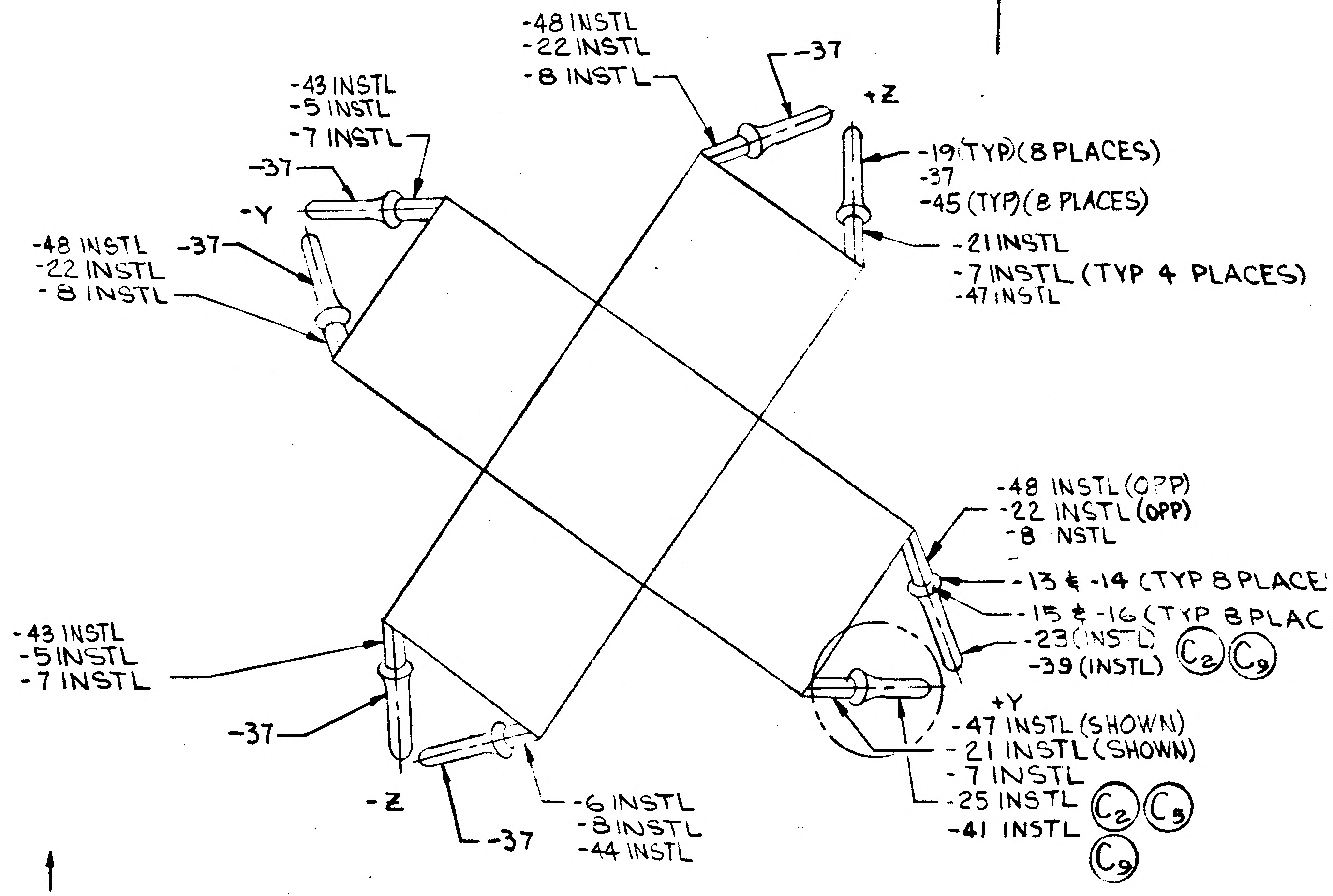
2 FRAMES

LDW280-28672 SH 3

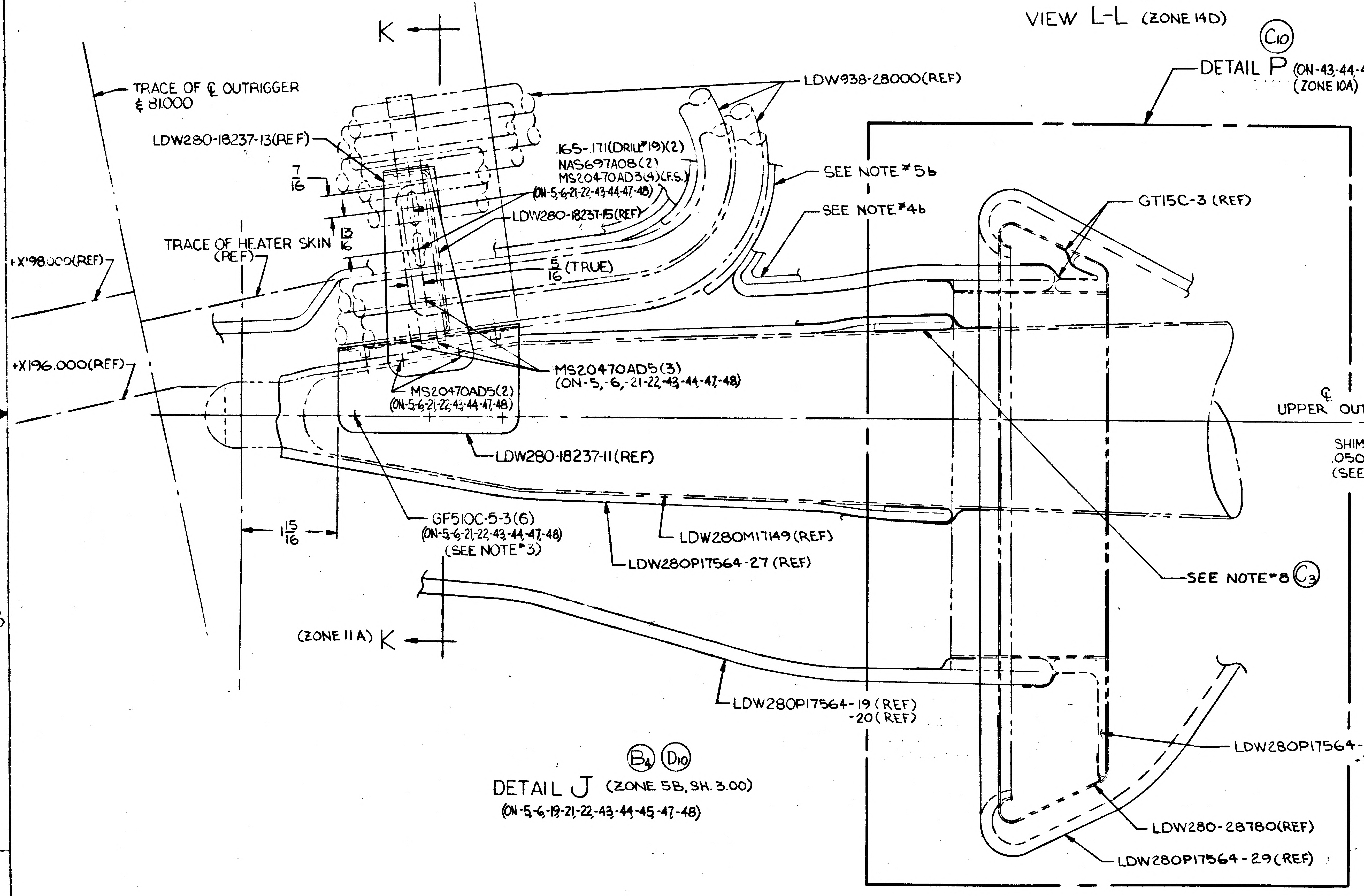

NAS697A08(2)
MS20426AD3(4)
(ON-5,-6,-21,-22,-43,-44,-47,-48)
L
11/32
1/2
1/2
.165-.171(DRILL#19)
NAS698A08
MS20426AD3(2)
(ON-5,-6,-21,-22,-43,-44,-47,-48)
LDW280-18237-15
(ON-5,-6,-21,-22,-43,-44,-47,-48)
LDW280-18237-11
(ON-5,-6,-21,-22,-43,-44,-47,-48)
7/16
1 3/8
LDW280-18237-13
(ON-5,-6,-21,-22,-43,-44,-47,-48)
(ZONE 12D) L


LDW938-28000(REF)
LDW280-18237-11(REF)
LDW280-18237-15(REF)
LDW280-18237-13(REF)
SEE NOTE#4a
SEE NOTE#5a

VIEW L-L (ZONE 14D)


-48 INSTL
-22 INSTL
-8 INSTL
-37
+Z
-43 INSTL
-5 INSTL
-7 INSTL
-37
-Y
-19(TYP)(8 PLACES)
-37
-45 (TYP)(8 PLACES)
-48 INSTL
-22 INSTL
-8 INSTL
-37
-21 INSTL
-7 INSTL (TYP 4 PLACES)
-47 INSTL
-48 INSTL (OPP)
-22 INSTL (OPP)
-8 INSTL
-13 & -14 (TYP 8 PLACES)
-15 & -16 (TYP 8 PLACES)
-23 (INSTL) C2 C9
-39 (INSTL)
-43 INSTL
-5 INSTL
-7 INSTL
-37
+Y
-47 INSTL (SHOWN)
-21 INSTL (SHOWN)
-7 INSTL
-25 INSTL C2 C5
-41 INSTL C9
-Z
-37
-6 INSTL
-8 INSTL
-44 INSTL

NO SCALE ~ ENG REF

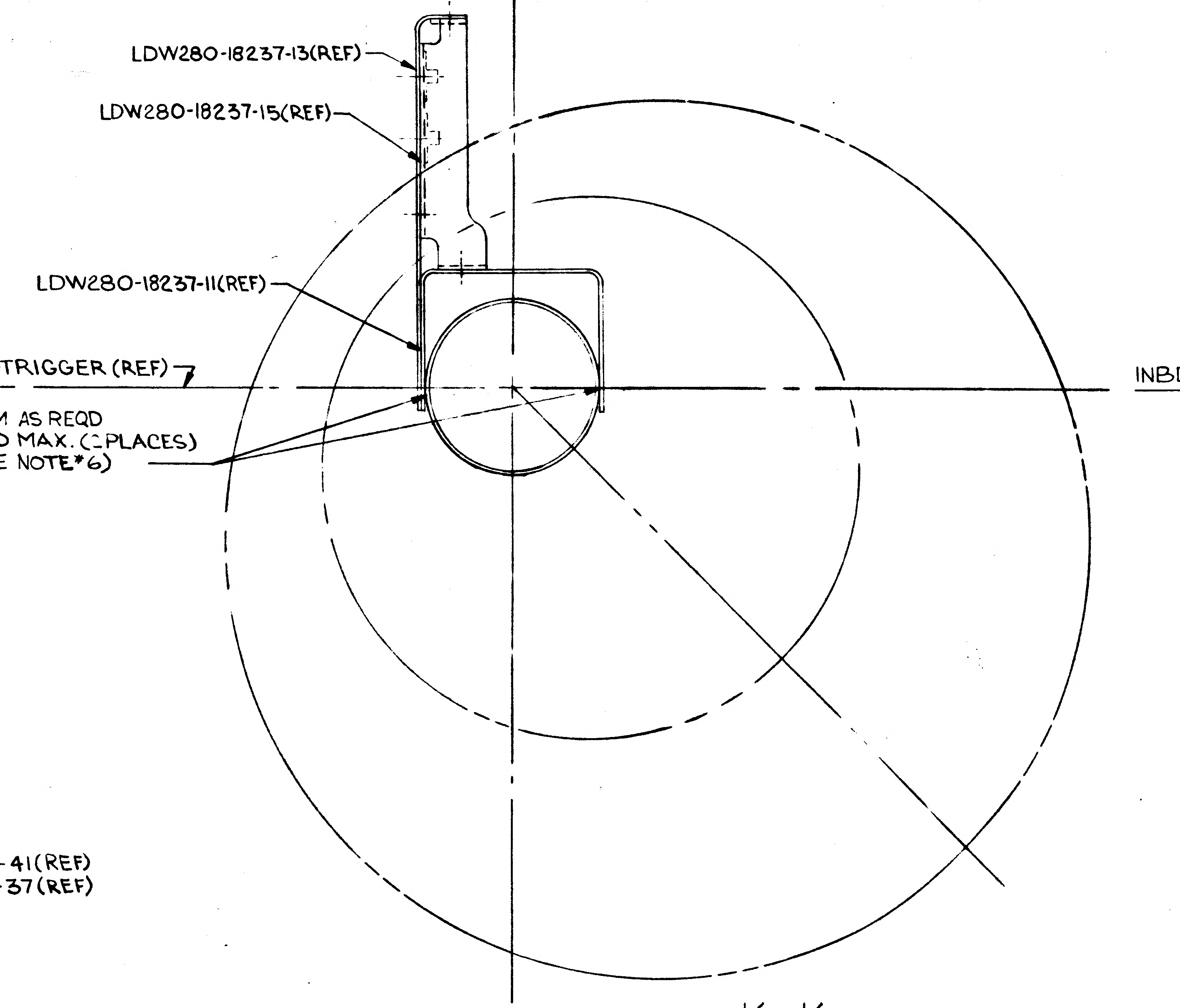

K
TRACE OF ℄ OUTRIGGER
& 81.000
LDW938-28000(REF)
LDW280-18237-13(REF)
7/16
.165-.171(DRILL#19)(2)
NAS697A08(2)
MS20470AD3(4)(F.S.)
(ON-5,-6,-21,-22,-43,-44,-47,-48)
LDW280-18237-15(REF)
SEE NOTE#5b
SEE NOTE#4b
TRACE OF HEATER SKIN
(REF)
13/16
+X198.000(REF)
5/16 (TRUE)
+X196.000(REF)
MS20470AD5(3)
(ON-5,-6,-21-22,-43,-44,-47,-48)
MS20470AD5(2)
(ON-5,-6,-21,-22,-43,-44,-47,-48)
LDW280-18237-11(REF)
1 15/16
GF510C-5-3(6)
(ON-5,-6,-21,-22,-43,-44,-47,-48)
(SEE NOTE#3)
LDW280M17149(REF)
LDW280P17564-27 (REF)
(ZONE 11 A) K
LDW280P17564-19 (REF)
-20 (REF)
GT15C-3 (REF)
SEE NOTE#8 C3
LDW280P17564-41(REF)
-37(REF)
LDW280-28780(REF)
LDW280P17564-29 (REF)

C10

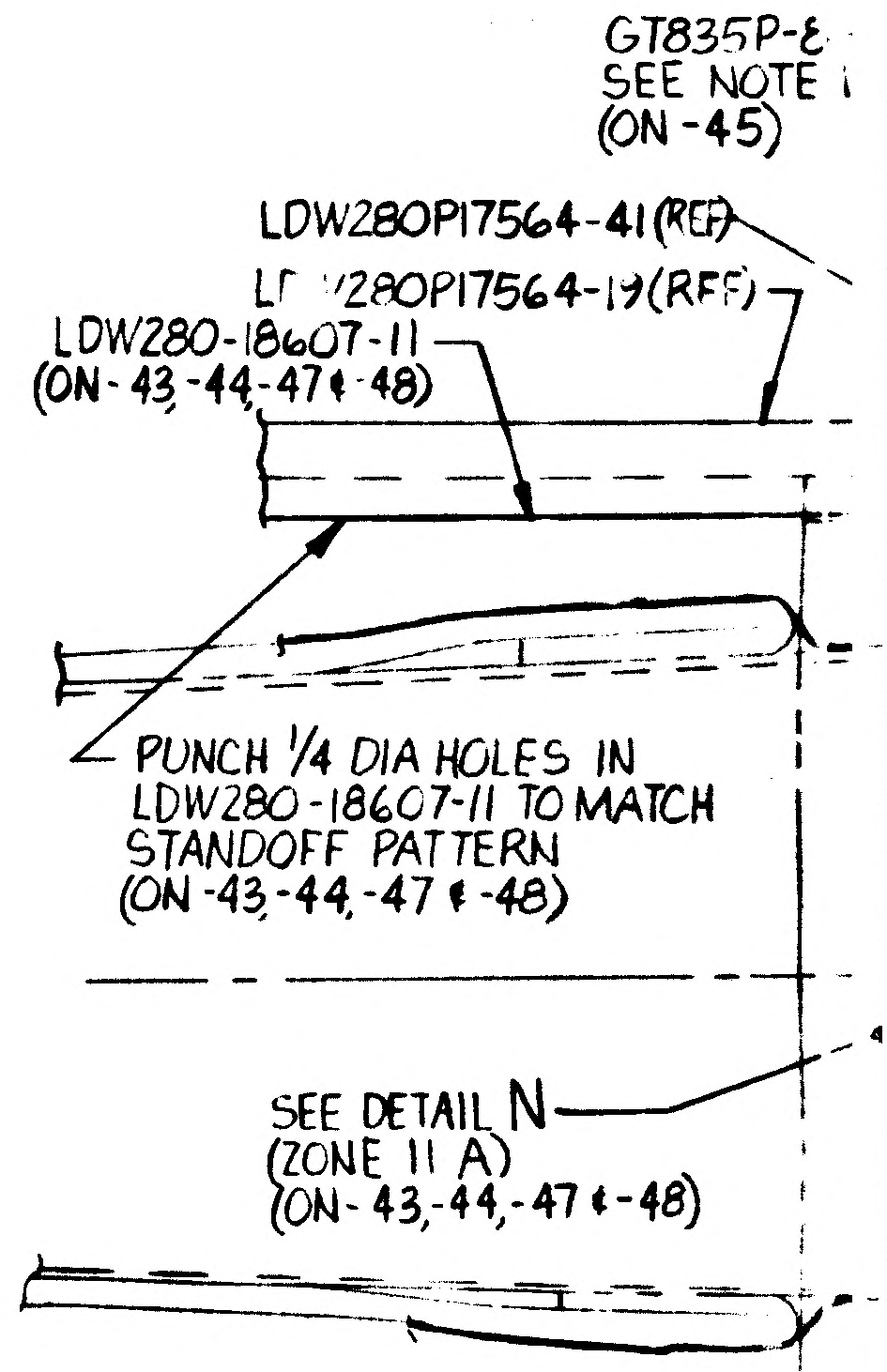
DETAIL P (ON-43-44-45,-47-48)
(ZONE 10A)

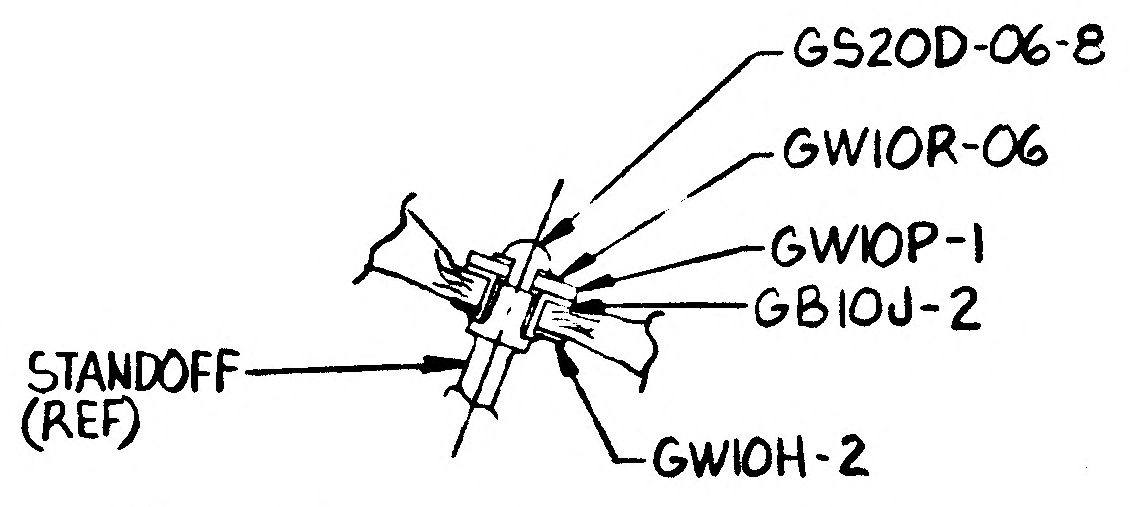
B4 D10

DETAIL J (ZONE 5B, SH. 3.00)
(ON-5,-6,-19,-21,-22,-43,-44,-45,-47,-48)


+X
LDW280-18237-13(REF)
LDW280-18237-15(REF)
LDW280-18237-11(REF)
UPPER ℄ OUTRIGGER (REF)
INBD
SHIM AS REQD
.050 MAX. (2 PLACES)
(SEE NOTE#6)

SECTION K-K (ZONE 14B)

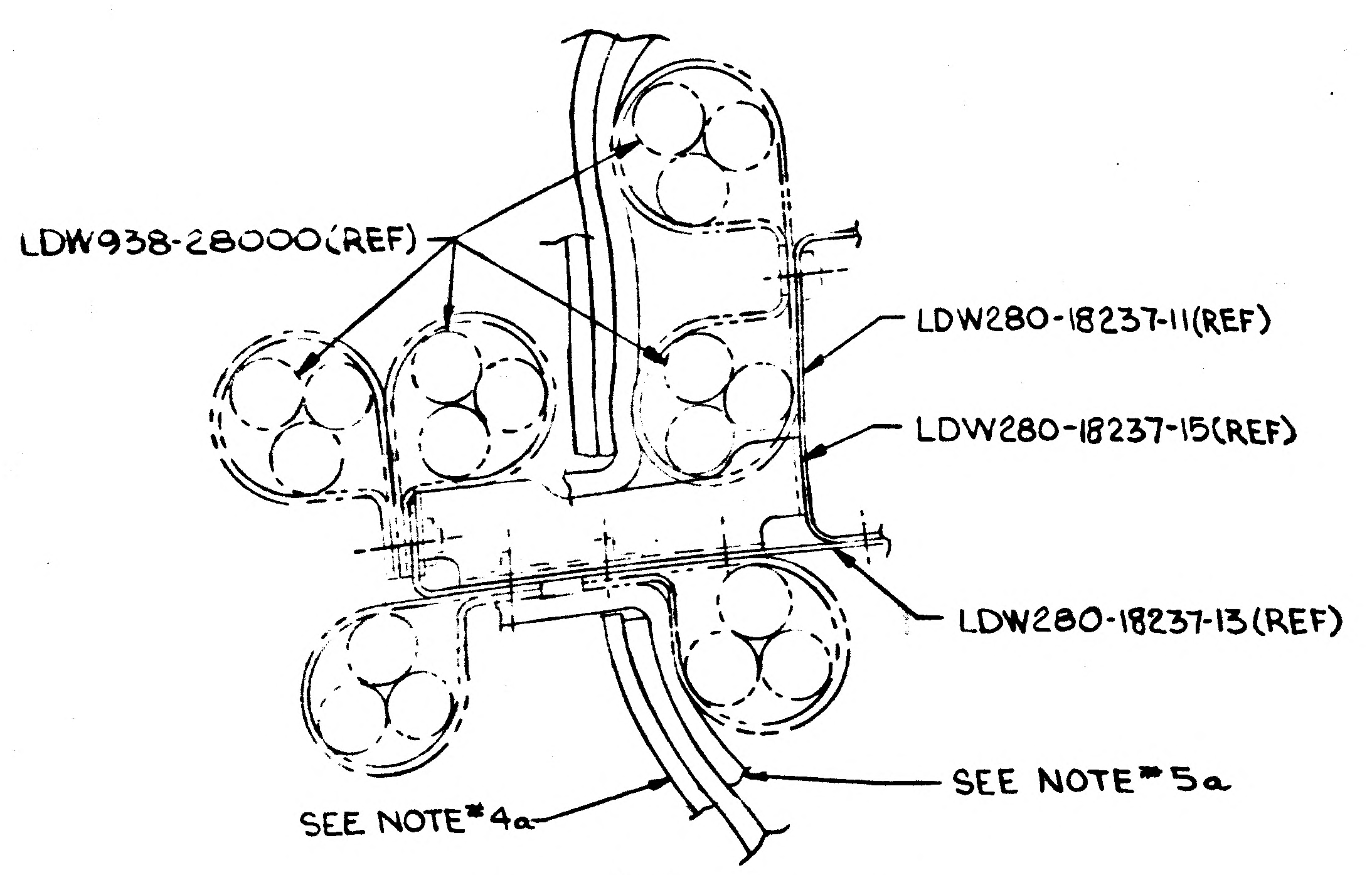

GT835P-8
SEE NOTE
(ON-45)
LDW280P17564-41(REF)
LDW280P17564-19(REF)
LDW280-18607-11
(ON-43,-44,-47 & -48)
PUNCH 1/4 DIA HOLES IN
LDW280-18607-11 TO MATCH
STANDOFF PATTERN
(ON-43,-44,-47 & -48)
SEE DETAIL N
(ZONE 11 A)
(ON-43,-44,-47 & -48)


GS20D-06-8
GW10R-06
GW10P-1
GB10J-2
STANDOFF
(REF)
GW10H-2

C10 DETAIL N (ZONE 10B)
(TYP 9 PLACES)
(ON-43,-44,-45,-47 & -48)

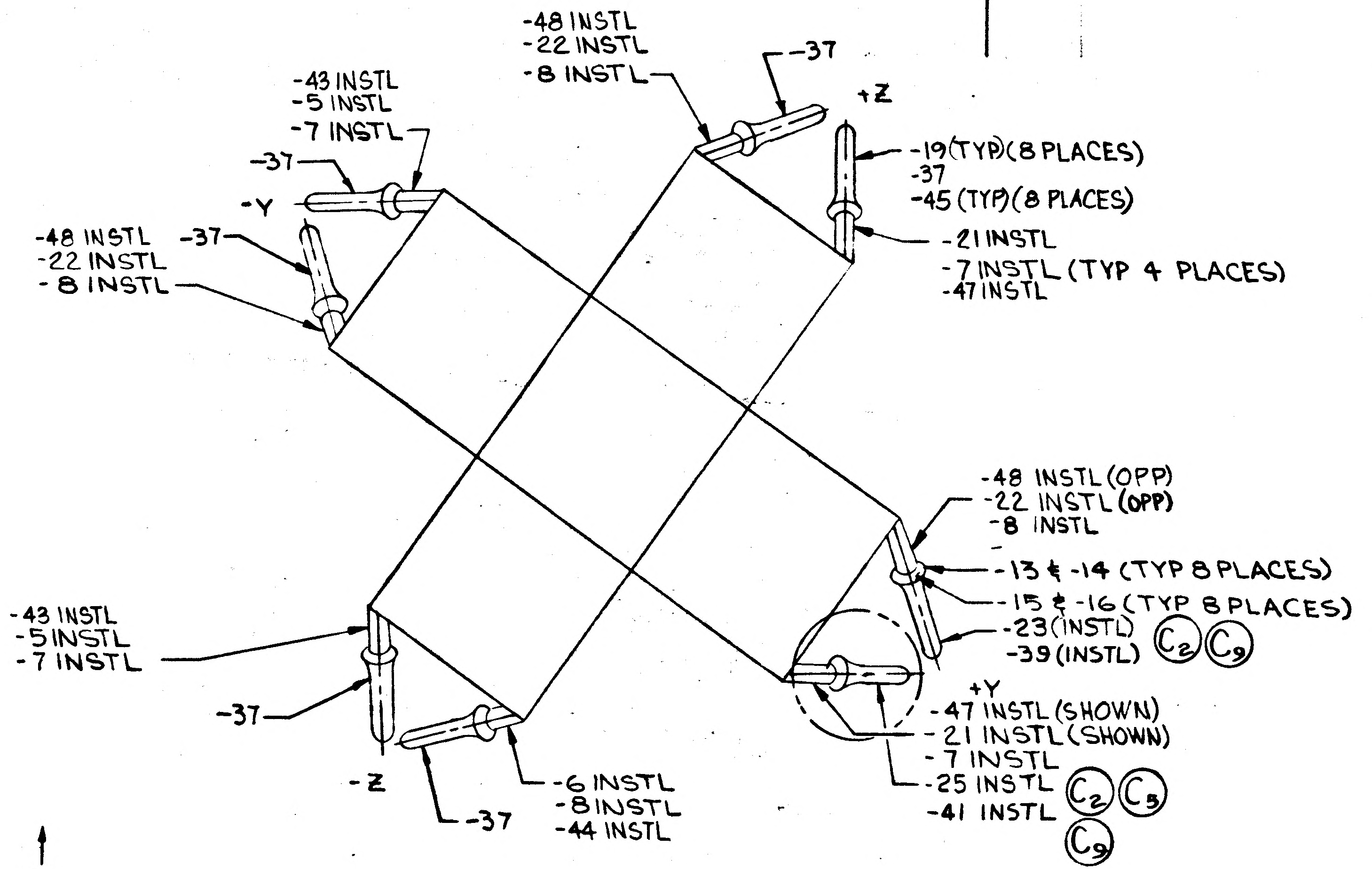
01/02 NAS 9-1100

	SH.
LDW280-28672	4



LDW938-28000(REF)
LDW280-18237-11(REF)
LDW280-18237-15(REF)
LDW280-18237-13(REF)
SEE NOTE #5a
SEE NOTE #4a

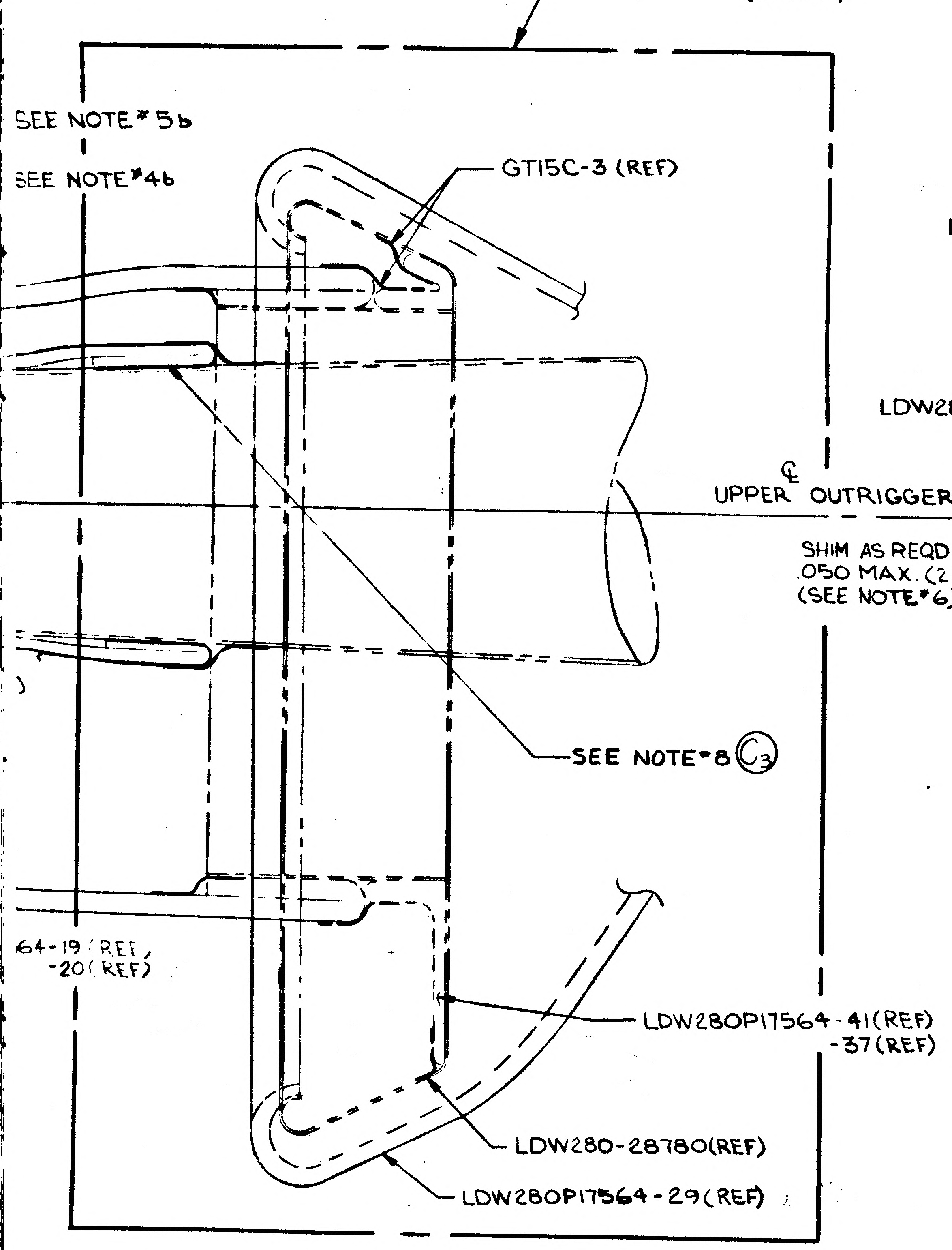
VIEW L-L (ZONE 14D)



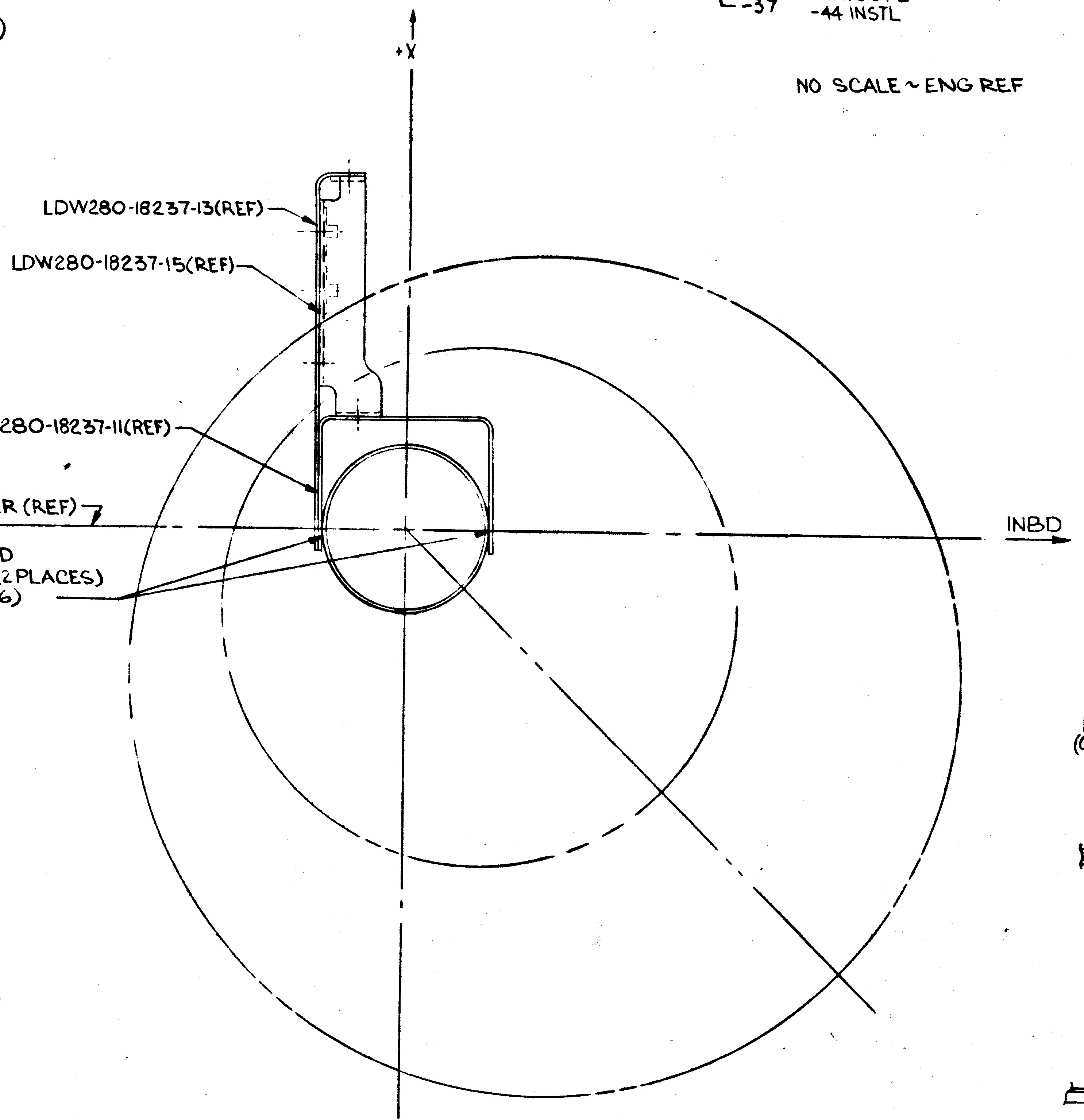
-48 INSTL
-22 INSTL
-8 INSTL
-37
+Z
-43 INSTL
-5 INSTL
-7 INSTL
-37
-Y
-48 INSTL
-22 INSTL
-8 INSTL
-37
-19(TYP)(8 PLACES)
-37
-45 (TYP)(8 PLACES)
-21 INSTL
-7 INSTL (TYP 4 PLACES)
-47 INSTL
-48 INSTL (OPP)
-22 INSTL (OPP)
-8 INSTL
-13 & -14 (TYP 8 PLACES)
-15 & -16 (TYP 8 PLACES)
-23(INSTL) C2 C9
-39 (INSTL) C2 C9
+Y
-47 INSTL (SHOWN)
-21 INSTL (SHOWN)
-7 INSTL
-25 INSTL C2 C9
-41 INSTL C9
-43 INSTL
-5 INSTL
-7 INSTL
-37
-Z
-37
-6 INSTL
-8 INSTL
-44 INSTL

NO SCALE ~ ENG REF

C10 DETAIL P (ON-43-44-45-47-48) (ZONE 10A)

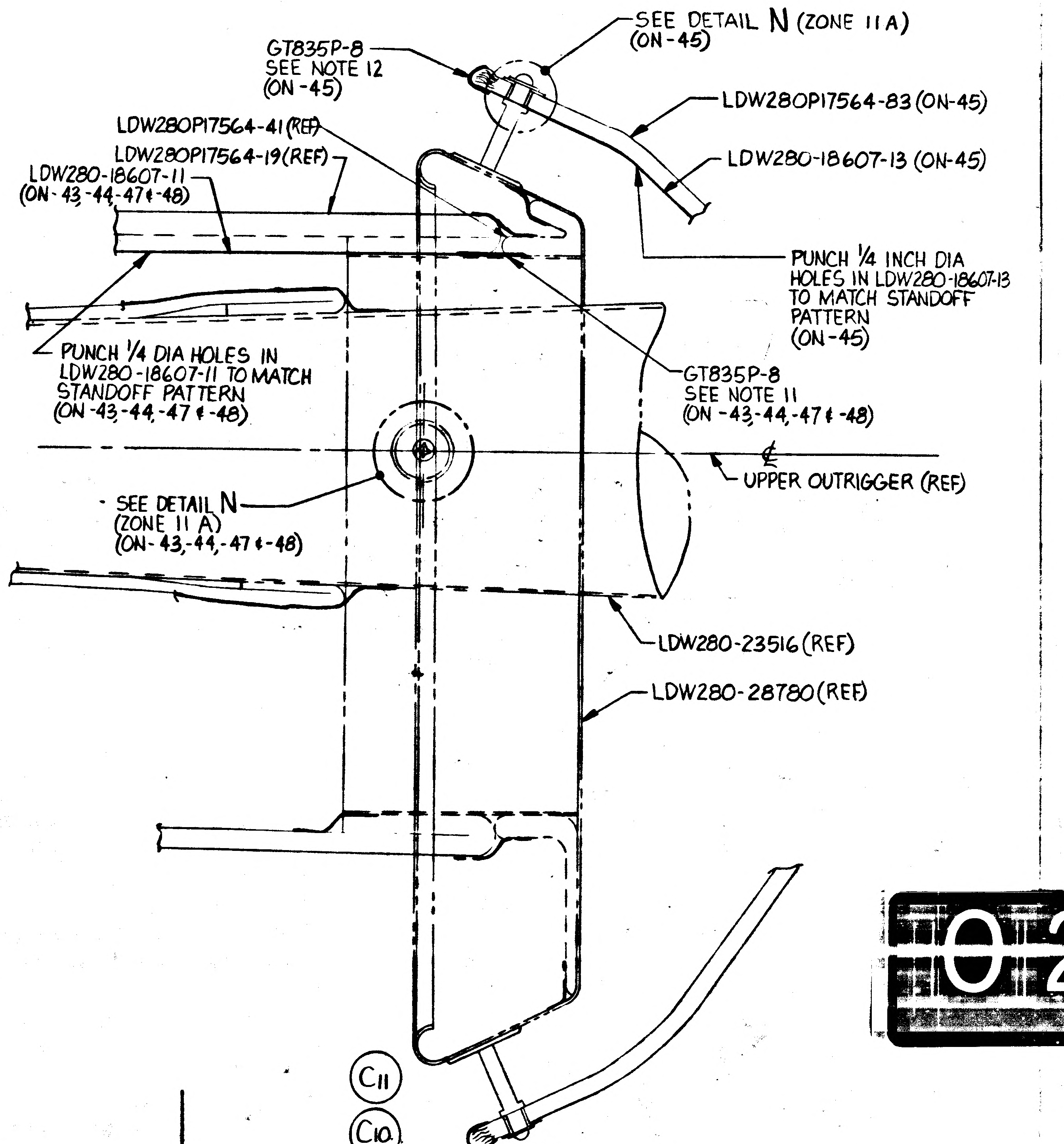


W938-28000(REF)
SEE NOTE #5b
SEE NOTE #4b
GT15C-3 (REF)
SEE NOTE #8 C3
64-19 (REF)
-20 (REF)
LDW280P17564-41(REF)
-37(REF)
LDW280-28780(REF)
LDW280P17564-29(REF)



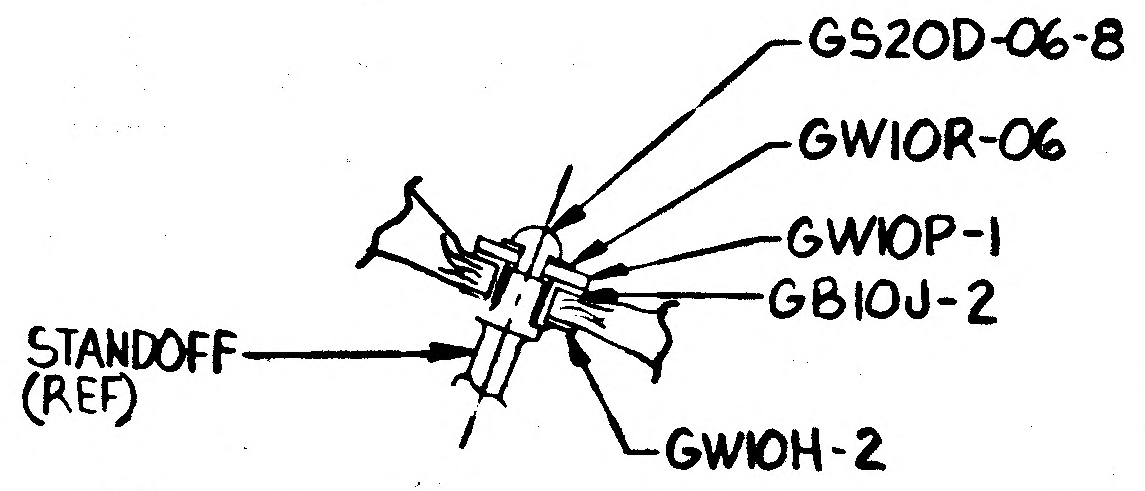
+Y
LDW280-18237-13(REF)
LDW280-18237-15(REF)
LDW280-18237-11(REF)
UPPER ℄ OUTRIGGER (REF)
SHIM AS REQD
.050 MAX. (2 PLACES)
(SEE NOTE #6)
INBD

SECTION K-K (ZONE 14B)



GT835P-8
SEE NOTE 12
(ON-45)
SEE DETAIL N (ZONE 11A)
(ON-45)
LDW280P17564-83 (ON-45)
LDW280-18607-13 (ON-45)
LDW280P17564-41(REF)
LDW280P17564-19(REF)
LDW280-18607-11
(ON-43,-44,-47 & -48)
PUNCH 1/4 INCH DIA HOLES IN LDW280-18607-13 TO MATCH STANDOFF PATTERN (ON-45)
PUNCH 1/4 DIA HOLES IN LDW280-18607-11 TO MATCH STANDOFF PATTERN (ON-43,-44,-47 & -48)
GT835P-8
SEE NOTE 11
(ON-43,-44,-47 & -48)
℄ UPPER OUTRIGGER (REF)
SEE DETAIL N
(ZONE 11 A)
(ON-43,-44,-47 & -48)
LDW280-23516(REF)
LDW280-28780(REF)
C11
C10

DETAIL P (ZONE 12C)
(ON-43,-44,-45,-47 & -48)



GS20D-06-8
GW10R-06
GW10P-1
GB10J-2
STANDOFF (REF)
GW10H-2

C10 DETAIL N (ZONE 10B)
(TYP 9 PLACES)
(ON-43,-44,-45,-47 & -48)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 A

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 66)= 16.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 4.1 SQ. FT.

PRINT TRIM LINE

LDW280-28672 C

LDW280-28672 C

02/02 NAS 9-1100

LDW280-28672 SH. 4

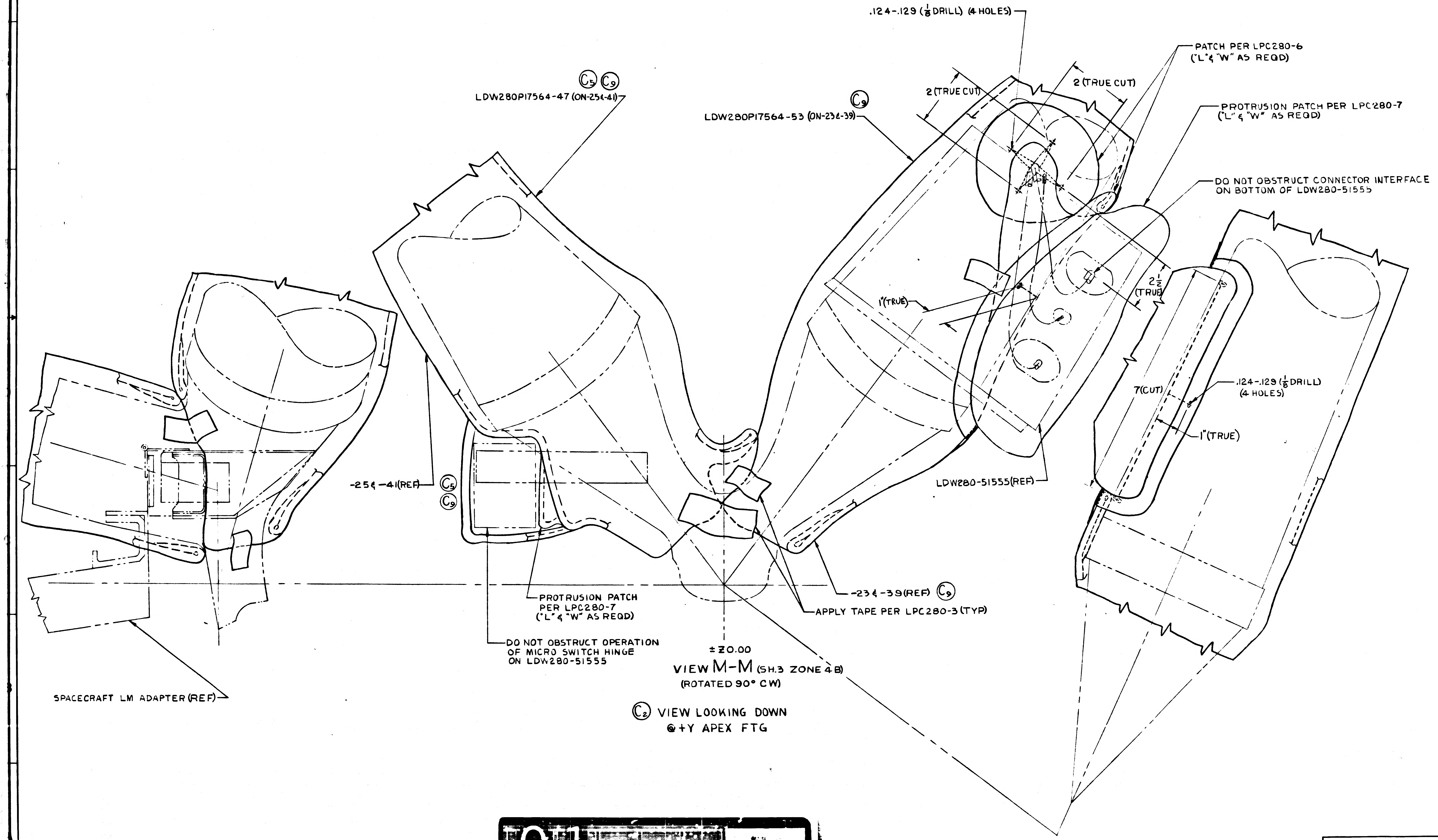
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-28672	C
	SCALE FULL		SHEET 4.00	

2 FRAMES

8 7 6 5 4 3 2 1

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	


.124-.129 (1/8 DRILL) (4 HOLES)
PATCH PER LPC280-6
("L" & "W" AS REQD)
2 (TRUE CUT)
2 (TRUE CUT)
Ⓒ5 Ⓒ9
LDW280P17564-47 (ON-25&-41)
Ⓒ9
LDW280P17564-53 (ON-23&-39)
PROTRUSION PATCH PER LPC280-7
("L" & "W" AS REQD)
DO NOT OBSTRUCT CONNECTOR INTERFACE
ON BOTTOM OF LDW280-51555
2 1/2 (TRUE)
1"(TRUE)
.124-.129 (1/8 DRILL)
(4 HOLES)
7(CUT)
1"(TRUE)
-25&-41(REF) Ⓒ5 Ⓒ9
LDW280-51555(REF)
PROTRUSION PATCH
PER LPC280-7
("L" & "W" AS REQD)
DO NOT OBSTRUCT OPERATION
OF MICRO SWITCH HINGE
ON LDW280-51555
-23&-39(REF) Ⓒ9
APPLY TAPE PER LPC280-3 (TYP)
SPACECRAFT LM ADAPTER (REF)
±Z0.00

VIEW M-M (SH.3 ZONE 4B)
(ROTATED 90° CW)

Ⓒ2 VIEW LOOKING DOWN
@ +Y APEX FTG

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714			
SIZE E	CODE IDENT NO 26512	LDW280-28672	C
SCALE FULL		SHEET 5	

ENG 73.4 REV 5-67

8 7 6 5 4 3 2 1

*

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28672		EO NO. B1
CONTROL INFO NO. LDW280A1028		

REMOVE LDW280P17564-19 THRU -22 FROM LDW280-28672-5 THRU -8
ADD LDW280-28672-9 THRU -12 SHIELD ASSYS (SEE BELOW)
ADD LDW280P17564-19 TO LDW280-28672-9 (1 REQD)
" " " -20 " " " " -10 "
" " " -21 " " " " -11 "
" " " -22 " " " " -12 "

ADD 6R11B-1 RETAINER & 6W10H-3 WASHER TO LDW280-28672-9 THRU -12 (AS REQD)
ADD 6T15C-3 TAPE TO LDW280-28672-5 THRU -12 (AS REQD)
ADD LDW280-28672-9 TO LDW280-28672-5 (1 REQD)
" " " -10 " " " " -6 "
" " " -11 " " " " -7 "
" " " -12 " " " " -8 "

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC C EO RELEASE
TO PROVIDE PART NO. FOR ASSY OF BLANKET AND HARDWARE ON MOCKUP	REMOVED LDW280P17564-19 THRU -22 FROM -5 THRU -8. ADDED -9 THRU -12 (ON -5 THRU -8)	LE 10/14

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
LM		LM-1 (31) THRU	
LM		LM-6 (36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JRS	TO-T			NJH		PMc	
✓ DATE	10/6/66	10-13-66			10/10/66		10-11-66	10/14/66
	VDI	~~SUPPORT~~ Thermo	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL ~ DESCENT STAGE UPPER OUTRIGGER PENETRATION ~ THERMAL	THERMO LDW280-28672	B1

ISSUED BY A. RICHER / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 35
EMF

01

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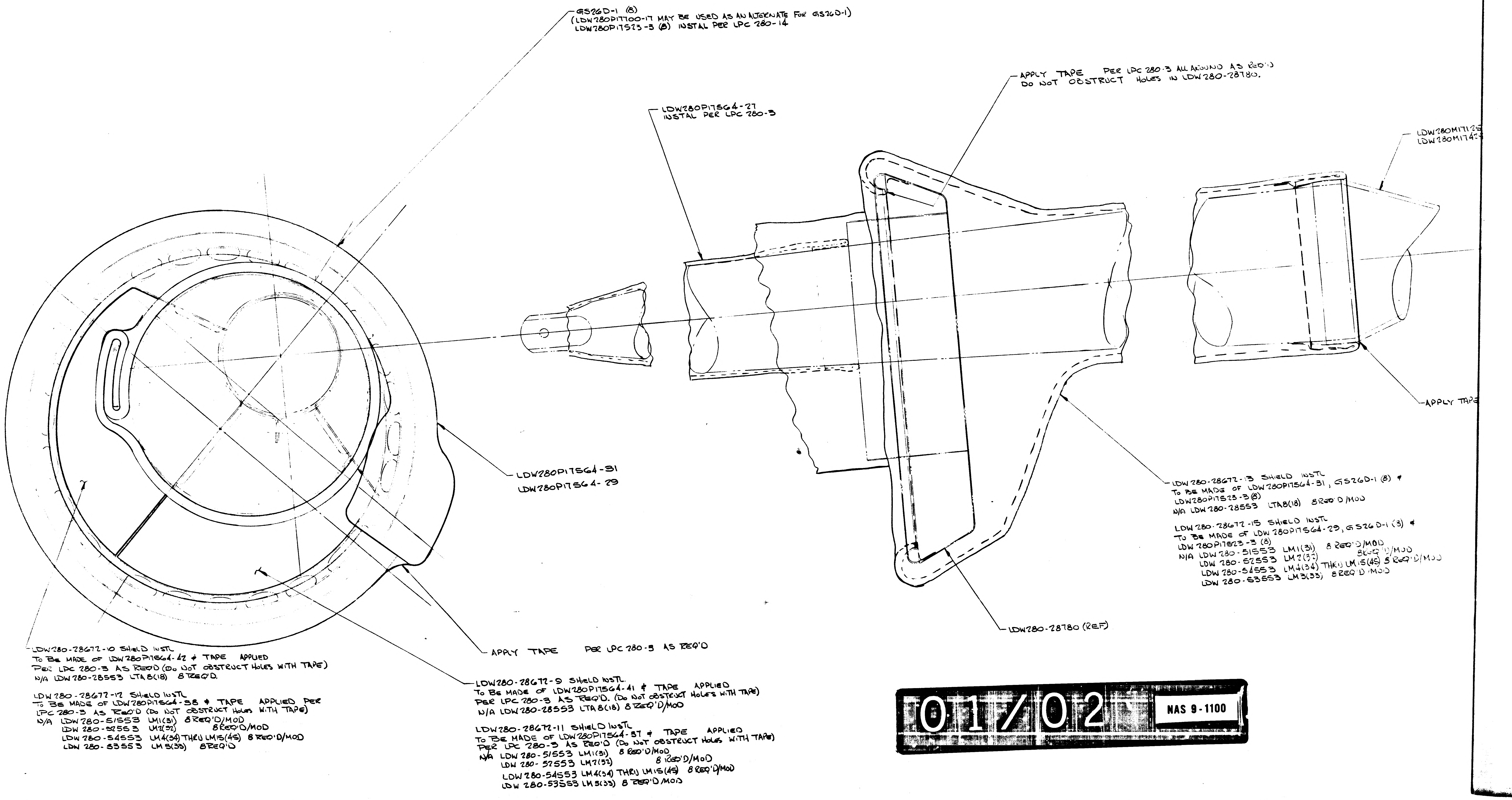

GS26D-1 (8)
(LDW280P17700-17 MAY BE USED AS AN ALTERNATE FOR GS26D-1)
LDW280P17523-3 (8) INSTAL PER LPC 280-14
APPLY TAPE PER LPC 280-3 ALL AROUND AS REQ'D
DO NOT OBSTRUCT HOLES IN LDW280-28780.
LDW280P17564-27
INSTAL PER LPC 280-3
LDW280M171
LDW280M174
APPLY TAPE
LDW280P17564-31
LDW280P17564-29
LDW280-28672-13 SHIELD INSTL
TO BE MADE OF LDW280P17564-31, GS26D-1 (8) &
LDW280P17523-3 (8)
N/A LDW280-28553 LTA8(18) 8 REQ'D/MOD
LDW280-28672-15 SHIELD INSTL
TO BE MADE OF LDW280P17564-29, GS26D-1 (8) &
LDW280P17523-3 (8)
N/A LDW280-51553 LM1(31) 8 REQ'D/MOD
LDW280-52553 LM2(32) 8 REQ'D/MOD
LDW280-54553 LM4(34) THRU LM15(45) 8 REQ'D/MOD
LDW280-53553 LM3(33) 8 REQ'D/MOD
LDW280-28780 (REF)
APPLY TAPE PER LPC 280-3 AS REQ'D
LDW280-28672-10 SHIELD INSTL
TO BE MADE OF LDW280P17564-42 & TAPE APPLIED
PER LPC 280-3 AS REQ'D (DO NOT OBSTRUCT HOLES WITH TAPE)
N/A LDW280-28553 LTA8(18) 8 REQ'D.
LDW280-28672-12 SHIELD INSTL
TO BE MADE OF LDW280P17564-38 & TAPE APPLIED PER
LPC 280-3 AS REQ'D (DO NOT OBSTRUCT HOLES WITH TAPE)
N/A LDW280-51553 LM1(31) 8 REQ'D/MOD
LDW280-52553 LM2(32) 8 REQ'D/MOD
LDW280-54553 LM4(34) THRU LM15(45) 8 REQ'D/MOD
LDW280-53553 LM3(33) 8 REQ'D
LDW280-28672-9 SHIELD INSTL.
TO BE MADE OF LDW280P17564-41 & TAPE APPLIED
PER LPC 280-3 AS REQ'D. (DO NOT OBSTRUCT HOLES WITH TAPE)
N/A LDW280-28553 LTA8(18) 8 REQ'D/MOD
LDW280-28672-11 SHIELD INSTL
TO BE MADE OF LDW280P17564-37 & TAPE APPLIED
PER LPC 280-3 AS REQ'D (DO NOT OBSTRUCT HOLES WITH TAPE)
N/A LDW280-51553 LM1(31) 8 REQ'D/MOD
LDW280-52553 LM2(32) 8 REQ'D/MOD
LDW280-54553 LM4(34) THRU LM15(45) 8 REQ'D/MOD
LDW280-53553 LM3(33) 8 REQ'D/MOD

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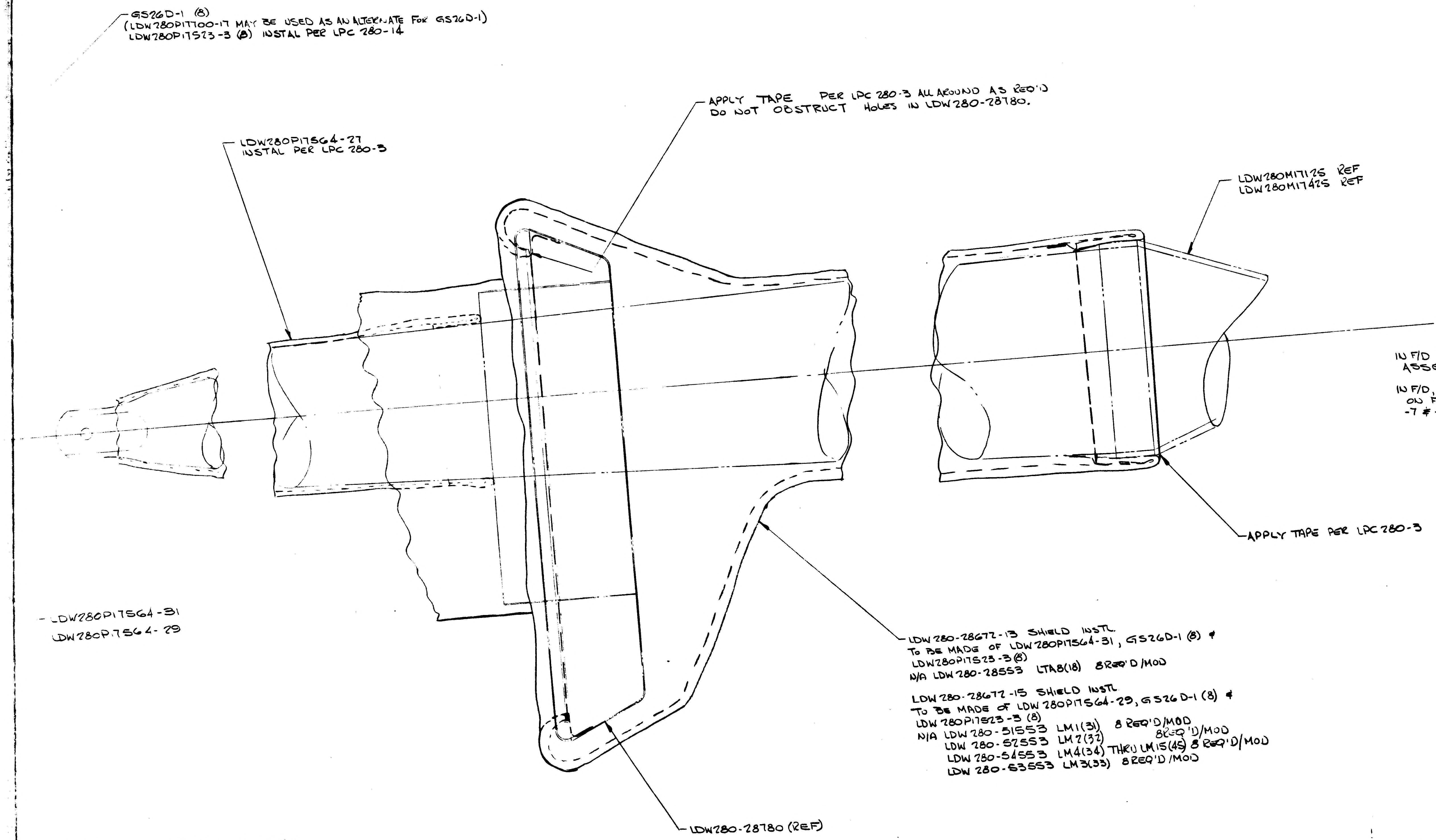
GS26D-1 (8)
(LDW280P17700-17 MAY BE USED AS AN ALTERNATE FOR GS26D-1)
LDW280P17523-3 (8) INSTAL PER LPC 280-14
APPLY TAPE PER LPC 280-3 ALL AROUND AS REQ'D
DO NOT OBSTRUCT HOLES IN LDW280-28780.
LDW280P17564-27
INSTAL PER LPC 280-3
LDW280M17125 REF
LDW280M17425 REF
APPLY TAPE PER LPC 280-3
LDW280P17564-31
LDW280P17564-29
LDW280-28780 (REF)

LDW280-28672-13 SHIELD INSTL
TO BE MADE OF LDW280P17564-31, GS26D-1 (8) &
LDW280P17523-3 (8)
N/A LDW280-28553 LTA8(18) 8 REQ'D/MOD

LDW280-28672-15 SHIELD INSTL
TO BE MADE OF LDW280P17564-29, GS26D-1 (8) &
LDW280P17523-3 (8)
N/A LDW280-51553 LM1(31) 8 REQ'D/MOD
LDW280-52553 LM2(32) 8 REQ'D/MOD
LDW280-54553 LM4(34) THRU LM15(45) 8 REQ'D/MOD
LDW280-53553 LM3(33) 8 REQ'D/MOD

IN F/D REVISE PICTURE OF LDW280-28672-5,-6,-7 & -8 AT END WHERE ASSEMBLED TO LDW280-28780.

IN F/D, B/M & N/A ADD LDW280-28672-9,-10,-11,-12,-13 & -15 AS SHOWN ON FIELD OF E.O. ADD LDW280P17564-27 TO LDW280-28672-5,-6, -7 & -8 1 REQ'D PER INSTL.

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PPLY TAPE PER LPC 280-3 AS REQ'D

280-28672-9 SHIELD INSTL.
BE MADE OF LDW280P17564-41 & TAPE APPLIED
LPC 280-3 AS REQ'D. (DO NOT OBSTRUCT HOLES WITH TAPE)
LDW280-28553 LTA8(18) 8 REQ'D/MOD

280-28672-11 SHIELD INSTL
BE MADE OF LDW280P17564-37 & TAPE APPLIED
LPC 280-3 AS REQ'D (DO NOT OBSTRUCT HOLES WITH TAPE)
LDW 280-51553 LM1(31) 8 REQ'D/MOD
LDW 280-52553 LM2(32) 8 REQ'D/MOD
LDW 280-54553 LM4(34) THRU LM15(45) 8 REQ'D/MOD
LDW 280-53553 LM3(33) 8 REQ'D/MOD

DETAIL SPEC REQD	CLASS II ENGRG CHG	CLASS I ENGRG CHG	CONTROL INFO NO. LD 30A383
REASON FOR EO TO PROVIDE PROPER VENTING (THERMAL REQMT) (LCR-611* & 627*)	DESCRIPTION OF EO ADDED -9,-10,-11,-12,-13 & -15, ALSO ADDED LDW280P175 TO -5,-6,-7 & -8		GRUMMAN EO RELEASE FR 12/2/66

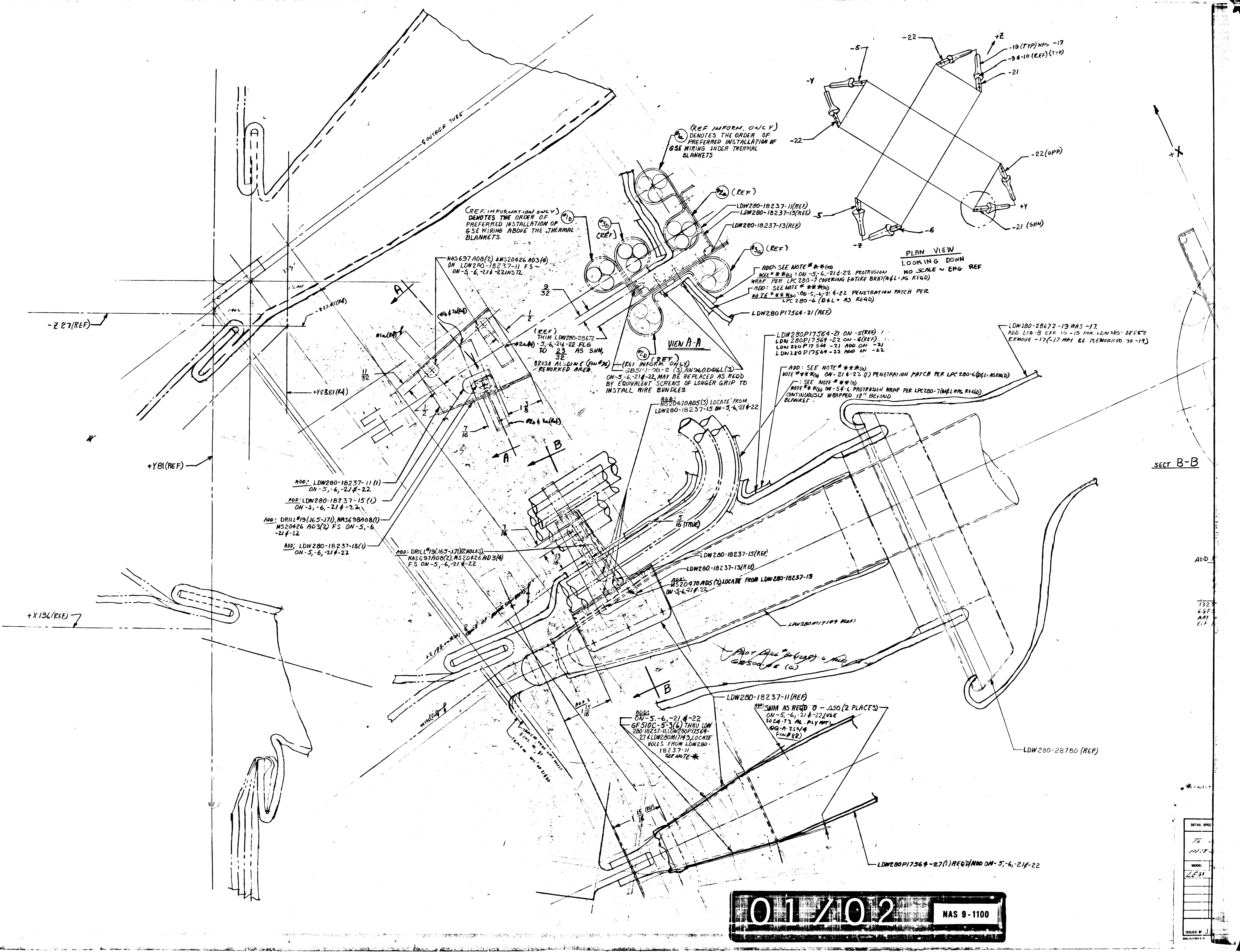
MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18) LM1(31)	THRU LM15(45)

DRAWING REVISION REQD		DISPOSITION OF PARTS		BY / DATE			RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	GOVT
✓		NOT	REQ'D	12/1/66	12/2/66			12/1/66	12-2-66		12-2	6
REVISE DWG	RECORD EO	REWORK	SCRAP	5 VD1	~~SUPPORT~~ THERMO							

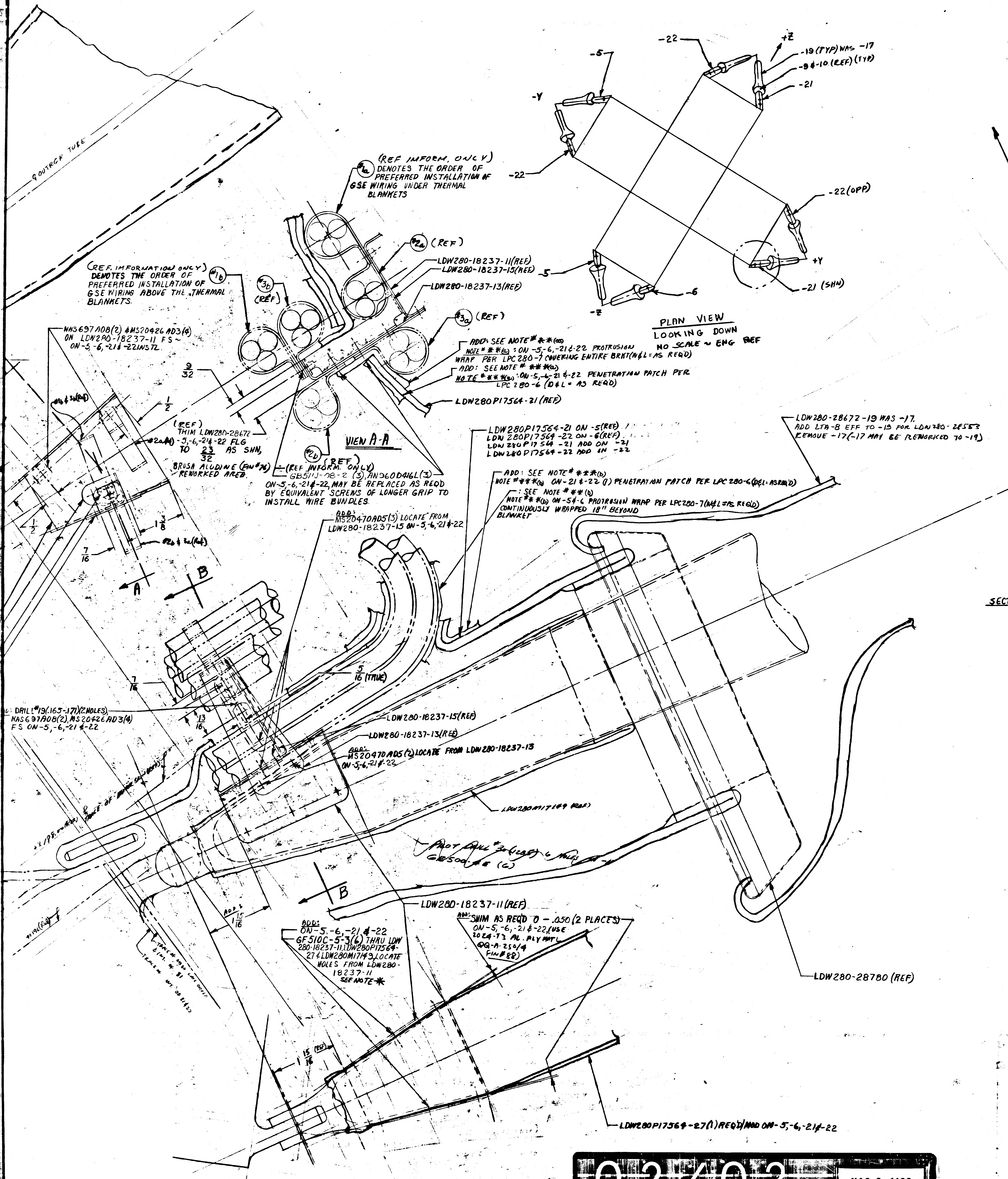
PRIORITY	DRAWING TITLE	ENGINEERING ORDER DRAWING NO	EO NO.
C	SHIELD INSTL. D/S UPPER OUTRGR PENETRATION THERMAL	LDW280-2867	E2

ISSUED BY P. WEISSLITZ J. STRAKOSCH	SECTION VD1	GROUP NO. 335 PL 35	CODE IDENT NO. 26512	GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE, L. I., N. Y.

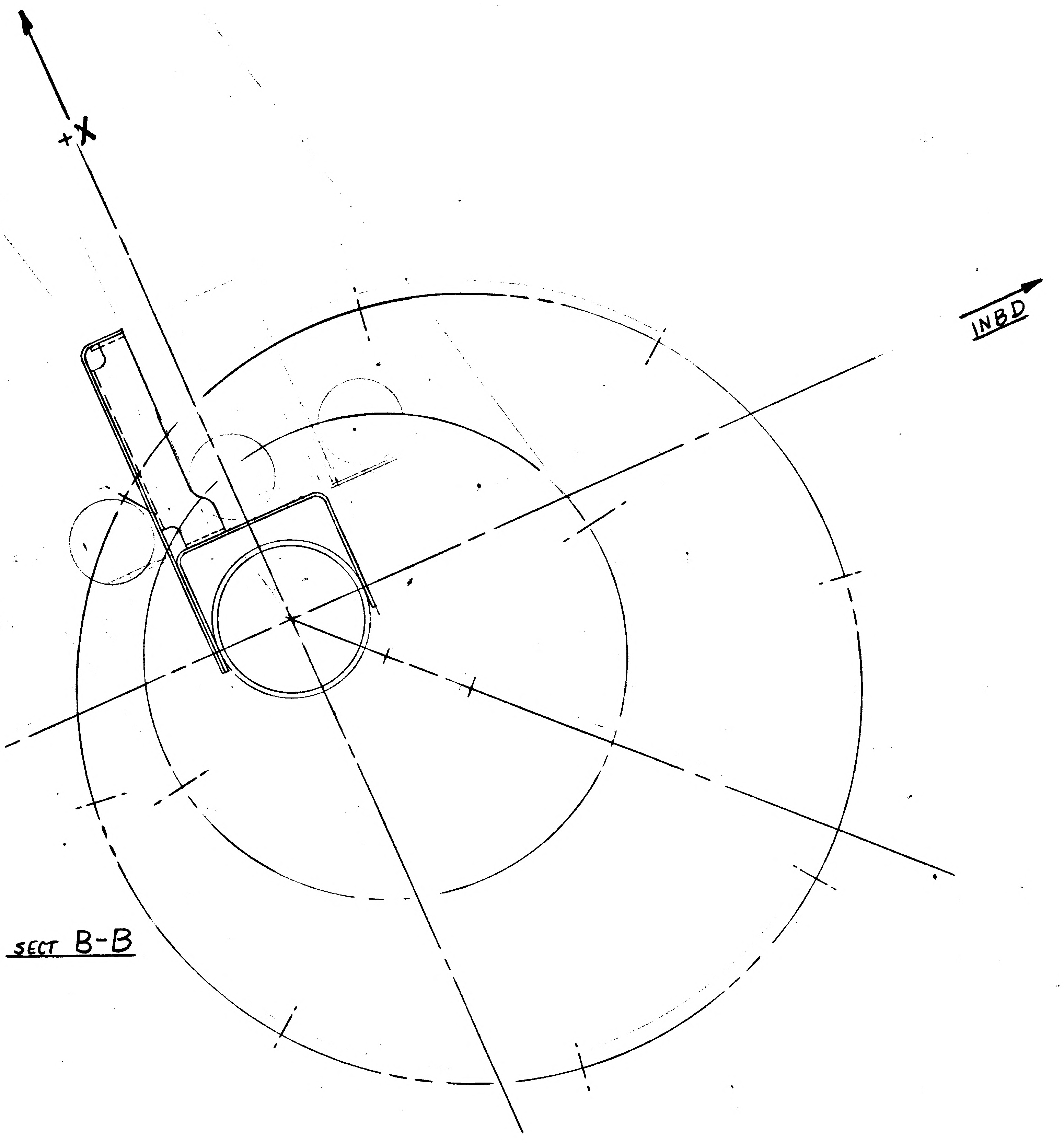
ENG 38.3 REV 3-65


OUTER TUBE
-Z 27(REF)
+Y81(REF)
+X136(REF)
+Y83.81(Ref)
-Z27.45(Ref)
(REF INFORM. ONLY) #1a DENOTES THE ORDER OF PREFERRED INSTALLATION OF GSE WIRING UNDER THERMAL BLANKETS
(REF. INFORMATION ONLY) DENOTES THE ORDER OF PREFERRED INSTALLATION OF GSE WIRING ABOVE THE THERMAL BLANKETS.
#1b
#3b (REF)
#2a (REF)
#3a (REF)
#2b (REF)
LDW280-18237-11(REF)
LDW280-18237-15(REF)
LDW280-18237-13(REF)
ADD: SEE NOTE #**(a)
NOTE #**(a): ON -5,-6,-21&-22 PROTRUSION WRAP PER LPC 280-7 COVERING ENTIRE BRKT(W&L=AS REQD)
ADD: SEE NOTE #***(a)
NOTE #***(a): ON-5,-6-21&-22 PENETRATION PATCH PER LPC 280-6 (D&L = AS REQD)
LDW280P17564-21 (REF)
VIEW A-A
(REF) THIM LDW280-28672 -5,-6,-21&-22 FLG TO 23/32 AS SHN, BRUSH ALODINE (FIN #76) REWORKED AREA.
(REF INFORM. ONLY) GB511-08-2 (3), AN960D416L(3) ON-5,-6,-21&-22, MAY BE REPLACED AS REQD BY EQUIVALENT SCREWS OF LONGER GRIP TO INSTALL WIRE BUNDLES.
NAS697A08(2) & MS20426 AD3(4) ON LDW280-18237-11 FS ~ ON-5,-6,-21&-22 INSTL.
9/32
1/2
11/32
1/2
1 3/8
7/16
#1a(Ref)
#1b & 3b(Ref)
#2a(Ref)
#2b & 3a(Ref)
A
A
B
B
PLAN VIEW
LOOKING DOWN
NO SCALE ~ ENG REF
-5
-22
+Z
-19 (TYP) WAS -17
-9 & -10 (REF) (TYP)
-21
-Y
-22
-22(OPP)
+Y
-5
-6
-21 (SHN)
-Z
+X
LDW280P17564-21 ON -5(REF)
LDW280P17564-22 ON -6(REF)
LDW280P17564-21 ADD ON -21
LDW280P17564-22 ADD ON -22
LDW280-28672-19 WAS -17.
ADD LTA-8 EFF TO -19 FOR LDW280-28553
REMOVE -17(-17 MAY BE REWORKED TO -19)
ADD: SEE NOTE #***(b)
NOTE #***(b) ON-21&-22 (1) PENETRATION PATCH PER LPC 280-6(D&L=AS REQ'D)
: SEE NOTE #**(b)
NOTE #**(b) ON-5&-6 PROTRUSION WRAP PER LPC280-7(W&L=AS REQ'D) CONTINUOUSLY WRAPPED 18" BEYOND BLANKET
ADD: MS20470AD5(3) LOCATE FROM LDW280-18237-15 ON-5,-6,-21&-22
SECT B-B
ADD: LDW280-18237-11 (1) ON-5,-6,-21&-22
ADD: LDW280-18237-15 (1) ON-5,-6,-21&-22
ADD: DRILL #19(.165-.171), NAS698A08(1) MS20426 AD3(2) FS ON-5,-6 -21&-22
ADD: LDW280-18237-13(1) ON-5,-6,-21&-22
ADD: DRILL #19(.165-.171)(2 HOLES), NAS697A08(2), MS20426AD3(4) FS ON-5,-6,-21&-22
7/16
13/16
5/16 (TRUE)
LDW280-18237-15(REF)
LDW280-18237-13(REF)
ADD: MS20470AD5(2) LOCATE FROM LDW280-18237-13 ON-5,-6,-21&-22
LDW280M17149 (REF)
PILOT DRILL #30(.128) 6 HOLES
GB500-4 (6)
LDW280-18237-11(REF)
ADD: SHIM AS REQD 0 - .050 (2 PLACES) ON-5,-6,-21&-22,(USE 2024-T3 AL. ALY MATL QQ-A-250/4 FIN #88)
ADD: 1 15/16
ADD: ON-5,-6,-21&-22 GF510C-5-3(6) THRU LDW280-18237-11, LDW280P17564-27 & LDW280M17149, LOCATE HOLES FROM LDW280-18237-11. SEE NOTE *
LDW280-28780 (REF)
1 15/16 (REF)
LDW280P17564-27(1) REQ'D/MOD ON-5,-6,-21&-22
* = NEXT
DETAIL SPEC
MODEL
LEM
ISSUED BY J.

01/02 NAS 9-1100



OUTRGR TUBE
(REF INFORM. ONLY) #1a DENOTES THE ORDER OF PREFERRED INSTALLATION OF GSE WIRING UNDER THERMAL BLANKETS
(REF. INFORMATION ONLY) #1b DENOTES THE ORDER OF PREFERRED INSTALLATION OF GSE WIRING ABOVE THE THERMAL BLANKETS.
#3b (REF)
#2a (REF)
LDW280-18237-11(REF)
LDW280-18237-15(REF)
LDW280-18237-13(REF)
#3a (REF)
ADD: SEE NOTE # * * (a)
NOTE # * * (a) : ON -5,-6,-21 & -22 PROTRUSION WRAP PER LPC 280-7 COVERING ENTIRE BRKT (N & L = AS REQ'D)
ADD: SEE NOTE # * * * (a)
NOTE # * * * (a) : ON -5,-6,-21 & -22 PENETRATION PATCH PER LPC 280-6 (D & L = AS REQ'D)
LDW280P17564-21 (REF)
NAS697A08(2) & MS20426AD3(4) ON LDW280-18237-11 FS ~ ON -5,-6,-21 & -22 INSTL.
9/32
1/2
#1b & 3b (Ref)
(REF) THIM LDW280-28672 -5,-6,-21 & -22 FLG TO 23/32 AS SHN, BRUSH ALODINE (FIN #76) REWORKED AREA
#2a (Ref)
VIEW A-A
#2b (REF)
(REF INFORM. ONLY) GB511J-08-2 (3), AN960D416L(3) ON -5,-6,-21 & -22, MAY BE REPLACED AS REQD BY EQUIVALENT SCREWS OF LONGER GRIP TO INSTALL WIRE BUNDLES.
ADD: MS20470AD5(3) LOCATE FROM LDW280-18237-15 ON -5,-6,-21 & -22
1/2
1 3/8
#2b & 3a (Ref)
7/16
A
B
LDW280P17564-21 ON -5 (REF)
LDW280P17564-22 ON -6 (REF)
LDW280P17564-21 ADD ON -21
LDW280P17564-22 ADD ON -22
ADD: SEE NOTE # * * * (b)
NOTE # * * * (b) ON -21 & -22 (1) PENETRATION PATCH PER LPC 280-6 (D & L = AS REQ'D)
: SEE NOTE # * * (b)
NOTE # * * (b) ON -5 & -6 PROTRUSION WRAP PER LPC280-7 (N & L = AS REQ'D) CONTINUOUSLY WRAPPED 18" BEYOND BLANKET
LDW280-28672-19 WAS -17. ADD LTA-8 EFF TO -19 FOR LDW280-28553 REMOVE -17 (-17 MAY BE REWORKED TO -19)
-22
-5
-Y
-22
+Z
-19 (TYP) WAS -17
-9 & -10 (REF) (TYP)
-21
-22 (OPP)
+Y
-21 (SHN)
-5
-6
-Z
PLAN VIEW
LOOKING DOWN
NO SCALE ~ ENG REF
7/16
5/16 (TRUE)
DRILL #19 (.165-.171) (2 HOLES), NAS697A08(2), MS20426AD3(4) FS ON -5,-6,-21 & -22
13/16
LDW280-18237-15(REF)
LDW280-18237-13(REF)
ADD: MS20470AD5(2) LOCATE FROM LDW280-18237-13 ON -5,-6,-21 & -22
LDW280M17149 (REF)
+X 198.00 (Ref) ℄ TRACE OF
PILOT DRILL #30 (.128) 6 HOLES GB500-6 (6)
B
LDW280-18237-11(REF)
ADD 1 15/16
ADD: ON -5,-6,-21 & -22 GF510C-5-3(6) THRU LDW 280-18237-11, LDW280P17564-27 & LDW280M17149 LOCATE HOLES FROM LDW280-18237-11 SEE NOTE *
ADD: SHIM AS REQD 0 - .050 (2 PLACES) ON -5,-6,-21 & -22, (USE 2024-T3 AL. ALY MATL QQ-A-250/4 FIN #88)
+X 196 (Ref) ℄
1 15/16 (REF)
LDW280-28780 (REF)
LDW280P17564-27(1) REQ'D/MOD ON -5,-6,-21 & -22



+X
INBD
SECT B-B

ADD NOTE *

ON -5,-6,-21 & -22 INSTALL LDW280P17564-27, ASSEMBLE & INSTALL LDW280-18237-11,-13 & -15 BY RIVETING THRU BLANKET, ATTACH WIRE BUNDLES AS REQ'D, WRAP LDW280-18237-11,-13,-15 & WIRE BUNDLES AS REQD PER LPC280-7, THEN INSTALL LDW280P17564-21 & -22 WITH LPC280-6 AS REQ'D.

ON -5 & -6 : -5(2) WAS (4) & -6(1) WAS (4) REQD ON LDW280-28553, ADD LDW280-18237-11,-13 & -15, LPC 280-6 & -7, NAS698A08(2), GB511J-08-2 (3), AN960D416L, MS20426-AD3, MS20470AD5 & GF510C-5-3(6). CREATE -21 & -22 : -21 (2 REQ'D/MOD), -22 (3 REQ'D/MOD) ON LDW280-28553. -21 & -22 MAY BE MADE BY REWORKING -5 & -6 AS SHN, REMOVE LTA-8 EFF. FROM -17, ADD LTA-8(18) EFF TO -19 FOR N/A LDW280-28553 (8) REQ'D/MOD, -17 MAY BE REWORKED TO MAKE -19.

ALL INFO OTHER THEN THAT REQD. FOR MANUFACTURER OF LDW280-28672-5,-6,-21 & 22 FOR REF ONLY

~~[illegible]~~

~~[illegible] ISO [illegible]~~

TOL: FRACTIONAL ± 1/32 ANGLE ± 1/2° DECIMAL ±.020

CONTRACT # NAS 9-1100

LINE ITEM #1

DOCUMENTATION TYPE II

LTA-8 (18) ONLY

~~[illegible] LDW280A1551~~

I & T = E

* = NEXT AVAILABLE NUMBER = * * (a) & (b) , * * * (a) & (b)

(2)

DETAIL SPEC REQD	✓	CLASS II ENGRG CHG		CLASS I ENGRG CHG	

CONTROL INFO NO. LDW280A 1551

REASON FOR EO	DESCRIPTION OF EO	GRUMMAN EO RELEASE
TO PROVIDE SUPPORT FOR INSTRUMENTATION & HEATER LINES LCR 762	REVISED F/D & B/M. ON -5 & -6: -5(2 REQ'D) WAS (4), -6(1 REQ'D) WAS (4) ON LDW280-28553, ADDED LDW280-18237-11, -13 & -15, NAS698A08(1), NAS697A08(4), GF510C-5-3(6), MS20426AD3 & MS20470AD5. ADDED -21 & -22. REMOVED -17. ADDED LTA-8(18) TO -19 FOR LDW280-28553. ADDED NOTES: *, * * (a) & (b), * * * (a) & (b).	C UE 1/14/67

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8 (18)	

DRAWING REVISION REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP				RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	GOV'T
✓		✓	-17	BY / DATE	1/6/67	1/13/67		1/13/67	1/13/67		1/13/67	1-14-67
				5	VDI	THERMO						

PRIORITY: C

DRAWING TITLE: SHIELD INSTL ~ D/S UPPER OUTRGR PENETRATION ~ THERMAL

ENGINEERING ORDER

DRAWING NO. LDW280-28672

EO NO B

ISSUED BY J. J. ROGERS / J. STRAKOSCH X1392 SECTION VEH DES. INT. GROUP NO. 335 PL 35

CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 20.3 REV 3-65

E

02/02 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280 -28672
EO NO. B5
CONTROL INFO NO. LM5-11636

THIS IS A REV OF EO B4

REVISE CALLOUT AS FOLLOWS:

LDW280-28672-9 N/A TO -5 (REF)
LDW280-28672-10 N/A TO -6 (REF)
(ADD) LDW280-28672-9 N/A TO -21
(ADD) LDW280-28672-10 N/A TO -22

WAS

LDW280P17564-21 ON -5 (REF)
LDW280P17564-22 ON -6 (REF
(ADD) LDW280P17564-21 ON -21
(ADD) LDW280P17564-22 ON -22

RELEASED BY LIAISON
5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: EO CORRECTION. INCORRECT ASSY DRAWING CALLOUT.

DESCRIPTION OF EO: REF EO B4
REVISED CALLOUT -9 N/A TO -5 (REF) -10 N/A TO -6 (REF) ADDED -9 N/A TO -21 -10 N/A TO -22 (WAS) LDW280 P17564-21 & -22 ON -5 & -6 (REF) ADDED LDW280P 17564-21 & -22 ON -21 & -22

GAEC EO RELEASE C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NO SCRAP REQ

APPROVED BY	UJT			~	P.J.C.	CH	RMC(W)	
DATE	1/18/67			~	1-18-67	1967	1-27-67	
6	VCI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: SHLD INST D/S - OUTRG & CG.
DRAWING NO.: LDW280-28672
EO NO.: B5

ISSUED BY: DON RAGAN X6454 SECTION: VDI GROUP NO. 335 PL 5

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMP 4

DWG NO. LEQ280 EO NO. ~~1-76~~ 476
CONTROL INFO NO. LDW280 A 5542

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS * THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45). QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280 - 25703 ✓	A6	SEE DRAWING
-25704 ✓	B4	
-25706 ✓	B1	
-25707 ✓	B4	
-25708 ✓	B6	
-28647 ✓	C1	
-28652 ✓	B8	
-28669 ✓	A3	
-28672 ✓	C1	
-28721	A2	
-28727	B2	
-28752	B3	
-28761	A4	
-28762	A1	
-28771	B5	
-28774	A8	
-28776	A1	
-28778	A1	
-28779	A4	
-28803	A3	
-28816	A2	
-28819	A2	
-51560	C1	
-51818	A3	
-51823	A1	
-52723	A5	
LDW280		SEE DRAWING

* USE-APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: FR 2/23/7 2

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM 9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQ'D	

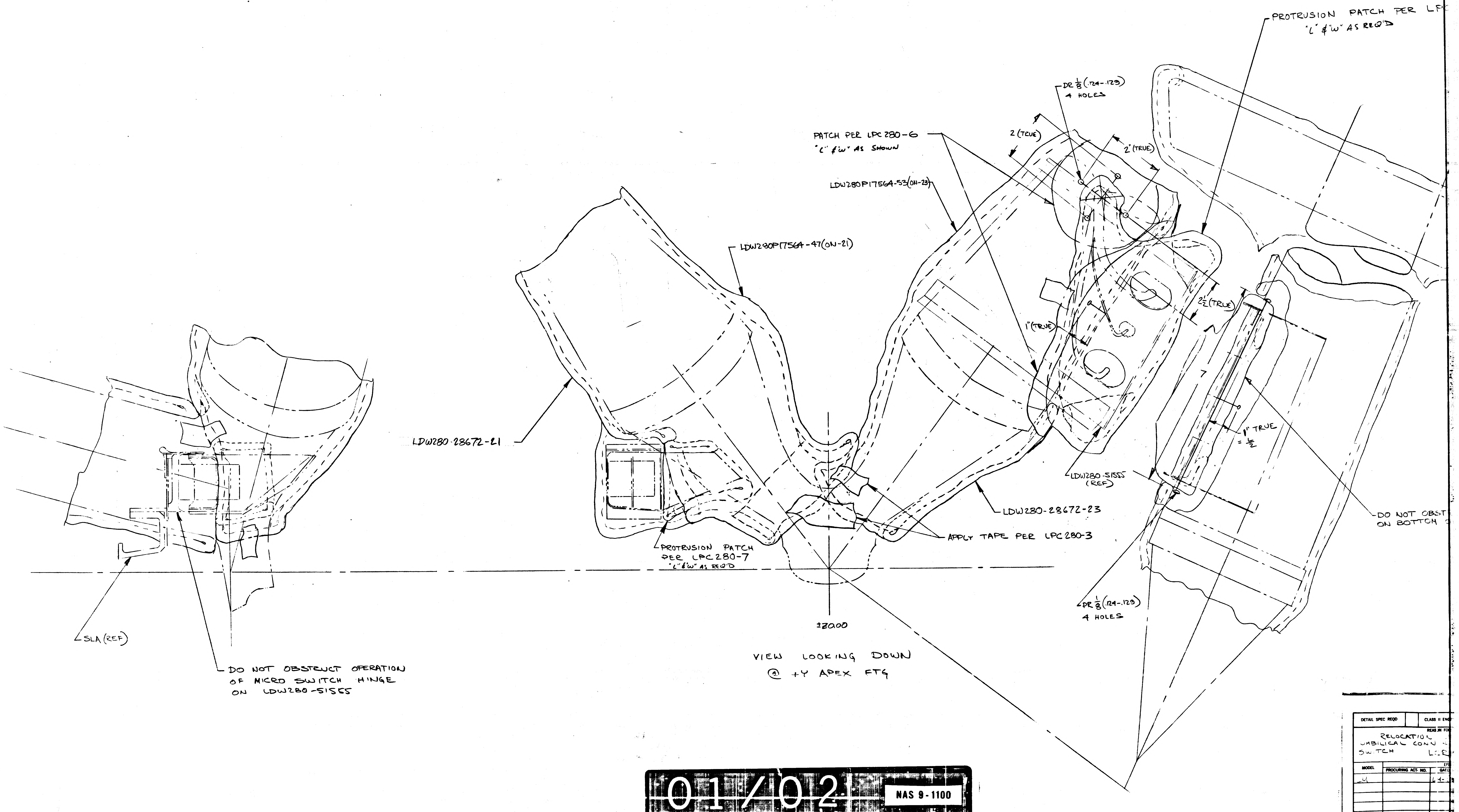
APPROVED BY								
	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	2/16/67				2/15/67		2-16-67	2-17-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEQ280
EO NO.: 476

ISSUED BY M. GREY / J. STRAKOSCH X-1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL 35

01

NAS 9-1100


PROTRUSION PATCH PER LP
"L" & "W" AS REQ'D
DR 1/8 (.124-.129)
4 HOLES
PATCH PER LPC 280-6
"L" & "W" AS SHOWN
2 (TRUE)
2" (TRUE)
LDW280P17564-53(ON-23)
LDW280P17564-47(ON-21)
2 1/2 (TRUE)
1" (TRUE)
1" TRUE
= 1/2
LDW280-28672-21
LDW280-51555 (REF)
LDW280-28672-23
DO NOT OBST
ON BOTTOM
APPLY TAPE PER LPC 280-3
PROTRUSION PATCH PER LPC 280-7
"L" & "W" AS REQ'D
SLA (REF)
DR 1/8 (.124-.129)
4 HOLES
Z20.00
DO NOT OBSTRUCT OPERATION OF MICRO SWITCH HINGE ON LDW280-51555

VIEW LOOKING DOWN
@ +Y APEX FTG

DETAIL SPEC REQD | | CLASS II EN

REASON FO

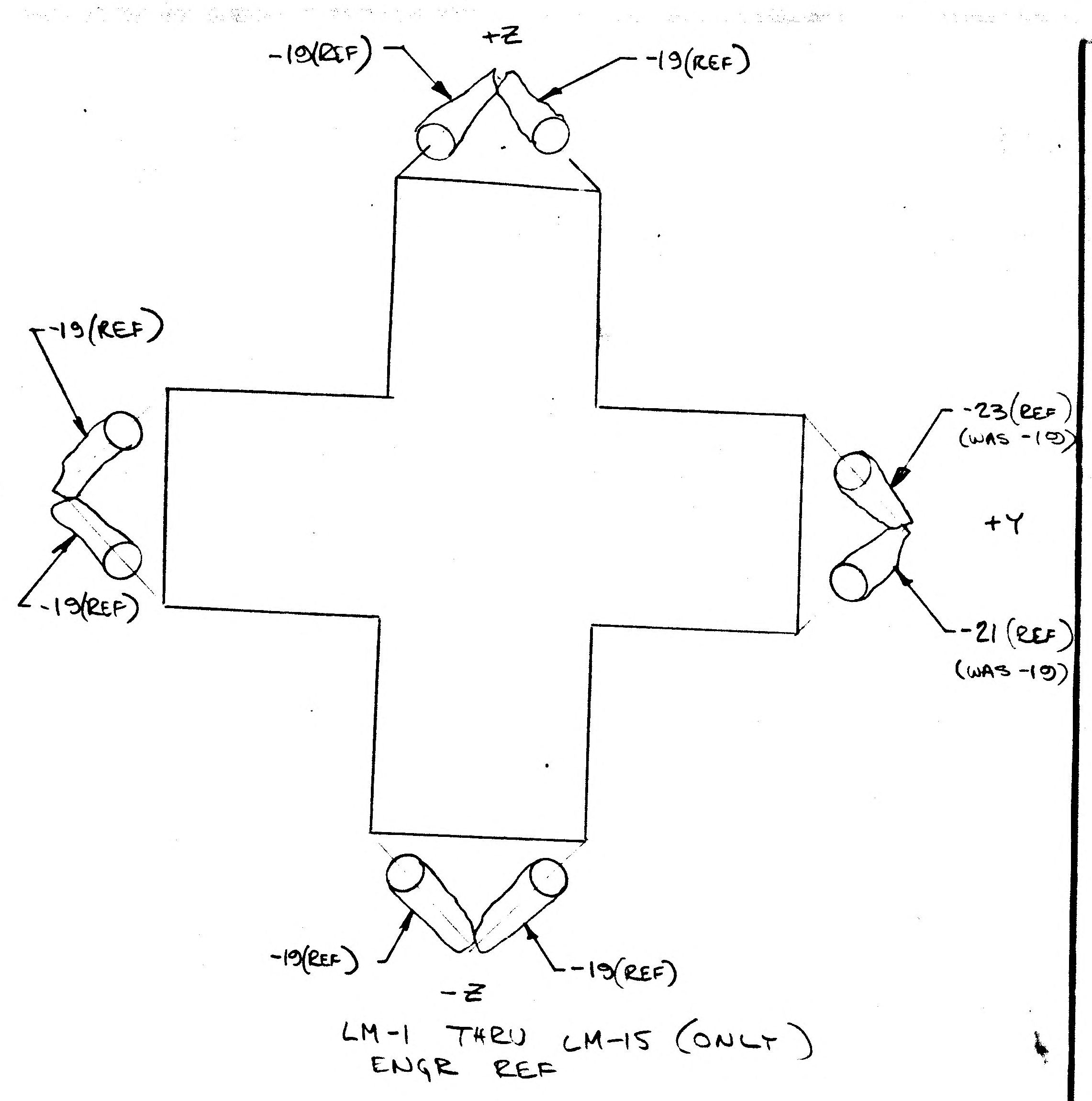
RELOCATION
UMBILICAL CONN
SWITCH L

MODEL	PROCURING ACT. NO.	GAEC
-4		L4-

BARNES/J. STRACOS
ISSUED BY
SECTI

ENG 32.3 REV 3-65

01/02 NAS 9-1100


+Z
-19(REF)
-19(REF)
-19(REF)
-Y
-19(REF)
-23(REF)
(WAS -19)
+Y
-21(REF)
(WAS -19)
-19(REF)
-Z
-19(REF)

LM-1 THRU LM-15 (ONLY)
ENGR REF

IN F/D B/M & MOD/BLK
ADD LDW280-28672-21 & -23 INSTL

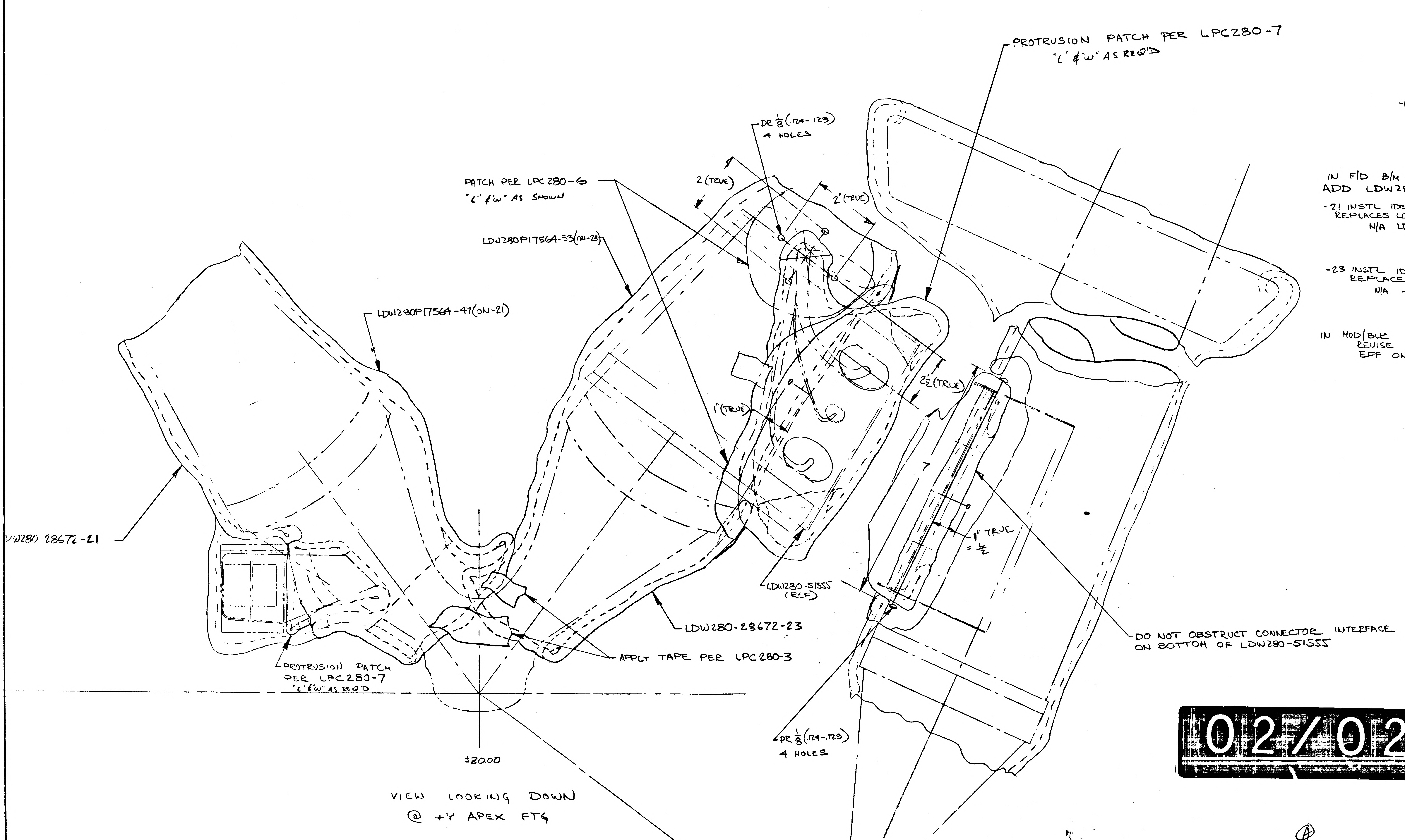
-21 INSTL IDENT TO -19 EXCEPT LDW280P17564-47
REPLACES LDW280P17564-29

N/A	LDW280-51553	LM-1(31)	1/MOD
	-52553	LM-2(32)	1/MOD
	-53553	LM-3(33)	1/MOD
	-54553	LM-4(34) THRU LM-15(45)	1/MOD

-23 INSTL IDENT TO -19 EXCEPT LDW280P17564-53
REPLACES LDW280P17564-29

N/A	LDW280-51553	LM-1(31)	1/MOD
	-52553	LM-2(32)	1/MOD
	-53553	LM-3(33)	1/MOD
	-54553	LM-4(34) THRU LM-15(45)	1/MOD

IN MOD/BLK
REVISE QTY/MOD FOR -19 INSTL IS 6/MOD WAS 8/MOD
EFF ON LM-1(31) THRU LM-15(45)


PROTRUSION PATCH PER LPC280-7
"L" & "W" AS REQ'D
DR 1/8 (.124-.129)
4 HOLES
PATCH PER LPC280-6
"L" & "W" AS SHOWN
2 (TRUE)
2" (TRUE)
LDW280P17564-53 (ON-23)
LDW280P17564-47 (ON-21)
2 1/2 (TRUE)
1" (TRUE)
DW280-28672-21
1" TRUE
= 1/2
LDW280-51555
(REF)
LDW280-28672-23
DO NOT OBSTRUCT CONNECTOR INTERFACE
ON BOTTOM OF LDW280-51555
PROTRUSION PATCH
PER LPC280-7
"L" & "W" AS REQ'D
APPLY TAPE PER LPC280-3
Z20.00
DR 1/8 (.124-.129)
4 HOLES

VIEW LOOKING DOWN
@ +Y APEX FTG

02/02 NAS 9-1100

Ⓐ

5

DETAIL SPEC REQD		CLASS II ENGRG CHG		CLASS I ENGRG CHG	✓ LCR19-1220
CONTROL INFO NO.	LDW280A5959				

REASON FOR EO
RELOCATION OF LM-SLA UMBILICAL CONN & ANTENNA SWITCH LCR19-1220

DESCRIPTION OF EO
IN F/D, B/M & MOD/BLK
ADDED -21 & -23 SHIELD INSTL, REVISED QTY/MOD FOR -19 6/MOD WAS 8/MOD EFF LM-1(31) THRU LM-15(45)

GRUMMAN EO RELEASE: US 3297

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU LM-15(45)	

DRAWING REVISION REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	BY / DATE	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	
✓			✓	3/23/67 5 VDI			3/18/67	3/23/67		3/2-/67	3/28/67

PRIORITY: C

DRAWING TITLE
SHIELD INSTL
DESCENT STAGE UPR OUTRIGGER
PENETRATION ~ THERMAL

ENGINEERING ORDER
DRAWING NO. LDW280-28672
EO NO. C2

ISSUED BY	SECTION	GROUP NO.	PL	CODE IDENT NO.	
G. BARNES/J. STRAKOSCH X1153	VDI	335	25	26512	GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE, L. I., N. Y.

ENG 38.3 REV 3-65

B *

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

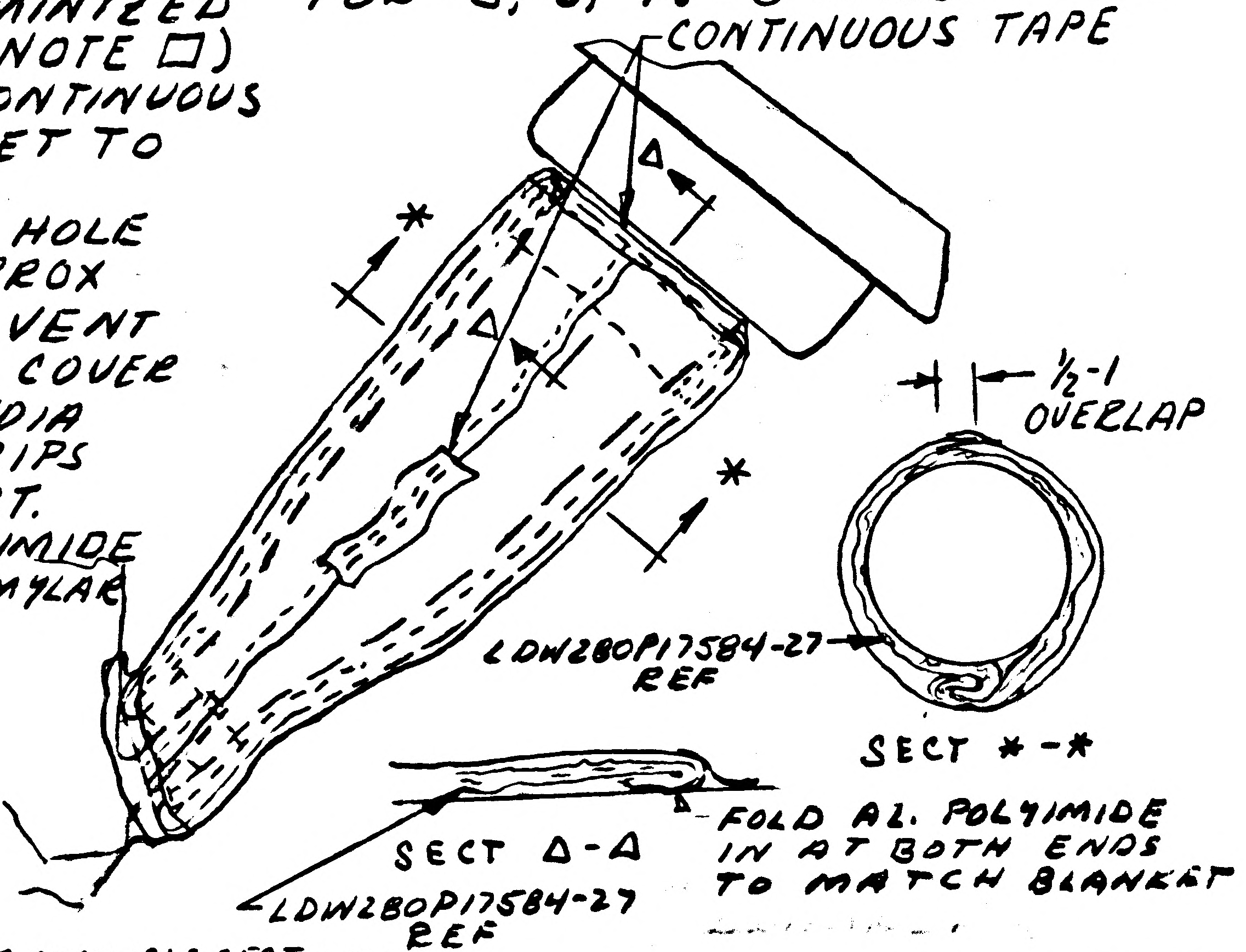
DWG. NO. LDW280-28672
EO NO. C3
CONTROL INFO NO. LDW280A6117

INSTALL ONE LAYER OF ALUMINIZED POLYIMIDE .0005 THICK (SEE NOTE □) USING GT835P-8 TAPE IN CONTINUOUS STRIPS SEALING THE BLANKET TO THE STRUCTURE AS SHOWN.
VENT BY PUNCHING A ½ DIA HOLE THROUGH THE LAYER AT APPROX THE SAME LOCATION AS THE VENT PATCH IN THE BLANKET AND COVER THE HOLE WITH A SINGLE 5" DIA LAYER TAPED WITH 4 2" STRIPS OF GT835P-8 TAPE 90° APART.
ALUMINUM SURFACE OF POLYIMIDE MUST FACE IN TOWARD THE MYLAR

ON -5 & -6 INSTLS LPC280-6 SLITS MAY BE CUT TO ALLOW PENETRATIONS

ADD NOTE □: ALUMINIZED POLYIMIDE MAY BE PURCHASED FROM McCORD CO. MAMARONECK N.Y. CODE IDENT 24761

FOR -5, -6, -7 & -8 SHIELD INSTL



FOLD AL. POLYIMIDE IN AT BOTH ENDS TO MATCH BLANKET

□ = NEXT AVAILIBLE NOTE # Δ & * = NEXT AVAILIBLE SECT. LETTER

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 19-1136 5

REASON FOR EO: TO PROVIDE FIRE PROTECTION LCD 19-1136

DESCRIPTION OF EO: ON -5, 6, 7 & -8 ADDED A SINGLE LAYER OF ALUMINIZED POLYIMIDE. ADDED SECT Δ-Δ & SECT ** AND NOTE □

(F) GAEC EO RELEASE C JS 3-29-7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31) THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY		AB		JHS	WH		Dam	
DATE	3/28/67	3/28/67		3/27/67	3/28/67		3/28/67	3/?/67
5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL DESCENT STAGE - UPPER OUTRIGGER PENETRATION - THERMAL	LDW280-28672	C3

ISSUED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

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ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP. *
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28672	EO NO. C4
CONTROL INFO NO. LM-5-13174	

THIS EO REVISES EO C3

FOR -5, -6, -21, -22, -7 & -8 (WAS) FOR -5, -6, -7 & -8

IN SECT *-* & Δ-Δ LDW280P17564-27 (REF)
(WAS) LDW 280 P17584-27 (REF)

IN F/D SHEET 3 REMOVE "PLAN VIEW LOOKING DOWN"

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	LCD19-1136	5

REASON FOR EO
TO PROVIDE ADDITIONAL THERMAL PROTECTION AND DRAWING CORRECTION

DESCRIPTION OF EO
REF. E.O. C3 FOR -5, -6, -21, -22 -7 & -8 WAS FOR -5, -6, -7 & -8; IN SECT **&ΔΔ LDW280P17564-27 (REF) WAS LDW280P17584-27 (REF) IN F/D SHEET 3 REMOVED "PLAN VIEW LOOKING DOWN"

GAEC EO RELEASE C
JK
—

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31) THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		-21 -22	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	WT	AB FOR M. TAYL		~	JF	JH	RMC	
DATE	4/11/67	4/11/67		~	4-15-67	4-15	4-19-67	4-17-67
5	VDT	~~SUPPORT~~ THERMAL	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL - DESCENT STAGE UPPER OUTRIGGER - PENETRATION THERMAL	LDW280-28672	C4

ISSUED BY H. DALLMEYER X1153 SECTION VEH DES INT GROUP NO. 335 PL 5

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28672 | EO NO. C5

CONTROL INFO NO. LDW280A6313

REF E.O.C2

-21(1)SHOULD BE -25 (1)

THIS E.O. IS AREVISION OF E.O. C2

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ✓ CCA 526 LCD 19-1220

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
INCORRECT DASH NUMBER	REF. EO C2 -21 SHOULD BE -25	JK 4/21/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓		NOT	REQD	4/8/67 5	VDI			4/8/67	4/11/67		RHR 4.17.67	4/20/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL UPPER OUTRIGGER PENETRATION, TH	LDW280-28672	C5

ISSUED BY STEA/STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28672
EO NO. C6
CONTROL INFO NO. LDW280B0624

REMOVE LM-3(33) THRU LM-15(45) REQUIREMENTS FOR -7, -8, -15, -16, -19, -23, & -25.
CREATE: -27 & -28 INSTL, 4 EA REQD/MOD, SAME AS -7 & -8 EXCEPT THAT LDW280P17564-59 & -60 REPLACE LDW280P17564-21 & -22; -29 & -30 INSTL, 8 EA REQD/MOD, SAME AS -15 & -16 EXCEPT THAT LDW280P17564-67 & -68 REPLACE LDW280P17564-37 & -38; -31 INSTL, 6 REQD/MOD, SAME AS -19 EXCEPT THAT LDW280P17564-63 REPLACES LDW280P17564-29; -33 INSTL, 1 REQD/MOD, SAME AS -23 EXCEPT THAT LDW280P17564-75 REPLACES LDW280P17564-53; -35 INSTL, 1 REQD/MOD, SAME AS -25 EXCEPT THAT LDW280P17564-71 REPLACES LDW280P17564-47.
NHA OF -27, -28, -29, -30, -31, -33 & -35 FOR LM-3(33) IS LDW280-53553, FOR LM-4(34) THRU LM-15(45) IS LDW280-54553.

ON -27 THRU -31, -33 & -35 REPLACE GT-15C-3 TAPE WITH GT-15C-9 TAPE

*SCRAP -7, -8, -15, -16, -19, -23 & -25

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2360 (C)

REASON FOR EO: REMOVE TEMP CONTROL COATED TAPE

DESCRIPTION OF EO: EFFECTIVITY OF -7, -8, 15, -16, -23 & -25 WAS LM-1(31) THRU LM-15(45). EFFECTIVITY OF -19 WAS LTA-8(18), LM-1(31) THRU LM-15(45). ADDED -27 THRU -31, -33 & -35.

GAEC EO RELEASE: JK 12/18/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

	VOI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				PSY	WM			
DATE	12/13/67			12-12-67	12/13/67		12/13/67	12-16-67
P								

PRIORITY: C
DRAWING TITLE: SHIELD INSTL - D/S - UPPER OUTRIGGER PENETRATION - THERMAL
DRAWING NO.: LDW280-28672
EO NO.: C6

11 JAN 68
ISSUED BY E.J. COMISKEY, 1153 SECTION VOI / THORJUSEN GROUP NO. 335 PL 25

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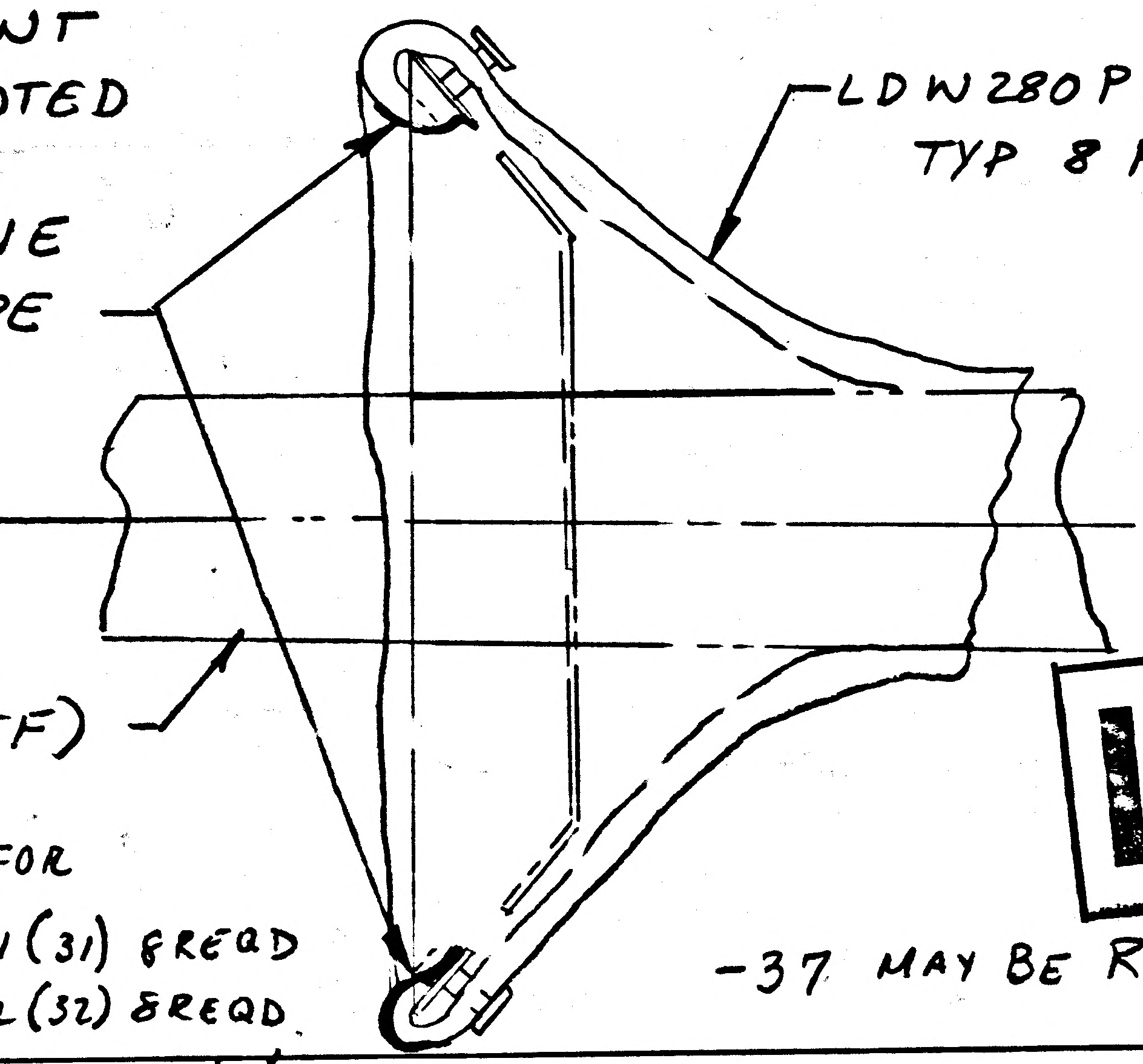
NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 -28672
EO NO. C7
CONTROL INFO NO. LDW280B1049

ADD -37 INSTL IDENT TO -19 EXCEPT AS NOTED


ON -37 REMOVE GT15C-3 TAPE
LDW280P17564-29 (REF) TYP 8 PLACES
℄ OF OUT RIGGER
LDW280-23516 (REF)

IN M/B ADD -37 WAS -19 FOR
N/A LDW280-51553 - LM1(31) 8 REQD
-52553 - LM2(32) 8 REQD

-37 MAY BE REWORKED FROM -19

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 2525 ⑤

REASON FOR EO: ADDITIONAL VENT AREA REQD

DESCRIPTION OF EO: ADDED -37
REMOVED -19

GAEC EO RELEASE: JK 1/4/8

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM1(31)	
LM		LM2(32)	
		LFM 99	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	RAH					RP for		Botti
DATE	1/3/68	1/3/68		1-3-68	1/3/68	PROJ KSC	1-3-68	1-3-68
P	VDI	THERMO SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SHIELD INSTL D/S - UP OUT RIGGER
DRAWING NO.: LDW280-28672
EO NO.: C7

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ISSUED BY DON RAGAS X1153 SECTION VDI GROUP NO. 280 PL 25

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NAS 9-1100

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28672		EO NO. C8
CONTROL INFO NO. LDW280B1200		

REMOVE LM-3(33) THRU LM-15(45) REQMTS FROM -27, -28, -29, -30, -31, -33 & -35.

* SCRAP -27, -28, -29, -30, -31, -33 & -35 (5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2360	PKG 20

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REVISED PLUME IMPINGEMENT PROTECTION REQMTS	REMOVED LM-3 THRU LM-15 REQMTS FROM -27, -28, -29, -30, -31, -33 & -35.	JK 1/24/68

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			*✓

APPROVED BY								
DATE	1/20/68			1-20-68	1-20-68		1/20/68	1-24-68
P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL DIS-UPPER OUTRIGGER PENETRATION-THERMAL	LDW280-28672	C8

1-26-68
ISSUED BY S.TAMRES/P.THORJUSEN x1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

(A)

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28672	EO NO. C9
CONTROL INFO NO. LDW280B1726	

THIS IS A REVISION OF EO C7

IN FIELD OF EO C7
FOR -37 N/A LDW280-52553-LM2(32) "8 REQD" SHOULD BE "6 REQD"

(ADD) -39 INSTL IDENT TO -23 EXCEPT AS NOTED
-41 INSTL IDENT TO -25 EXCEPT AS NOTED

ON -37, -39, & -41 REMOVE GT15C-3 TAPE

IN M/B (ADD) -39 (WAS -23) N/A 280-52553-LM2(32) 1 REQ'D/EA.
-41 (WAS -25)

-39 & -41 MAY BE REWORKED FROM -23 & -25 RESP.

5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 2525

REASON FOR EO: ADDITIONAL VENT AREA REQD. ONLY (6)-19, (1)-23 AND (1)-25 INSTEAD OF (8)-19 ARE ON DRAW. ANS RTE 05131-357

DESCRIPTION OF EO: REF EO C7 N/A FOR LM-2 FOR -37 6 REQD WAS 8 REQD. ADDED -39 AND -41, REMOVED -23 & 25 FOR LM-2(32)

(R) GAEC C EO RELEASE: H.F 2/9/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
		LFM 99	

DRAWING CHANGE REQD: REVISE DWG ☑ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☑ SCRAP ☐

APPROVED BY							•		
DATE	1/31/68			1-31-68	2/2/68			1/31/68	2-7-68
P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG		PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL D/S UPR OUTRIGGER PENETRATION THERMAL	LDW280-28672	C9

2/9/68
ISSUED BY J. GRASSIANO X86755 SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

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NAS 9-1100

ENG 32.2 REV 3-65

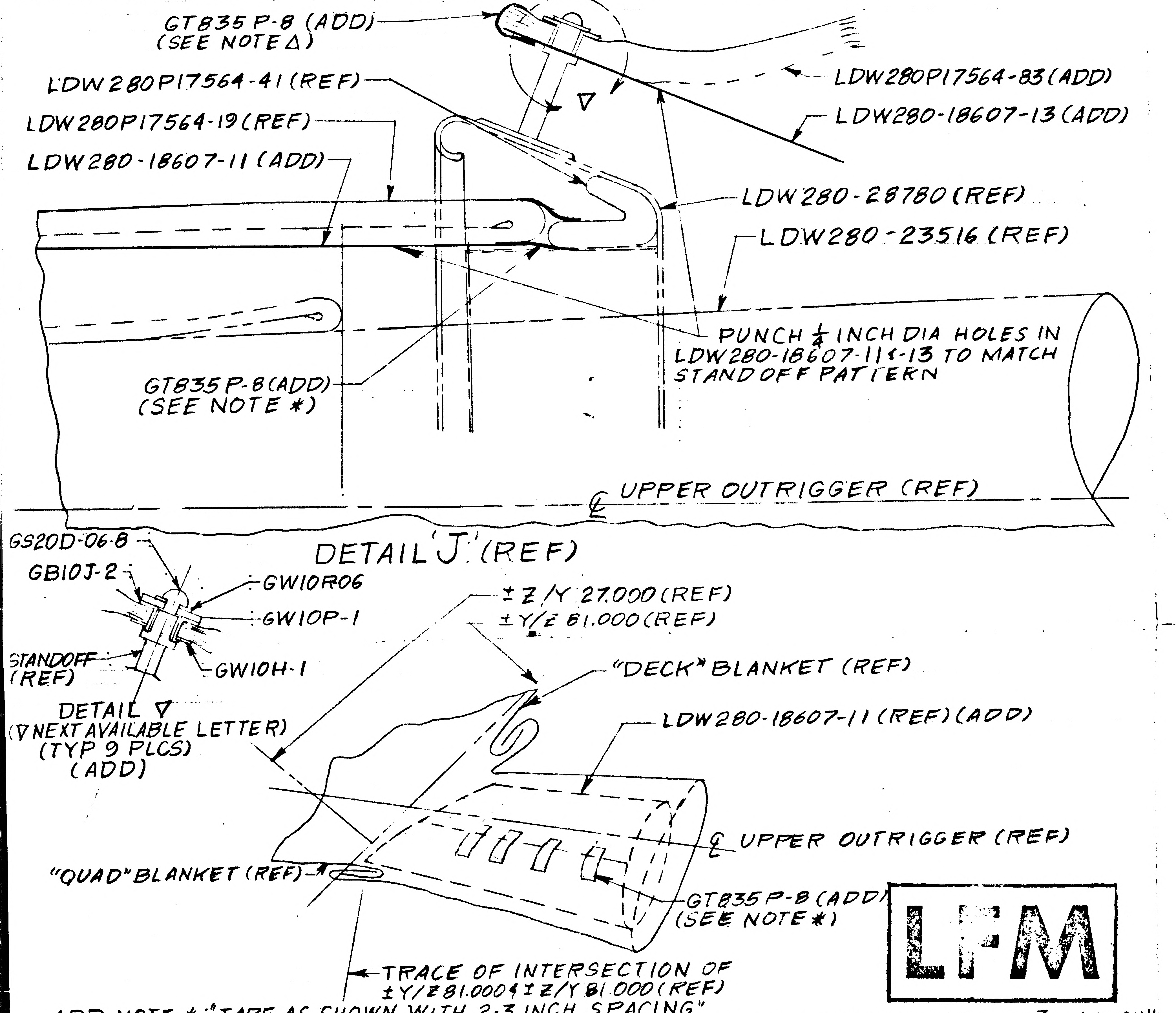
GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28672 | EO NO. C10
CONTROL INFO NO. LDW280B4959

IN M/B FOR -13&-14 ADD EFF. FOR LTA-8(18) LFM 126 N/A LDW280-66553(8 EA) REQ'D. IN M/B, B/M & F/D ADD -43, -44, -47& -48 WHICH ARE IDENTICAL WITH -5, -6, -21& -22 RESPECTIVELY EXCEPT LDW280P17564-83 REPLACES LDW280P17564-29 & GS20D-06-8, GW10R-06, GW10P-1, GB10J-2 & GW10H-2 (7 EA) REPLACES GS26D-1(8), LDW280P17523-3(8). ADD LDW280-18607-13(1), EFF LTA-8(18) LFM126 N/A LDW280-66553 QUANTITY SAME AS -5, -6, -21& -22. IN M/B, B/M & F/D ADD -45 IDENTICAL TO -19 EXCEPT GS20D-06-8 (2), GW10R-06(2), GW10P-1(2), GB10J-2 (2) & GW10H-2(2) REPLACES LDWP17515-11(2), AN515-6R6(2) & ADD LDW280-18607-11 (1). EFF LTA-8(18) LFM126 N/A LDW280-66553 QUANTITY SAME AS -19.


GT835 P-8 (ADD)
(SEE NOTE Δ)
LDW280P17564-41 (REF)
LDW280P17564-19 (REF)
LDW280-18607-11 (ADD)
LDW280P17564-83 (ADD)
LDW280-18607-13 (ADD)
∇
LDW280-28780 (REF)
LDW280-23516 (REF)
PUNCH 1/4 INCH DIA HOLES IN LDW280-18607-11&-13 TO MATCH STANDOFF PATTERN
GT835 P-8 (ADD)
(SEE NOTE *)
℄ UPPER OUTRIGGER (REF)
DETAIL 'J' (REF)
GS20D-06-8
GB10J-2
GW10R06
GW10P-1
STANDOFF (REF)
GW10H-1
DETAIL ∇
(∇ NEXT AVAILABLE LETTER)
(TYP 9 PLCS)
(ADD)
±Z/Y 27.000 (REF)
±Y/Z 81.000 (REF)
"DECK" BLANKET (REF)
LDW280-18607-11 (REF) (ADD)
℄ UPPER OUTRIGGER (REF)
"QUAD" BLANKET (REF)
GT835 P-8 (ADD)
(SEE NOTE *)
TRACE OF INTERSECTION OF ±Y/Z 81.000 & ±Z/Y 81.000 (REF)

LFM

ADD NOTE *: "TAPE AS SHOWN WITH 2-3 INCH SPACING"
ADD NOTE Δ: "TAPE INTERMITTENTLY WITH 2-4 INCH STRIPS, WITH GAPS OF 3/4-1 INCH"

REVISE DETAIL 'J' AS SHOWN AND ALL OTHER APPROPRIATE SECTIONS.
* Δ USE NEXT AVAILABLE NOTE NUMBERS.

(NOTE: -5, -6, -19, -21& -22 CONFIGURATION TO REMAIN ON DWG FOR RECORD PURPOSES ONLY).

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCN1021-33 PKG 5 (5)

REASON FOR EO: INSUFFICENT VENTING

DESCRIPTION OF EO: IN M/B FOR -13&-14 ADDED EFF FOR LTA-8 (LFM 126). IN M/B, B/M & F/D ADDED -43, -44, -45, -47& -48. ADDED NOTES * Δ & DETAIL ∇

GAEC EO RELEASE: C 8/15/68

MODEL	E1 ~~PROCURING AGENCY~~ NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 126	LTA8 (18)	

DRAWING CHANGE REQD: V REVISE DWG | RECORD EO
DISPOSITION OF PARTS: REWORK | -5, -6, -19, -21 & -22 SCRAP

APPROVED BY					NM		
DATE	7/30	7/31/68		7-30-68	7/31/68		8-15-68
P	VDI	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SHIELD INSTL-D/S-UPPER OUTRIGGER PENETRATION THERMAL
DRAWING NO. LDW280-28672
EO NO. C10

8/9/68 ISSUED BY WAYNE KAY / THORJUSEN x1153 SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28672
EO NO. D1
CONTROL INFO NO. LDW280B5291

ADD -46, IDENTICAL TO -45 EXCEPT THAT LDW280P17564-84 ON -46 REPLACES LDW280P17564-83 ON -45

FOR -46, EFF LTA-8(18) LFM126, N/A LDW280-66553, 4 REQ'D/VEH

FOR -45, 4 REQ'D/VEH WAS 8 REQ'D/VEH

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD1021-33 PKG *5

REASON FOR EO: TO USE EXISTING TEMPLATES

DESCRIPTION OF EO: ADDED -46
FOR -45 4 REQ'D/VEH WAS 8 REQ'D/VEH

GAEC EO RELEASE: (5) JK 8/28/68

MODEL	EFFECTIVITY ~~PROCURING ACTIVITY~~ NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM126	LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK NOT | SCRAP REQD.

APPROVED BY								
DATE	8/27	8/27/68		8-27-68	8/27/68		8/27/68	8-27-68
P	VDI	THERMO ~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SHIELD INSTL - D/S - UPPER OUTRIGGER PENETRATION - THERMAL
DRAWING NO.: LDW280-28672
EO NO.: D1

082768
ISSUED BY J. CLARK SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28673 EO NO. A1
CONTROL INFO NO. LDW 280-9450

IN M/B, I/D, B/M CREATE: -5 INSTL IDENTICAL TO -1 INSTL EXCEPT LDW280P17565 -33, -35, -36, -37, -38 (1 EACH REQ'D) REPLACE LDW280P17565 -1, -3, -4, -5, -6 RESPECTIVELY.

CREATE: -6 INSTL IDENTICAL TO -2 INSTL EXCEPT LDW280P17565 -33, -36, -38 (1 EACH REQ'D) REPLACE LDW280P17565 -1, -4, -6 RESPECTIVELY.

CREATE: -7 INSTL IDENTICAL TO -3 INSTL. EXCEPT LDW280P17565 -39 REPLACES LDW280P17565 -7 (1 REQ'D)

CREATE: -8 INSTL IDENTICAL TO -4 INSTL EXCEPT LDW280P17565 -40 REPLACES LDW280P17565 -8

				REQ'D /MOD
-5, -6, -7, -8	N/A	LDW280-51553	LEM-1(31)	4
		LDW280-52553	LEM-2(32)	4
		LDW280-52553	LEM-3(33)	4
		LDW280-54553	LEM-4(34)	4
		LDW280-54553	LEM-5(35)	4
		LDW280-54553	LEM-6(36)	4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: TO ACCOMMODATE INSTL. OF THERMAL SHIELDING

DESCRIPTION OF EO: CREATED -5, -6, -7, -8 INSTL.

GAEC EO RELEASE: 8/31/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-1 THRU LEM-6	(31 THRU 36)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT REQ'D.	

APPROVED BY						NM			
DATE	8/11/66	8-19				8-13-66		8 16 66	8-16-66
8/11/66	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER		STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: SHIELD INSTL - DESCENT STAGE OUTRIGGER PENETRATION - THERMAL
DRAWING NO. LDW280-28673
EO NO. A1

ISSUED BY C. RUSSO / J. STRAKOSCH SECTION VDT GROUP NO. 335 PL 35

ENG 32.1 REV 3-65 *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28673
EO NO. A2
CONTROL INFO NO. LDW 280-9835

THIS IS A REVISION OF EO A1

IN M/B, F/D & B/M ON -5 INSTL DELETE -36, -38, -4, -6

IN B/M & F/D ON -2 INSTL LDW280P17562-1 (1 REQ)
REPLACES LDW280P17562-2 (1).

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: TO CORRECT DETAIL PART CALLOUT.

DESCRIPTION OF EO: REF. EO A1, IN M/B, F/D & B/M ON -5 INSTL DELETED -36, -38, -4, -6. ON -2 INSTL LDW280 P17562-1 REPLACED LDW280P17562-2

(R) GAEC C EO RELEASE: GS 9-6

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8 (1B) LEM-1 (3) THRU LEM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	JAS	sam			WJH		RMC (W)	
DATE	8/23/66	9/15			8/25/66		9-3	8/22/66
	8/23/66 VDI	SUPPORT WJ	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SHIELD INSTL - DESCENT STAGE LOWER OUTRIGGER PENETRATION - THERMAL
DRAWING NO. LDW280-28673
EO NO. A2 EMF

ISSUED BY C. RUSSO / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

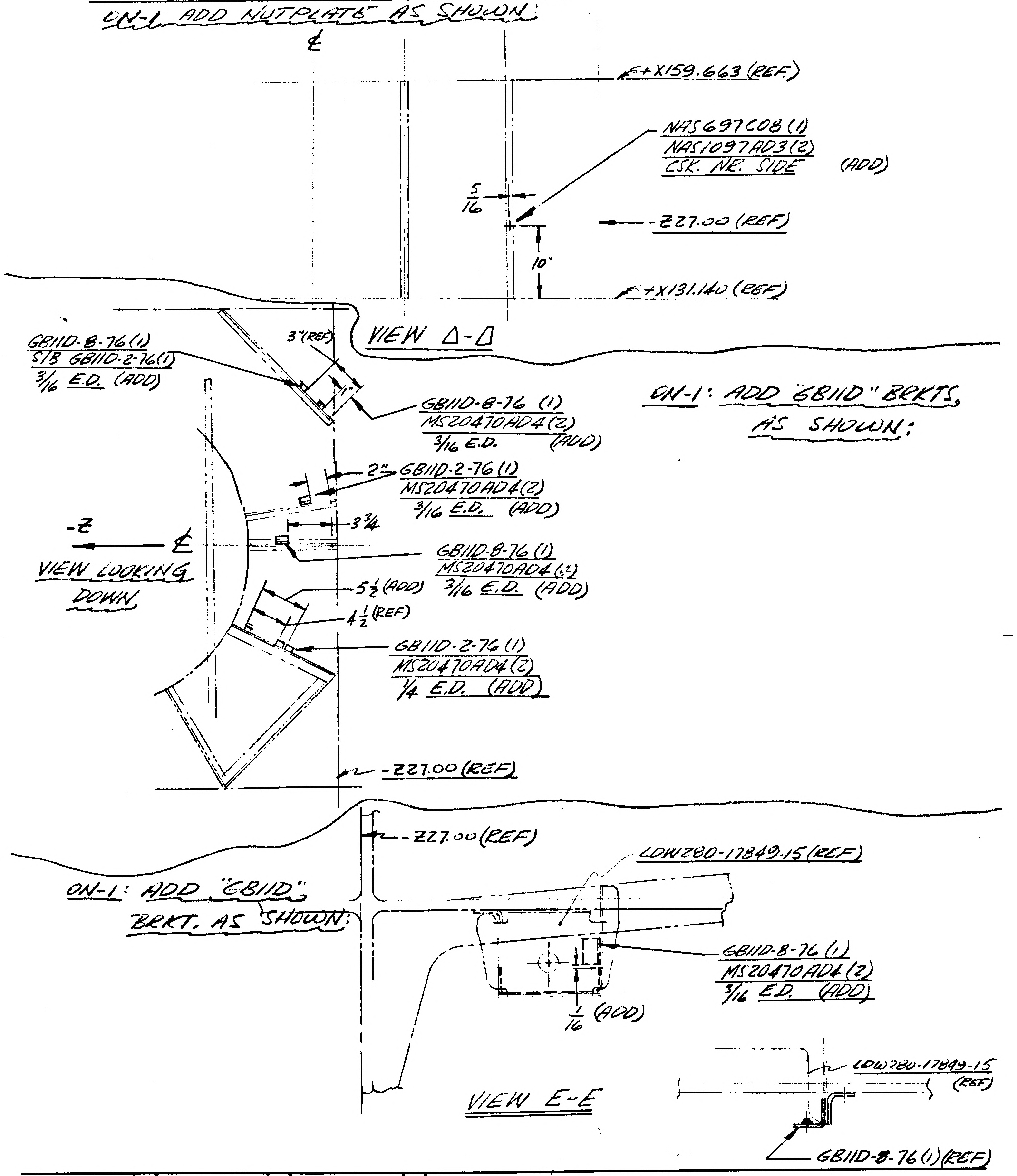
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-23677
EO NO. C5
CONTROL INFO NO. LM-2-3119

THIS E.O. IS A REVISION OF E.O. C3

ON-1 ADD NUTPLATE AS SHOWN:



℄
+X159.663 (REF.)
NAS697C08 (1)
NAS1097AD3 (2)
CSK. NR. SIDE (ADD)
5/16
-Z27.00 (REF)
10"
+X131.140 (REF)
VIEW Δ-Δ
GB11D-8-76 (1)
S/B GB11D-2-76 (1)
3/16 E.D. (ADD)
3" (REF)
GB11D-8-76 (1)
MS20470AD4 (2)
3/16 E.D. (ADD)
ON-1: ADD "GB11D" BRKTS, AS SHOWN:
2"
GB11D-2-76 (1)
MS20470AD4 (2)
3/16 E.D. (ADD)
3 3/4
-Z
℄
VIEW LOOKING DOWN
GB11D-8-76 (1)
MS20470AD4 (2)
3/16 E.D. (ADD)
5 1/2 (ADD)
4 1/2 (REF)
GB11D-2-76 (1)
MS20470AD4 (2)
1/4 E.D. (ADD)
-Z27.00 (REF)
-Z27.00 (REF)
LDW280-17849-15 (REF)
ON-1: ADD "GB11D" BRKT. AS SHOWN:
GB11D-8-76 (1)
MS20470AD4 (2)
3/16 E.D. (ADD)
1/16 (ADD)
LDW280-17849-15 (REF)
VIEW E-E
GB11D-8-76 (1) (REF)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		-	2

REASON FOR EO: ADDITIONAL BRKTS & NUTPLATES REQ D FOR NEW(OR)REVISED LINE RUNS

DESCRIPTION OF EO: ON-1: IN FID & B/M~ REF. E.O. C3: ADDED: GB11D-8-76 (4); GB11D-2-76 (2); MS20470AD4(12); NAS697C08(1); NAS1097AD3(2). REMOVED GB11D-8-76 (1)

GAEC EO RELEASE: ✓ C FR

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	
LM		THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY								
DATE	12/20				12/12/66	12/12/66	12-13-66	12/12/66
-/-	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: SUPPORT INSTL. - DESCENT STAGE ENGINE FEED & DRAIN LINES

DRAWING NO. LDW280-23677

EO NO. C5

ISSUED BY LIAISON / E. NEFF X3604 12-12-66 SECTION V.D.T. GROUP NO. [illegible] PL

01
NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280·25662	LTA·8(18)	32
LDW280·28687-9			
LM	LDW280·25662	LM·15(45)	116
		LM·14(44)	
		LM·13(43)	
		LM·12(42)	
		LM·11(41)	
		LM·10(40)	
		LM·9(39)	
		LM·8(38)	
		LM·7(37)	
		LM·6(36)	
		LM·5(35)	
		LM·4(34)	116
		LM·3(33)	115
		LM·2(32)	115
		LM·1(31)	115
		LTA·8(18)	83
LM	LDW280·25662	QUAL TEST(70)	21
PART NO. LDW280·28687-5		GAEC SCH NO. 52-3	

LDW280·28687 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280·25662	LM·15(45)	24
		LM·14(44)	
		LM·13(43)	
		LM·12(42)	
		LM·11(41)	
		LM·10(40)	
		LM·9(39)	
		LM·8(38)	
		LM·7(37)	
		LM·6(36)	
		LM·5(35)	
		LM·4(34)	
		LM·3(33)	
		LM·2(32)	
		LM·1(31)	24
LM	LDW280·25662	QUAL TEST(70)	6
PART NO. LDW280·28687-3		GAEC SCH NO. 52-3	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25662	LTA-8(18)	24 EA
LDW280-28687-7&-11			
LM	LDW280-25662	LM-15(45)	68
		LM·14(44)	68
		LM·13(43)	
		LM·12(42)	
		LM·11(41)	
		LM·10(40)	
		LM·9(39)	
		LM·8(38)	
		LM·7(37)	
		LM·6(36)	
		LM 5(35)	
		LM·4(34)	
		LM 3(33)	
		LM·2(32)	
		LM·1(31)	68
		LTA-8(18)	44
LM	LDW280-25662	QUAL TEST(70)	17
PART NO. LDW280-28687-1		GAEC SCH NO. 52-3	

WORK PKG FUNCTION NO. 110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	B	B	B		B				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	B	GRUMMAN REL INFO B		
		PRIM NO.	VE(001)	EMF
LAST DASH NO. USED	-11	207	MP-14	3-1-30-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	GENTILE 12/21/66	RELIABILITY	
LAYOUT BY	WINK		
CHECKED BY	R. SMITH 1-4-67		
GR. ~~LDR~~			
V. D. I	1/11/67		
STRUCT	WJH 1/12/67	PROJ ENGR	1-12-67
STRUCT		REL GROUP	1/24/67
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STANDOFF ASSEMBLY
DESCENT STAGE-BASE HEAT SHIELD
HIGH TEMP

SIZE	CODE IDENT NO.		
B	26512	LDW280·28687	B
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77 1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00 & 3.00						EO A1	EO A1, INITIAL DRAWING RELEASE, PARTS MADE PER EO	LTA-8, LM-1 THRU-LM-15 & QUAL TEST	NOT	REQ'D	GENTILE 12/21/66		
	2	1.00, 1.10 2.00 & 3.00						EO A2	ON -1-3 & -5 REMOVED LDW280-25687-11 VC-100-4 ADDED -7 & -9. EFF OF -1, 3 & -5 WAS LTA-8, LEM-1 THRU LEM-15 & QUAL TEST. QUAN. REQ'D OF -1 WAS (68) & -5 WAS (114) FOR LTA-8 & QUAL TEST. ADDED LDW280-18121-11 & -13 TO -3 REMOVED NOTES 1 & 3	LTA-8(18) LM-1 THRU LM-15 QUAL TEST	-3	✓			
B	1	1.00, 1.10 2.00, & 3.00						EO B1	REF EO A2 ADDED -11 REPLACING -3 (ON LTA-8 ONLY) RESTORED LM-1 THRU LM-15 REQ'TS TO -1-3 & -5, 1/8 DIM WAS 1/4. 36 EQ. SPACES WAS 16 EQ. SPACES ON -5 & -9.	LTA-8 LM-1 THRU LM-15	✓		RMS MAYBO 1-16-67	MC 1-16-67 1/23/67	1-24-67
	2	1.00 & 1.10						EO B2	IN MODEL BLK, FOR -5 ON N/A LDW280-25662, FOR LM-1, -2 & -3 QTY 115 WAS 114. FOR LM-4 THRU -15 QTY 116 WAS 114.	LM-1(31) THRU LM-15(45)	✓		RMS		
	3	1.00, 1.10							REF EO.A2; QTY ON QUAL TEST FOR -1(44) & -5(82) SHOULD BE RESPECTIVELY (17) & (21)	QUAL.TEST	NOT	REQ'D			
	4								CHANGED COMMERCIAL CALLOUT TO GAEC VENDOR APPROVED EQUIV.	NOTED					
	5							A & B ②	FOR -5 QTY ON LTA-8 SHOULD BE 83 WAS 82						

CHG APPROVED

LTR	~~GROUP LDR~~	V. D. I.	STRUCT	STRUCT	WEIGHTS	RELIABILITY				
B		1/11/67	1/12/67							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28687	B

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

-11	-9	-7	-5	-3	-1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AR	AR	AR	AR	AR	AR		E		YARN	SEE NOTE I						
AR	AR	AR	AR	AR	AR	GT535H-1	E		TAPE	GRUMMAN STD						
1	1	1				LDW280-18121-13	E		SUPPORT	SEE DWG						
1	1	1				LDW280-18121-11			SUPPORT							
	1		1			LDW280-17924-15			DOUBLER							
2		2		2	2	LDW280-17924-13			DOUBLER							
	1		1			LDW280-17924-11			DOUBLER							
1	1		1	1		LDW280M17693-3			STANDOFF	SEE DWG						
		1			1	LDW280M17693-1			STANDOFF	SEE DWG						
						LDW280-28687-11			STANDOFF WELDASSY					FLW/SSW	NONE	
						-9										
						-7										
						-5										
						-3										
						LDW280-28687-1	E		STANDOFF WELD ASSY					FLW/SSW	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RES. WELD	LSP-14-6102
						SSW	STEEL SPOT WELD	MIL-W-6858

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28687 B
SCALE NONE
SHEET 2.00

ENG 77.2 5-64

01

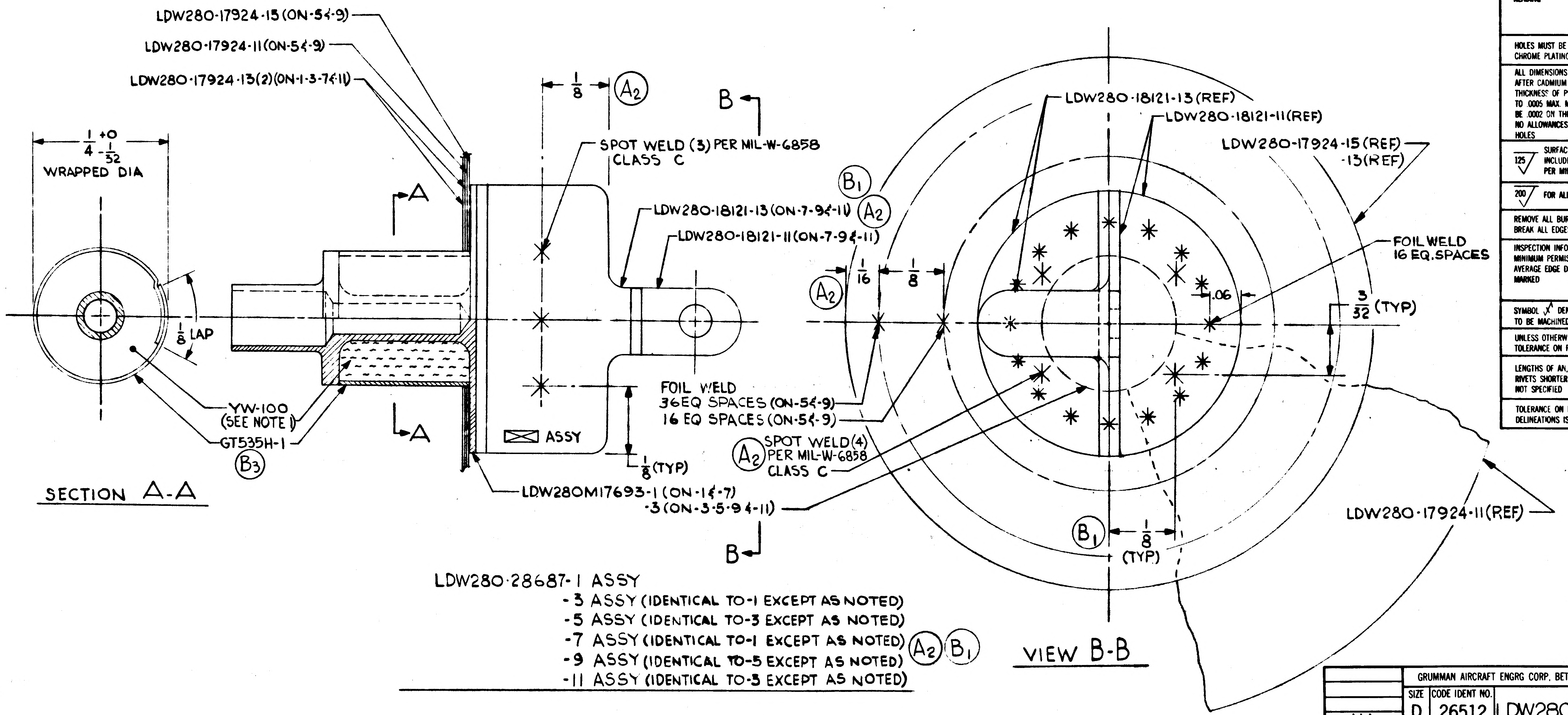
NAS 9-1100

LDW280-28687 B

NOTES:

1. REFRASIL YARN (.015) YW-100 (OR EQUAL) MAY BE PURCHASED FROM:
   H. I. THOMPSON FIBERGLASS CO.
   LOS ANGELES, CALIF. (CODE IDENT 78741)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	


LDW280-17924-15 (ON-5 & -9)
LDW280-17924-11 (ON-5 & -9)
LDW280-17924-13(2) (ON-1-3-7 & -11)
1/4 +0 −1/32 WRAPPED DIA
1/8 LAP
YW-100 (SEE NOTE 1)
GT535H-1 (B3)
SECTION A-A
A
A
1/8 (A2)
B
SPOT WELD (3) PER MIL-W-6858 CLASS C
(B1)
LDW280-18121-13 (ON-7-9 & -11) (A2)
LDW280-18121-11 (ON-7-9 & -11)
(A2) 1/16
1/8
FOIL WELD
36 EQ SPACES (ON-5 & -9)
16 EQ SPACES (ON-5 & -9)
(A2) SPOT WELD (4) PER MIL-W-6858 CLASS C
⊠ ASSY
1/8 (TYP)
LDW280M17693-1 (ON-1 & -7)
-3 (ON-3-5-9 & -11)
B
LDW280-18121-13 (REF)
LDW280-18121-11 (REF)
LDW280-17924-15 (REF)
-13 (REF)
FOIL WELD 16 EQ. SPACES
.06
3/32 (TYP)
(B1) 1/8 (TYP)
LDW280-17924-11 (REF)
VIEW B-B

LDW280-28687-1 ASSY
-3 ASSY (IDENTICAL TO -1 EXCEPT AS NOTED)
-5 ASSY (IDENTICAL TO -3 EXCEPT AS NOTED)
-7 ASSY (IDENTICAL TO -1 EXCEPT AS NOTED) (A2) (B1)
-9 ASSY (IDENTICAL TO -5 EXCEPT AS NOTED)
-11 ASSY (IDENTICAL TO -5 EXCEPT AS NOTED)

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	D	26512	LDW280-28687	B
	SCALE 10/1		SHEET	

LDW280-28687 B

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280 | EO NO. 1105
CONTROL INFO NO. LDW280B4089

ON FOLLOWING PARTS ADD EFFECTIVITY (LFM 200 LM-5(35)) N/A LDW280-66662 & LM-6(36) THRU LM-15(45) N/A LDW280-66662

DWG NO.	DASH NO.	N/A	No. REQD	CHNG NO.
LDW 280-25703	-1, -3	LDW280-66662	4 EA.	A7 ✓
-25704	-1,-3,-5,-7		4 EA.	B2 ✓
-25705	-7		4	D5 ✓
-25706	-11,-13,-15,-17,-19		4EA.	B2 ✓
-25707	-1, -3		8EA.	B5 ✓
-25707	-5,-7,-9,-11		4 EA.	
-17854	-27		4	C5 ✓
-28687	-1		68	C1 ✓
-28687	-3		24	
-28687	-5		116	
-28688	-1		52	B1
-28688	-3		8	
-28688	-5		56	
-28688	-7		28	
LDW280 M17551	-1	LDW280-66662	352	A3

LFM

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2965 PKG 4 (5)

REASON FOR EO: REDESIGN OF D/S BASE HEAT SHIELD FOR D/E THRUST DECAY

DESCRIPTION OF EO:
1) ADDED LFM200, LM-5(35) REQUIREMENTS
2) CHANGED N/A FOR LM-6(36) THRU LM-15(45)

GAEC EO RELEASE: C JK 8/20/68

MODEL	E PROCURING ACTIVITY NO. I	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM200	LM-5(35)	
LM		LM-6(36) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK NOT | SCRAP REQD

APPROVED BY								
DATE	8/13/68			8/12/68	8/14/68		8/14/68	8/20/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C | DRAWING TITLE: SEE DRAWINGS | DRAWING NO.: LE0280 | EO NO.: 1105

CDR 082368
ISSUED BY D. BELLOTTI/THORJUSEN 8/6/68 SECTION VDIX-1153 GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 1152
CONTROL INFO NO. LDW280B5650

FOR TITLE SEE DWG.

CHG LTR	DRAWING No. *	RESTRICT FOR USE ON **	WAS USED ON ***
B4	LDW280-25706-11, -13, -15, -17,	LTA-5(15), LTA-8(18), LM-1(31) THRU LM-4(34), LM-6(36) THRU LM-15(45), LFM200 (LM-5(35))	LTA-5(15), LTA-8(18), LM-1(31) THRU LM-15(45), LFM200 (LM-5(35))
B6	LDW280-25707-9, -11	LTA-5(15), LTA-8(18), LM-1(31) THRU LM-4(34) LM-6(36) THRU LM-15(45), LFM200(LM-5(35))	LTA-5(15), LTA-8(18), LM-1(31) THRU LM-15(45), LFM 200(LM-5(35))
	LDW 280-25707-1, -3-5, -7	LTA-5(15), LM-1(31) THRU LM-4(34), LM-6(36) THRU LM-15(45), LFM 200(LM-5(35))	LTA-5(15), LM-1(31) THRU LM-15(45), LFM 200(LM-5(35)).
C6	LDW280-17854-27	LM-1(31) THRU LM-4(34), LM-6(36) THRU LM-15(45), LFM 200(LM-5)	LM-1(31) THRU LM-15(45), LFM 200(LM-5(35))
C2	LDW280-28687-1, -3, -5	LTA-8(18), LM-1(31) THRU LM-4(34), LM-6(36) THRU LM-15(45), QT (70) LFM200 (LM-5(35)).	LTA-8(18), LM-1(31) THRU LM-15 (45), LFM200 (LM-5 (35)), QT (70)
B2	LDW280-28688-1, -5, -7	LTA-8(18), LM-1(31) THRU LM-4(34), LM-6(36) THRU LM-15 (45), QT (70), LFM 200 (LM-5(35)).	LTA-8(18), LM-1(31) THRU LM-15(45) QT (70), LFM200(LM-5(35)).
	LDW280-28688 -3	LM-1(31) THRU LM-4(34), LM-6(36) THRU LM-15(45) QT (70), LFM200 (LM-5)	LM-1(31) THRU LM-15(45), QT(70), LFM 200 (LM-5(35))

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2965 PKG. 5 CCA 1235

REASON FOR EO: REDESIGN BASE HEAT SHIELD FOR D/E THRUST DECAY

DESCRIPTION OF EO: RESTRICTED EFF OF -* BY REMOVING LM-5(35) PRODUCTION EFF

GAEC EO RELEASE: C JK 10/16/

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	10/7/68			10-7-68	10/[illegible]/68		10/15/68	10-15-68

PRIORITY C DRAWING TITLE NOTED DRAWING NO. LEO 280 EO NO. 1152

CDR 10-25-68
ISSUED BY JOE LUCCHESI / G. ZEMAN X86046 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1397
CONTROL INFO NO. LDW280B 7451

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-25704	B5	SEE DWG
-25705	D7	
-25706	B6	
-25707	C1	
-25708	C2	
-25709	B3	
-25710	B7	
-28583	C4	
-28687	C3	
LDW280 -28688	B3	SEE DWG

* APPLICABLE DASH NOS

(5)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG 11-12 CCA 1821

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: K 4/29

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/8/69			4-2-69	4/4/69		4/9/69	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ. ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO NO. 1397

052869 ISSUED BY MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28688 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25662	QUALTEST(70)	2
LM		LM-15(45)	8
LM		LM-14(44)	8
LM		LM-13(43)	8
LM		LM-12(42)	8
LM		LM-11(41)	8
LM		LM-10(40)	8
LM		LM-9(39)	8
LM		LM-8(38)	8
LM		LM-7(37)	8
LM		LM-6(36)	8
LM		LM-5(35)	8
LM		LM-4(34)	8
LM		LM-3(33)	8
LM		LM-2(32)	8
LM	LDW280-25662	LM-1(31)	8
PART NO. LDW280-28688-3		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25662	LTA-8(18)	36
LDW280-28688-15			
LM	LDW280-25662	LTA-8(18)	8
PART NO. LDW280-28688-9 & 13		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25662	QUALTEST(70)	13
LM		LM-15(45)	52
LM		LM-14(44)	52
LM		LM-13(43)	52
LM		LM-12(42)	52
LM		LM-11(41)	52
LM		LM-10(40)	52
LM		LM-9(39)	52
LM		LM-8(38)	52
LM		LM-7(37)	52
LM		LM-6(36)	52
LM		LM-5(35)	52
LM		LM-4(34)	52
LM		LM-3(33)	52
LM		LM-2(32)	52
LM		LM-1(31)	52
LM	LDW280-25662	LTA-8(18)	16
PART NO. LDW280-28688-1		GAEC SCH NO. 52	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.01	1.10	2.00	3.00
REV	A	A	A	A	A
SHEET					
REV					
SHEET					
REV					

LAST SECT LTR USED B

LAST DASH NO. USED -15

GRUMMAN REL INFO A

PRIM NO. G(001) EMF

207 MP-14 A-1-267

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100

LINE ITEM 1

DOCUMENTATION TYPE II

DRAWN BY B.YANOFF 1/6/67

RELIABILITY

LAYOUT BY R.WINK

CHECKED BY EG 1-16-67

~~GR. LEADER~~

VEHDES.INT. 1/1/67

STRUCTURES WJH 1/23/67

STRUCTURES TES 1/23/67

WEIGHTS

PROJ ENGR 1/25/67

REL GROUP 1/25/67

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STAND OFF ASSY
DESCENT STAGE, BASE HEAT SHIELD
HIGH TEMP

SIZE B

CODE IDENT NO. 26512

LDW280-28688 A

SCALE NONE

SHEET 1.00 OF 5

ENG 77.1 12-65

01

NAS 9-1100

LDW280-28688 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25662	QUALTEST	3
LM		LM-15(45)	28
LM		LM-14(44)	28
LM		LM-13(43)	28
LM		LM-12(42)	28
LM		LM-11(41)	28
LM		LM-10(40)	28
LM		LM-9(39)	28
LM		LM-8(38)	28
LM		LM-7(37)	28
LM		LM-6(36)	28
LM		LM-5(35)	28
LM		LM-4(34)	28
LM		LM-3(33)	27
LM		LM-2(32)	27
LM		LM-1(31)	27
LM	LDW280-25662	LTA-8(18)	19
PART NO. LDW280-28688-7		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25662	LTA-8(18)	16
PART NO. LDW280-28688-11		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25662	QUALTEST([illegible])	8
LM		LM-15(45)	56
LM		LM-14(44)	56
LM		LM-13(43)	56
LM		LM-12(42)	56
LM		LM-11(41)	56
LM		LM-10(40)	56
LM		LM-9(39)	56
LM		LM-8(38)	56
LM		LM-7(37)	56
LM		LM-6(36)	56
LM		LM-5(35)	56
LM		LM-4(34)	56
LM		LM-3(33)	55
LM		LM-2(32)	55
LM		LM-1(31)	55
LM	LDW280-25662	LTA-8(18)	39
PART NO. LDW280-28688-5		GAEC SCH NO.	

~~SH REV~~ STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET									
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST ~~DASH NO.~~ USED

~~GRUMMAN REL INFO~~

PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES

~~ORIG DWG AUTH~~

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100

LINE ITEM I

DOCUMENTATION TYPE II

DRAWN BY

LAYOUT BY

CHECKED BY

PROJ ENGR

~~REL~~ GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28688	A
SCALE NONE		SHEET 1.01 OF	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS: REWORK	DISPOSITION OF EXISTING PARTS: SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
A	1	1.00,1.10 2.00,3.00						EOA1	EOA1, INITIAL DRAWING RELEASE, PARTS MADE PER EO.		NOT	REQD	B. YANOFF 1/9/66		
	2	1.00,1.10 2.00,3.00						EOA2	ON -1, -3, -5 & -7 REMOVED LDW280-25688-11 & VC-100-4 ADDED -9, -11 & -13. EFF. OF -1, -3, -5 & -7 WAS LTA-8, LEM-1 THRU LEM-15 & QUAL TEST. QUAN. REQD OF -3 WAS (44), -5 WAS (55) & -7 WAS (28) FOR LTA-8 & QUAL TEST. ADDED LDW280-18121-11 & -13 TO -1. REMOVED NOTES 1 & 3	LTA-8 LM-1 THRU LM-15 QUALTEST	-1	✓			
	3	1.00,1.10 2.00,3.00						EOA3	REF EOA2 ADDED -15 REPLACING -1 ON LTA-8 ONLY. RESTORED LM-1 THRU LM-15 REQ'TS TO -1, -3, -5 & -7. TO -1, -3, -5 & -7. 1/8 DIM WAS 1/4. 36 EQ. SPACES WAS 16 EQ. SPACES ON -5, -7, -11 & -13. QUAL TEST REQ'TS WERE (4) FOR -1 & (11) FOR -3		✓				
	4	1.00,1.10						EOA4	IN M/B: ADDED LTA-8 EFF TO -1; QUAN REQD FOR -15 WAS (16) ON LTA-8	LTA-8(18)	NOT	REQD			
	5	1.00,1.10						EOA5	REMOVE -3 EFF FOR LTA-8			✓			
	6	1.01,1.10						EOA6	IN M/B, FOR -7, QUAN REQD PER NEXT ASSY, (LDW280-25662) "27" WAS "28"	LM-1, LM-2 & LM-3		✓			
	7	1.00,1.10 3.00							REF EOA2 CHANGED RESISTANCE TACK WELD TO SPOT & FOIL WELD. ADDED CLASS "C" TO SPOT WELD SPEC	LTA-8, LM-1 THRU LM-15, QUAL TEST	✓			1/25/67	1/25/67
	8	2.00, 3.00, 1.10							ON -1, -3, -5, -7, -9, -11, -13 & -15 GT535H-1 WAS 5703. REMOVED NOTE #2		NOT	REQD			
	9	1.10,1.01							ON -7 (19) REQD FOR LTA-8 WAS (20)	LTA-8		✓			

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY				
A		1/21/67	1/23/67							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28688	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

-15	-13	-11	-9	-7	-5	-3	-1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	THOMPSON#YW-100	E	78741	REFRASIL YARN	SEE NOTE#4						
AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	GT535H-1			TAPE	GRUMMAN STD						
	1		1	1		1		LDW280M176943			STANDOFF	SEE DWG						
1		1			1		1	LDW280M17694-1			STANDOFF	SEE DWG						
1	1	1	1					LDW280-18121-13			ANGLE	SEE DWG						
1	1	1	1					LDW280-18121-11			ANGLE	SEE DWG						
	1	1		1	1			LDW280-17924-15			DOUBLER	SEE DWG						
2			2			2	2	LDW280-17924-13			DOUBLER	SEE DWG						
	1	1		1	1			LDW280-17924-11			DOUBLER	SEE DWG						
								LDW280-28688-15			STANDOFF ASSY					FLW&SSW	NONE	
								-13								FLW&SSW		
								-11								FLW&SSW		
								-9								FLW&SSW		
								-7								FLW		
								-5								FLW		
								-3								FLW		
								LDW280-28688-1	E		STANDOFF ASSY					FLW	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RES. WELD	LSP-14-6102
						SSW	STEEL SPOTWELD	MIL-W-6858

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28688
A
SCALE NONE
SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

4 LDW280-28688 A

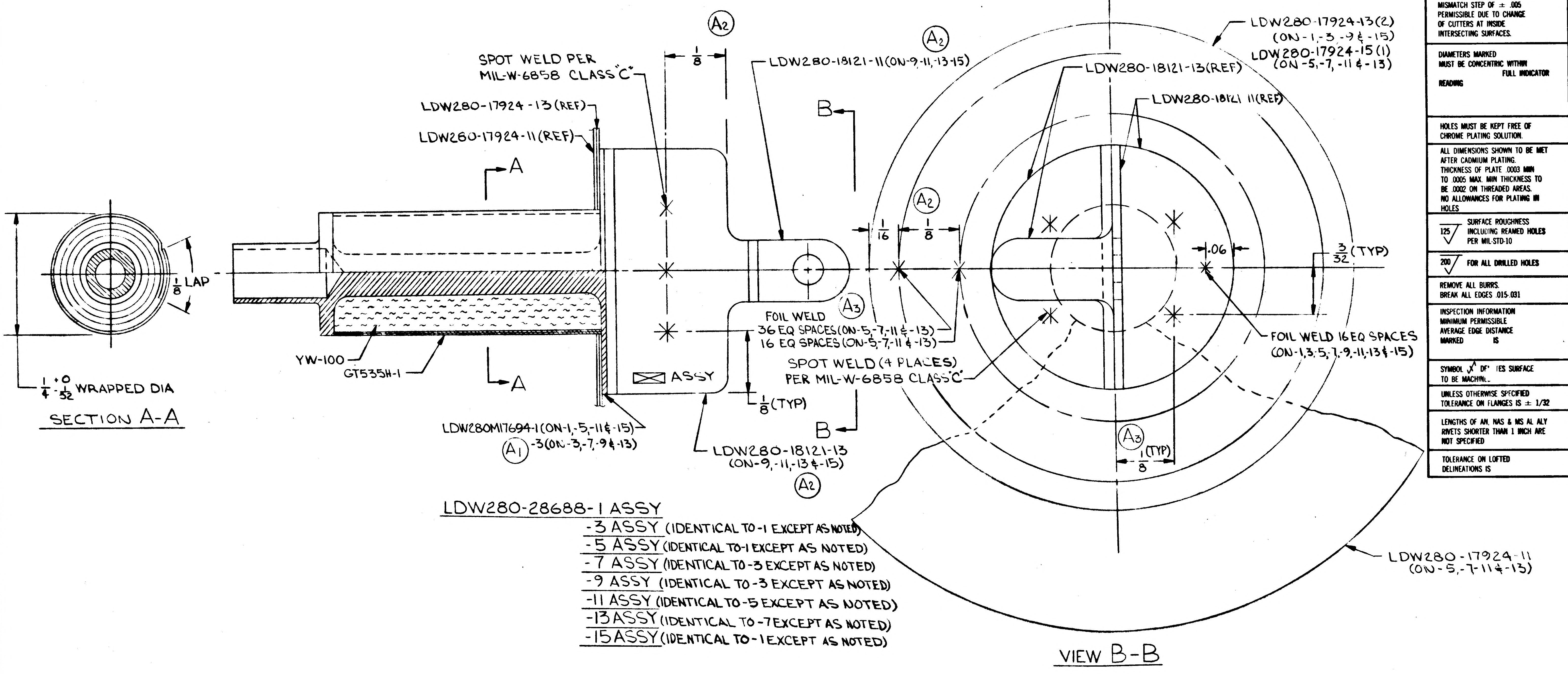
NOTES:

~~1. STAKE -11 IN PLACE BEFORE WRAPPING WITH YARN, SUPPORT STANDOFF ON 1/4 DIA SHOULDER TO STAKE.~~

~~2. TEFLON FILM TAPE (.006)-MYSTIC NO. 5703 (OR EQUIV)~~

~~3. REFRASIL CORDAGE (.060) VC-100-4 (OR EQUIV)~~

4. REFRASIL YARN (.015) YW-100 (OR EQUIV)


SPOT WELD PER MIL-W-6858 CLASS "C"
LDW280-17924-13 (REF)
LDW260-17924-11 (REF)
A
A
1/8
A2
LDW280-18121-11 (ON-9,-11,-13-15)
A2
B
B
1/8 LAP
1/4 +0 -1/32 WRAPPED DIA
SECTION A-A
YW-100
GT535H-1
ASSY
FOIL WELD
A3
36 EQ SPACES (ON-5,-7,-11 & -13)
16 EQ SPACES (ON-5,-7,-11 & -13)
SPOT WELD (4 PLACES) PER MIL-W-6858 CLASS "C"
1/8 (TYP)
LDW280M17694-1 (ON-1,-5,-11 & -15)
A1 -3 (ON-3,-7,-9 & -13)
LDW280-18121-13 (ON-9,-11,-13 & -15)
A2
1/16
1/8
A2
LDW280-18121-13 (REF)
LDW280-18121 11 (REF)
LDW280-17924-13 (2) (ON-1,-3,-9 & -15)
LDW280-17924-15 (1) (ON-5,-7,-11 & -13)
.06
3/32 (TYP)
FOIL WELD 16 EQ SPACES (ON-1,3,5,7,-9,-11,-13 & -15)
A3
1/8 (TYP)
LDW280-17924-11 (ON-5,-7-11 & -13)
VIEW B-B

LDW280-28688-1 ASSY
-3 ASSY (IDENTICAL TO -1 EXCEPT AS NOTED)
-5 ASSY (IDENTICAL TO -1 EXCEPT AS NOTED)
-7 ASSY (IDENTICAL TO -3 EXCEPT AS NOTED)
-9 ASSY (IDENTICAL TO -3 EXCEPT AS NOTED)
-11 ASSY (IDENTICAL TO -5 EXCEPT AS NOTED)
-13 ASSY (IDENTICAL TO -7 EXCEPT AS NOTED)
-15 ASSY (IDENTICAL TO -1 EXCEPT AS NOTED)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DEFINES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
D	26512	LDW280-28688	A

MODEL OR END ITEM | SCALE 10/1 | SHEET

LDW280-28688 A

01 NAS 9-1100

01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1105
CONTROL INFO NO. LDW280B4089

ON FOLLOWING PARTS ADD EFFECTIVITY LFM 200 LM-5(35) N/A LDW280-66662 & LM-6(36) THRU LM-15(45) N/A LDW280-66662

DWG NO.	DASH NO.	N/A	NO. REQD	CHNG NO.
LDW 280-25703	-1, -3	LDW280-66662	4 EA.	A7 ✓
-25704	-1, -3, -5, -7		4 EA.	B2 ✓
-25705	-7		4	D5 ✓
-25706	-11, -13, -15, -17, -19		4 EA.	B2 ✓
-25707	-1, -3		8 EA.	B5 ✓
-25707	-5, -7, -9, -11		4 EA.	
-17854	-27		4	C5 ✓
-28687	-1		68	C1 ✓
-28687	-3		24	
-28687	-5		116	
-28688	-1		52	B1 ✓
-28688	-3		8	
-28688	-5		56	
-28688	-7		28	
LDW280 M17551	-1	LDW280-66662	352	A3

LFM

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2965 PKG 4 (5)

REASON FOR EO: REDESIGN OF D/S BASE HEAT SHIELD FOR D/E THRUST DECAY

DESCRIPTION OF EO: 1) ADDED LFM200, LM-5(35) REQUIREMENTS 2) CHANGED N/A FOR LM-6(36) THRU LM-15(45)

GAEC EO RELEASE: C JK 8/20/68

MODEL	PROCURING ACTIVITY NO. E I	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM200	LM-5(35)	
LM		LM-6(36) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY								
DATE	8/13/68			8/12/68	8/14/68		8/14/68	8/20/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWINGS
DRAWING NO.: LEO280
EO NO.: 1105

CDR 082368
ISSUED BY D. BELLOTTI/THORJUSEN 8/6/68 SECTION VDIX-1153 GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 1152
CONTROL INFO NO. LDW280B5650

FOR TITLE SEE DWG.

CHG LTR	DRAWING No. *	RESTRICT FOR USE ON **	WAS USED ON ***
B4	LDW280-25706-11, -13, -15, -17,	LTA-5(15), LTA-8(18), LM-1(31) THRU LM-4(34), LM-6(36) THRU LM-15(45), LFM 200 (LM-5(35))	LTA-5(15), LTA-8(18), LM-1(31) THRU LM-15(45), LFM 200 (LM-5(35))
B6	LDW280-25707-9, -11	LTA-5(15), LTA-8(18), LM-1(31) THRU LM-4(34), LM-6(36) THRU LM-15(45), LFM 200(LM-5(35))	LTA-5(15), LTA-8(18), LM-1(31) THRU LM-15(45), LFM 200(LM-5(35))
	LDW 280-25707-1, -3-5-7	LTA-5(15), LM-1(31) THRU LM-4(34), LM-6(36) THRU LM-15(45), LFM 200(LM-5(35))	LTA-5(15), LM-1(31) THRU LM-15(45), LFM 200(LM-5(35)).
C6	LDW280-17854-27	LM-1(31) THRU LM-4(34), LM-6(36) THRU LM-15(45), LFM 200(LM-5)	LM-1(31) THRU LM-15(45), LFM 200(LM-5(35))
C2	LDW280-28687-1, -3, -5	LTA-8(18), LM-1(31) THRU LM-4(34), LM-6(36) THRU LM-15(45), QT (70) LFM 200 (LM-5(35)).	LTA-8(18), LM-1(31) THRU LM-15 (45). LFM 200 (LM-5 (35)), QT (70)
B2	LDW280-28688-1, -5, -7	LTA-8(18), LM-1(31) THRU LM-4(34), LM-6(36) THRU LM-15 (45), QT (70), LFM 200 (LM-5(35)).	LTA-8(18), LM-1(31) THRU LM-15(45) QT (70), LFM 200(LM-5(35)).
	LDW280-28688 -3	LM-1(31) THRU LM-4(34), LM-6(36) THRU LM-15(45), QT (70), LFM 200 (LM-5)	LM-1(31) THRU LM-15(45), QT(70), LFM 200 (LM-5(35))

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2965 PKG. 5 CCA 1235

REASON FOR EO: REDESIGN BASE HEAT SHIELD FOR D/E THRUST DECAY

DESCRIPTION OF EO: RESTRICTED EFF OF -* BY REMOVING LM-5(35) PRODUCTION EFF

GAEC EO RELEASE: K 10/6/

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

APPROVED BY							
DATE	10/7/68			10-7-68		10/5/68	10-15-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1152

CDR 10-25-68
ISSUED BY Joe Lucchesi JAM/G. ZEMAN X86046 SECTION V.D.I. GROUP NO. 335 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 1397
CONTROL INFO NO. LDW280B 7451

FOR THE DWGS LISTED BELOW DELETE LM-15(45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO.	DWG NOMENCLATURE
LDW280-25704	B5	SEE DWG
-25705	D7	
-25706	B6	
-25707	C1	
-25708	C2	
-25709	B3	
-25710	B7	
-28583	C4	
-28687	C3	
LDW280 -28688	B3	SEE DWG

* APPLICABLE DASH NOS

(5)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG 11-12 CCA 1821

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/1/69			4-2-69	4/7/69		4/9/69	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY C

DRAWING TITLE: SEE DWG

DRAWING NO. LEO 280

EO NO. 1397

ISSUED BY #52869 MEVORAH / THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

0 1

NAS 9-1100

LDW280-28690

21640

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-53509	LEM-3 (33)	1 EA
	LDW280-52509	LEM-2 (32)	
	LDW280-51509	LEM-1 (31)	
LEM	LDW280-28509	LTA-8 (18)	1 EA

PART NO. LDW280-28690-1 & -2

GAEC SCH NO. 50-1

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00
REV				
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED —

LAST DASH NO. USED -2

GRUMMAN REL INFO

PRIM NO. LE(001)

207 MP12

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY R. VAN COTT
RELIABILITY
LAYOUT BY
INSTRUMENTATION B. 4-17
CHECKED BY
GRP LEADER
VEH DES INT 4/18
STRUCTURES 4/17
STRUCTURES 4/19
WEIGHTS 4/20
PROJ ENGR 4-28
REL GROUP 5-26

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

CLIP INSTL
DESCENT STAGE - SEPARATION
MONITOR ATTACH - FWD

SIZE B
CODE IDENT NO. 26512
LDW280-28690
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED - NO CHANGE, LAST REVISION - NO CHANGE. ADDED SH 1.10 E. WICK	5-15-67					6-22-67

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28690
SCALE NONE		SHEET 1.10

ENG 77.3 5-65

01

NAS 9-1100

QTY PER ASSEMBLY						CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				-2	-1											
				4	4		MS20470AD4	E	RIVET	STD PART						
				1	1		LDW280-17847-12		CLIP	SEE DWG						
				1	1		LDW280-17847-11		CLIP	SEE DWG						
							LDW280-28690-2		CLIP INSTL							
							LDW280-28690-1	E	CLIP INSTL							

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28690

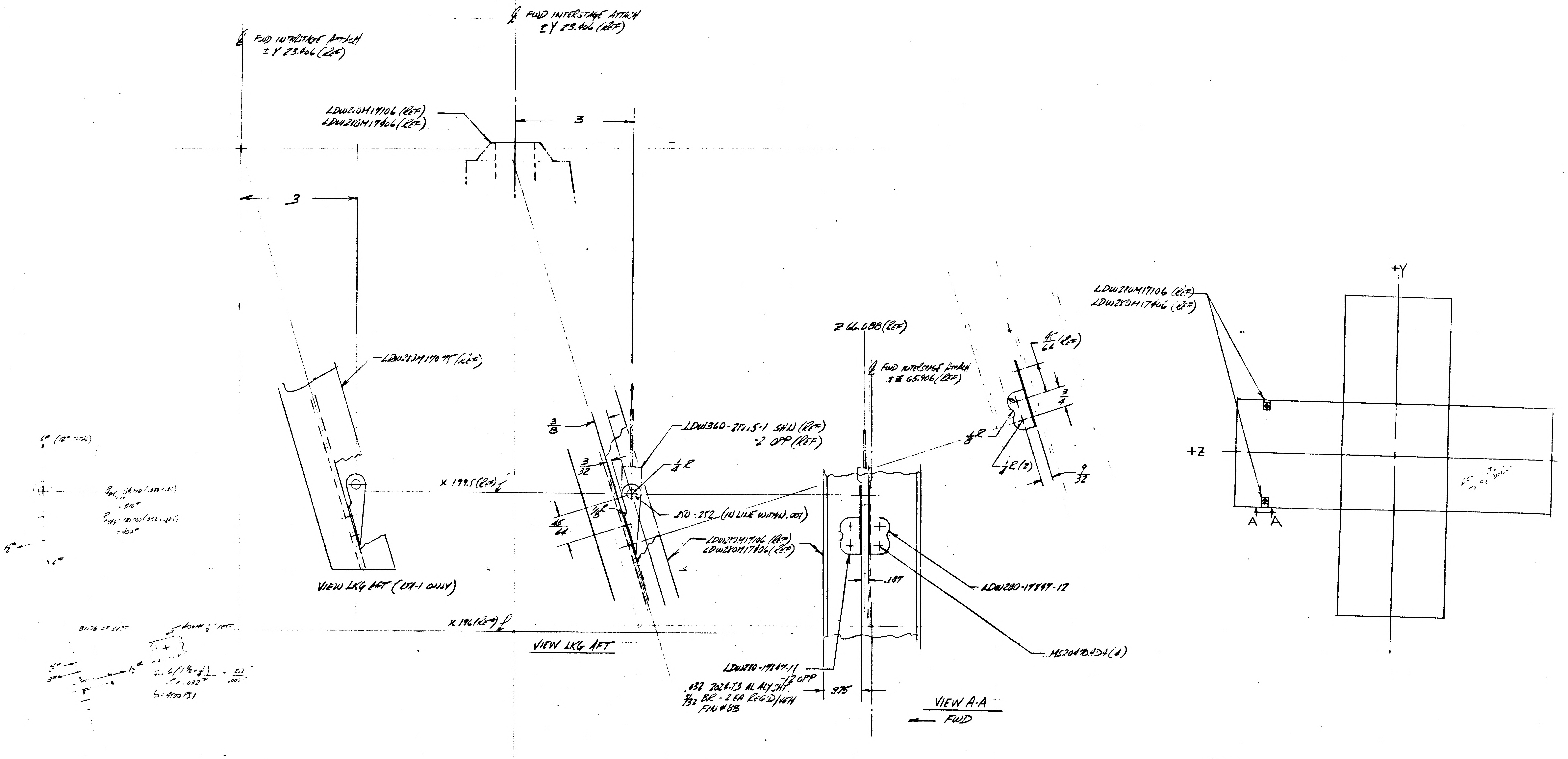
SCALE NONE

SHEET 2.00 OF 3

ENG 77.2 7-65

01

NAS 9-1100

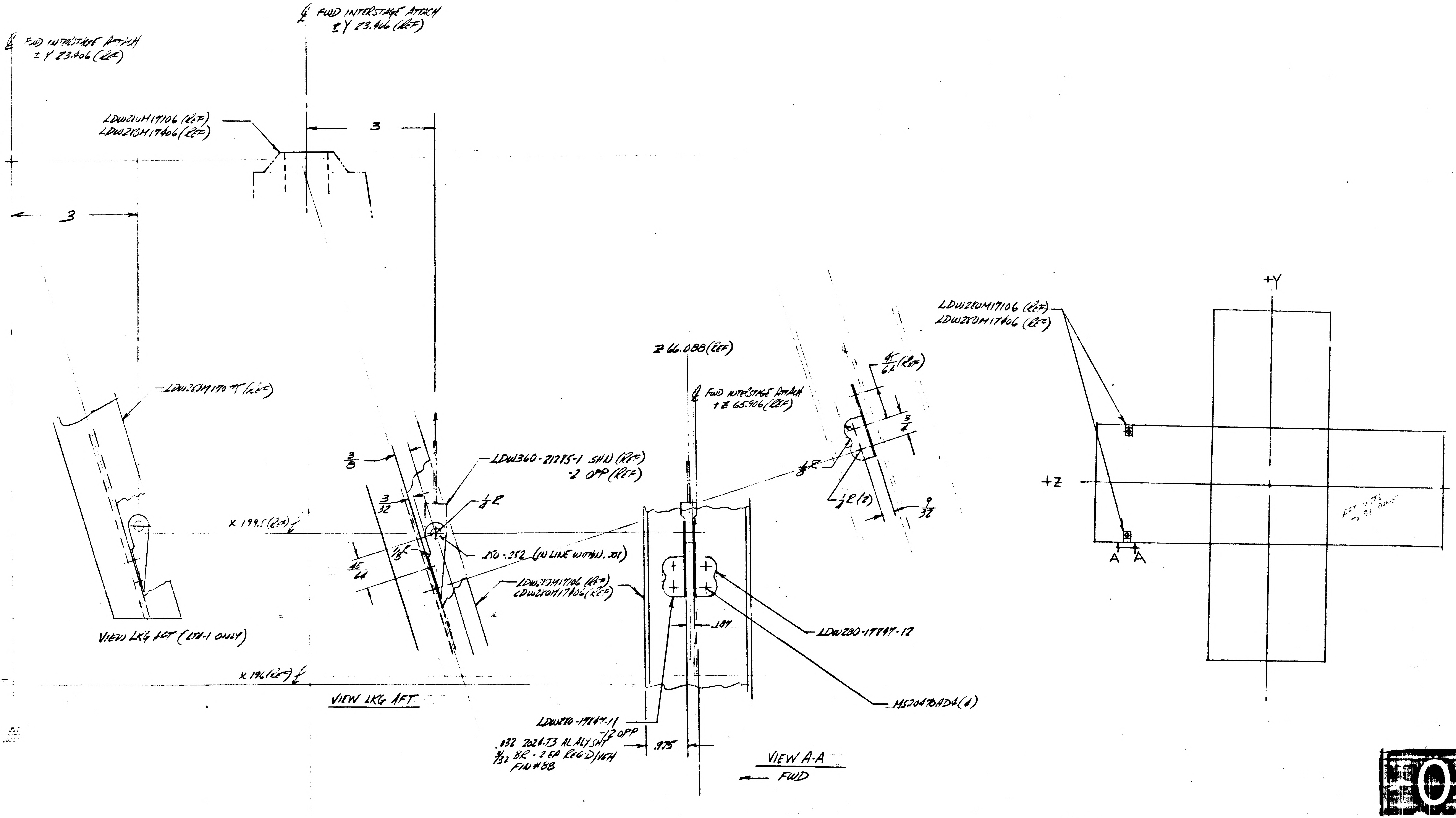

℄ FWD INTERSTAGE ATTACH ±Y 23.406 (REF)
℄ FWD INTERSTAGE ATTACH ±Y 23.406 (REF)
LDW280M17106 (REF)
LDW280M17406 (REF)
3
3
-LDW280M17075 (REF)
VIEW LKG AFT (LTA-1 ONLY)
3/8
3/32
45/64
1/8 R
1/4 R
LDW360-27165-1 SHN (REF)
-2 OPP (REF)
.250-.252 (IN LINE WITHIN .001)
LDW280M17106 (REF)
LDW280M17406 (REF)
X 199.5 (REF) ℄
X 196 (REF) ℄
VIEW LKG AFT
Z 66.088 (REF)
℄ FWD INTERSTAGE ATTACH ±Z 65.906 (REF)
.187
LDW280-17847-12
MS20470AD4 (4)
LDW280-17847-11
-12 OPP
.032 2024-T3 AL ALY SHT
3/32 BR - 2 EA REQD/VEH
FIN #88
.975
VIEW A-A
FWD
45/64 (REF)
3/4
1/8 R
1/4 R (2)
9/32
LDW280M17106 (REF)
LDW280M17406 (REF)
+Y
+Z
A A

LDW280-28690 -1 INSTL SHN
-2 OPP

NOTES:
1. ALL INFORMATION NOT REQD FOR -1 INSTL IS FOR REFERENCE ONLY.
2. LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT

01/02 NAS 9-1100

	GRUMMAN AIRCRAFT	
	SIZE	CODE IDENT NO.
	J	26512
MODEL OR END ITEM	SCALE	


℄ FWD INTERSTAGE ATTACH ±Y 23.406 (REF)
℄ FWD INTERSTAGE ATTACH ±Y 23.406 (REF)
LDW280M17106 (REF)
LDW280M17406 (REF)
3
3
LDW280M17045 (REF)
VIEW LKG AFT (LTA-1 ONLY)
X 199.5 (REF) ℄
X 196 (REF) ℄
VIEW LKG AFT
3/8
3/32
1/8 R
45/64
LDW360-21285-1 SHN (REF)
-2 OPP (REF)
1/4 R
.250-.252 (IN LINE WITHIN .001)
LDW280M17106 (REF)
LDW280M17406 (REF)
Z 66.088 (REF)
℄ FWD INTERSTAGE ATTACH +Z 65.906 (REF)
.187
LDW280-17847-12
MS20470AD4 (4)
LDW280-17847-11
-12 OPP
.032 2024-T3 AL ALY SHT
3/32 BR - 2 EA REQ'D/VEH
FIN #88
.975
VIEW A-A
FWD
45/64 (REF)
3/4
1/8 R
1/4 R (2)
9/32
LDW280M17106 (REF)
LDW280M17406 (REF)
+Y
+Z
A
A

LDW280-28690 -1 INSTL SHN
-2 OPP

NOTES:
1. ALL INFORMATION NOT REQD FOR -1 INSTL IS FOR REFERENCE ONLY.
2. LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.
PRINT TRIM LINE

LDW280-28690

02/02 NAS 9-1100

LDW280-28690

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
J	26512	LDW280-28690

MODEL OR END ITEM
SCALE
SHEET 3.00

MANUFACTURING OPERATIONS

NOTES CHECKED ✓ APPLY TO THIS DWG.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES EXCEPT AS NOTED.

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031 EXCEPT AS NOTED.

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10 EXCEPT AS NOTED.

250 FOR ALL DRILLED HOLES UNLESS OTHERWISE SPECIFIED.

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.010R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

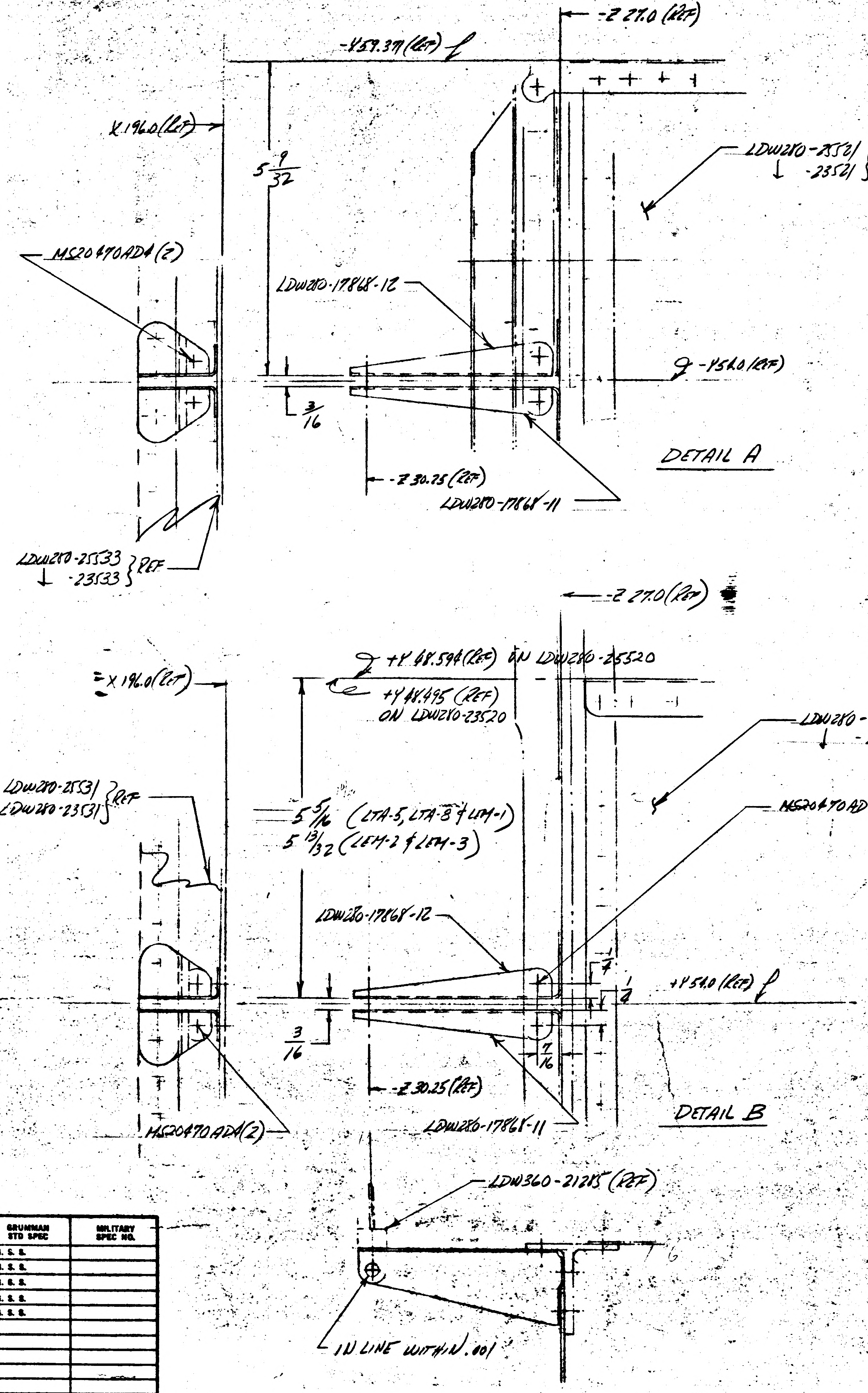
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL ƒ DENOTES SURFACE TO BE MACHINED

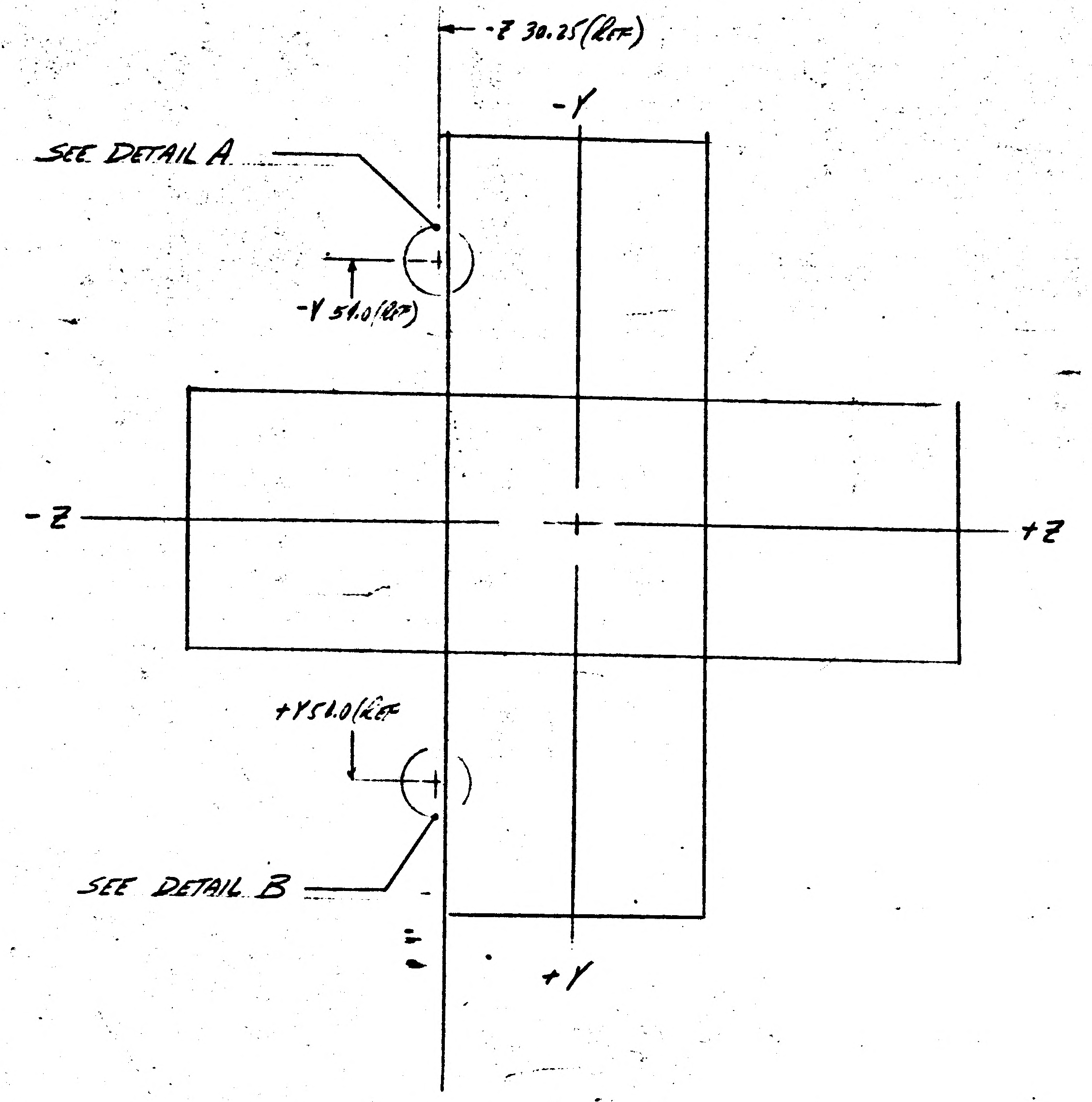
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

NOTES:
1. LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT.
2. ALL INFORMATION NOT REQD FOR -1 INSTL IS FOR REF ONLY.

REVISION LETTER	ITEM NO.	ZONE	AUTHORITY FOR REVISION: GRUMMAN INFO ONLY / DCRF OR ECP	CLASS II	CLASS I	DET SPEC REQ	ENGRG ORDER	DESCRIPTION	REVISED BY AND DATE	EFFECTIVE ON MODULE NUMBER	DISPOSITION OF EXIST PARTS: RE-WORK	SCRAP	ENGRG APPD	GOVT APPD



-X 57.379 (REF) ƒ
-Z 27.0 (REF)
X 196.0 (REF)
5 9/32
LDW280-25521 ↓ -23521 } REF
MS20470AD4 (2)
LDW280-17868-12
-Y 54.0 (REF)
3/16
-Z 30.25 (REF)
LDW280-17868-11
DETAIL A
LDW280-25533 ↓ -23533 } REF
-Z 27.0 (REF)
X 196.0 (REF)
+Y 48.594 (REF) ON LDW280-25520
+Y 48.495 (REF) ON LDW280-23520
LDW280-25520 ↓ -23520 } REF
LDW280-25531 LDW280-23531 } REF
5 5/16 (LTA-5, LTA-8 & LEM-1)
5 13/32 (LEM-2 & LEM-3)
MS20470AD4 (2)
LDW280-17868-12
1/4
1/4
+Y 54.0 (REF) ƒ
3/16
7/16
-Z 30.25 (REF)
MS20470AD4 (2)
LDW280-17868-11
DETAIL B
LDW360-21285 (REF)
IN LINE WITHIN .001



-Z 30.25 (REF)
-Y
SEE DETAIL A
-Y 54.0 (REF)
-Z
+Z
+Y 54.0 (REF)
SEE DETAIL B
+Y

NO.	FINISHES	GRUMMAN STD SPEC	MILITARY SPEC NO.
2	CADMIUM PLATE	G. S. S.	
10	ZINC CHROMATE PRIMER	G. S. S.	
15	TINTED PRIMER: 1 COAT	G. S. S.	
70	ALODINE	G. S. S.	
80	ANODIZE	G. S. S.	

SYM	PROCESSES	GRUMMAN STD SPEC	MILITARY SPEC NO.
	AL HEAT TREAT		MIL-H-6088
	MAGNAFLUX		MIL-I-6868
	PENETRANT INSPECTION (ZYGLO)		MIL-I-6866
	THREADING		MIL-S-7742
	STEEL HEAT TREAT PSI ROCKWELL C TO C		

QTY REQ D-PER ASSY			PART OR IDENTIFYING NO.	I & T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE (EA)	PROCESS SYMBOL	FINISH NO.	UNIT WT	ZONE
		6	MS20470AD4	E		RIVET	STD PART							
		2	LDW280-17868-12	↑		BRACKET	SEE DWG							
		2	LDW280-17868-11	↓		BRACKET	SEE DWG							
			LDW280-28692-1	E		SUPPORT INSTL					NONE	NONE		
		-1												

MODEL	NEXT ASSY	MODULE NO.	REQ D PER MODULE
LEM	LDW280-53509	LEM-3 (33)	1
↑	↑ 52509	LEM-2 (32)	1
↓	↓ 51509	LEM-1 (31)	1
LEM	LDW280-28509	LTA-8 (18)	1

PART NO. LDW280-28692-1
GRUMMAN SCH INFO 50-1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

GRUMMAN REL INFO
PRIM. NO. 207

DRAWN BY R. VANCOTT
CHECKED BY
LAYOUT BY
GR. LEADER
STRUCTURES
STRUCTURES
WEIGHTS
RELIABILITY
INSTRUMENTATION
REL. GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., N.Y.

SUPPORT INSTL.
DESCENT STAGE - SEPARATION MONITOR - 4ST

CONTRACT NO. NAS-9-1100
DOCUMENTATION TYPE
CODE IDENT NO. 26512
SIZE F
LDW280-28692
SCALE FULL
LINE ITEM #1
SHEET

THIS IS AN ORIGINAL ...

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

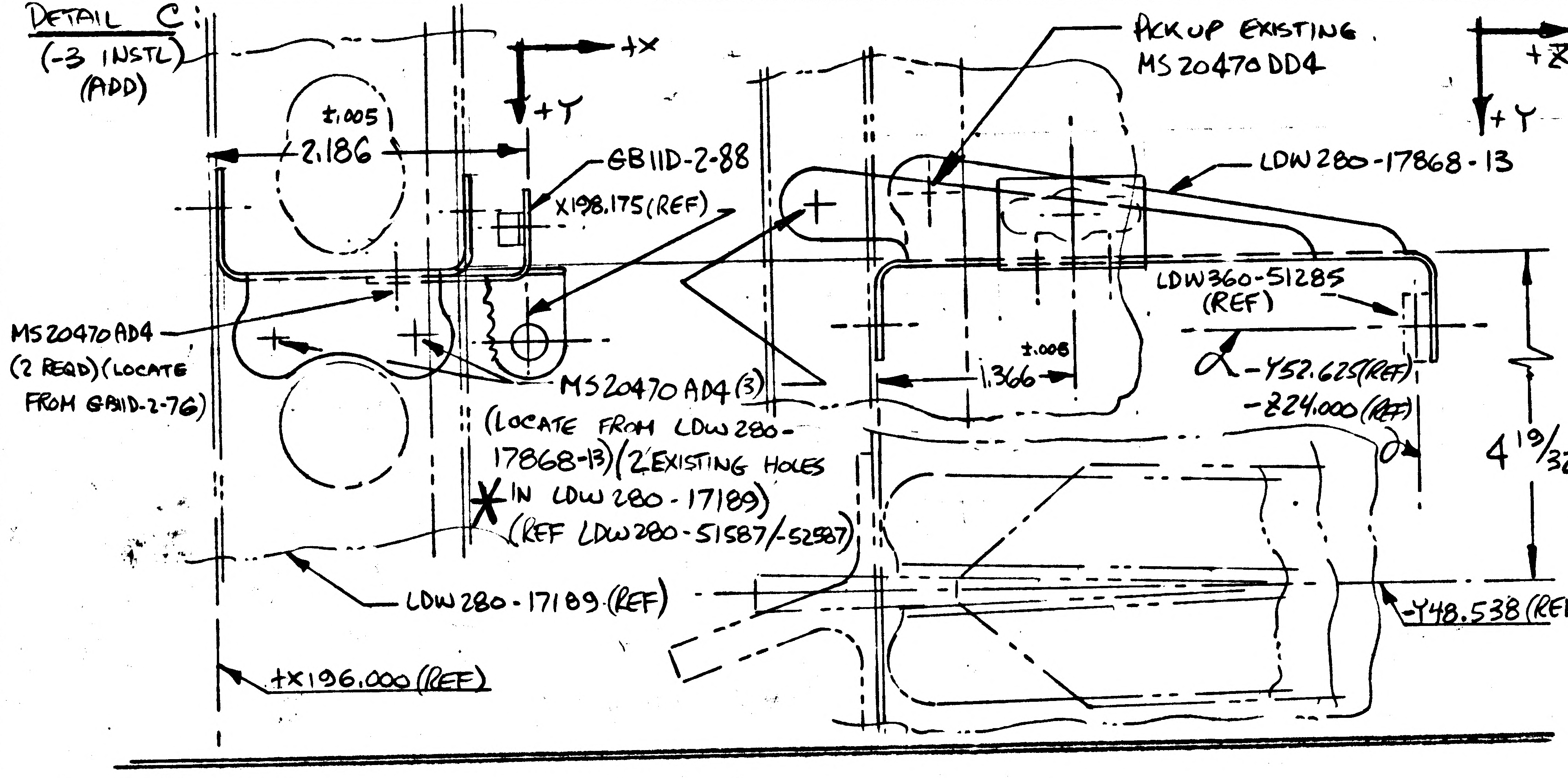
DWG. NO. LDW280-28692	EO NO. A1
CONTROL INFO NO. LDW280A 2269	

REMOVE -1 INSTL (LTA-8, LM-1, LM-2, LM-3)

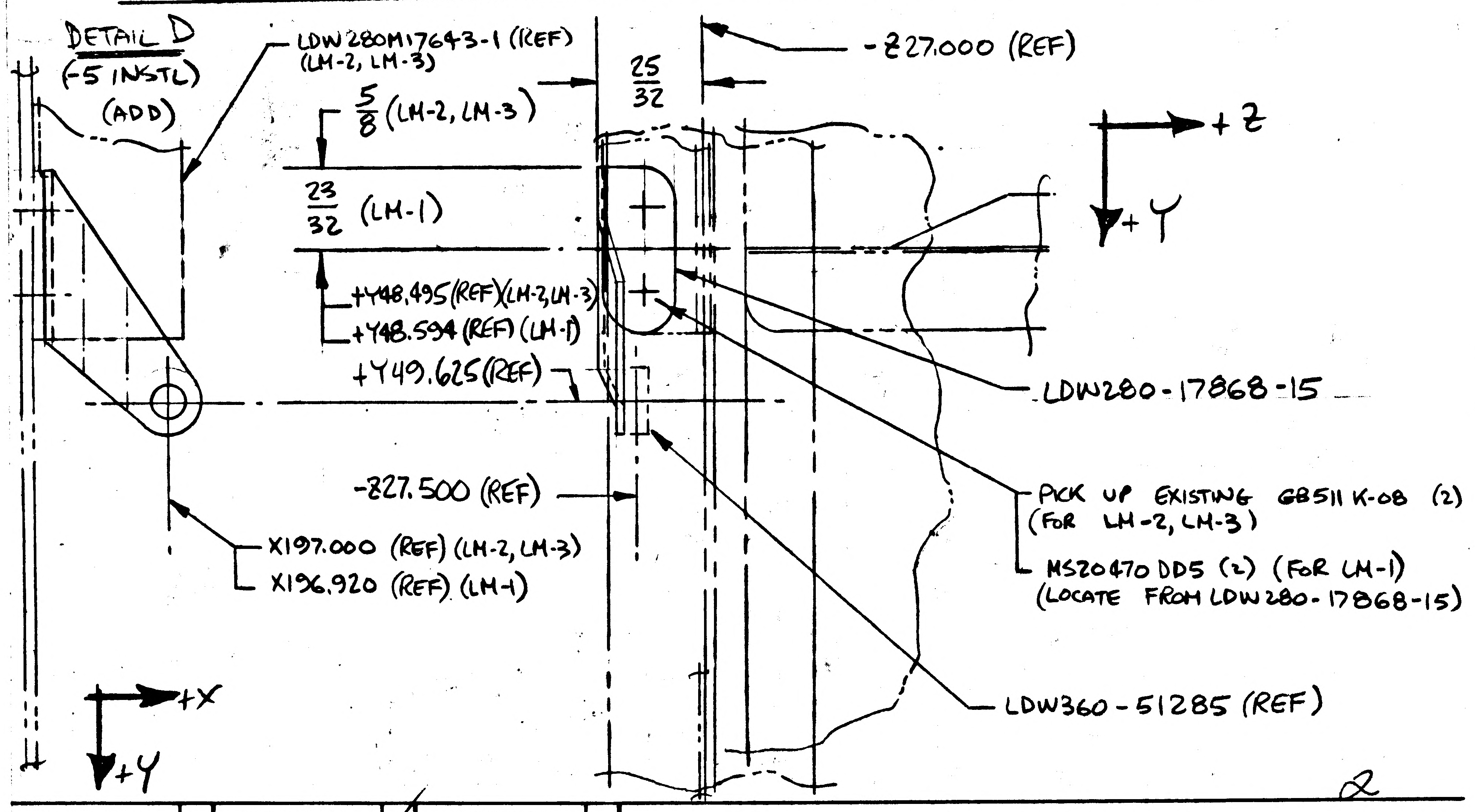
*[GR500A-5G (LM-1)
GR500-5D (LM-2, LM-3) } MAY BE USED IN PLACE OF MS20470DD5 TO ATTACH BEAM WEB TO CAPSTRIP WHERE RIVETS ARE REMOVED; PLUG RIVET HOLES WHICH ARE IN CAPSTRIP ONLY USING MS20470 AD 4 OR GR500A-4D AS REQD]

ADD -3 & -5 INSTLS: N/A FOR -3 & -5 IS 1 EA ON
{ LDW 280-51509 FOR LM-1 (31)
LDW 280-52509 " LM-2 (32)
LDW 280-53509 " LM-3 (33)

REMOVE NOTE 2, DETAIL A, & DETAIL B



DETAIL C:
(-3 INSTL)
(ADD)
+X
+Y
±.005
2.186
GB11D-2-88
X198.175 (REF)
MS20470AD4
(2 REQD) (LOCATE FROM GB11D-2-76)
MS20470 AD4 (3)
(LOCATE FROM LDW280-17868-13) (2 EXISTING HOLES
*IN LDW280-17189)
(REF LDW280-51587/-52587)
LDW280-17189 (REF)
+X196.000 (REF)
PICKUP EXISTING MS20470DD4
+Z
+Y
LDW280-17868-13
LDW360-51285 (REF)
±.005
1.366
-Y52.625 (REF)
-Z24.000 (REF)
4 19/32
-Y48.538 (REF)



DETAIL D
(-5 INSTL)
(ADD)
LDW280M17643-1 (REF)
(LM-2, LM-3)
5/8 (LM-2, LM-3)
23/32 (LM-1)
+Y48.495 (REF) (LM-2, LM-3)
+Y48.594 (REF) (LM-1)
+Y49.625 (REF)
-Z27.500 (REF)
X197.000 (REF) (LM-2, LM-3)
X196.920 (REF) (LM-1)
25/32
-Z27.000 (REF)
+Z
+Y
LDW280-17868-15
PICK UP EXISTING GB511K-08 (2)
(FOR LM-2, LM-3)
MS20470DD5 (2) (FOR LM-1)
(LOCATE FROM LDW280-17868-15)
LDW360-51285 (REF)
+X
+Y

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
RELOCATION OF SEPARATION MONITORS & TO PROVIDE SUPPORT FOR He SYSTEM	REMOVED -1 INSTL (WAS 1 REQD ON { LDW280-28509 FOR LTA-8 LDW280-51509 FOR LM-1 LDW280-52509 FOR LM-2 LDW280-53509 FOR LM-3) ADDED -3 & -5 INSTL, DTLS C & D REMOVED NOTE 2, DETAIL A, & DETAIL B	11/3

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
LM		LM-1, (31) LM-2	
LM		(32), LM-3 (33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE		SUPPORT WEIGHTS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
✓		✓*		✓ /	10/24/66 VDI				10/28/66		10-29-66	11 2-66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SUPPORT INSTL ~ DESCENT STAGE ~ SEPARATION MONITOR ~ AFT	LDW280-28692	A1

ISSUED BY A Richer / J. Stravosch X1153 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
								RETRACED NO	CHG LAST REV N/C SH 1.00 OF 3 WAS SH 1 OF 1 ADDED SH 1.10, 2.00 & 3.00				COLLETT 6/29/66		

CHG APPROVED

LTR	GROUP LDR									

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28697

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

						1		NAS697A08	E	NUT-PLATE	STD PART						
								MS20470AD4	E	RIVET	STD PART						
								MS20426AD3	E	RIVET	STD PART						
						1		GB11B-4-76	E	BRACKET ASSY	GRUMMAN STD						
								LDW280-28697-1	E	SUPPORT INSTL							
						-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
QTY PER ASSEMBLY																	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-28697

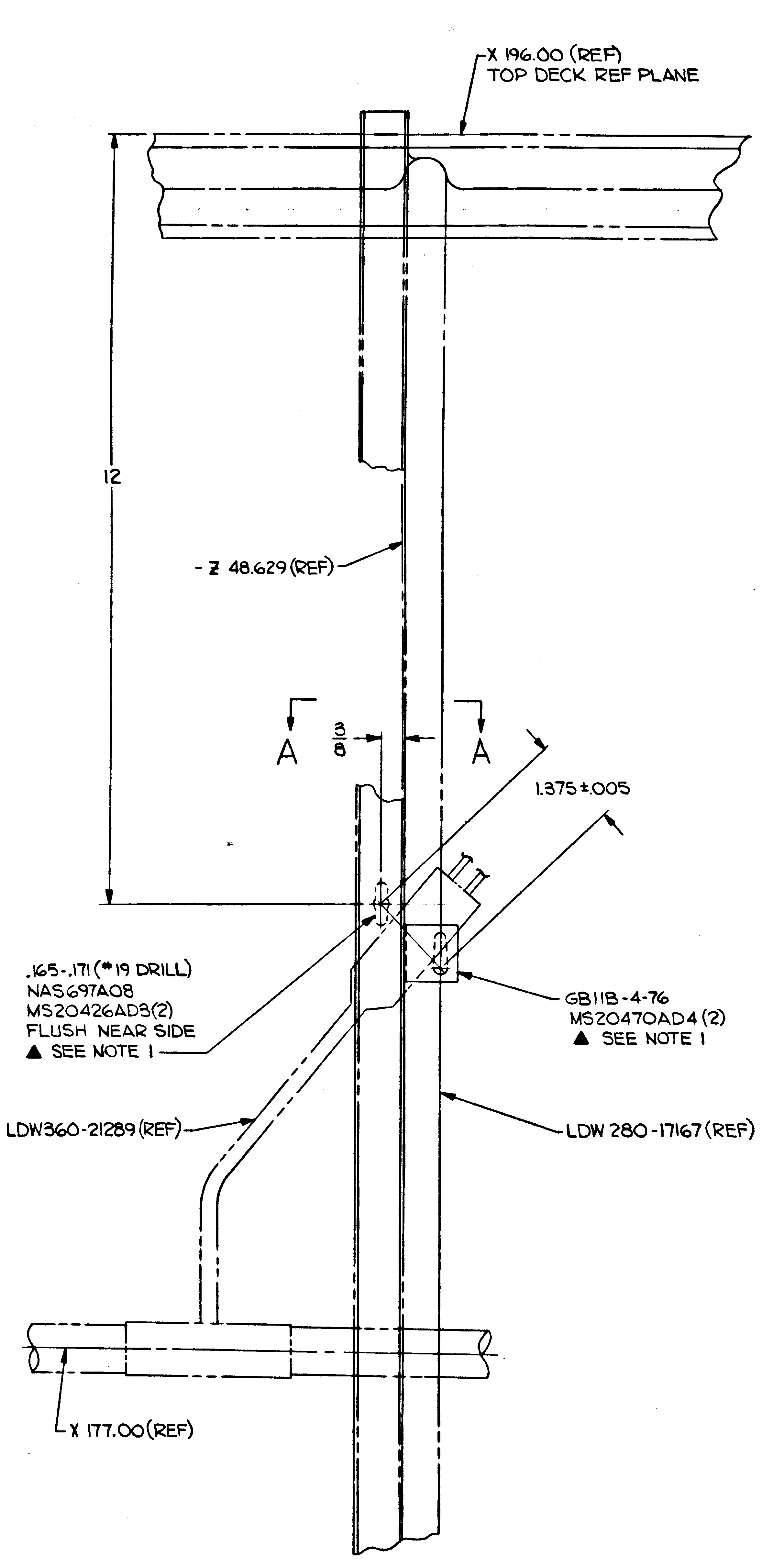
SCALE NONE

SHEET 2.00

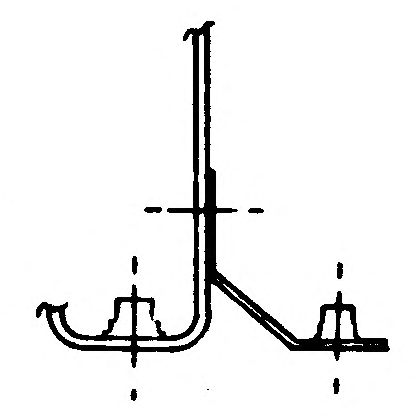
77.2 7-65

01

NAS 9-1100


X 196.00 (REF)
TOP DECK REF PLANE
12
Z 48.629 (REF)
A
3/8
A
1.375±.005
.165-.171 (#19 DRILL)
NAS697A08
MS20426AD3(2)
FLUSH NEAR SIDE
▲ SEE NOTE 1
GB11B-4-76
MS20470AD4 (2)
▲ SEE NOTE 1
LDW360-21289 (REF)
LDW 280-17167 (REF)
X 177.00 (REF)

LDW280-28697-1 INSTL
VIEW LOOKING INBD L.H. SIDE



SECTION A-A

NOTES:
1. FOR HOLES MARKED ▲ SEE LDW 360-21289 FOR CORRESPONDING HOLE PATTERN. MAXIMUM FASTENER DIA IS .1635

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE [redacted] EDGE DISTANCE [redacted] IS 1 1/2 FASTENER DIA FROM FASTENER ℄	√
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	√
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

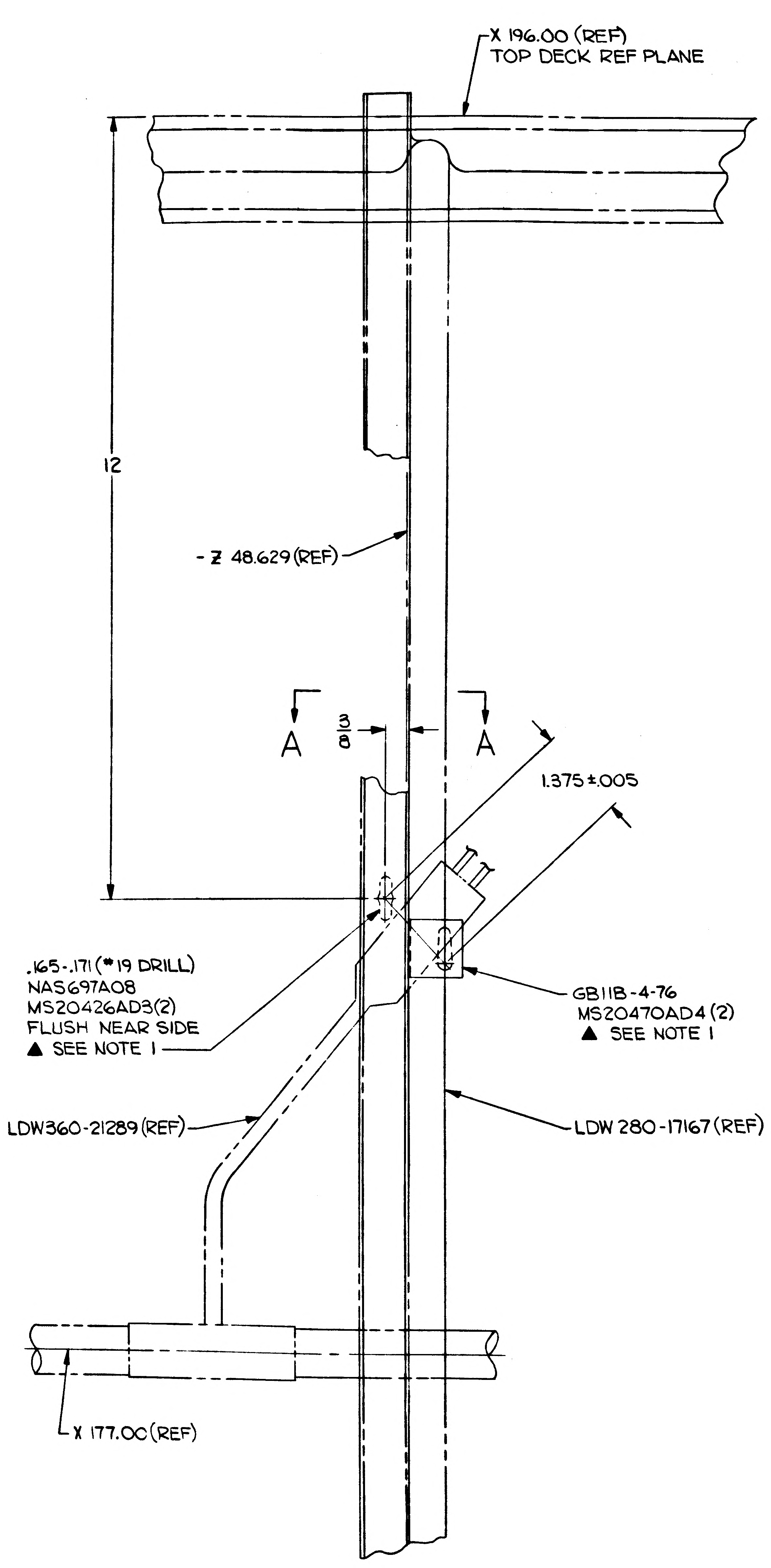
MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LEM	F	26512	LDW280-28697
	SCALE FULL		SHEET 3.00

LDW280-28697

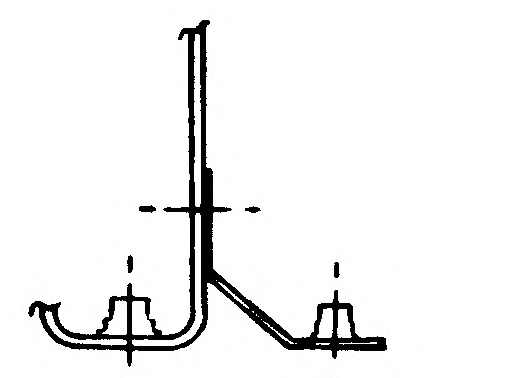
LDW280-28697

NAS 9-1100

NOTES:
1. FOR HOLES MARKED ▲ SEE LDW 360-21289 FOR CORRESPONDING HOLE PATTERN. MAXIMUM FASTENER DIA IS .1635


X 196.00 (REF)
TOP DECK REF PLANE
12
- Z 48.629 (REF)
A
3/8
A
1.375 ± .005
.165-.171 (#19 DRILL)
NAS697A08
MS20426AD3(2)
FLUSH NEAR SIDE
▲ SEE NOTE 1
GB11B-4-76
MS20470AD4(2)
▲ SEE NOTE 1
LDW360-21289 (REF)
LDW 280-17167 (REF)
X 177.00 (REF)

LDW280-28697-1 INSTL
VIEW LOOKING INBD L.H. SIDE



SECTION A-A

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE EDGE DISTANCE IS 1 1/2 FASTENER DIA FROM FASTENER ¢	√
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	√
TOLERANCE ON LOFTED DELINEATIONS IS	

LDW280-28697

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LEM	SIZE F	CODE IDENT NO. 26512	LDW280-28697
MODEL OR END ITEM	SCALE FULL		SHEET 3 [illegible]

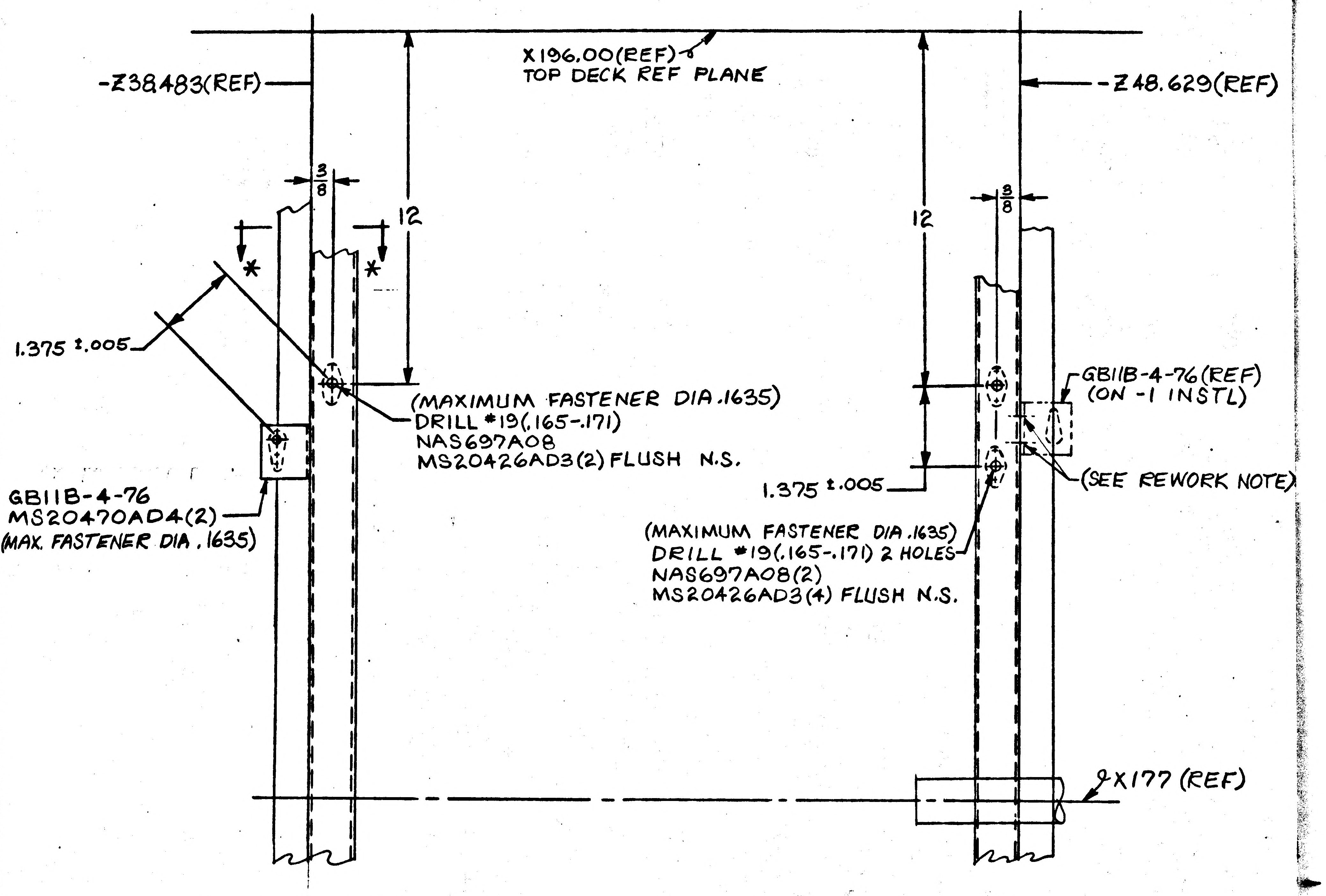
LDW280-28697

01 NAS 9-1100

H.G.
ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO.	LDW280-28697	EO NO.	A1
CONTROL INFO NO.	LM-2-2886		

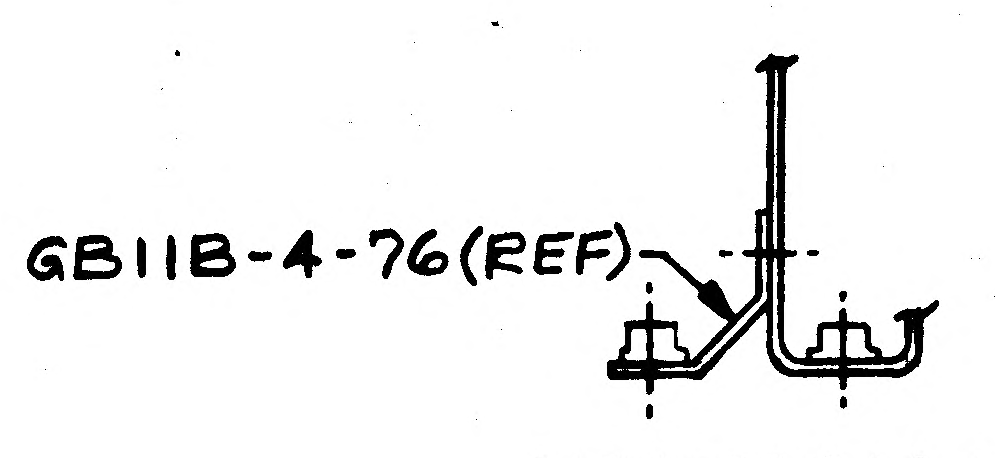


X196.00(REF)
TOP DECK REF PLANE
-Z38.483(REF)
-Z48.629(REF)
3/8
12
*
1.375 ±.005
(MAXIMUM FASTENER DIA .1635)
DRILL #19(.165-.171)
NAS697A08
MS20426AD3(2) FLUSH N.S.
GB11B-4-76
MS20470AD4(2)
(MAX. FASTENER DIA. 1635)
GB11B-4-76(REF)
(ON -1 INSTL)
(SEE REWORK NOTE)
(MAXIMUM FASTENER DIA .1635)
DRILL #19(.165-.171) 2 HOLES
NAS697A08(2)
MS20426AD3(4) FLUSH N.S.
9X177 (REF)

-3 INSTL

IN FLD/DWG, B/M & MOD/BLK ADD -3 INSTL
-3 INSTL REPLACES -1 INSTL & IS SIMILAR TO -1 EXCEPT AS SHOWN.

-1 INSTL MAY BE REWORKED INTO -3 CONFIGURATION BY FLUSH PLUGING EXTRANEOUS HOLES USING MS20470DD MATERIAL



GB11B-4-76(REF)

SECTION *-*

* DENOTES NEXT AVAILABLE LETTER

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: SUPPORT REQUIRED FOR ADDITIONAL TRANSDUCER

DESCRIPTION OF EO: IN FLD, B/M & MOD/BLK ADDED -3 INSTL IN MOD/BLK FOR -1 INSTL, DELETED LM-2(32) & LM-3(33) REQUIREMENTS.

GAEC EO RELEASE: LE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
		LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JAS				caw	caw	RMC (WR)	
DATE	10/19				10-15-66	10-15-66	10-17-66	10-15-66
10/12/66								

PRIORITY: C
DRAWING TITLE: SUPPORT INSTALLATION DES/STG-He REG MANIFOLD-PRESS TRANSDUCER
DRAWING NO. LDW280-28697
EO NO. A1

ISSUED BY LIAISON J. MALONEY X3604 SECTION V.D.I. GROUP NO. 335 PL 35

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMFA

DWG. NO. LDW280-28697 | EO NO. A2
CONTROL INFO NO. LM-2-3240

FOR -3 INSTL
IN MODEL BLOCK ADD LM-4(34) THRU LM-15(45) EFFECTIVITY
NEXT ASSY LDW280-54509 1 REQD/MODULE

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL EFFECTIVITY REQUIRED

DESCRIPTION OF EO: FOR -3 INSTL, ADDED LM-4(34) THRU LM-15(45) EFFECTIVITY

(R) GAEC EO RELEASE C: VE 02035

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK NOT | SCRAP REQD

	-6-	VD1	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY		jls				rbf	Ctf	RM	
DATE		1/25				1/18/67	1/18/67	1-20-67	

PRIORITY: C

DRAWING TITLE: SUPPORT INSTL ~ DESCENT STAGE He REG. MANIFOLD ~ PRESS TRANSDUCER

DRAWING NO.: LDW280-28697

EO NO.: A2

ISSUED BY LIAISON J. MALONEY 1/18/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280	EO NO. 1451
CONTROL INFO NO. LDW280B7452	

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-28697	A3	SEE DWG
-28780	B3	
-28790	C7	
-28816	B2	
-28835	C4	
-51555	B3	
LDW280 -51560	D1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 12 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: JK 5/12/

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/1/69			4-2-69	4/5/69		4/9/69	5/8/69
	VDI	SUPPORT	[illegible] GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	[illegible]

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO. LEO 280
EO. NO. 1451

052869 ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28697

EO NO. A4

CONTROL INFO NO. LDW280B9232

IN MOD BLK FOR-1, N/A LDW280-60509 WAS LDW280-54509 FOR EFF LM-10(40) THRU LM-14(44). ADD LTA-11(23) REQMTS FOR N/A LDW280-60509 (1) REQD.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3890 PKG 79 PG 7 (5)

REASON FOR EO: REIDENTIFICATION OF STRUCTURAL ASSEMBLY FOR LMMP.

DESCRIPTION OF EO: IN MOD BLK FOR-1, N/A LDW280-60509 WAS LDW280-54509. ADDED LTA-11 REQMTS.

GAEC EO RELEASE: Ⓔ JK 11/5/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40) THRU	
		LM-14(44),	
		LTA-11(23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	11/4/69			11-4-69	11/4/69		11/5/69	11/5/69

PRIORITY: C

DRAWING TITLE: SUPT INSTL - D/S - He REG MANIFOLD PRESS TRANSDUCER

DRAWING NO.: LDW280-28697

EO NO.: A4

COR110769

ISSUED BY S.TAMRES/P.THORVUSEN x 86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28697
EO NO. A5
CONTROL INFO NO. LM 5-22113

REV. E.O. A4 CORRECT ASSY CALLOUT IN FIELD & IN DESCRIPTION OF E.O.
IN FIELD
"IN MOD BLK FOR -1, ..."

S/B

"IN MOD BLK FOR -3, ..."

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☒ LCD 3890

REASON FOR EO: -1 INSTL NO LONGER ON LM-10 THRU LM-14 & LTA-11
REF. RTE 5-131-1030

DESCRIPTION OF EO: REF. EO A4
IN MOD BLK FOR -3 WAS -1

(5)
GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10 (40)	THRU
		LM14 (44)	
		LTA-11 (23)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

		YDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY						DV	CL		
DATE	11/18/69	11/4/67			12/4/67	11/18/69	11-18-69	12/5/69	11/25/67

PRIORITY: C
DRAWING TITLE: SUPT INSTL D/S ~ He REG. MANIFOLD PRESS XDUCER
DRAWING NO.: LDW280-28697
EO NO.: A5

ISSUED BY LIAISON J. PAULSEN X86755 SECTION YD1 GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28698 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		**GAEC SCH NO.**	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		**GAEC SCH NO.**	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-53509	LEM-3(33)	1
LEM	LDW280-52509	LEM-2(32)	1
LEM	LDW280-51509	LEM-1 (31)	1
LEM	LDW280-28509	LTA-8(18)	1
PART NO. LDW280-28698-1		**GAEC SCH NO.** 50-1	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00				
REV	A	A	A	A				
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED -1

GRUMMAN REL INFO A

PRIM NO.	LE(001)	
207	MP-4	9-8-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM I

DOCUMENTATION TYPE II

DRAWN BY	G.ZEMAN 4/28/66		
LAYOUT BY	R.THOMSON		
CHECKED BY	H.PALLMEYER 4/28/66		
GR.LEADER	STRAKOSCH 4/29/66		
VEH DES INT	BISCHOFF 4/29/66		
STRUCTURES	DK WJH 5/3/66	PROJ ENGR	ALBER 5/5/66
STRUCTURES	HILDERMAN 5/3/66	REL GROUP	BOTTI 5/7/66
WEIGHTS	MANDRAS 5/4/66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SUPPORT INSTL
DESCENT STAGE-THERMAL SHIELD-PRESSURE & TEMPERATURE TRANSDUCER UPPER DECK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28698	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

SUPERSEDES LDW280-28698 NO REV 4-28-66

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
									RETRACED NO CHANGE LAST REV NONE MELMED 8-20-66 SH 1 OF 4 WAS 1 OF 1 ADDED SH 1.10, 2.00 & 3.00						
A	1	2.00 3.00						EO A1	IN F/D: FOR-1 LOCATING DIM FOR LDW280-17916-17 7$\frac{9}{16}$ WAS 6$\frac{1}{16}$, IN B/M QTY FOR LDW280-17866-11 WAS (1) IN DETAIL B LDW280-17865-15 WAS LDW280-17865-17	LTA-8 LEM-1;2&-3	✓		MEL MED 8-20-66	RMC Ⓦ	
	2	3.00						EOA-2	IN F/D, FOR-1 RELOCATED 13$\frac{1}{16}$ TO 20.00 DIMENSION	Ⓐ EJR					
	3	3.00							VIEW XX TURNED 180° TO CORRECT PICTURE		NOT	REQD			

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS
A			9/7		

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28698	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		MS20470DD4	E	RIVET	STD PART						
		MS20470AD4		RIVET	STD PART						
1		LDW280-17916-19		ANGLE	SEE DWG						11B
1		-17									10B
1		-15									8A
1		-13									6B
4		LDW280-17916-11									5BC 9AB
1		LDW280-17866-15									8C
1		LDW280-17866-13									9C
2		LDW280-17866-11									7A
5		LDW280-17865-19									5A,4B
1		17									7B
2		-15									6C,
1		-13									10C
1		LDW280-17865-11		ANGLE	SEE DWG						10C
		LDW280-28698-1	E	SUPT INSTL					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28698	A

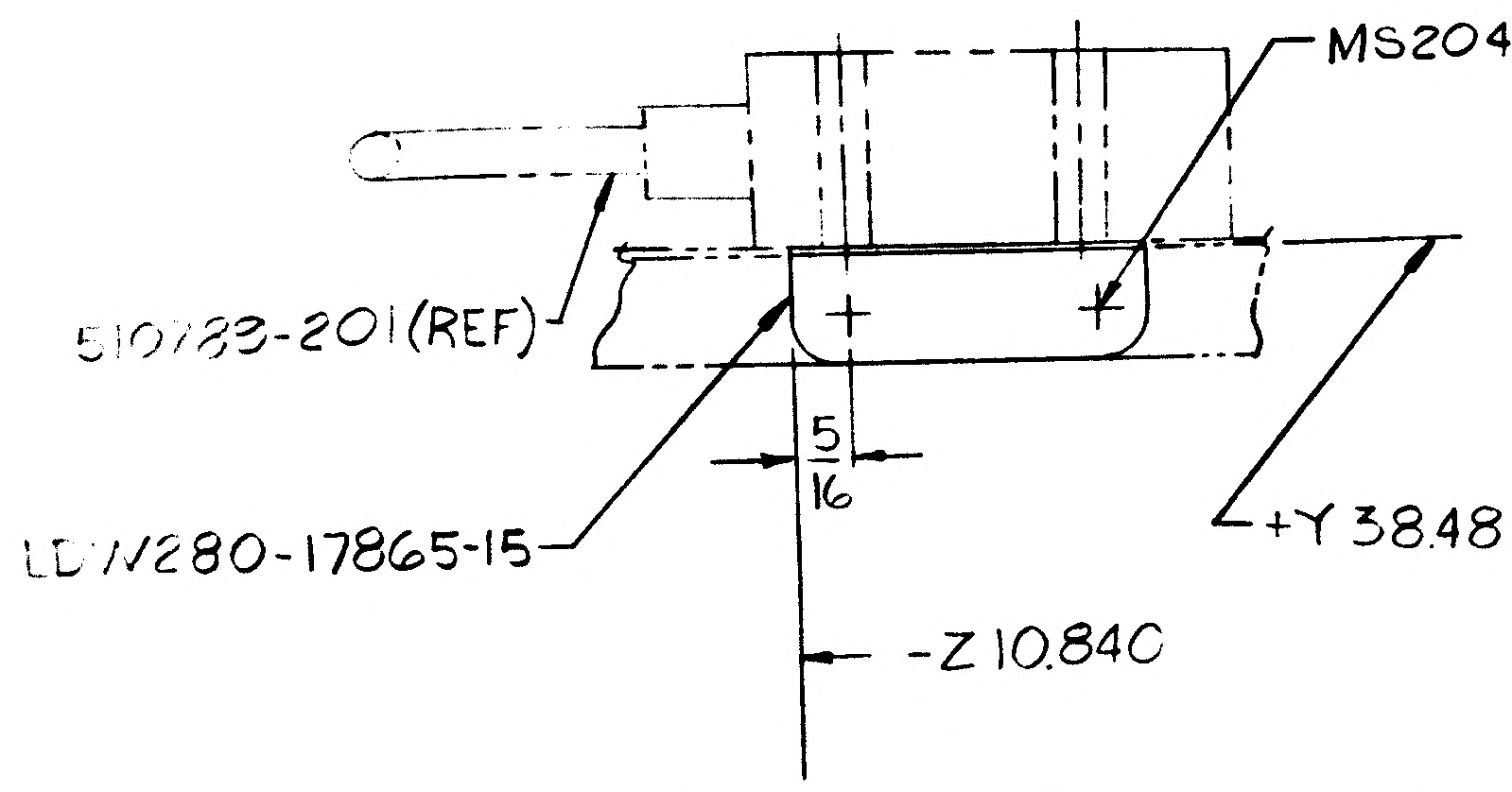
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

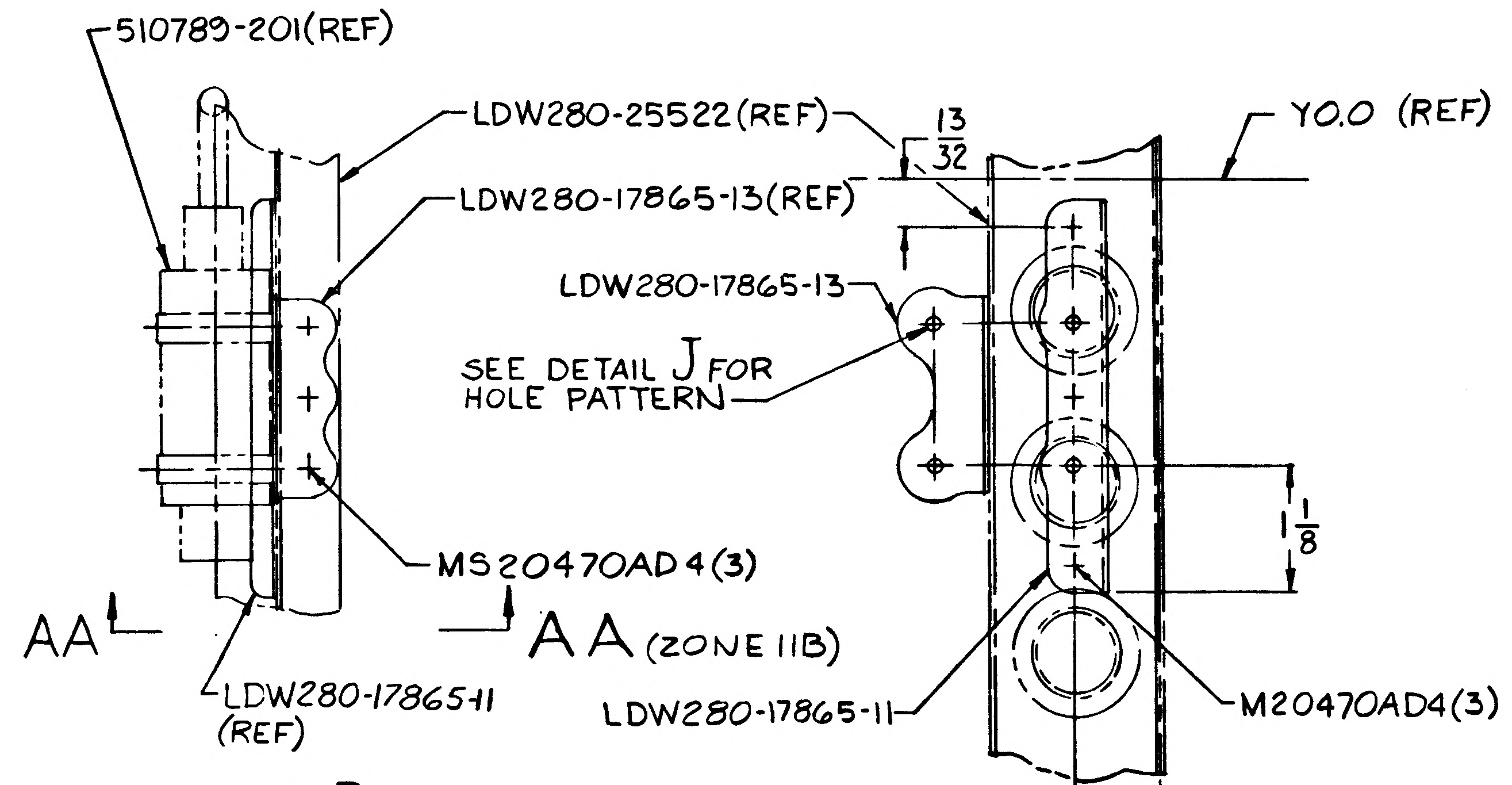
01

NAS 9-1100



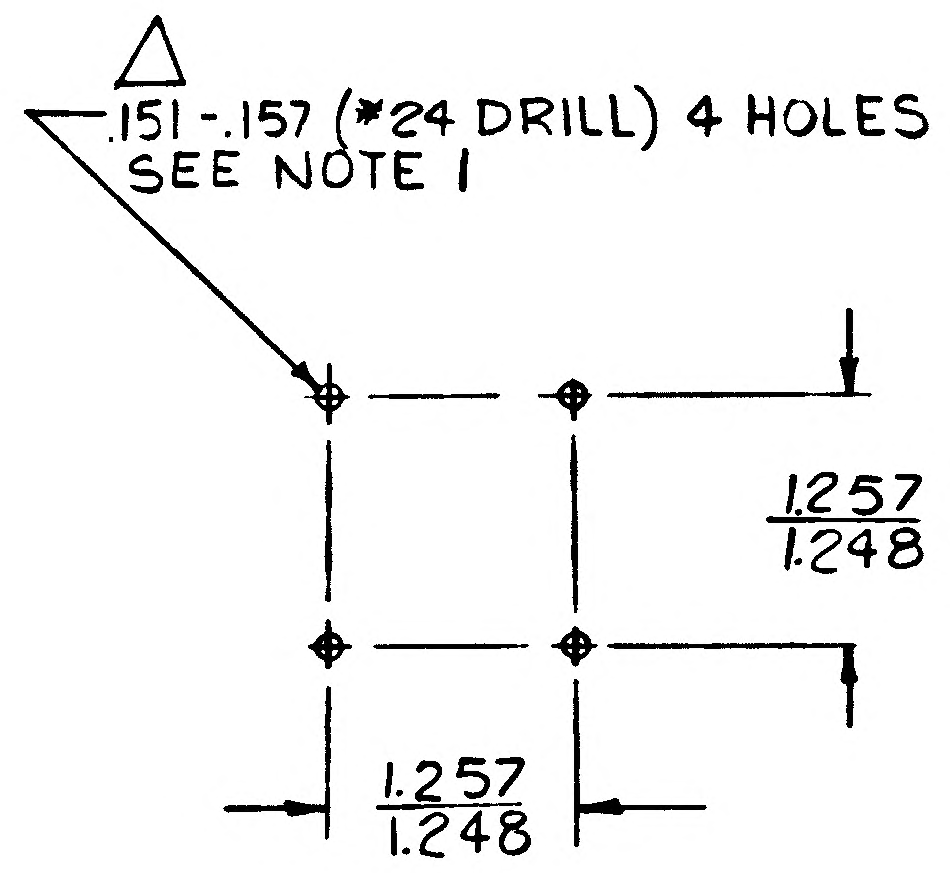
MS20470AD4(2)
510789-201(REF)
5/16
LDW280-17865-15
+Y 38.483
-Z 10.840

DETAIL C (ZONE 3A)
SCALE: FULL



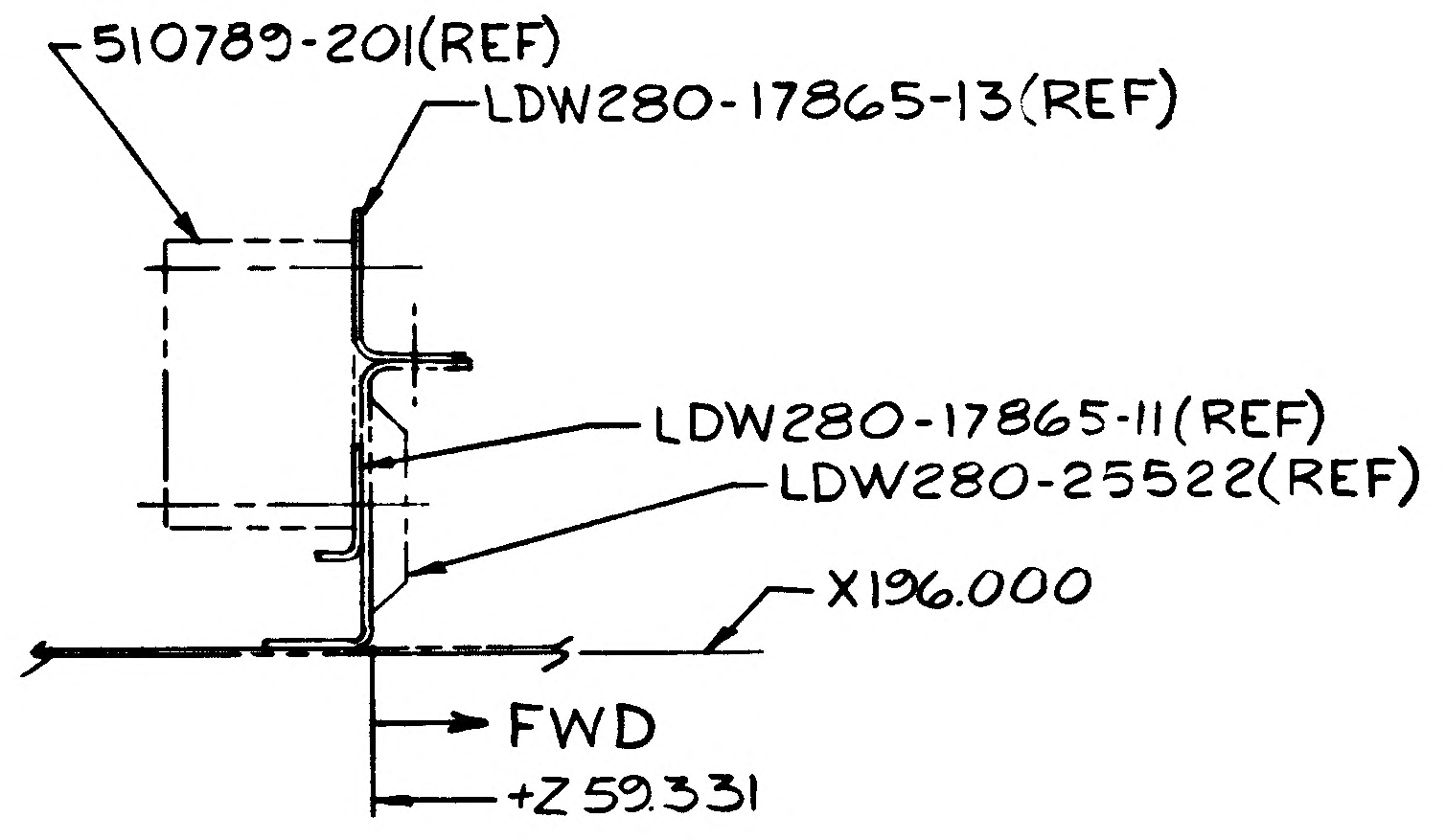
510789-201(REF)
LDW280-25522(REF)
LDW280-17865-13(REF)
13/32
Y0.0 (REF)
LDW280-17865-13
SEE DETAIL J FOR HOLE PATTERN
1 1/8
MS20470AD4(3)
AA
AA (ZONE 11B)
LDW280-17865-11 (REF)
LDW280-17865-11
M20470AD4(3)
3/4

DETAIL D (ZONE 3B)
SCALE: FULL



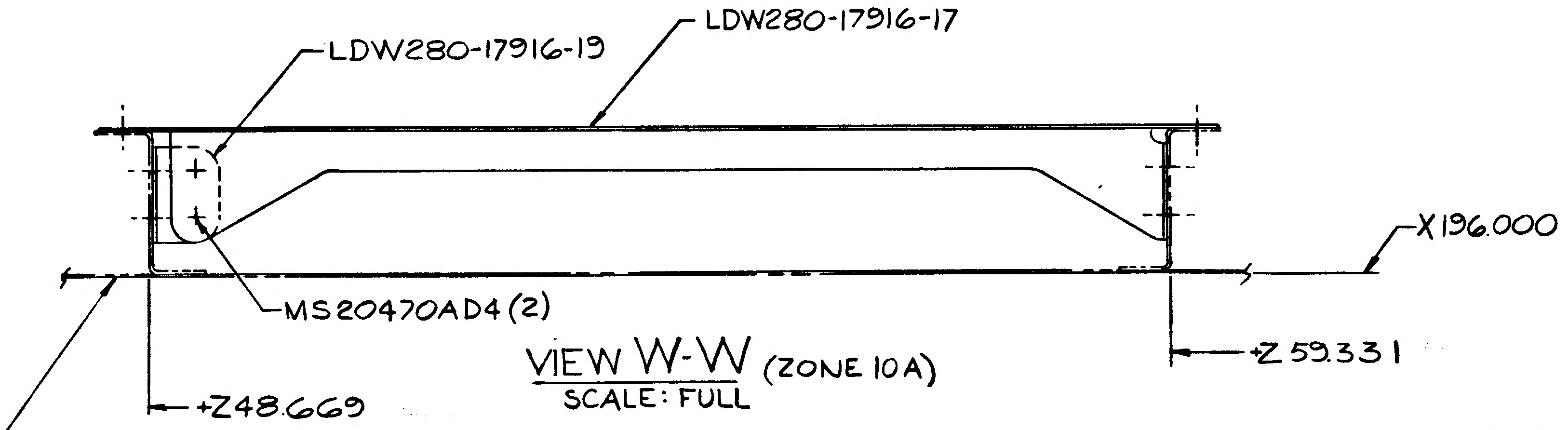
.151-.157 (#24 DRILL) 4 HOLES
SEE NOTE 1
1.257
1.248
1.257
1.248

DETAIL J (TYP 4 PLACES)
SCALE: FULL



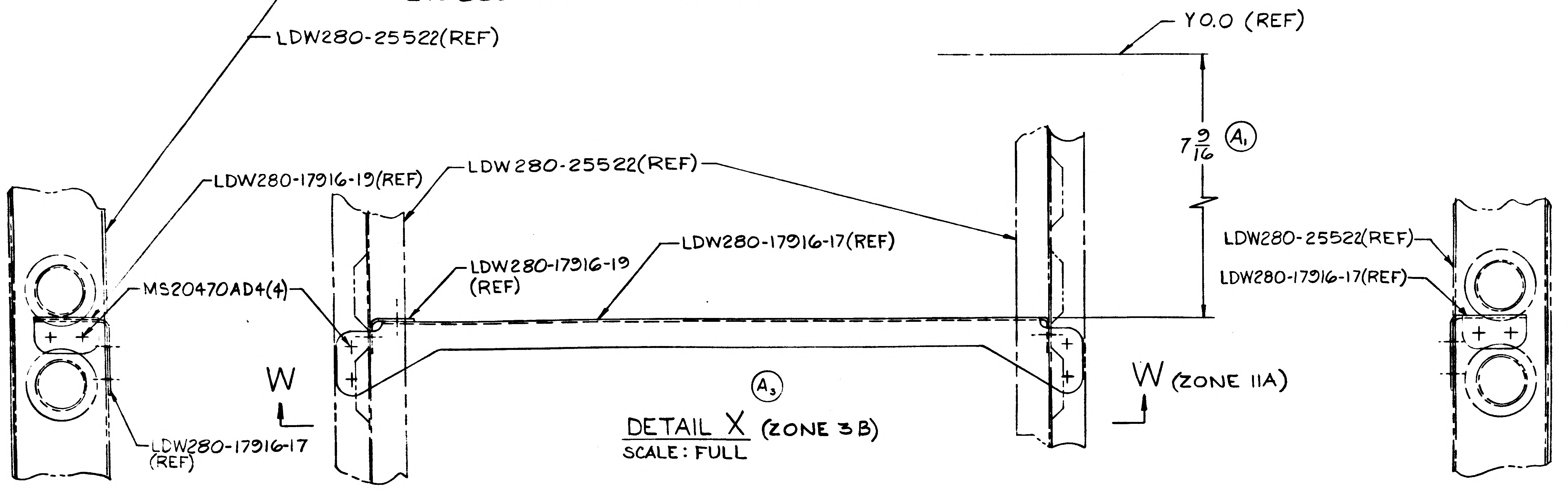
510789-201(REF)
LDW280-17865-13(REF)
LDW280-17865-11(REF)
LDW280-25522(REF)
X196.000
FWD
+Z59.331

VIEW AA-AA (ZONE 11C)
SCALE: FULL



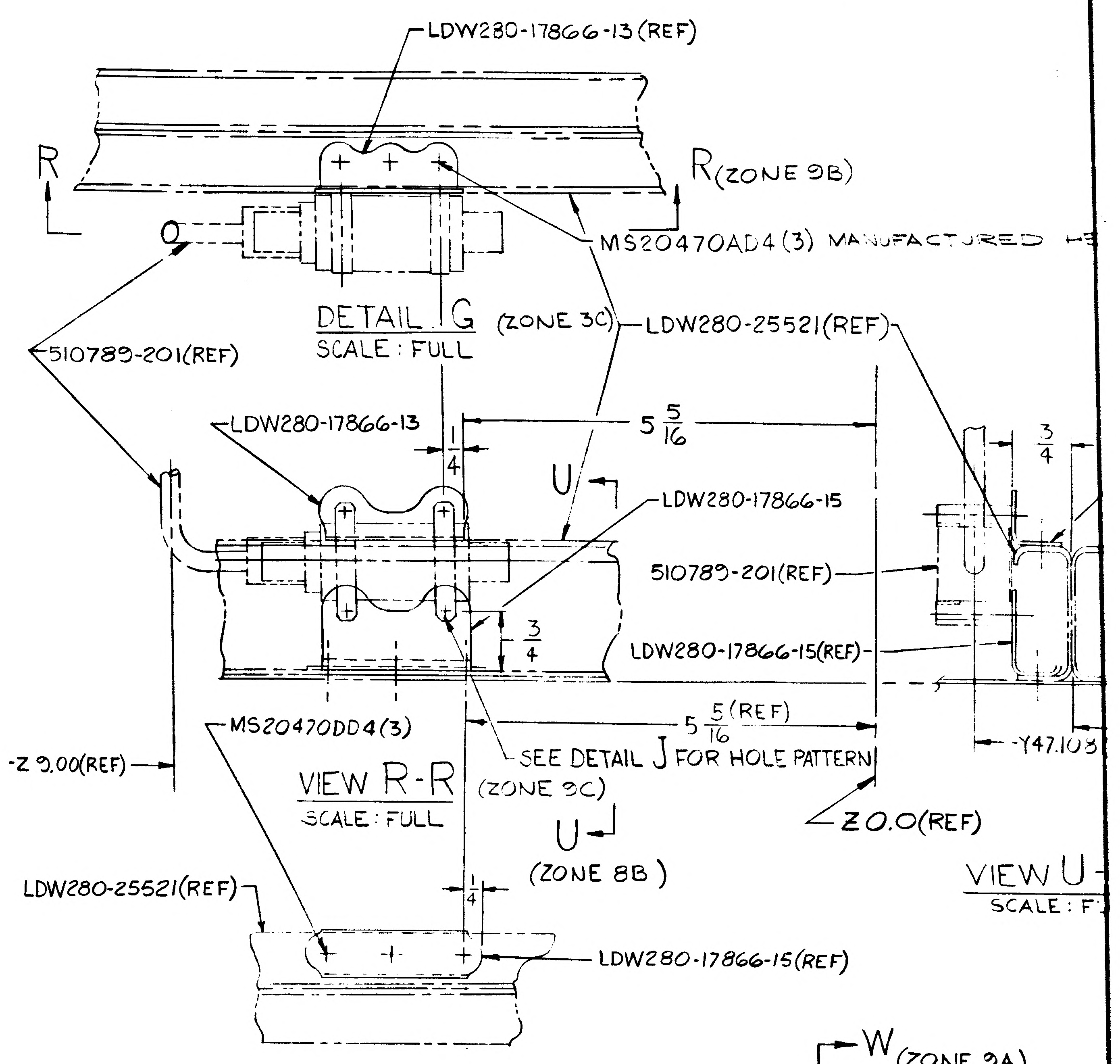
LDW280-17916-19
LDW280-17916-17
X196.000
MS20470AD4(2)
+Z48.669
Z59.331

VIEW W-W (ZONE 10A)
SCALE: FULL

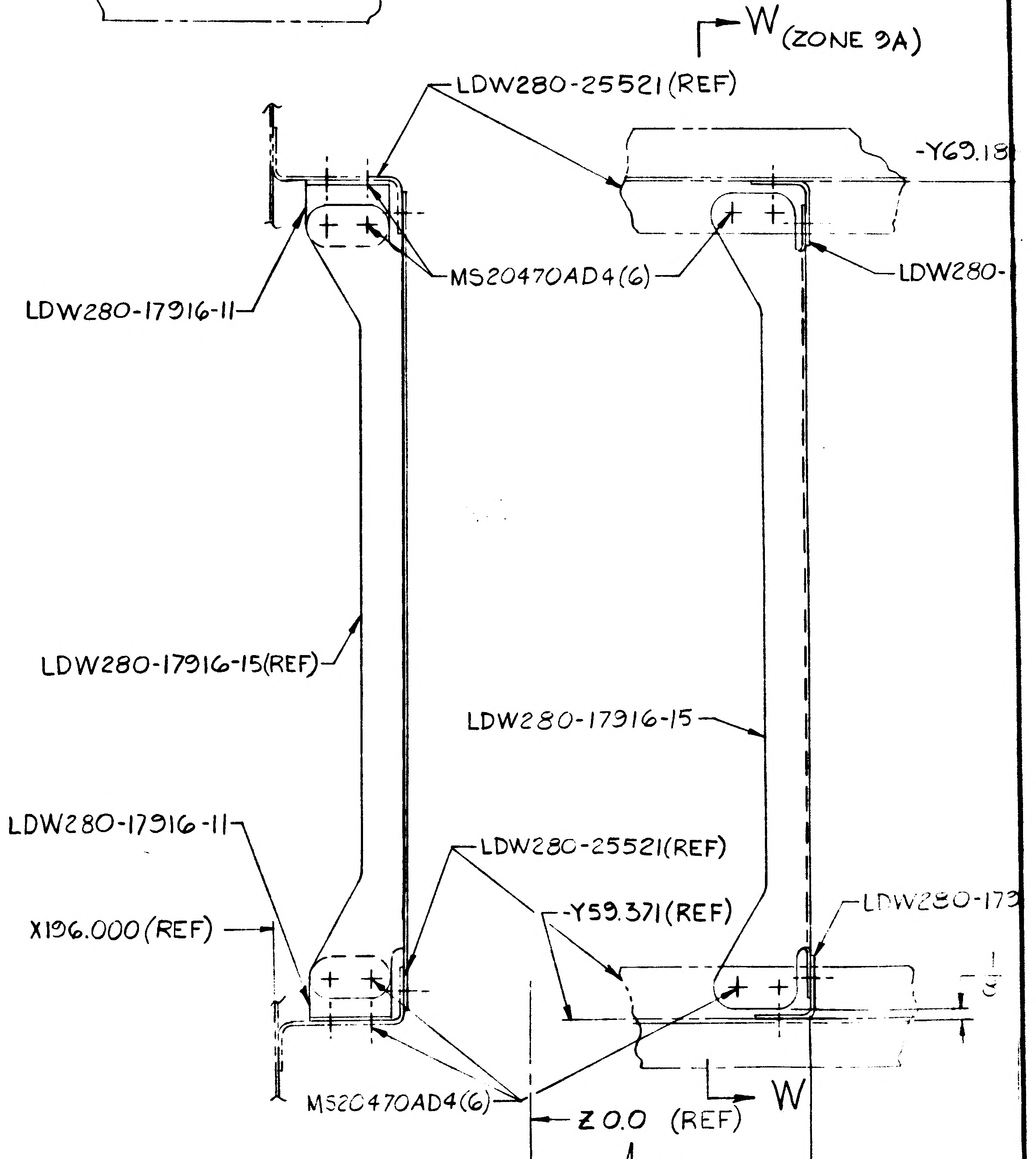


LDW280-25522(REF)
Y0.0 (REF)
LDW280-17916-19(REF)
LDW280-25522(REF)
LDW280-17916-19 (REF)
LDW280-17916-17(REF)
7 9/16
A1
MS20470AD4(4)
LDW280-25522(REF)
LDW280-17916-17(REF)
W
W (ZONE 11A)
A3
LDW280-17916-17 (REF)

DETAIL X (ZONE 3B)
SCALE: FULL



LDW280-17866-13 (REF)
R
R (ZONE 9B)
MS20470AD4(3) MANUFACTURED HE
510789-201(REF)
DETAIL G (ZONE 3C)
SCALE: FULL
LDW280-25521(REF)
LDW280-17866-13
5 5/16
3/4
U
LDW280-17866-15
510789-201(REF)
3/4
LDW280-17866-15(REF)
-Z 9.00(REF)
MS20470DD4(3)
5 5/16 (REF)
SEE DETAIL J FOR HOLE PATTERN
VIEW R-R (ZONE 3C)
SCALE: FULL
U
(ZONE 8B)
Z0.0(REF)
-Y47.103
VIEW U
SCALE: F
LDW280-25521(REF)
LDW280-17866-15(REF)



W (ZONE 9A)
LDW280-25521 (REF)
-Y69.18
LDW280-
LDW280-17916-11
MS20470AD4(6)
LDW280-17916-15(REF)
LDW280-17916-15
LDW280-17916-11
LDW280-25521(REF)
X196.000(REF)
-Y59.371(REF)
LDW280-179
MS20470AD4(6)
Z0.0 (REF)
W
11

VIEW W-W (ZONE 8B)
SCALE: FULL

DETAIL V (ZONE 3C)
SCALE: FULL

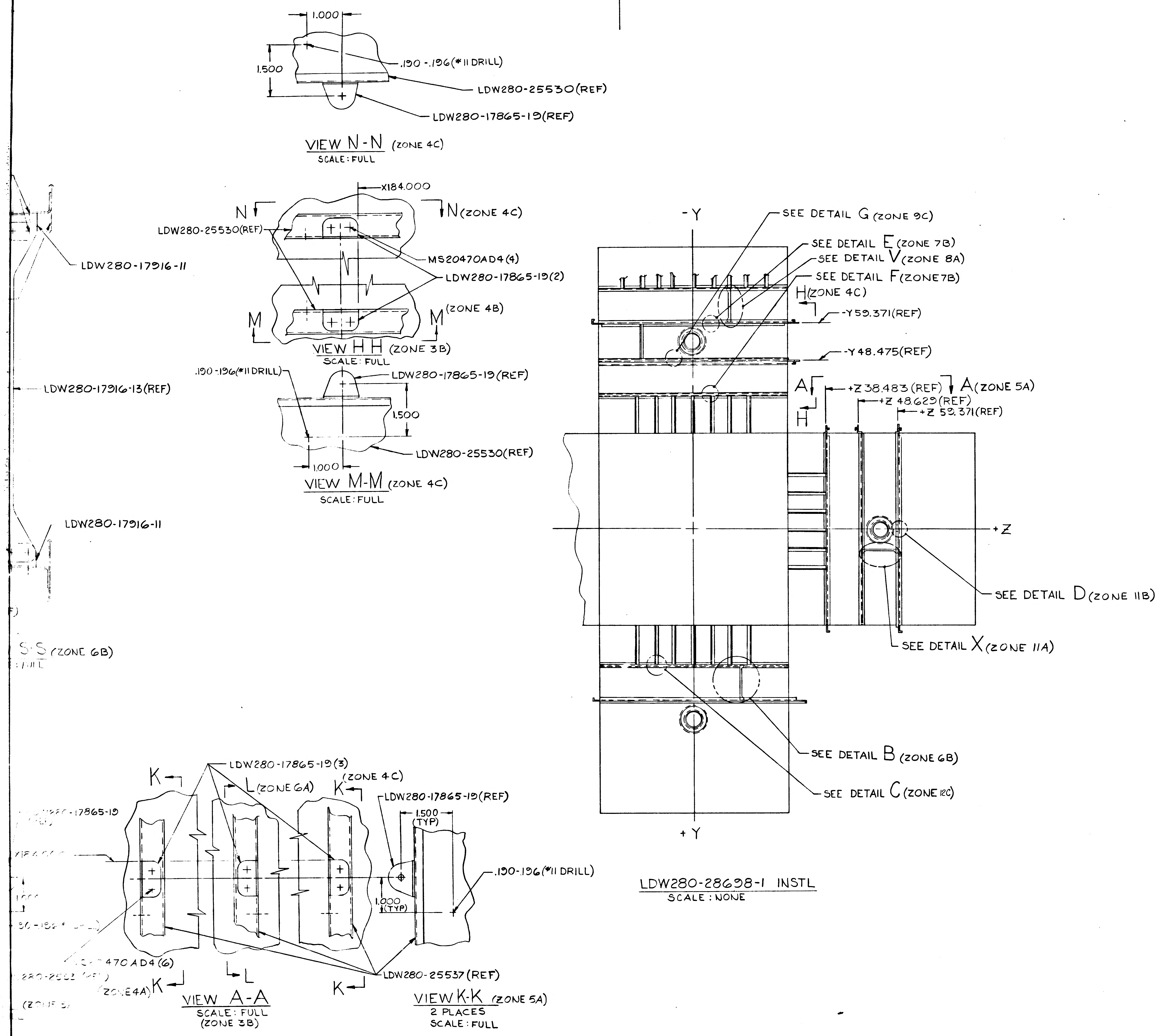
01/03

NAS 9-1100

CODE IDENT NO. 26512
LDW280-28698
SH 3

8
7
6
5
4
17866-13 (REF)
R (ZONE 8B)
MS20470AD4(3) MANUFACTURED HEAD N.S.
LDW280-25521(REF)
5 5/16
3/4
LDW280-17866-13 (REF)
LDW280-17866-15
510789-201(REF)
LDW280-17866-15(REF)
5 5/16 (REF)
-Y47.108(REF)
-Y48.358(REF)
DETAIL J FOR HOLE PATTERN
Z 0.0(REF)
VIEW U-U (ZONE 9B)
SCALE: FULL
LDW280-17866-15(REF)
W (ZONE 9A)
LDW280-25521(REF)
-Y69.188 (REF)
MS20470AD4(6)
LDW280-17916-11(REF)
LDW280-17916-15
LDW280-25521(REF)
-Y59.371 (REF)
LDW280-17916-11(REF)
1/8
Z 0.0 (REF)
W
DETAIL V (ZONE 3C)
SCALE: FULL
X196.00 (REF)
SEE DETAIL J FOR HOLE PATTERN
5/16
Z 0.00(REF)
A2
13 1/16
510789-201(REF)
LDW280-17865-15(REF)
5/16
MS20470AD4(2)
S
A1
LDW280-17865-15
MS20470AD4(6)
1/8
+Y 38483 (REF)
LDW280-17916-11 (REF)
LDW280-25523(REF)
LDW280-17916-11
LDW280-17916-13
LDW280-17916-13(REF)
LDW280-17916-11 (REF)
LDW280-25523(REF)
LDW280-17865-17
X196.000(REF)
MS204070AD4(2)
LDW280-17865-17 (REF)
5/16
MS20470AD4(6)
LDW280-17916-11
510789-201(REF)
+Z 10.840
+Y 48.594(REF)
SEE DETAIL J FOR HOLE PATTERN
S (ZONE 5B)
DETAIL B (ZONE 3A)
SCALE: FULL
VIEW S-S (ZONE 6B)
SCALE: FULL
1.000
1.500
.190 -.196(#11 DRILL)
LDW280-25530(REF)
LDW280-17865-19(REF)
VIEW N-N (ZONE 4C)
SCALE: FULL
X184.000
N
N (ZONE 4C)
LDW280-25530(REF)
MS20470AD4(4)
LDW280-17865-19(2)
M
M (ZONE 4B)
VIEW H-H (ZONE 3B)
SCALE: FULL
.190-.196(#11 DRILL)
LDW280-17865-19 (REF)
1.500
1.000
LDW280-25530(REF)
VIEW M-M (ZONE 4C)
SCALE: FULL
-Y
+Y
LDW280-17866-11
LDW280-25521(REF)
P
P (ZONE 7A)
MS20470AD4(3)
DETAIL E (ZONE 3C)
DETAIL F (ZONE 3C)
SCALE: FULL
510789-201(REF)
(ZONE 6A) T
LDW280-17866-11(REF)
510789-201(REF)
X196.665(REF)
LDW280-25521(REF)
X196.00 (REF)
5/8
T
+Z9.00 (REF)
5 1/16
1/4
SEE DETAIL J FOR HOLE PATTERN
Z0.0(REF)
VIEW P-P (ZONE 7B)
SCALE: FULL
LDW280-17866(REF)
-Y59.371(REF) FOR DETAIL "E"
-Y38.483(REF) FOR DETAIL "F"
-Y58.839(REF FOR DETAIL "E"
-Y37.951(REF) FOR DETAIL "F"
VIEW T-T (ZONE 7A)
SCALE: FULL
LDW280-17865-19(3)
K
L (ZONE 6A)
K (ZONE 4C)
LDW280-17865-19(REF)
1.500
LDW280-17865-19 (REF)
X184.000
1.000
.190-.196(#11 DRILL)
LDW280-25537(REF)
VIEW L-L (ZONE 5A)
SCALE: FULL
MS20470AD4(6)
(ZONE 4A) K
L
VIEW A-A
SCALE: FULL
(ZONE 3B)
K
1.500 (TYP)
1.000 (TYP)
.190-.196(#11 DRILL)
LDW280-25537(REF)
VIEW K-K (ZONE 5A)
2 PLACES
SCALE: FULL
LDW280-2...
SCALE: ...
CODE IDENT NO. 26512
LDW280-28698
SH 3
02/03
NAS 9-1100

NOTE:
1. FOR HOLES MARKED △ SEE DWG LID360-20150 FOR CORRESPONDING HOLE PATTERN.


1.000
1.500
.190-.196(#11 DRILL)
LDW280-25530(REF)
LDW280-17865-19(REF)
VIEW N-N (ZONE 4C)
SCALE: FULL
X184.000
N
N (ZONE 4C)
LDW280-25530(REF)
MS20470AD4(4)
LDW280-17865-19(2)
LDW280-17916-11
M
M (ZONE 4B)
VIEW H H (ZONE 3B)
SCALE: FULL
.190-.196(#11 DRILL)
LDW280-17865-19(REF)
1.500
LDW280-17916-13(REF)
LDW280-25530(REF)
1.000
VIEW M-M (ZONE 4C)
SCALE: FULL
LDW280-17916-11
S-S (ZONE 6B)
-Y
+Y
+Z
SEE DETAIL G (ZONE 9C)
SEE DETAIL E (ZONE 7B)
SEE DETAIL V (ZONE 8A)
SEE DETAIL F (ZONE 7B)
H (ZONE 4C)
-Y59.371(REF)
-Y48.475(REF)
A
H
+Z38.483(REF)
A (ZONE 5A)
+Z 48.629(REF)
+Z 59.371(REF)
SEE DETAIL D (ZONE 11B)
SEE DETAIL X (ZONE 11A)
SEE DETAIL B (ZONE 6B)
SEE DETAIL C (ZONE 12C)
LDW280-28698-1 INSTL
SCALE: NONE
LDW280-17865-19(3)
K
L (ZONE 6A)
K (ZONE 4C)
LDW280-17865-19(REF)
1.500 (TYP)
.190-.196(#11 DRILL)
1.000 (TYP)
LDW280-17865-19
470AD4(6)
(ZONE 4A) K
L
K
LDW280-25537(REF)
VIEW A-A
SCALE: FULL
(ZONE 3B)
VIEW K-K (ZONE 5A)
2 PLACES
SCALE: FULL

03/03

NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 118

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 120)= 30.0 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 7.5 SQ. FT.

PRINT TRIM LINE

LDW280-28698A

LDW280-28698A

CODE IDENT NO. 26512
LDW280-28698 SH 3

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
J	26512	LDW280-28698	A

LEM
MODEL OR END ITEM
SCALE FULL & NONE
SHEET 3.00

ENG 32.2 REV 3-65 **FITH**

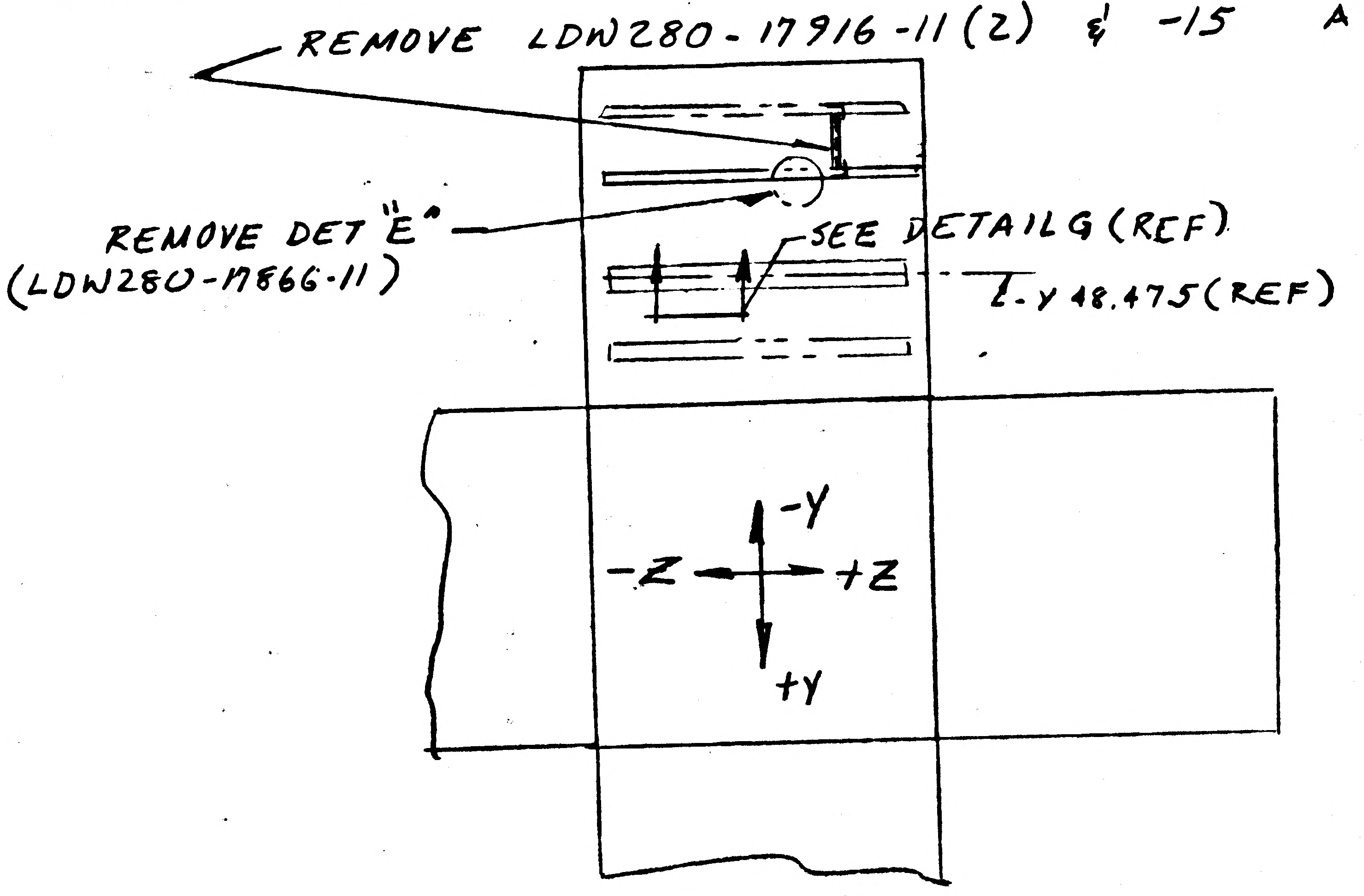
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

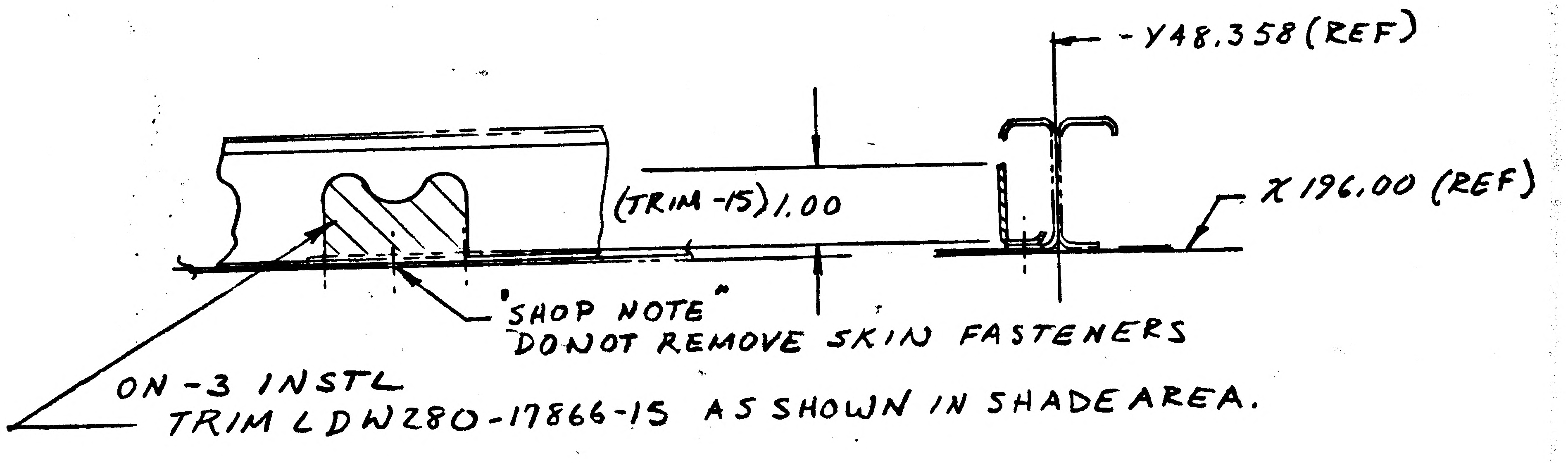
DWG. NO. LDW280-28698		EO NO. B1
CONTROL INFO NO. LDW280-A-6668		

CREATE -3 INSTL IDENT TO -1 EXCEPT AS SHOWN:
N/A LDW280-51509 1 REQD/MOD LM1(31)

IN M/B FOR -1 REMOVE LM1(31)(EFF).

ON -3 INSTL
REMOVE LDW280-17916-11(2) & -15 AS SHOWN:


REMOVE DET "E"
(LDW280-17866-11)
SEE DETAIL G (REF)
℄-Y48.475(REF)
-Y
-Z
+Z
+Y


-Y48.358(REF)
X196.00 (REF)
(TRIM -15) 1.00
"SHOP NOTE"
DONOT REMOVE SKIN FASTENERS
ON -3 INSTL
TRIM LDW280-17866-15 AS SHOWN IN SHADE AREA.

DETAIL G (REF)

THIS EO IS IN CONJUNCTION WITH EO CONTROL #'s
LDW280-A-6666
-6667
-6669

SHOP NOTES (DONOT INCORP. ON DWG.)
EXTRANEOUS HOLES TO BE LEFT OPEN

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD-1244

REASON FOR EO: TO FACILITATE INSTL OF UNDER GAGE DECK REINFORCEMENT

DESCRIPTION OF EO: IN F/D, B/M & N/A: ADDED -3 INSTL LM1(31). IN MOD B/K: (-1) REMOVED LM1(31)(EFF).

GAEC EO RELEASE: C JK 5/1/67 5

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM1(31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				JAS	W			AC
DATE	5/1/67			4/30/67	5/1/67		5/1/67	5-1-67
5	VD1							

PRIORITY: C
DRAWING TITLE: SUPT INSTL D/S-THERM. SHLD-TRANSDUCER UP DECK
DRAWING NO.: LDW280-28698
EO NO.: B1

ISSUED BY DON RAGAS X6510 SECTION VD1 GROUP NO. 335 PL 5

01
NAS 9-1100

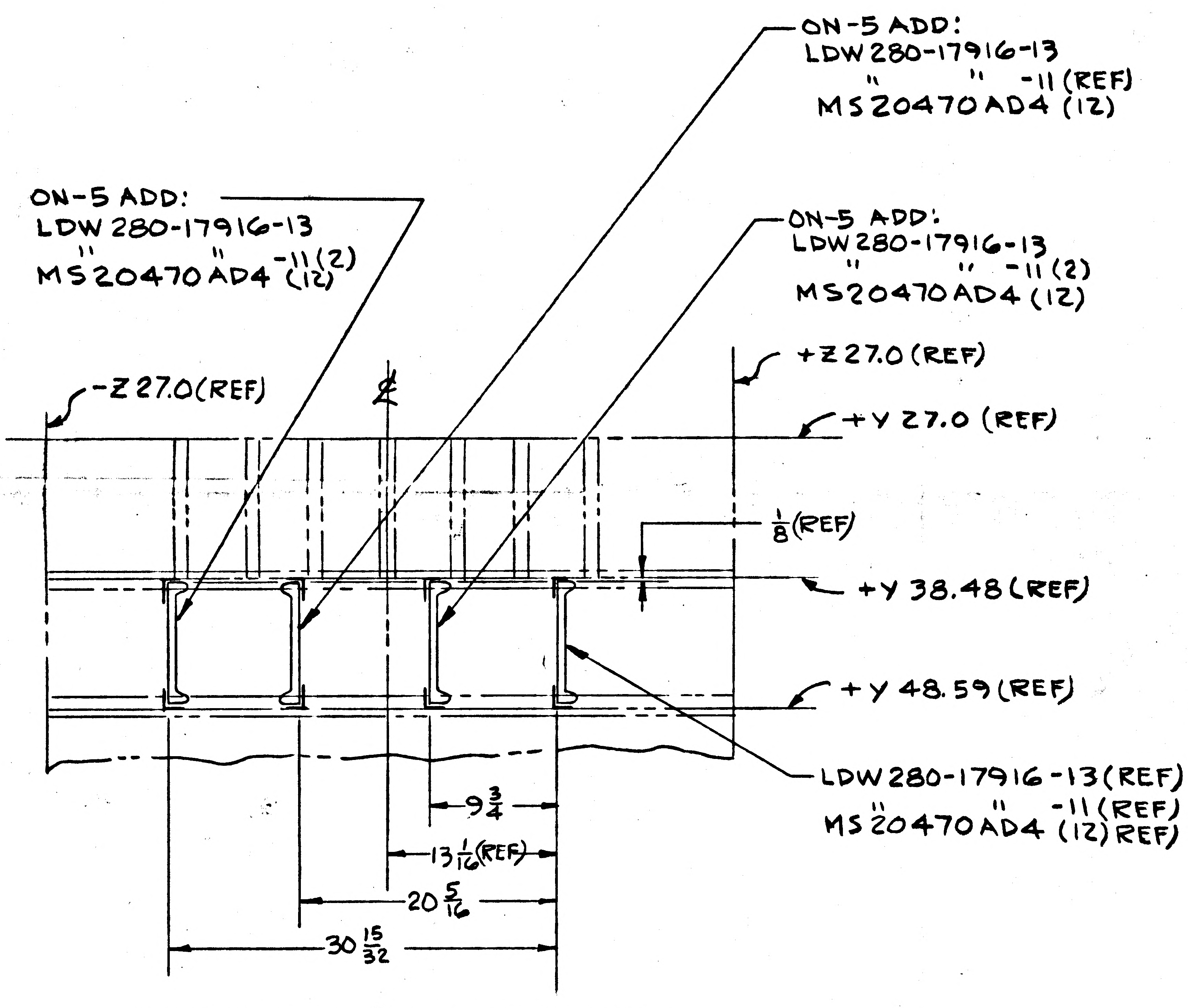
ENG 32.2 REV 3-65

FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW 280-28698 | EO NO. B2
CONTROL INFO NO. LDW280A 8288

CREATE -5 INSTL IDENT TO -1 EXCEPT AS SHOWN:
N/A LDW 280-53509 1 REQD/MOD LM-3(33)
IN MOD/BLK FOR-1 REMOVE LM-3(33) EFF


ON-5 ADD:
LDW280-17916-13
" " -11 (REF)
MS20470AD4 (12)
ON-5 ADD:
LDW 280-17916-13
" " -11(2)
MS20470AD4 (12)
ON-5 ADD:
LDW280-17916-13
" " -11 (2)
MS20470AD4 (12)
-Z 27.0(REF)
℄
+Z 27.0 (REF)
+Y 27.0 (REF)
1/8 (REF)
+Y 38.48 (REF)
+Y 48.59 (REF)
LDW280-17916-13 (REF)
" " -11 (REF)
MS20470AD4 (12) REF)
9 3/4
13 1/16 (REF)
20 5/16
30 15/32

VIEW LKG DN @ +Y UPPER DECK
IDENT TO -1 INSTL EXCEPT AS SHOWN

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	✓ LCD 1244 5

REASON FOR EO: TO PROVIDE SUPT FOR RELOCATED ELECTRICAL LINES

DESCRIPTION OF EO: ADDED -5
FOR -1 REMOVED LM-3 EFF.

GAEC EO RELEASE: JK 8/1

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY / DATE								
✓		NOT	REQD	7/28/67			7/28/67	7/28/67		7/28/67	8-1-67
REVISE DWG	RECORD EO	REWORK	SCRAP	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SUPT INSTL D/S-THERM. SHIELD-TRANSDUCER UP DECK
DRAWING NO.: LDW 280-28698
EO NO.: B2

ISSUED BY 8/1 D. THOMAS / J. STRAKOSCH X1156 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

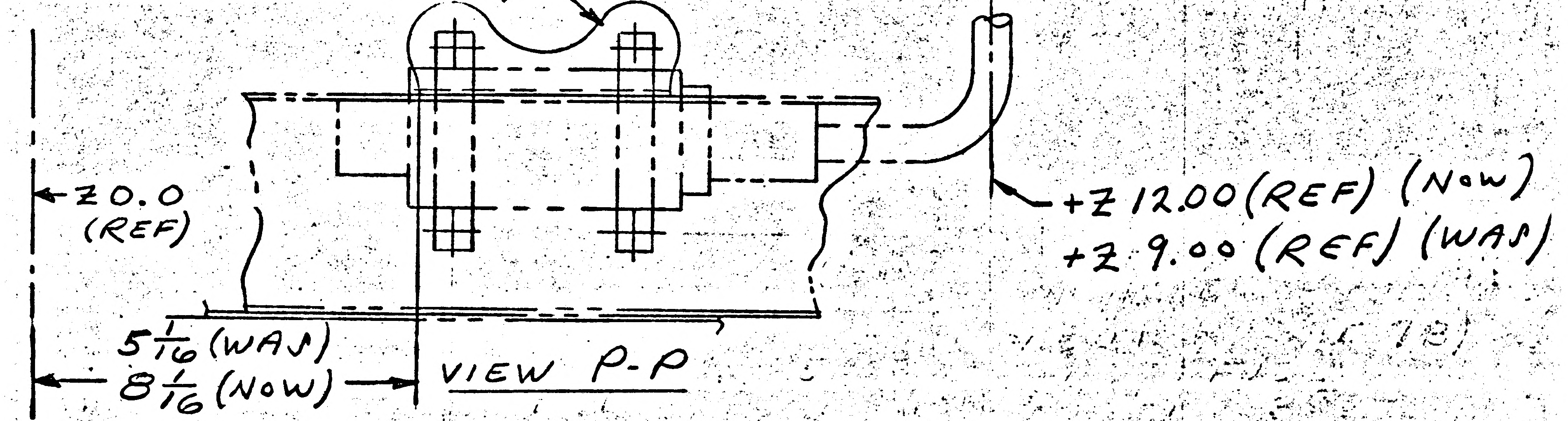
ENG 32.1 REV 3-66

B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28698
EO NO. B3
CONTROL INFO NO. LDW280A8344

IN VIEW P-P, ZONE 7A, RELOCATE LDW280-17866-11 CLIP AS SHOWN. VIEW P-P SAME EXCEPT AS NOTED:



SHOP NOTE: EXTRANEOUS HOLES MAY BE LEFT OPEN.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD-1244 5

REASON FOR EO: TO PROVIDE CLEARANCE BETWEEN TRANSDUCER AND FORMER

DESCRIPTION OF EO: FOR -5 (RELOCATED LDW280-17866-11 CLIP) $8\frac{1}{16}$ WAS $5\frac{1}{16}$

GAEC EO RELEASE: B C JK 8/4/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM3 (33)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GO4~~
APPROVED BY	[illegible]			[illegible]	[illegible]		[illegible]	[illegible]
DATE	8/4/67			8/3/67	8/3/67		8/3/67	8-4-67

PRIORITY: C
DRAWING TITLE: SUPT INSTL-D/S-THERMAL SHIELD-PRES. & TEMP TRANSDUCER UPPER DECK
DRAWING NO. LDW280-28698
EO NO. B3

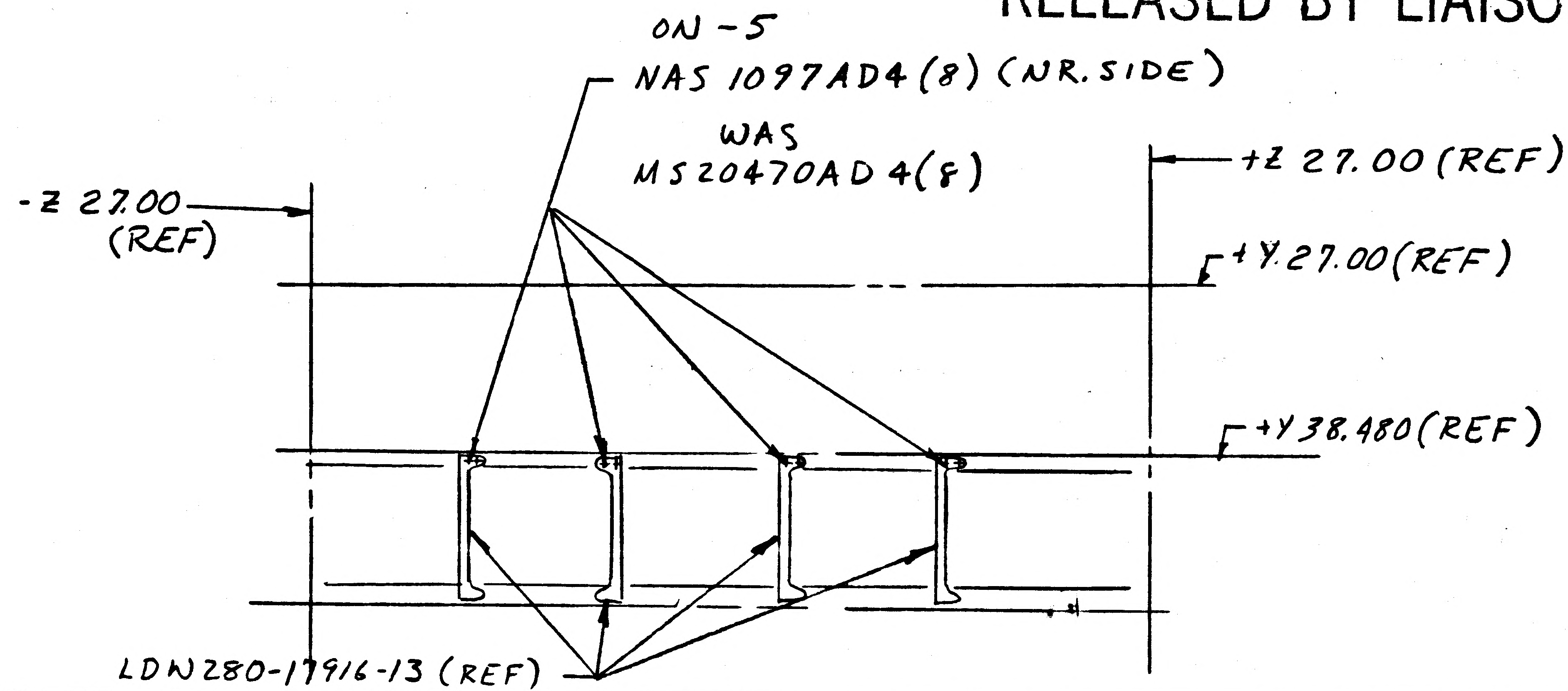
8/4
ISSUED BY E. ROESSLER / J. STRAKOSCH X1153 SECTION V.D.I. GROUP NO. 335 PL 25

ENG 32.1 REV 3-65 B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LDW280-28698
EO NO. B4
CONTROL INFO NO. LM5-13573

RELEASED BY LIAISON


ON-5
NAS 1097AD4(8) (NR. SIDE)
WAS
MS20470AD4(8)
-Z 27.00 (REF)
+Z 27.00 (REF)
+Y 27.00 (REF)
+Y 38.480 (REF)
LDW280-17916-13 (REF)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

5

REASON FOR EO: TO PROVIDE FLAT SURFACE FOR FITH PROVISIONS

DESCRIPTION OF EO: ON-5 NAS1097AD4(8) WAS MS20470AD4(8)

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM3 (33)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	JAP			—	JFJ	JFJ	
DATE	8/14/67			—	8-10-67	8-10-67	8/14/67

8/10/67

PRIORITY: C
DRAWING TITLE: SUPT INSTL D/S - TRANSD. UP DECK SUPT
DRAWING NO.: LDW280-28698
EO NO.: B4

ISSUED BY DON RAGAS X86454 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

LDW280-28699 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-53509	LEM-3(33)	1
	LDW280-52509	LEM-2(32)	1
	LDW280-51509	LEM-1(31)	1
LEM	LDW280-28509	LTA-8(18)	1

PART NO.	GAEC SCH NO.
LDW 280-28699-1	50-3

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A		A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED

GRUMMAN REL^c INFO A

PRIM NO.	GE(001)	
207	MP-A	8-A-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	R.VANCOTT	RELIABILITY	
LAYOUT BY		INSTRUMENT	B. DOUF 4-29-66
CHECKED BY	JRT Ⓐ		
GR.LEADER	STRAKOSCH 4-20-66		
VEH.DES.INT	BISCHOFF 4-25-66		
STRUCTURES	JK. WJS. FEB. 4-25-66	PROJ ENGR	J. ALBER 5-2-66
STRUCTURES	HILDERMAN 5-25-66	REL GROUP	CARAMANICA 5-3-66
WEIGHTS	MANDRAS 4-26-66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SUPPORT INSTL
DESCENT STAGE ~ OXIDIZER TANK
INSTRUMENTATION

SIZE B
CODE IDENT NO. 26512
LDW280-28699 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDES LDW280-28699 REV. NO CHG 4-20-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED NO CHG LAST REV. NO CHG AUGELLO SH.1.00 OF 4 WAS SH.1 OF 1 ADDED SH. 1.10, 2.00 & 3.				S. AUGELLO		
A	1	1.00, 1.10 2.00 & 3	B4					E.O. A1	IN FLD FOR -1 INSTL. #30 PILOT (.127-.133) (9) & MS20470 AD4 (9) WAS (10). DIM. 1 1/2 (3 EQ. SP) WAS 2 (EQ. SP.) REVISED PICTURE.	LTA-8, LEM-1-2 & 3	✓				
	2	1.10 & 3							(REF E.O. A1) DESCRIPTION SHOULD BE MS20470AD4 (9) WAS (10).	NOT REQD	NOT	REQD		YAS RMC	

CHG APPROVED

LTR	GROUP LDR	VEH. DES. INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	INSTRUMENT.				
A			ES 8/17								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-28699 | A

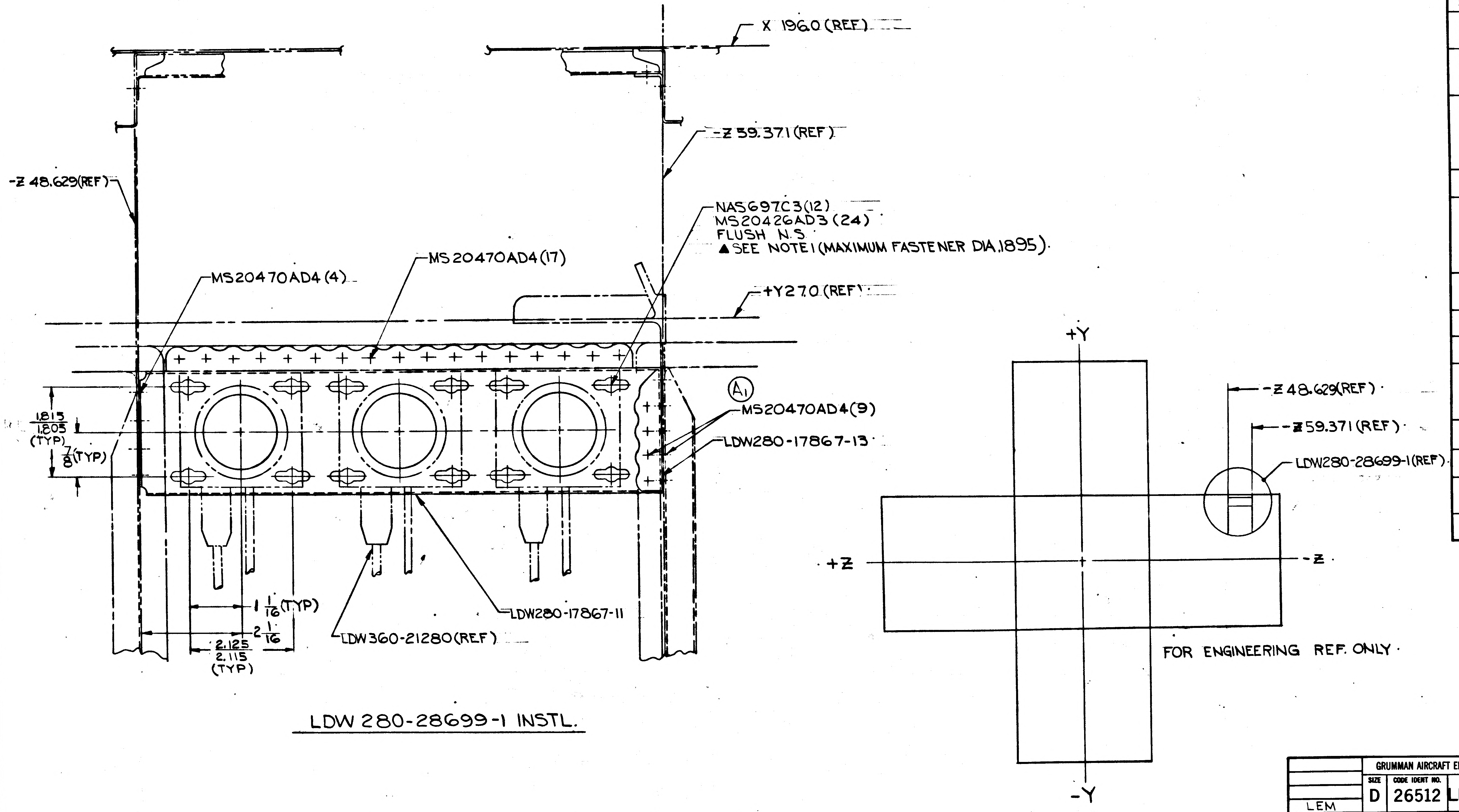
SCALE NONE | SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

NOTES:
1. FOR HOLES MARKED ▲ SEE LDW360-21280 FOR CORRESPONDING HOLE PATTERN.


X 196.0 (REF)
-Z 59.371 (REF)
-Z 48.629(REF)
NAS697C3(12)
MS20426AD3 (24)
FLUSH N.S.
▲SEE NOTE 1 (MAXIMUM FASTENER DIA .1895)
MS20470AD4(17)
MS20470AD4 (4)
+Y 27.0 (REF)
A1
MS20470AD4(9)
LDW280-17867-13
1.815
1.805
(TYP)
7/8 (TYP)
1 1/16 (TYP)
2 1/16
2.125
2.115
(TYP)
LDW360-21280(REF)
LDW280-17867-11
+Y
-Z 48.629(REF)
-Z 59.371 (REF)
LDW280-28699-1(REF)
+Z
-Z
-Y

LDW 280-28699-1 INSTL.

FOR ENGINEERING REF. ONLY

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	D	26512	LDW280-28699	A
SCALE FULL			SHEET 3	

LDW280-28699 A

01 NAS 9-1100

					12		NAS697C3	E	NUT PLATE	STD PART						
							MS20470AD4		RIVET	STD PART						
							MS20426AD3		RIVET	STD PART						
					1		LDW280-17867-13		ANGLE	SEE DWG						
					1		LDW280-17867-11		BRACKET	SEE DWG						
							LDW280-28699-1	E	SUPPORT INSTL	SEE DWG						
					-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
QTY PER ASSEMBLY																

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28699

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

LDW280-28711 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28509	LTA-8 (18)	1
PART NO. LDW280-28711-1		GAEC SCH NO. 50-1	

WORK PKG FUNCTION NO. 110 2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	A	GRUMMAN REL INFO A	
		PRIM NO.	JK(001)
LAST DASH NO. USED	-1	207	mP-14A-2/27/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	GAPLAUTE	5/8/66			
LAYOUT BY					
CHECKED BY	JRT(A)				
GR. LEADER	J. STRAKOSCH	5/11/66			
VEH DES INT	W. BISCHOFF	5/16			
STRUCTURE	W.J.H. FEB.	5/17	PROJ ENGR	PLUNKETT	6/1
STRUCTURE	HILDERMAN	5/17	REL GROUP	BOTTI	6/2/66
WEIGHTS	W.G. MANDRAS	5/24			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SUPPORT INSTALLATION
DESCENT STAGE - FIRE IN THE HOLE INTERSTAGE
INSTRUMENTATION - WIRE BUNDLE

SIZE	CODE IDENT NO.		
B	26512	LDW280-28711	A
SCALE NONE		SHEET 1.00 OF 4	

ENG 77.1 12-65

THIS DWG SUPERSEDS LDW280-28711 : "NO CHANGE" 6/2/66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
-									RETRACED NO CHANGE. LAST REV. NO CHANGE. ADDED SH 1.10, 2.00 & 3.00 H. DEUTSCH 2-9-67						
A	1	1.00, 1.10 2.00, 3.00						EO A1	IN FLD/DWG & MOD/BLK. ADDED -1-1 INSTL. IN MOD/BLK FOR -1 INSTL. DELETED LM-2(32) & LM-3(33) REQUIREMENTS.	LM-2(32) & LM-3(33)		-1	H. DEUTSCH 2-9-67		
	2	1.00, 1.10						EO A2	IN MOD. BLK. FOR-1 REMOVED LM-3 (33), FOR-1-1 REMOVED LM-2 (32) LM-1 (31)	LM-1(31), LM-2 (32), & LM-3(33)		✓			
	3	1.10							REF. EO A2. FOR-1 REMOVED LM-3(33) SHOULD BE LM-1(31) FOR -1-1 REMOVED LM-2(32), LM-1(31) SHOULD BE LM-2(32) & LM-3 (33).	NOTED	NOT	REQ'D		2/27/67	

CHG APPROVED	LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS
	A		2/20/67	2/21/67		

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28711	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY -1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
2	NAS42DD3-12	E		SPACER	STD PART						
AR	MS20470AD4			RIVET	STD PART						
AR	MS20470AD3			RIVET	STD PART						
2	LDW280-17919-15			BRACKET	SEE DWG						
1	LDW280-17919-13			BRACKET	SEE DWG						
2	LDW280-17919-11			BRACKET	SEE DWG						
	LDW280-28711-1	E		SUPPORT INSTL					NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28711	A

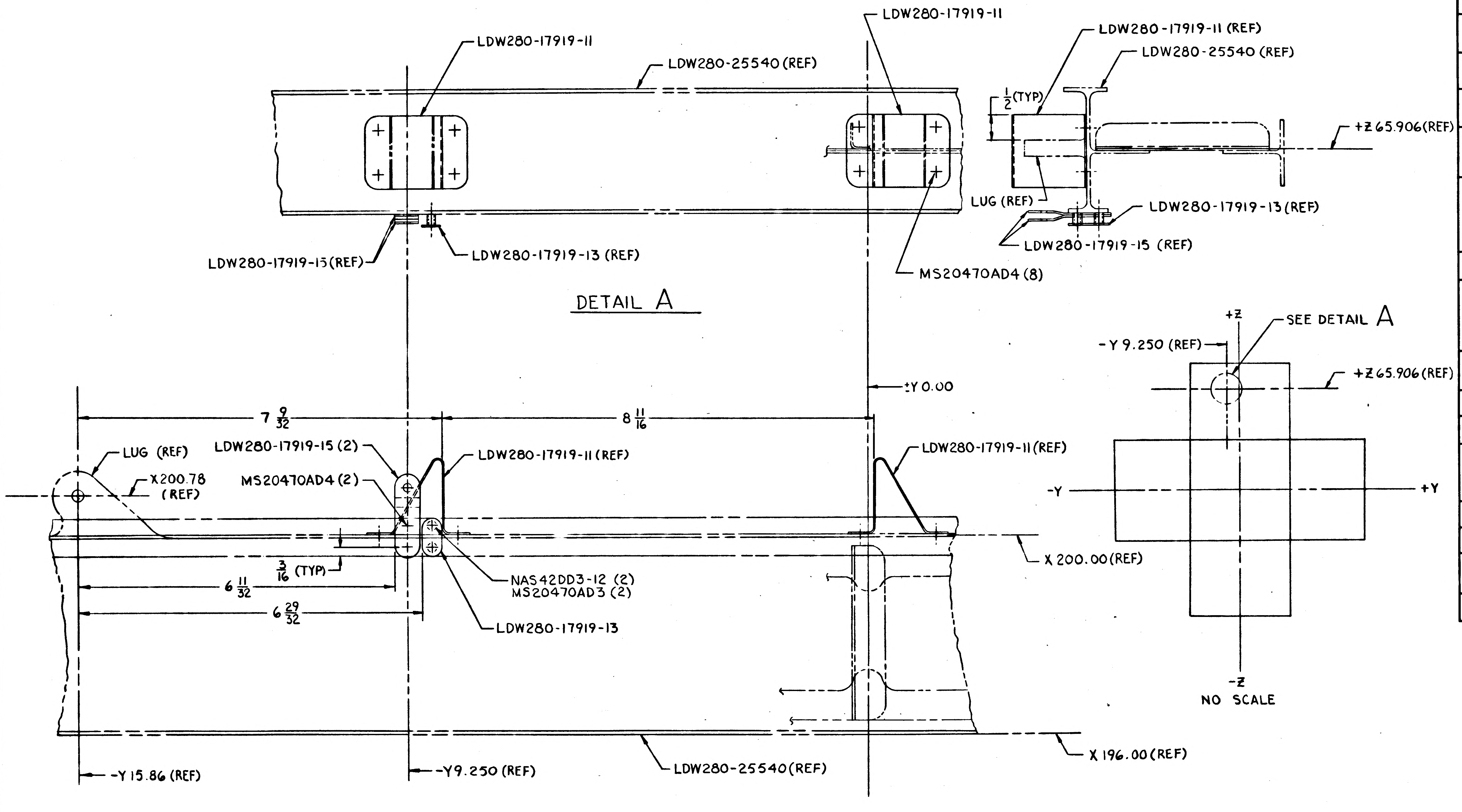
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01 NAS 9-1100

NOTE:
1. INSTALL FASTENERS PER LSP-14-15302.



LDW280-17919-11
LDW280-25540 (REF)
LDW280-17919-11
LDW280-17919-13 (REF)
LDW280-17919-13 (REF)
MS20470AD4 (8)
DETAIL A
LDW280-17919-11 (REF)
LDW280-25540 (REF)
1/2 (TYP)
+Z 65.906 (REF)
LUG (REF)
LDW280-17919-13 (REF)
LDW280-17919-15 (REF)
+Z
SEE DETAIL A
-Y 9.250 (REF)
+Z 65.906 (REF)
±Y 0.00
7 9/32
8 11/16
LUG (REF)
X 200.78 (REF)
LDW280-17919-15 (2)
MS20470AD4 (2)
LDW280-17919-11 (REF)
LDW280-17919-11 (REF)
-Y
+Y
3/16 (TYP)
6 11/32
6 29/32
NAS42DD3-12 (2)
MS20470AD3 (2)
LDW280-17919-13
X 200.00 (REF)
-Z
NO SCALE
X 196.00 (REF)
LDW280-25540 (REF)
-Y 15.86 (REF)
-Y 9.250 (REF)

Ⓐ1 Ⓐ2 LDW280-28711-1 INSTL

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE [redacted] EDGE DISTANCE [redacted] IS 1 1/2 FASTENER DIA. FROM FASTENER ℄	✓
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	✓
TOLERANCE ON LOFTED DELINEATIONS IS	

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE D	CODE IDENT NO. 26512	LDW280-28711	A
MODEL OR END ITEM	SCALE FULL & NOTED		SHEET 3.00	

LDW280-28711 A

NAS 9-1100

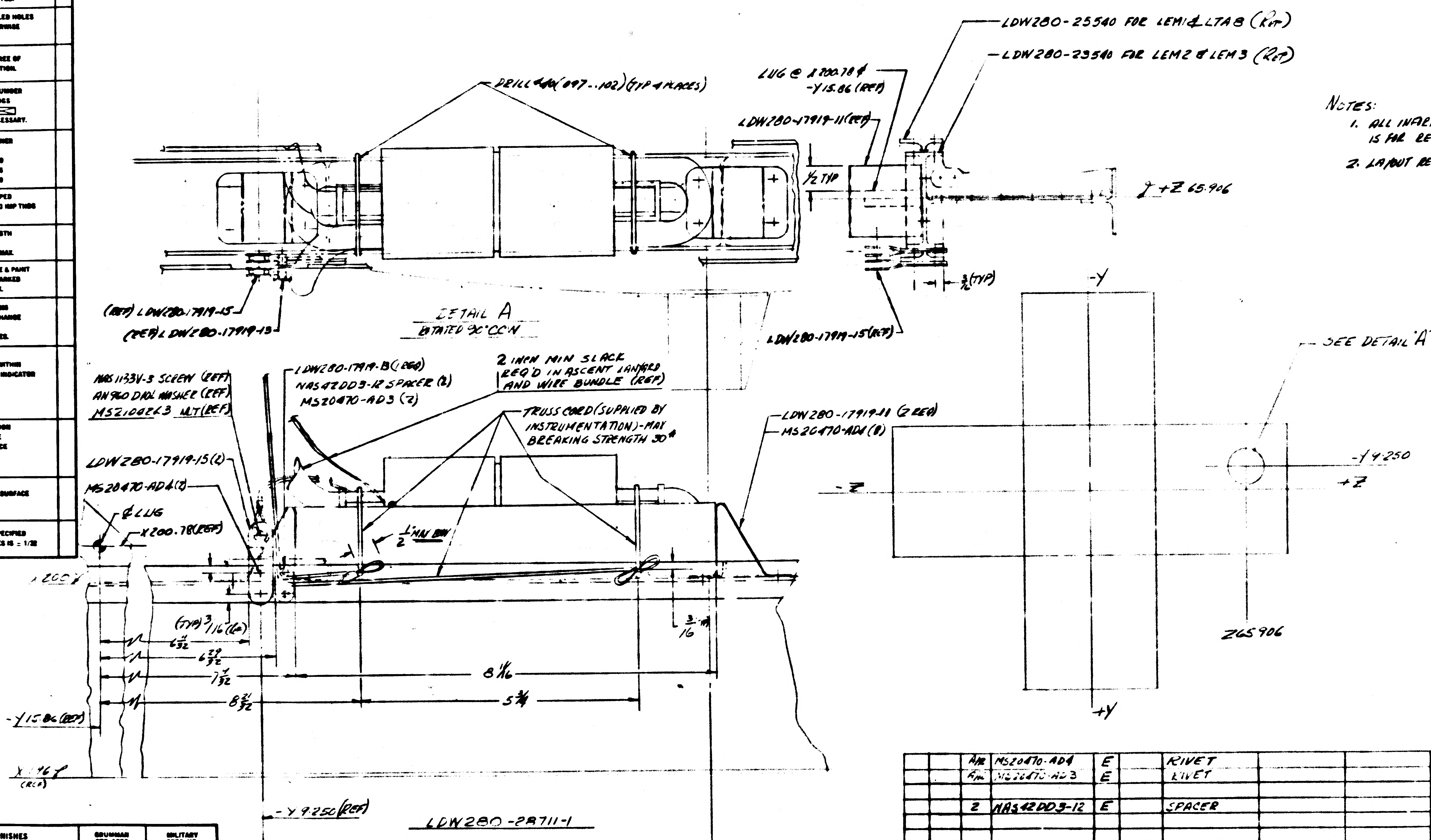
MANUFACTURING OPERATIONS

NOTES CHECKED - APPLY TO THIS DWG.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES EXCEPT AS NOTED.	
REMOVE ALL BURRS. BREAK ALL EDGES .010-.030 EXCEPT AS NOTED.	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10 EXCEPT AS NOTED.	
250 √ FOR ALL DRILLED HOLES UNLESS OTHERWISE SPECIFIED.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .010R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF - .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ∫ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	

REVISIONS

REVISION LETTER	ITEM NO.	ZONE	AUTHORITY FOR REVISION: GRUMMAN INFO ONLY / SCCF OR ECP	CLASS II	CLASS I	DRL SPEC REQ	ENGRG ORDER	DESCRIPTION	REVISED BY AND DATE	EFFECTIVE ON MODULE NUMBER	DISPOSITION OF EXIST PARTS: RE-WORK	SCRAP	ENGRG APPD	GOVT APPD


DRILL #40 (.097-.102) (TYP 4 PLACES)
LUG @ X200.78 ¢ -Y15.86 (REF)
LDW280-17919-11 (REF)
LDW280-25540 FOR LEM1 & LTA8 (REF)
LDW280-23540 FOR LEM2 & LEM3 (REF)
1/2 TYP
+Z 65.906
3/16 (TYP)
(REF) LDW280-17919-15
(REF) LDW280-17919-13
LDW280-17919-15 (REF)
DETAIL A
ROTATED 90° CCW
-Y
SEE DETAIL "A"
-Y 9.250
+Z
-Z
Z65.906
+Y
NAS1133V-3 SCREW (REF)
AN960 D10L WASHER (REF)
MS21042L3 NUT (REF)
LDW280-17919-13 (1 REQ)
NAS42DD3-12 SPACER (2)
MS20470-AD3 (2)
2 INCH MIN SLACK REQ'D IN ASCENT LANYARD AND WIRE BUNDLE (REF)
TRUSS CORD (SUPPLIED BY INSTRUMENTATION)-MAX BREAKING STRENGTH 30#
LDW280-17919-11 (2 REQ)
MS20470-AD4 (8)
LDW280-17919-15 (2)
MS20470-AD4 (2)
¢ LUG
X200.78 (REF)
X200
1/2 MIN BW
(TYP) 3/16 (2)
3/16
6 11/32
6 29/32
7 1/32
8 21/32
8 11/16
5 3/4
-Y15.86 (REF)
X146 (REF)
-Y 9.250 (REF)

NOTES:

1. ALL INFORMATION NOT REQ'D FOR -1 INSTL IS FOR REF. ONLY.
2. LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT.

LDW280-28711-1

NO.	FINISHES	GRUMMAN STD SPEC	MILITARY SPEC NO.
2	CADMIUM PLATE	G. S. S.	
10	ZINC CHROMATE PRIMER	G. S. S.	
15	TINTED PRIMER: 1 COAT	G. S. S.	
76	ALODINE	G. S. S.	
80	ANODIZE	G. S. S.	

SYM	PROCESSES	GRUMMAN STD SPEC	MILITARY SPEC NO.
	AL HEAT TREAT		MIL-H-6088
	MAGNAFLUX		MIL-I-6868
	PENETRANT INSPECTION (ZYGLO)		MIL-I-6866
	THREADING		MIL-S-7742
	STEEL HEAT TREAT PSI ROCKWELL C TO C		

QTY REQ'D PER ASSY		-1	PART OR IDENTIFYING NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE (EA)	PROCESS SYMBOL	FINISH NO.	UNIT WT	ZONE
		A/R	MS20470-AD4	E		RIVET								
		A/R	MS20470-AD3	E		RIVET								
		2	NAS42DD3-12	E		SPACER								
		2	LDW280-17919-15	E		BRACKET	SEE DWG							
		1	LDW280-17919-13	E		BRACKET	SEE DWG							
		2	LDW280-17919-11	E		BRACKET	SEE DWG							
			LDW280-28711-1	E		SUPPORT INSTL					NONE	NONE		

5

MODEL	NEXT ASSY	MODULE NO.	REQ'D PER MODULE
LEM	LDW280-53509	LEM-3 (33)	1
LEM	LDW280-52509	LEM-2 (32)	1
LEM	LDW280-51509	LEM-1 (31)	1
LEM	LDW280-28509	LTA-8 (10)	1

PART NO. LDW280-28711-1
GRUMMAN SCH INFO FO-1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE UNLESS SPECIFIED FRACTIONS DECIMALS ANGLES ± 1/32 ± .020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE
GRUMMAN REL INFO
PRIM. NO

DRAWN BY
CHECKED BY
LAYOUT BY

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., N. Y.

SUPPORT INSTL
DESCENT STAGE-FIRE IN THE HOLE INTERSTAGE
INSTRUMENTATION - WIRE BUNDLE

CONTRACT NO. NAS9-1100 DOCUMENTATION TYPE II
CODE IDENT NO. 26512 SIZE F LDW280-28711
SCALE F LINE ITEM # 1 SHEET 1 OF 1

NAS 9-1100

H G. *

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28711 | EO NO. A1
CONTROL INFO NO. LM-2-2852

IN FLD/DWG, B/M & MOD/BLK
ADD -1-1 INSTL FOR LM-2(32) & LM-3(33); 1 REQD/MODULE
-1-1 IS IDENTICAL TO -1 INSTL EXCEPT THAT DIMENSION $8\frac{1}{16}$ SHOULD BE $8\frac{13}{16}$
NEXT ASSY: (LM-2) LDW280-52509 ; (LM-3) LDW280-53509
IN MOD/BLK
REVISE EFFECTIVITY OF -1
FROM: LTA-8(18), LM-1(31), LM-2(32), LM-3(33)
TO: LTA-8(18), LM-1(31)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ 2

REASON FOR EO: ELIMINATE INTERFERENCE BETWEEN BRACKET & STRUCTURE

DESCRIPTION OF EO: IN FLD/DWG, B/M & MOD/BLK ADDED -1-1 INSTL IN MOD/BLK FOR -1 INSTL, DELETED LM-2(32) & LM-3(33) REQUIREMENTS

GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM 2(32)	
		LM 3(33)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			-1

			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY						caw	caw		
DATE	9/30/66	10/19 VDI				10-1-66	10-1-66	10-4-66	10-3-66

PRIORITY: C
DRAWING TITLE: SUPPORT INSTL ~ D/S FIRE IN THE HOLE INTERSTAGE INSTR ~ WIRE BUNDLE
DRAWING NO.: LDW280-28711
EO NO.: A1

ISSUED BY LIAISON J. MALONEY X3604 SECTION V.D.I. GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28711
EO NO. A2
CONTROL INFO NO. LM5-11430

IN MOD BLK (FOR-1) REMOVE LM3(33)
(FOR-1-1) REMOVE LM1(31), LM2(32)

SHOP NOTE; (NOT TO BE INCORP ON DWG)
ON REMOVAL OF LDW280-17919 -11 PLUG HOLES WITH MS20470DD4
LDW280-17919 -13 " " " MS20470DD4
-15 " " " MS20470DD4

(REF) LDW280-17919- CONT NO LM5-11431

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: SUPT INSTL OF FIRE IN THE HOLE IS REDESIGNED

DESCRIPTION OF EO: IN MOD BLK FOR-1 REMOVED LM3(33) FOR-1-1 REMOVED LM2(32) LM1(31)

GAEC EO RELEASE: 5

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM1(31)	
LM		LM2(32)	
LM		LM3(33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	WT			~	JAB	CH	RMC	
DATE	12/15/66			~	12/15/66	12-15	12-20-66	[illegible]9/66
5	VDI							

PRIORITY: C
DRAWING TITLE: SUPT INSTL D/S-F.I.T.H. INTERSTAGE INSTRUM-WIRE BUNDLE
DRAWING NO.: LDW280-28711
EO NO.: A2

ISSUED BY D. RAGAS X6454 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

LDW280-28714 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28664	LM-3(33)	1
LM	LDW280-28664	LM-2(32)	1
PART NO. LDW 280-28714-7		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28664	LM-1(31)	1
PART NO. LDW 280-28714-5		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28664	LTA-8(18)	1
PART NO. LDW 280-28714-1		GAEC SCH NO. 52	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	B	B	B	B					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED B
LAST DASH NO. USED -7

GRUMMAN REL INFO B

PRIM NO.	LE001	
207	MP-14	B-1-23-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.030 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	V.SIBILLA 7-15-66	RELIABILITY	
LAYOUT BY	ZUVER 7-15	THERMO	R.HACKETT
CHECKED BY			
GR LEAD	J.STRAKOSCH 7-15		
VEH DES INT	W.BISCHOFF 7-16		
STRUCTURES	F.E.B. 7-16	PROJ ENGR	DeSena 7-26
STRUCTURES	R.HILDERMAN 7-16	REL GROUP	BOTTI 8-3-66
WEIGHTS	D.ROBESCH 7-25		

Ⓡ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSY (DES STAGE)
QUAD I UPPER PLUME IMPINGEMENT
THERMAL

SIZE B
CODE IDENT NO. 26512
LDW280-28714 B
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDES LDW280-28714 NO CHANGE 8-3-66

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED NO CHG LAST REV N.C. W. CONROY	12-29-66					
A	1	1.00 1.10 2.00 3.00						EO A1	ADDED -3 REMOVED LEM-4-5 & -6 EFF FROM -1	LEM-4-5 & -6		✓	W. CONROY 12-29-66 EG	1-19-67	
	2	1.00 1.10 2.00 3.00						EO A2	ON-1 REMOVED LDW280-28730-5 & LEM-1(31) LEM-2(32) & LEM-3(33) EFF ADDED LDW280-28730-9 ON-3 REMOVED LDW280-28730-7. ADDED LDW280-28730-13 ADDED -5 & -7 & NOTES 1 & 2 ON-1,3,-5 & -7 ADDED GHIIW HOLES	LTA-8(18) LEM-1 THRU LEM-6	✓				
	3	1.00 1.10 2.00 3.00					✓	EO A3	REF EO A2 ON-1 REMOVED LDW280-28730-1 WAS -5 ON-3 REMOVED LDW280-28730-5 WAS -7 ADDED IN MOD BLK REMOVE LM-1(31) LM-2(32) & LM-3(33) FROM -1	LTA-8(18) LM-1(31) THRU LM-3(33)	NOT	REQ			
B	1	1.00 1.10 2.00 3.00						EO B1	ON-1-5 & -7 ASSYS REMOVED LDW280-23720-1(13) & LDW280-17932-11(13) ADDED LDW280-23720-3(13) & LDW280-17932-13(13) ON-5 & -7 ADDED LDW280-51883-1	LTA-8(18) LM-1(31), LM-2(32) & LM-3(33)	✓				
	2	1.00 1.10 2.00 3.00						EO B2	ON-1-5 & -7 ASSYS REMOVED LDW280-28737-1-5 & -7 ADDED LDW280-28737-21-25 & -27 REMOVED -3 ASSY	LTA-8(18) LM-1(31) THRU LM-6(36)	✓	✓			
	3	1.10 2.00 3.00					✓	EO B3 Ⓡ	REF EO B1 ON-5 & -7 ADD LDW280-51883-3 WAS LDW280-51883-1	LM-1,-2 & 3	✓				

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO	PROJ ENG	REL GROUP		
A											
B											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28714	B
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

CL	QTY PER ASSEMBLY						CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C				1	1			LDW280-51833-3	E	SKIN ASSY	SEE DWG						4B
C				1	1	1		LDW280-28737-27		FOIL ASSY							3B
C				1	1	1		LDW280-28737-25		FOIL ASSY							3C
C				1	1	1		LDW280-28737-21		FOIL ASSY							3D
C					1			LDW280-28730-15		SKIN ASSY							3D
C				1				LDW280-28730-11		SKIN ASSY							3D
C						1		LDW280-28730-9		SKIN ASSY							3D
C				13	13	13		LDW280-23720-3		STAPLE ASSY							3B
C				13	13	13		LDW280-17932-13		WASHER	SEE DWG						3B
C								LDW280-28714-7		SHIELD ASSY					NONE	NONE	3A
C								LDW280-28714-5		SHIELD ASSY					NONE	NONE	3A
C								LDW280-28714-1	E	SHIELD ASSY					NONE	NONE	3A
▨				-7	-5	-1											

CL- CLEANLINESS PER LSP-14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

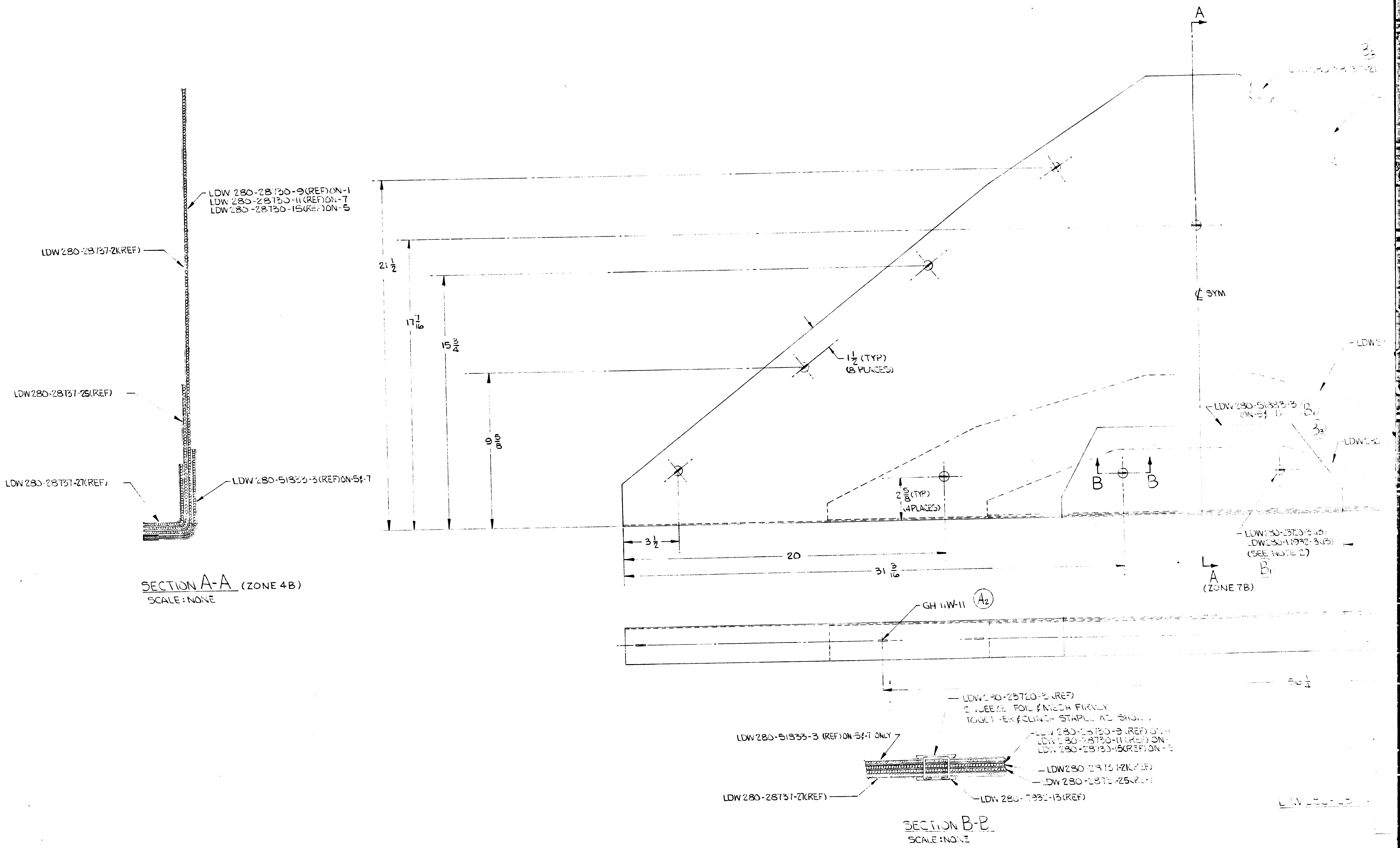
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28714	B
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01 NAS 9-1100

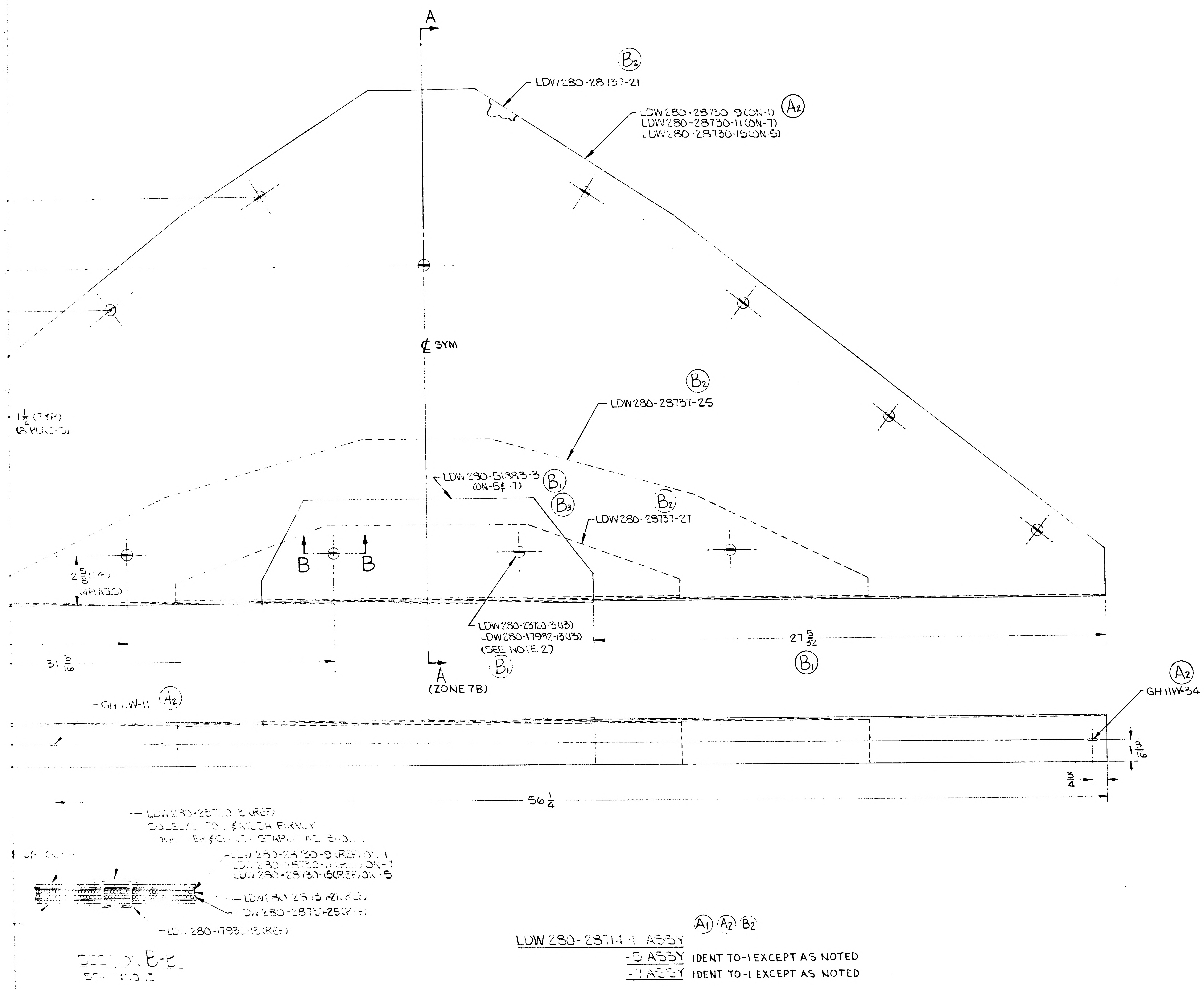
LDW280-28714 SH3


LDW 280-28730-9(REF)ON-1
LDW 280-28730-11(REF)ON-7
LDW 280-28730-15(REF)ON-5
LDW280-28737-21(REF)
LDW280-28737-25(REF)
LDW280-28737-27(REF)
LDW 280-51833-3(REF)ON-5&-7
SECTION A-A (ZONE 4B)
SCALE: NONE
A
21 1/2
17 7/16
15 3/4
9 5/8
1 1/2 (TYP) (8 PLACES)
2 5/8 (TYP) (4 PLACES)
3 1/2
20
31 3/16
℄ SYM
LDW280-51833-3 (ON-5&-7)
B₁
B₃
LDW2
LDW280
B
B
LDW280-23720-3(13)
LDW280-11932-3(13)
(SEE NOTE 2)
A
(ZONE 7B)
GH 11W-11
A₂
56 1/4
LDW280-23720-3 (REF)
SQUEEZE FOIL & MESH FIRMLY TOGETHER & CLINCH STAPLE AS SHOWN
LDW280-51833-3 (REF) ON-5&-7 ONLY
LDW 280-28730-9 (REF) ON-1
LDW 280-28730-11 (REF) ON-
LDW 280-28730-15(REF) ON-5
LDW280-28737-21(REF)
LDW 280-28737-25(REF)
LDW280-28737-27(REF)
LDW 280-11932-13(REF)
SECTION B-B
SCALE: NONE

01/02 NAS 9-1100

LDW280-28714 SH 3

NOTES:
1. TAPE PER LAC 280-4
2. DIRECTION OF CABLES OPTIONAL


A
B2
LDW280-28737-21
LDW280-28730-9(ON-1)
LDW280-28730-11(ON-7)
LDW280-28730-15(ON-5)
A2
℄ SYM
B2
LDW280-28737-25
1½ (TYP)
(8 PLACES)
LDW280-51383-3
(ON-5 & -7)
B1
B3
B2
LDW280-28737-27
2 5/8 (TYP)
(4 PLACES)
B
B
LDW280-23720-3(U3)
LDW280-17932-13(U3)
(SEE NOTE 2)
B1
31 3/16
A
(ZONE 7B)
27 5/32
B1
GH11W-11
A2
A2
GH11W-34
1 3/16
3/4
56 1/4
LDW280-23720-3(REF)
DOUBLE FOIL & MESH FIRMLY
TOGETHER & CLINCH STAPLE AS SHOWN
LDW280-28730-9(REF)ON-1
LDW280-28730-11(REF)ON-7
LDW280-28730-15(REF)ON-5
LDW280-28731-21(REF)
LDW280-28731-25(REF)
LDW280-17932-13(REF)
SECTION B-B
SCALE: NONE

A1 A2 B2

LDW280-28714-1 ASSY
-5 ASSY IDENT TO-1 EXCEPT AS NOTED
-7 ASSY IDENT TO-1 EXCEPT AS NOTED

02/02

NAS 9-1100

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▨ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R + .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 77

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 77)= 19.3 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 4.8 SQ. FT.

PRINT TRIM LINE

LDW280-28714 B

LDW280-28714 B

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28714	B
MODEL OR END ITEM	SCALE AS NOTED		SHEET 3 [illegible]	

2FRAMES

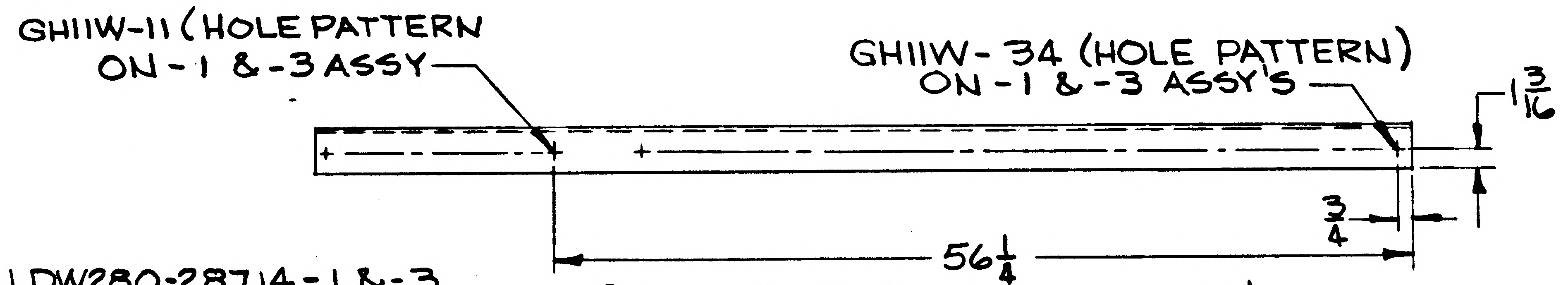
LDW280-28714 SH 3

ENG 32.1 REV 3-65

*

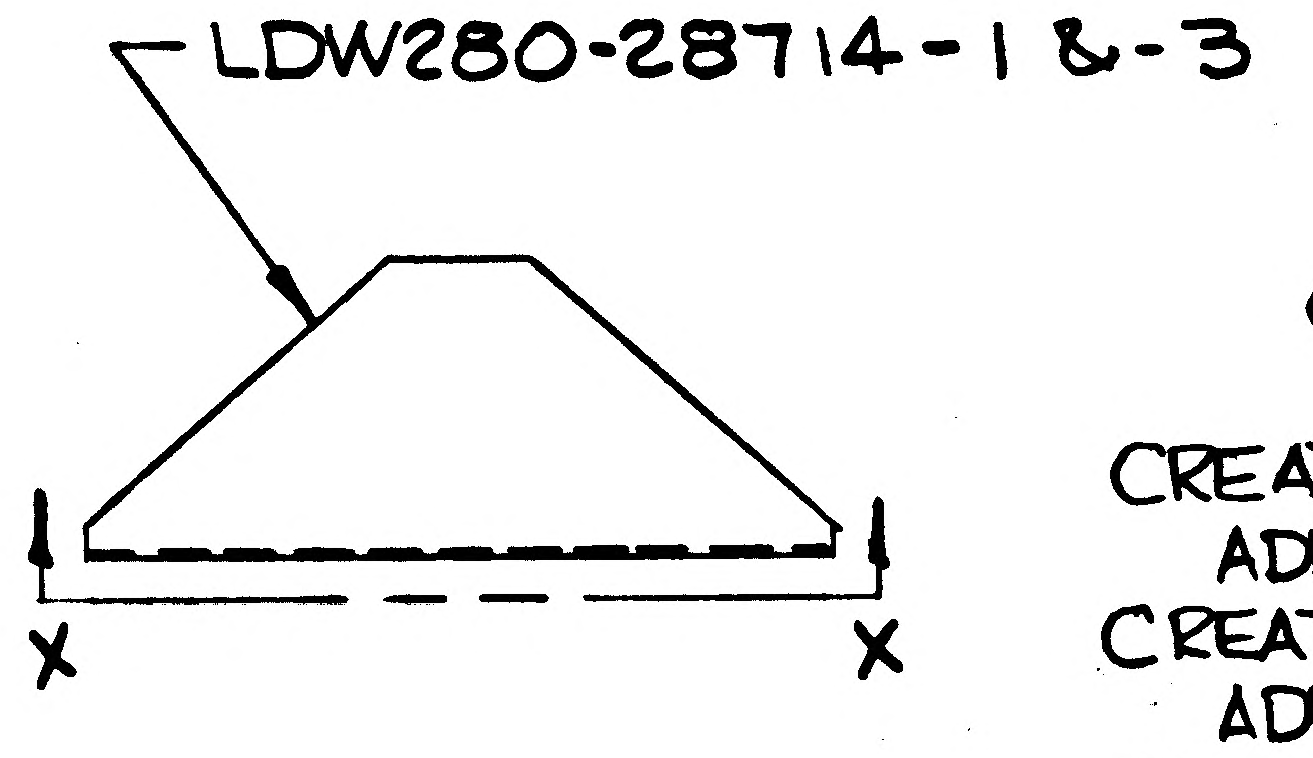
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28714 | EO NO. A2.
CONTROL INFO NO. LDW280-A-0297



GHIIW-11 (HOLE PATTERN ON -1 & -3 ASSY
GHIIW- 34 (HOLE PATTERN) ON -1 & -3 ASSY'S
1 3/16
3/4
56 1/4

(VIEW "X-X" FOR EO USE ONLY)



ON -1 ASSY REMOVE LDW280-28730-5 & ADD LDW280-28730-9 EFF TO BE LTA-8(18) ONLY
CREATE -5 ASSY IDENTICAL TO -1 EXCEPT REMOVE LDW280-28730-9 & ADD LDW280-28730-15 EFF TO BE LM-1 ONLY N/A LDW280-28664
CREATE -7 ASSY IDENTICAL TO -1 EXCEPT REMOVE LDW280-28730-9 & ADD LDW280-28730-11. EFF TO BE LM-2 & LM-3 N/A LDW280-28664
ON-3 ASSY REMOVE LDW280-28730-7 & ADD LDW280-28730-13
ADD GHIIW HOLES TO -1, -3, -5 & -7 AS SHOWN
ADD NOTE * "TAPE PER LPC280-4"
ADD NOTE ** "DIRECTION OF STAPLES OPTIONAL"
(-1 MAY BE REWORKED TO -3) (*,**) USE NEXT AVAILABLE NOTE NO.)

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☐

2

REASON FOR EO: ADDITIONAL THERMAL REQUIREMENTS

DESCRIPTION OF EO: ON-1 REMOVED LDW280-28730-5 & LEM-1(31) LEM-2(32) & LEM-3(33) EFF ADDED LDW280-28730-9. ON-3 REMOVED LDW280-28730-7. ADDED LDW280-28730-13. ADDED -5 & -7 & NOTES *, **. ON -1, -3, -5 & -7 ADDED GHIIW HOLES

GAEC EO RELEASE: FR 9/29/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8(18)	
LEM		LEM-1(3) THRU	
LEM		LEM-6(36)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		-1	

APPROVED BY	MS	SAR		MS	NJH		RMC
DATE	9/10/66	10-3		10/25/66	9/12/66		9-29
9-10-66	VDI	~~SUPPORT~~ WJ	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

Fred 9/26/66

PRIORITY: C

DRAWING TITLE: SHIELD ASSY (DES. STG.) QUAD I UPPER PLUME IMPINGEMENT THERMAL

DRAWING NO. LDW280-28714 | EO NO. A2

ISSUED BY E. MOUQUIN x1153 SECTION VEH. DES. INT. GROUP NO. 335 PL 35

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NAS 9-1100

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NAS 9-1100

ENG 32.2 REV 3-65

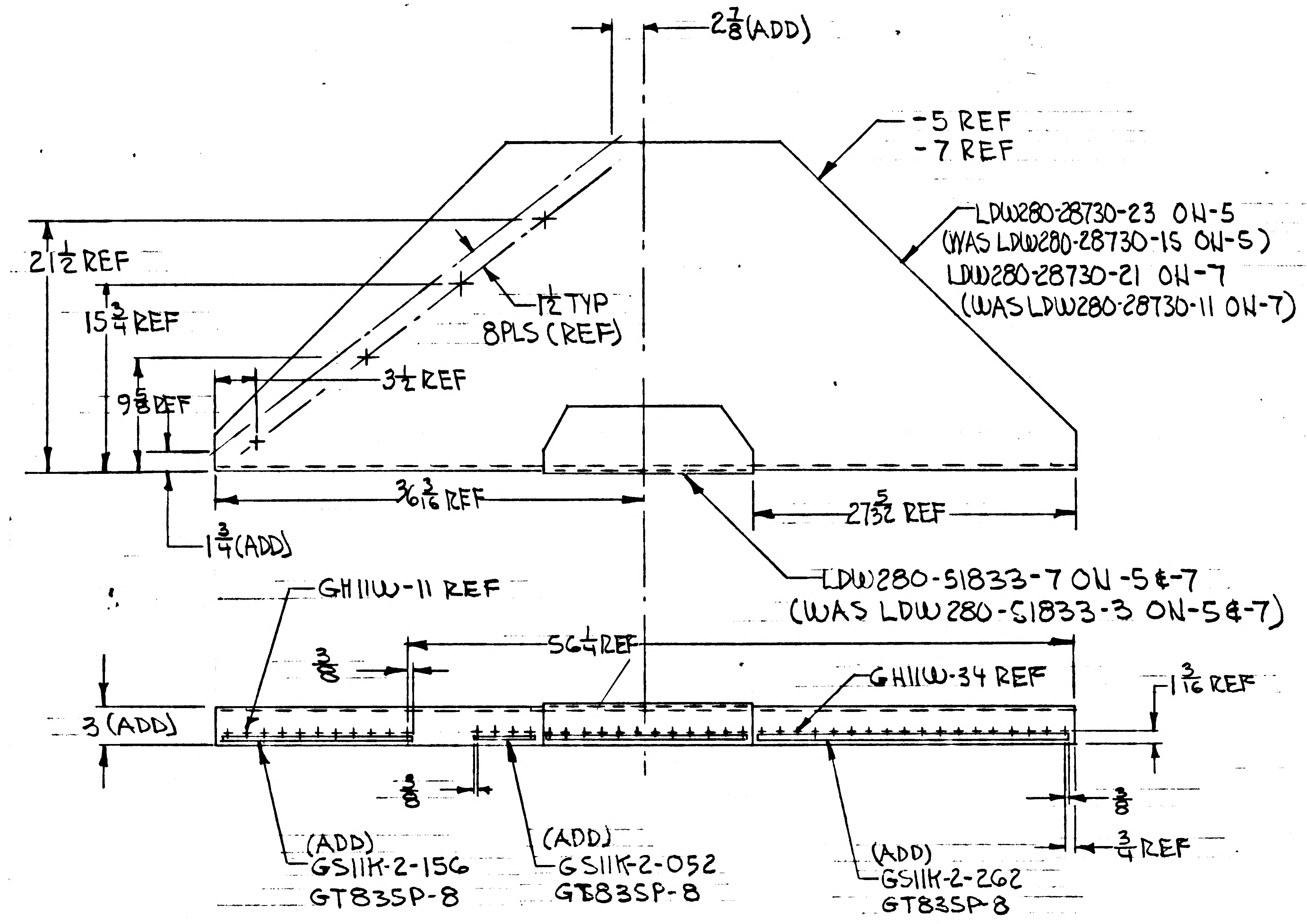
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28714 | EO NO. C1
CONTROL INFO NO. LDW280A-5461

IN F/D & L/M FOR-5 REMOVE LDW280-28730-15 SKIN ASSY & LDW280-51833-3 SKIN ASSY & ADD LDW280-28730-23 SKIN ASSY & LDW280-51833-7 SKIN ASSY

IN F/D & L/M FOR-7 REMOVE LDW280-28730-11 SKIN ASSY, LDW280-51833-3 SKIN ASSY AND ADD LDW 280-28730-21 SKIN ASSY & LDW280-51833-7 SKIN ASSY

IN F/D & L/M FOR-5 & -7 ADD DIMS, GS11K-2-262, GS11K-2-052, GS11K-2-156 & GT83SP-8 AS SHOWN BELOW


$2\frac{7}{8}$ (ADD)
-5 REF
-7 REF
LDW280-28730-23 ON-5
(WAS LDW280-28730-15 ON-5)
LDW280-28730-21 ON-7
(WAS LDW280-28730-11 ON-7)
$21\frac{1}{2}$ REF
$15\frac{3}{4}$ REF
$\frac{1}{2}$ TYP
8 PLS (REF)
$3\frac{1}{2}$ REF
$9\frac{5}{8}$ REF
$36\frac{3}{16}$ REF
$27\frac{5}{32}$ REF
$1\frac{3}{4}$ (ADD)
LDW280-51833-7 ON-5 & -7
(WAS LDW 280-51833-3 ON-5 & -7)
GH11W-11 REF
$56\frac{1}{4}$ REF
GH11W-34 REF
$1\frac{3}{16}$ REF
$\frac{3}{8}$
3 (ADD)
$\frac{3}{8}$
$\frac{3}{8}$
$\frac{3}{4}$ REF
(ADD)
GS11K-2-156
GT83SP-8
(ADD)
GS11K-2-052
GT83SP-8
(ADD)
GS11K-2-262
GT83SP-8

ADD NOTE* FABRICATE PER LPC280-25 (USE NEXT AVAILABLE NOTE No)

DESCRIPTION OF EO CONTINUED

LDW280-51833-7. FOR-5 & -7 ADDED $2\frac{7}{8}$, $1\frac{3}{4}$ & 3 DIM & GS11K-2--- & GT83SP-8. ADDED NOTE: FABRICATE PER LPC280-25

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LCR 928 IMPROVE PAINT ADHESION	FOR-5 REMOVED LDW280-28730-15 ADDED LDW280-28730-23 FOR-7 REMOVED LDW280-28730-11 ADDED LDW280-28730-21 FOR-5 & -7 REMOVED LDW280-51833-3 & ADDED--SEE CONTINUATION	C JK 3/7/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	LM-3(33)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY							Dam	
DATE	2/28/67			2/27/67	3/2/67		3/2/67	3/7/67
5	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY QUAD I UPPER DES STAGE	LDW280-28714	C1

ISSUED BY G ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 35

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LEO 280
EO NO. 704
CONTROL INFO NO. LDW 280 A 7882

FOR THE NOTED DWGS, REVISE EFFECTIVITY AS SHOWN:

DWG NO.	DASH NO. ▲	DWG TITLE	EFF (NOW) ǂ	EFF (WAS) *	CHANGE NO.
LDW 280-28714 ✓	-7	SHIELD ASSY DESCENT STAGE PLUME IMPINGEMENT	LM-2 (32)	LM-2(32) & LM-3(33)	C2
-28736	-7	SHIELD ASSY, D/S QUAD II PLUME IMPINGEMENT	LM-2 (32)	LM-2(32) THRU LM-15(45)	A6
-28745	-5	SHIELD ASSY, D/S QUAD III PLUME IMPINGEMENT	LM-1(31) & LM-2(32)	LM-1(31) THRU LM-15(45)	C1
LDW280-28754	-9	SHIELD ASSY, D/S QUAD IV PLUME IMPINGEMENT	LM-2 (32)	LM-2(32) THRU LM-15(45)	A10

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1244 OK

5

REASON FOR EO: TO PROVIDE FOR FITH SHIELD

DESCRIPTION OF EO: FOR THE DWGS NOTED, RESTRICTED DASH No (▲) NOW (ǂ) WAS (*)

(P) GAEC EO RELEASE: JK 9/1/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU	
LM		LM-15(45	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY							
DATE	8/30/67			8/30/67	8/31/67		8/31/67	9/1/67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO 280-
EO NO.: 704

9/1 ISSUED BY A. RICHER X1302/ J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
								LEM	LDW280-28658	LTA-8 (18)	4
								LEM	LDW280-28657	LTA-8 (18)	4
PART NO.		GAEC SCH NO.		PART NO.		GAEC SCH NO.		PART NO. LDW280-28721-1		GAEC SCH NO. 50	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REL INFO A	
LAST DASH NO. USED	-1	PRIM NO. 207	K001 ME-1A 3/21/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/64 ±.010 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	L.M. Grieco 5-21-66	WEIGHTS	W.G. Mauras 6/2
LAYOUT BY		RELIABILITY	
CHECKED BY			
GR LEADER	5/23/66		
VEH DES INT	5/24/66		
STRUCTURES	5/25/66	PROJ ENGR	Plunkett 2 June
STRUCTURES	Hildurman 5/25	REL GROUP	Botte 6-6-66
MATLS	5/24		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STAND-OFF ASSY
DESCENT STAGE-THERMAL SHIELD
UPPER DECK-HELIUM SYSTEM ACCESS

SIZE	CODE IDENT NO.		
B	26512	LDW280-28721	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 9-64

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	2.00 3.00 1.10							INC EO A1 ADDED SH. 1.10	LTA8 (18) LM1 (31) THRU LM6 (36)			P. RIPORTELLA 3-17-69		
	2	1.00							INC LEO 280-476	LM7 (37) THRU LM15 (45)					
	3	1.00							INC EO A3	LM1 (31) THRU LM15 (45)					
	4	1.00							INC EO A4						
	5	1.00							INC EO A5	LM2 (32)					
	6	1.00		P					INC LEO 280-821	LM3 (33) THRU LM15 (45)					
	7	1.00							INC EO A7	LM1 (31)					
	8	1.00						Ⓟ	INC EO A8	LM1 (31) & LM2 (32)		N.D.		L.D.	

CHG APPROVED											
LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	MATLS	WEIGHTS	RELIABILITY				
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28721	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AR		SEE NOTE 1		ADHESIVE			EPON 934				
1		LDW280P17571-13	E	STANDOFF	(SEE DWG)						
1		LDW280P17575-13	E	WASHER	(SEE DWG)						
		LDW280-28721-1	E	STANDOFF ASSY							

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-28721 | A

SCALE NONE | SHEET 2.00

ENG 77.2 7-65

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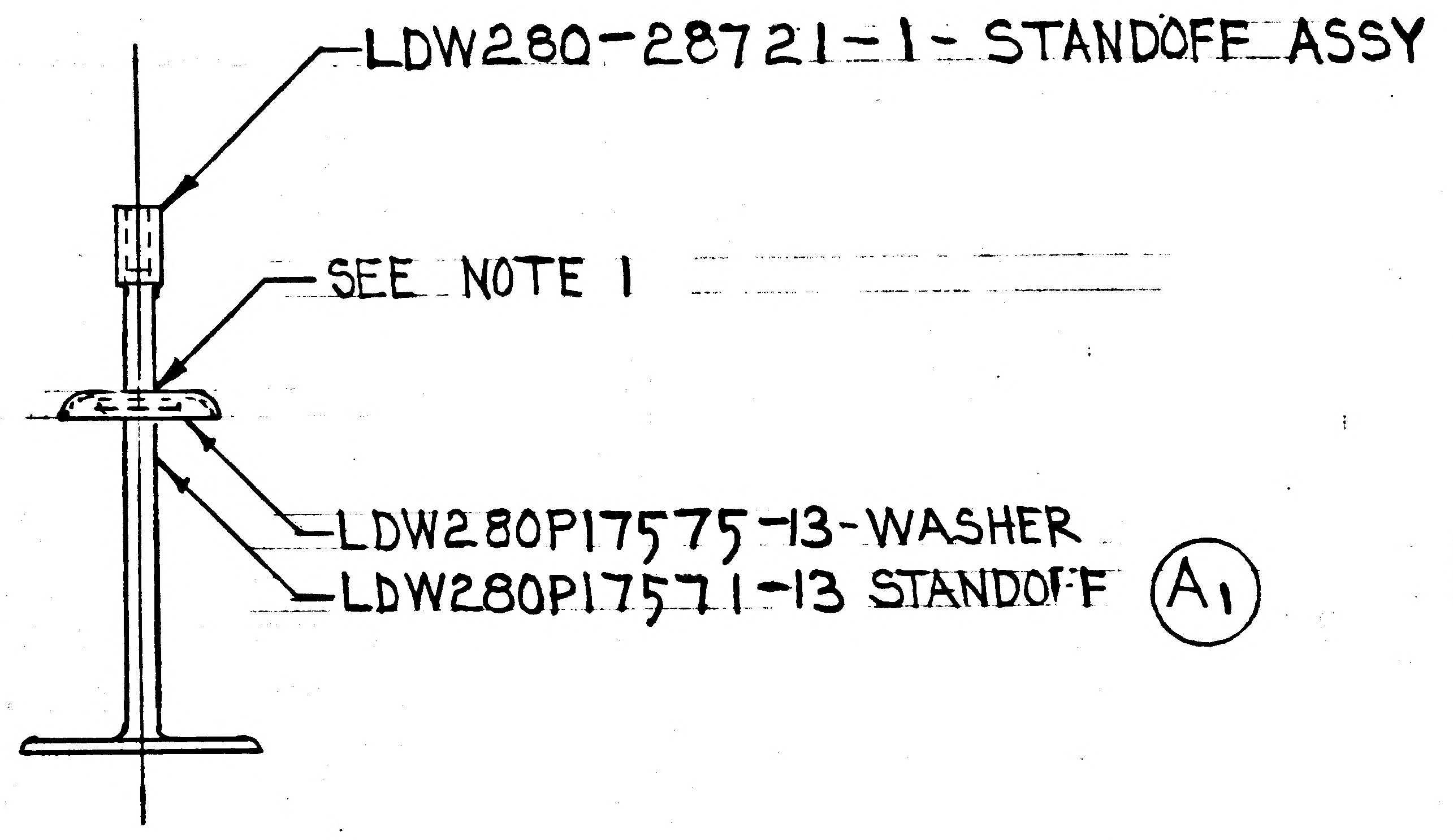
NAS 9-1100


LDW280-28721-1-STANDOFF ASSY
SEE NOTE 1
LDW280P17575-13-WASHER
LDW280P17571-13 STANDOFF
A1

NOTES: 1 BOND WASHER TO STANDOFF WITH
EPON 934 PER LSP 14-22500

LAYOUT RELEASE TO BE REDRAWN
ON PROD FORMAT

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28721	A
SCALE FULL		SHEET 3.00	

ENG 73.1 6-64

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LDW280-28721
EO NO. A1
CONTROL INFO NO. LM-27-253

IN FIELD & B/M FOR -1 ASSY LDW 280 P 17571-13
WAS LDW 280 P 17571-11.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	27

REASON FOR EO: -13 REPLACING -11 FOR THERMAL SHIELD. REF EO LDW-280P17571 A1

DESCRIPTION OF EO: ON -1 ASSY LDW 280P 17571-13 WAS LDW 280 P 17571-11

GAEC EO RELEASE: FR

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-8(18) LM-2(32) LM-5(35)	LM-1(31) LM-3(33) LM-4(34) LM-6(36)

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY						J. Tobey		
DATE	10-13-66				10-14-66	10-13-66	10-19-66	10-18-66
	VD1							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C 27	STAND-OFF ASSY DESCENT STAGE UPPER DECK	LDW280-28721	A1

ISSUED BY LIAISON B WALLACE 1921 4093 SECTION VD1 GROUP NO. 335 35

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO280 EO NO. 76
INFO NO. LDW280 L 5542

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS * THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45). QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280 - 25703 ✓	A6	SEE DRAWING
-25704 ✓	B1	↑
-25706 ✓	B1	
-25707 ✓	B4	
-25708 ✓	B6	
-28647 ✓	C1	
-28652 ✓	B8	
-28669 ✓	A3	
-28672 ✓	C1	
-28721 ✓	A2	
-28727	B2	
-28752	B3	
-28761	A4	
-28762	A1	
-28771	B5	
-28774	A8	
-28776	A1	
-28778	A1	
-28779	A4	
-28803	A3	
-28816	A2	
-28819	A2	
-51560	C1	
-51818	A3	
-51823	A1	
-52723	A5	
↓		↓
LDW280		SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDITIONAL REQUIREMENTS	FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.	FR 2/23/2

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
					WJH		RMC	
DATE	0				2/15/67		2-16-67	2-17-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
PD NO.: 476

ISSUED BY M. GREY / J. STRAKOSCH X-1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL 35

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NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28721
EO NO. A3
CONTROL INFO NO. LDW280A-6318

IN M/B, ADD TO LDW280-28721-1 AS FOLLOWS:
N/A LDW280-51658, EFF LM-1(31), 4 REQD/MOD
N/A LDW280-52658, EFF LM-2(32) THRU LM-15(45), 4 REQD/MOD

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: CHANGE DETAIL DWG TO AGREE WITH N/A

DESCRIPTION OF EO: IN M/B, TO -1 ADDED N/A LDW280-51658 EFF LM-1(31) & N/A LDW280-52658 EFF LM-2(32) THRU LM-15(45).

GAEC EO RELEASE: 27 C JK 9/21/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY							
DATE	4/8/67			4/8/67	4/10/67		4/13	4-21-67
6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~COG~~

PRIORITY: C

DRAWING TITLE: STAND-OFF ASSY, D.S. THERMAL SHIELD UPPER DECK HE SYST ACC

DRAWING NO.: LDW280-28721

EO NO.: A3

ISSUED BY E. FRANK / J. STRAKOSCH X1153 SECTION VDZ GROUP NO. 335 PL 25

C

FITH

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28721
EO NO. A5
CONTROL INFO NO. LDW280A7364

IN M/B: FOR -1 QTY ON N/A LDW280-51657 EFF LM-2(32)
TO BE 1 (WAS 4)
: FOR -1 REMOVE N/A LDW280-52658 EFF LM-2(32)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD-1244

5

REASON FOR EO: TO PROVIDE FOR FITH SHIELD

DESCRIPTION OF EO: IN M/B FOR-1: QTY ON N/A LDW280-51657 EFF LM-2 (1) REQ WAS (4). REMOVED N/A LDW280-52658 EFF LM-2(32)

Ⓡ GAEC EO RELEASE: VK 6/16/7 C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	JAP			Jay	W/H		Dam	
DATE	6/12/67			6/12/67	6/13/67		6/15/67	6/16/67
5	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: STANDOFF ASSY-D.S.-THERMAL SHIELD-UPPER DK He SYSTEM ACC.
DRAWING NO.: LDW280-28721
EO NO.: A5

ISSUED BY STEA / STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LE0280
EO NO. 821
CONTROL INFO NO. LDW280B0574

FOR ALL DASH NUMBERS & NEXT ASSYS. IN M/B OF THE FOLLOWING DWGS. REMOVE LM-3(33) THRU LM-15(45) REQUIREMENTS

ITEM	DWG. NO.	TITLE	CHANGE NUMBER
1.	LDW280-23712	SEE DWG	C8 ✓
2.	-23713		B8 ✓
3.	-28721		A6 ✓
4.	P17571		B6
5.	P17572		B7
6.	LDW 280 P17574	SEE DWG	B4
7.	LDW 280 P17523	SEE DWG	B3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD2360

(5)

REASON FOR EO: PLUME HEATING PROTECTION

DESCRIPTION OF EO: REMOVED EFF. LM-3(33) THRU LM-15(45) FROM N/A

GAEC C EO RELEASE: JK 12/26/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓			✓	APPROVED BY								Batt
				DATE	12/19/67			12-19-67	12/26/67		12/26/67	12-26-67
REVISE DWG	RECORD EO	REWORK	SCRAP	P	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LE0280	821

21 DEC. 67 J.J. ROGERS
ISSUED BY E.V.R. CASE/H. PALLMEYER/P. THORJUSEN X1153 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28721
EO NO. A1
CONTROL INFO NO. LDW280B0874

ON -1 ASSY: ADD N/A LDW280-51657 (4 REQ'D/MOD)
EFF: LM-1(31)

DETAIL SPEC REQ ☑ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

(5)

REASON FOR EO: REVISED DWG. TO AGREE WITH N/A. (CDR LIST)

DESCRIPTION OF EO: ON-1: ADDED LDW280-51657 EFF: LM1(31) (4) REQ'D/MOD.

GAEC EO RELEASE: Ⓡ C JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQ'D	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					NM			
DATE	12/21/67			12/21/67	12/26/67		12/21/67	12-28-67
	VDI							

PRIORITY: E
DRAWING TITLE: STAND OFF ASSY ~ D/S UPPER DECK
DRAWING NO.: LDW280-28721
EO NO.: A1

ISSUED BY L.J. ROGERS / P. THORJUSEN X1392 SECTION VEH DES & INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28721

EO NO. A8

CONTROL INFO NO. LDW280B1179

IN B/M ON -1,
REMOVE N/A LDW280-51657 EFF: LM-1(31) 4 REQ'D PER MOD.
REMOVE N/A LDW280-51657 EFF: LM-2(32) 4 REQ'D PER MOD.
REMOVE N/A LDW280-28658 EFF: LM-1(31) 4 REQ'D PER MOD.
REMOVE N/A LDW280-28658 EFF: LM-2(32) 4 REQ'D PER MOD.

(5)

DETAIL SPEC REQ ✓ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: REVISED DWG. TO AGREE WITH N/A (CDR LIST)

DESCRIPTION OF EO:
IN B/M ON -1,
REMOVED N/A LDW280-51657 EFF: LM-1(31) & LM-2(32)
REMOVED N/A LDW280-28658 EFF: LM-1(31) & LM-2(32)

GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQ'D	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY

DATE 1/11/68 1-11-68 1/11/68 1-16-68

VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: E

DRAWING TITLE: STANDOFF ASSY - D/S - THERMAL SHIELD UPPER DECK - He SYSTEM ACCESS

DRAWING NO. LDW280-28721

EO NO. A8

ISSUED BY D. SHAPIRO / P. THORTUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

LDW280-28722

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28509	LEM-1 (31)	1
LEM	LDW280-28509	LTA-3 (13)	1
PART NO. LDW280-28722-1		GAEC SCH NO. 50-3	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	2.01	3.00		4.00		
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED N

LAST DASH NO. USED -1

GRUMMAN REL INFO

PRIM NO.	LE(001)		
207	MP	7/2-6x	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/16 ±.010 ±30'

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM 1

DOCUMENTATION TYPE II

DRAWN BY
LAYOUT BY C. RUSSO 6/17/6-
CHECKED BY
GP LEADER J. Stralenko 7/6/66
VEH. DES INT 7/6
STRUCTURES FEP 7/8
STRUCTURES Hilderman 7/8
WEIGHTS A Robert 7/14

RELIABILITY
PROJ ENGR R. Plunkett 14 July
REL GROUP WA 7/15/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAP INSTALLATION
DESCENT STAGE
DIAGONAL TEE SUPPORT

SIZE B
CODE IDENT NO. 26512
LDW280-28722
SCALE NONE
SHEET 1.00 OF 4

G 77.1 12-65

THIS IS AN ORIGINAL DWG.

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NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1		LDW280-17966-59	E	STRAP	SEE DWG						
1		-55									
1		-53									
1		-51									
1		-49									
1		-47									
1		-43									
1		-41									
1		-39									
2		-37									
1		-35									
1		-33									
1		-31									
1		-29									
2		-27									
1		-25									
1		-23									
1		-21									
1		-19									
1		-17									
1		-15									
1		-13									
2		LDW280-17966-11	E	STRAP	SEE DWG						
		LDW280-28722-1	E	STRAP INSTL					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28722

SCALE NONE

SHEET 2.00

THIS IS AN ORIGINAL DWG.

ENG 77.8 7-66

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NAS 9-1100

						✓		MS20426AD3		RIVET	STD PART						
						✓		MS20470AD4.		RIVET							
						26		AN960D6L		WASHER							
						26		NAS697A06L		NUT PLATE							
						13		NAS1131V3		BOLT							
						13		NAS1131V1		BOLT	STD PART						
								LDW280-28722-1	E	STRAP INSTL							
QTY PER ASSEMBLY						-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28722

SCALE NONE

SHEET 2.01

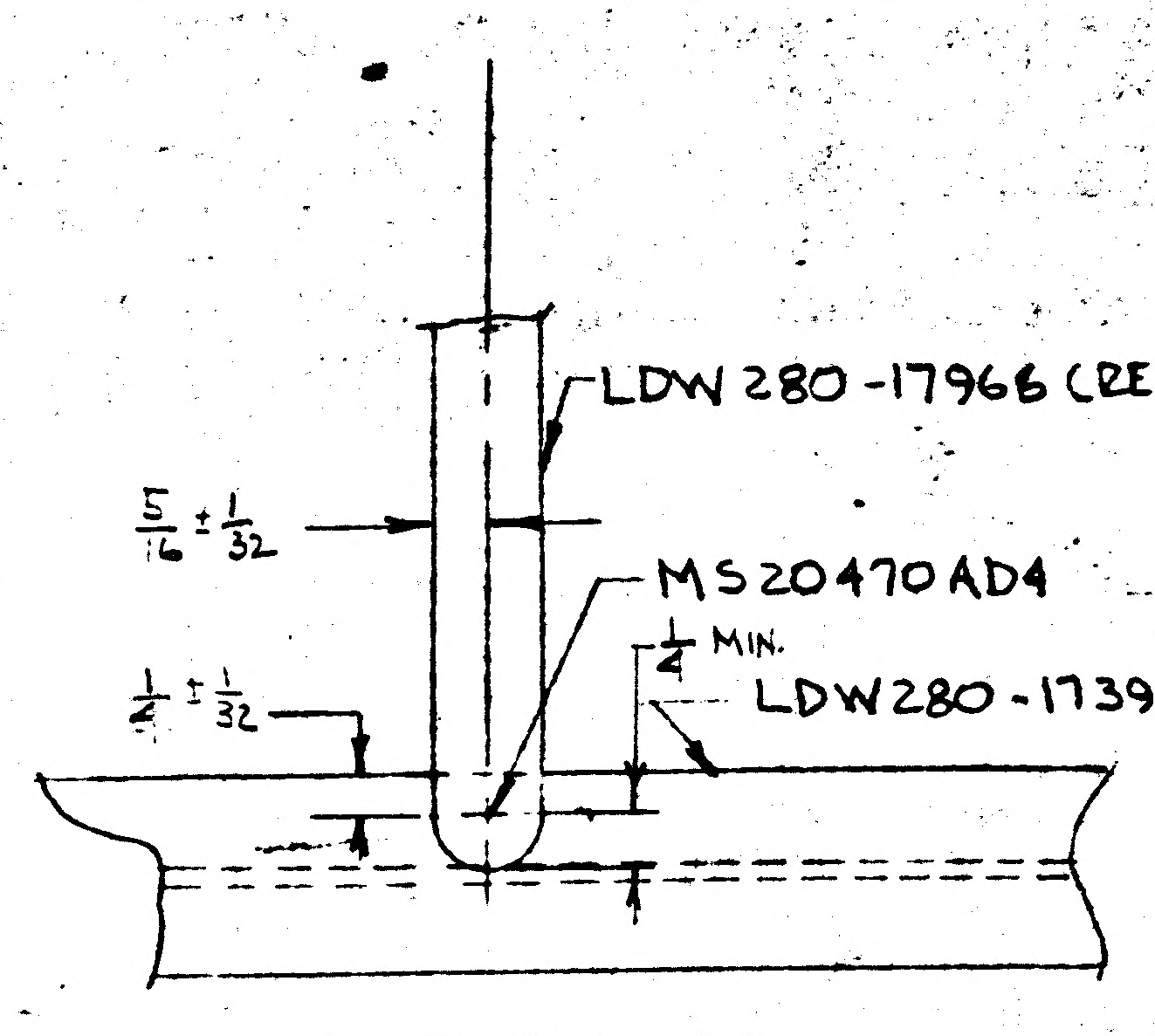
THIS IS AN ORIGINAL DWG

ENG 77.2 7-65

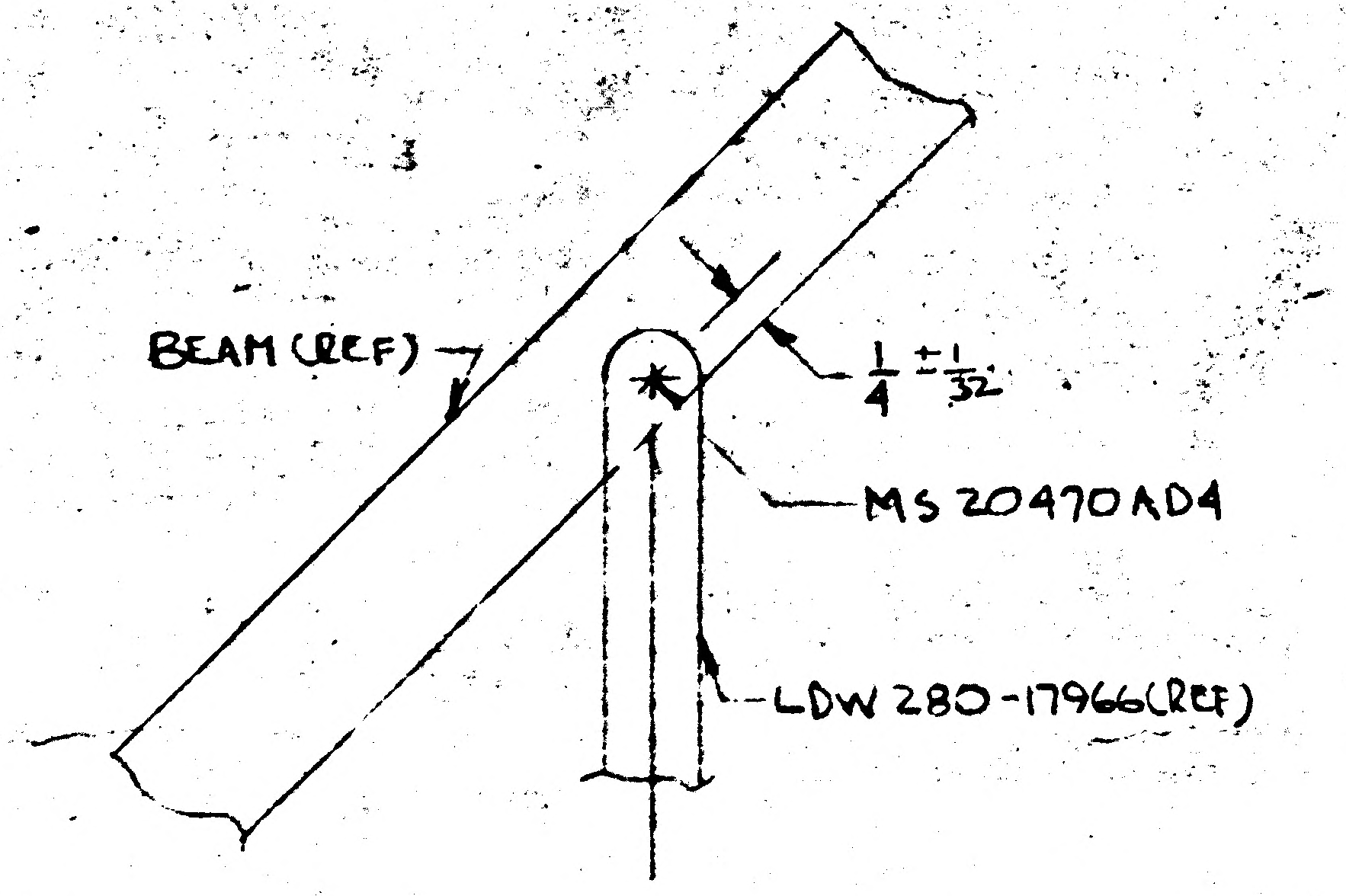
01

NAS 9-1100

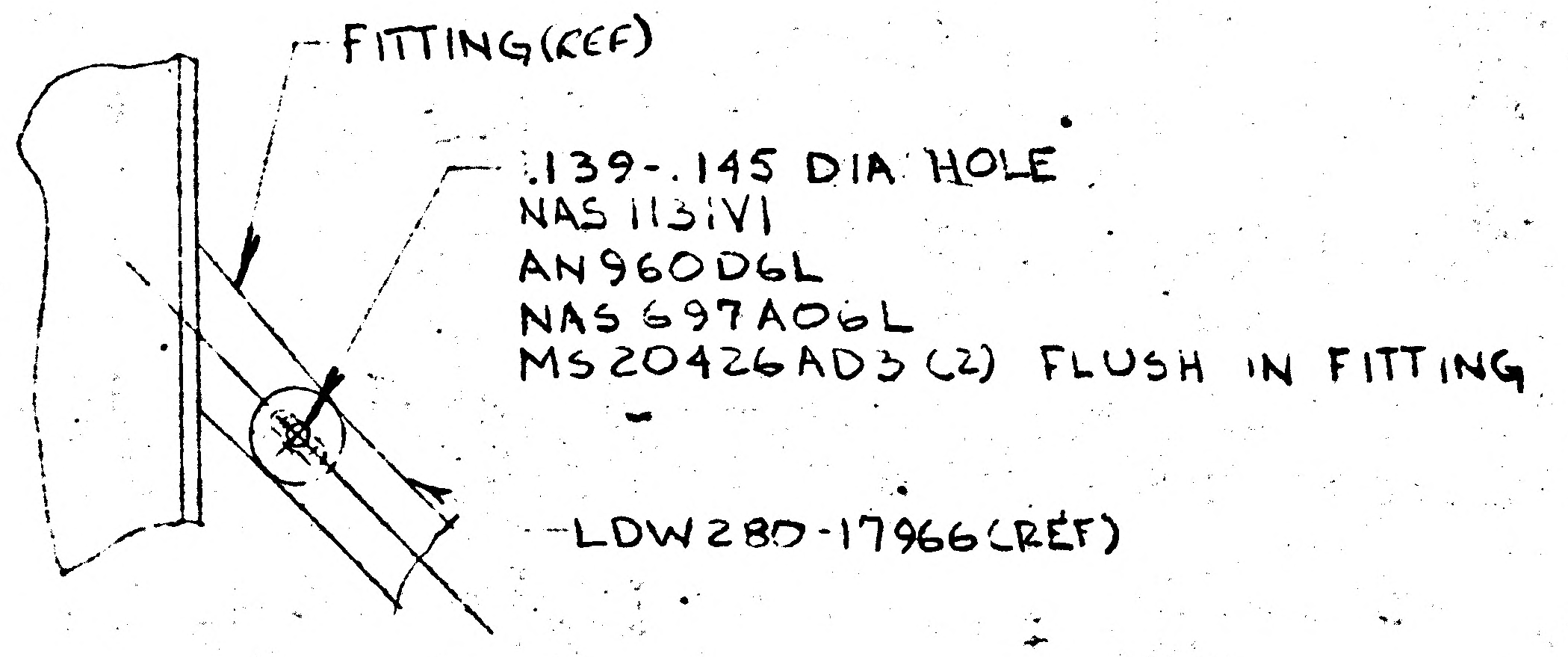
01/03 NAS 9-1100


LDW 280-17966 (REF)
$\frac{5}{16} \pm \frac{1}{32}$
MS20470AD4
$\frac{1}{4}$ MIN.
LDW280-17398(REF)
$\frac{1}{4} \pm \frac{1}{32}$

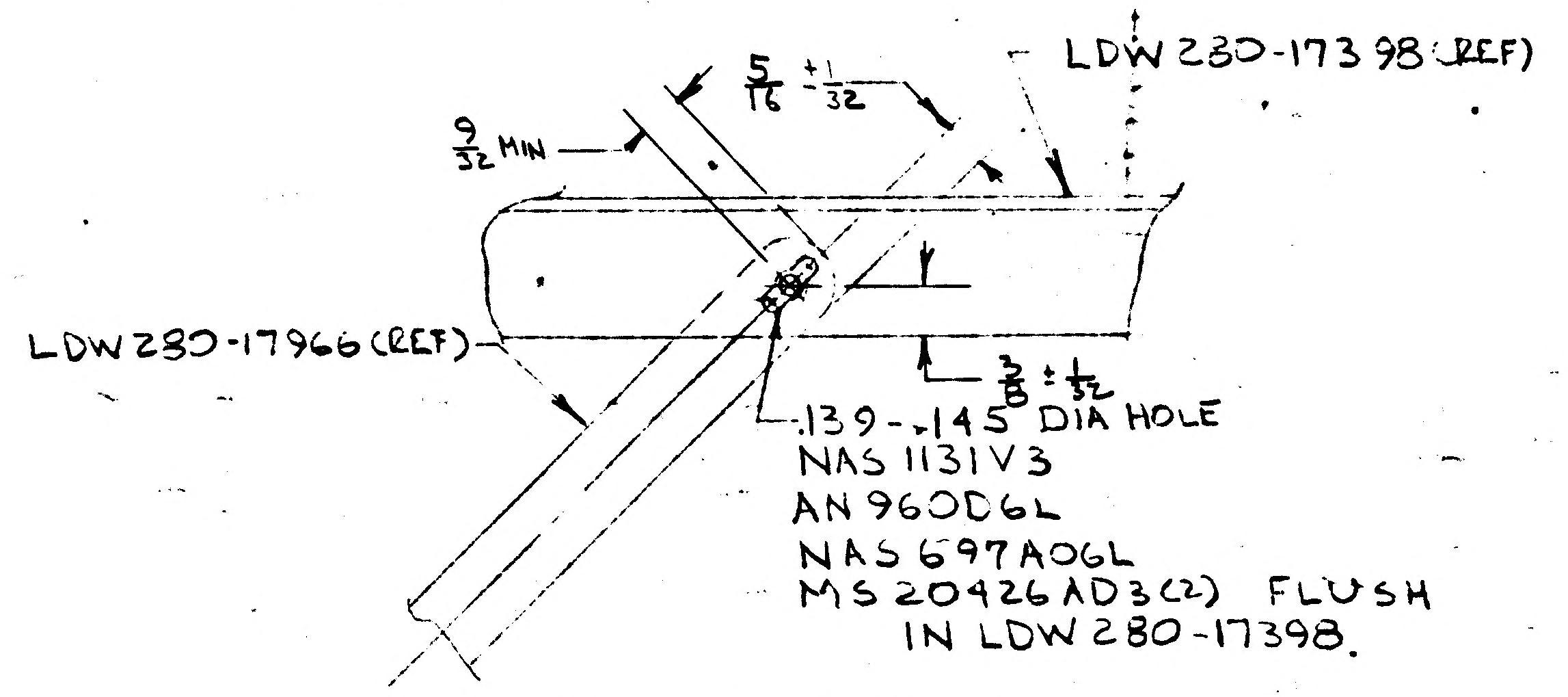
DETAIL M
TYPICAL 8 PLACES
SCALE: NONE
SEE PROCEDURE NOTE 4


BEAM (REF)
$\frac{1}{4} \pm \frac{1}{32}$
MS20470AD4
LDW 280-17966(REF)

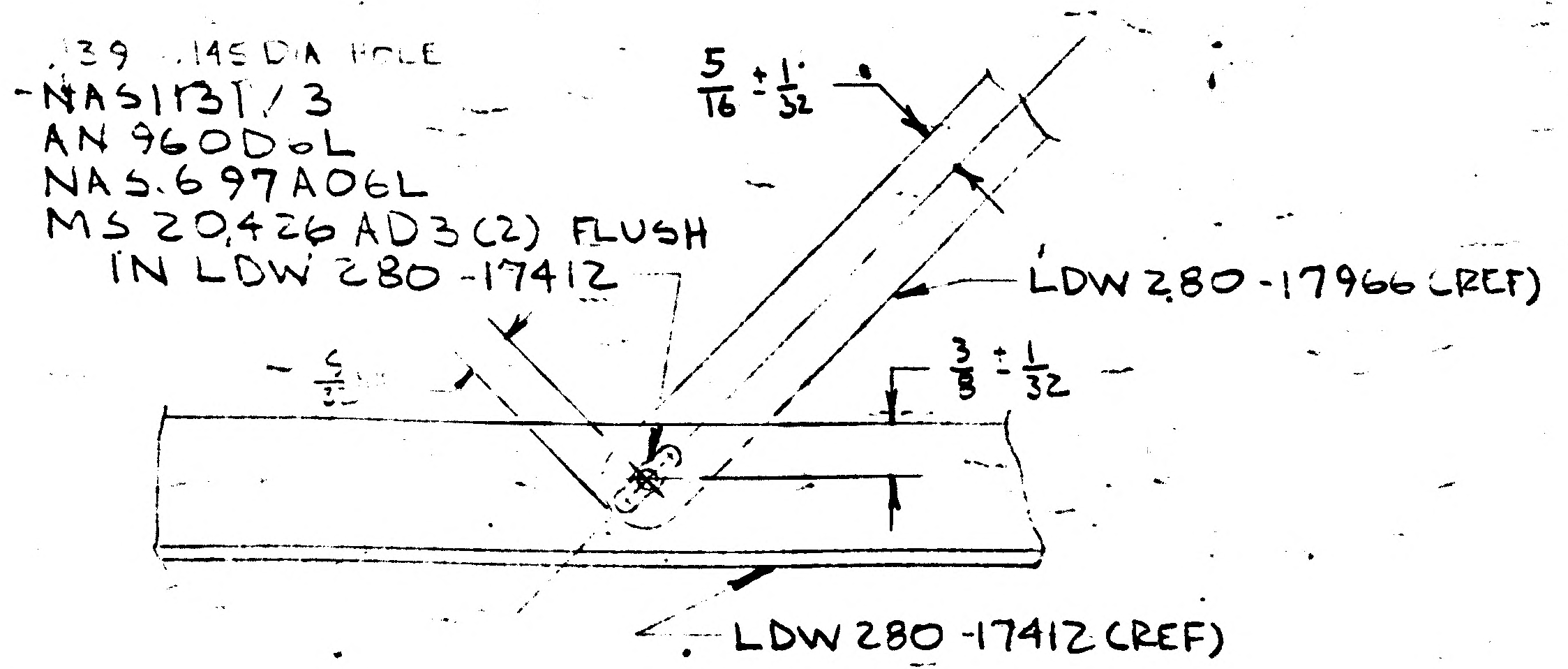
DETAIL N
TYPICAL 8 PLACES
SCALE: NONE
SEE PROCEDURE NOTE 4


FITTING(REF)
.139-.145 DIA HOLE
NAS 1131V1
AN960D6L
NAS 697A06L
MS20426AD3 (2) FLUSH IN FITTING
LDW 280-17966(REF)

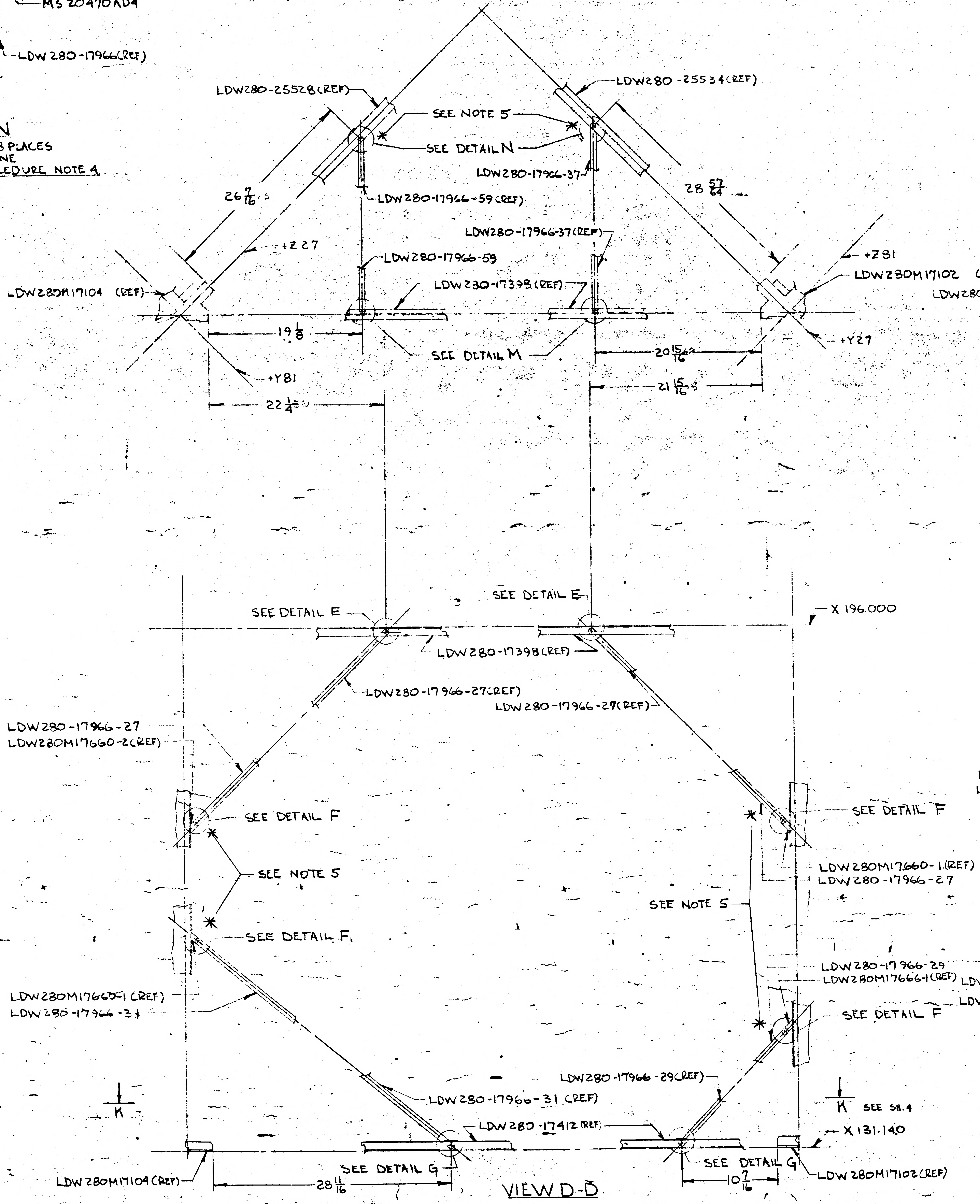
DETAIL F
TYPICAL 13 PLACES
SCALE: FULL


LDW 280-17398(REF)
$\frac{9}{32}$ MIN
$\frac{5}{16} \pm \frac{1}{32}$
LDW280-17966(REF)
$\frac{3}{8} \pm \frac{1}{32}$
.139-.145 DIA HOLE
NAS 1131V3
AN960D6L
NAS 697A06L
MS20426AD3(2) FLUSH
IN LDW 280-17398.

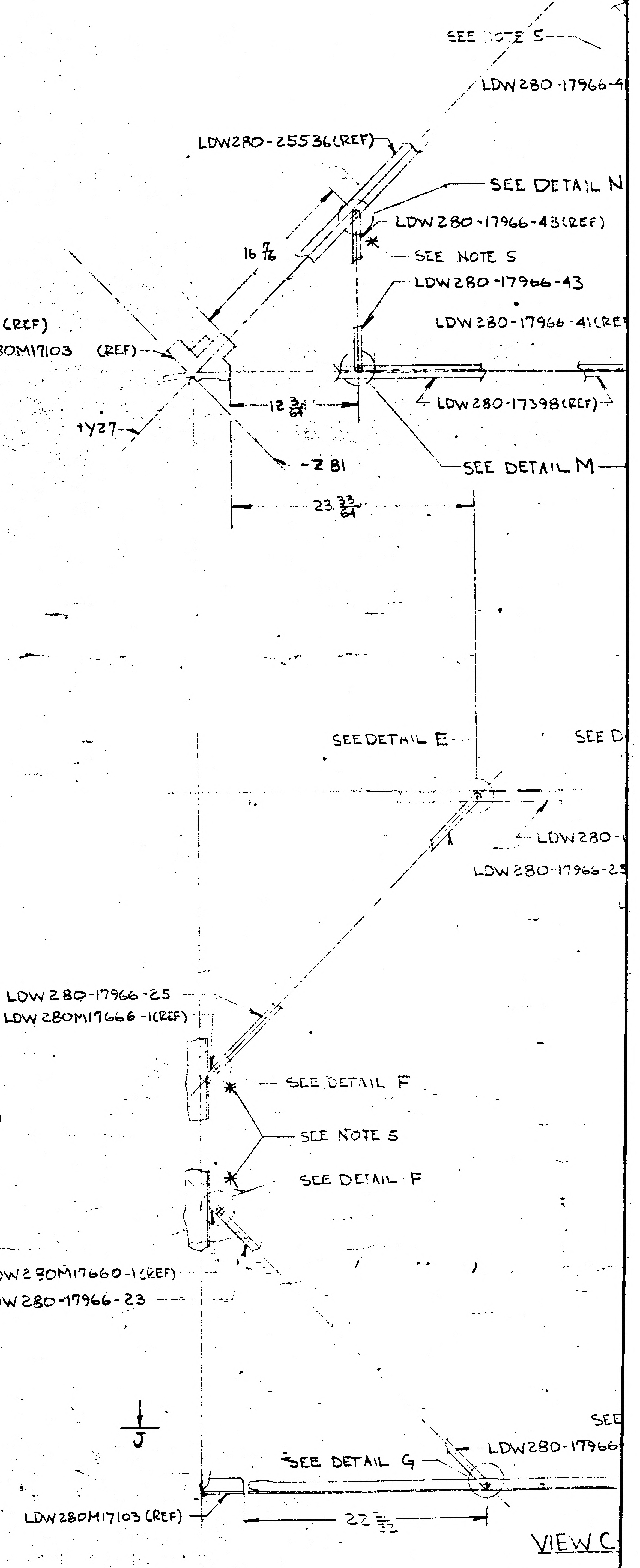
DETAIL E
TYPICAL 8 PLACES
SCALE: FULL
SEE PROCEDURE NOTE 2


.139-.145 DIA HOLE
NAS1131/3
AN960D6L
NAS.697A06L
MS20426AD3(2) FLUSH
IN LDW 280-17412
$\frac{5}{16} \pm \frac{1}{32}$
LDW 280-17966(REF)
$\frac{3}{8} \pm \frac{1}{32}$
LDW 280-17412(REF)

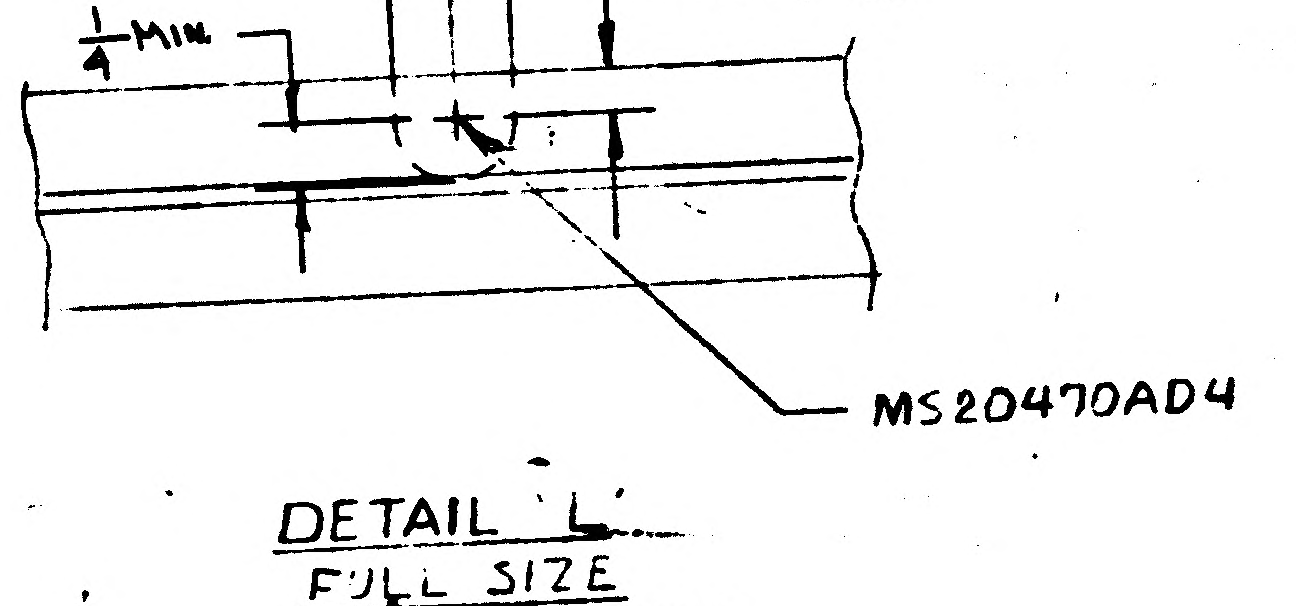
DETAIL G
TYPICAL 5 PLACES
SCALE: FULL
SEE PROCEDURE NOTE 3


LDW280-25528(REF)
SEE NOTE 5
SEE DETAIL N
LDW280-25534(REF)
LDW280-17966-37
$26\frac{7}{16}$
LDW280-17966-59(REF)
$28\frac{57}{64}$
+Z27
LDW280-17966-37(REF)
LDW280-17966-59
+Z81
LDW280M17104 (REF)
LDW280-17398(REF)
LDW280M17102 (REF)
$19\frac{1}{8}$
SEE DETAIL M
$20\frac{15}{16}$
+Y27
+Y81
$21\frac{15}{16}$
$22\frac{1}{4}$
SEE DETAIL E
SEE DETAIL E
X 196.000
LDW280-17398(REF)
LDW280-17966-27(REF)
LDW280-17966-29(REF)
LDW280-17966-27
LDW280M17660-2(REF)
SEE DETAIL F
SEE DETAIL F
SEE NOTE 5
LDW280M17660-1(REF)
LDW280-17966-27
SEE NOTE 5
SEE DETAIL F
LDW280-17966-29
LDW280M17666-1(REF)
LDW280M17660-1(REF)
LDW280-17966-31
SEE DETAIL F
LDW280-17966-29(REF)
LDW280-17966-31 (REF)
K
K SEE SH.4
LDW280-17412(REF)
X 131.140
LDW280M17104(REF)
SEE DETAIL G
$28\frac{11}{16}$
SEE DETAIL G
$10\frac{7}{16}$
LDW280M17102(REF)

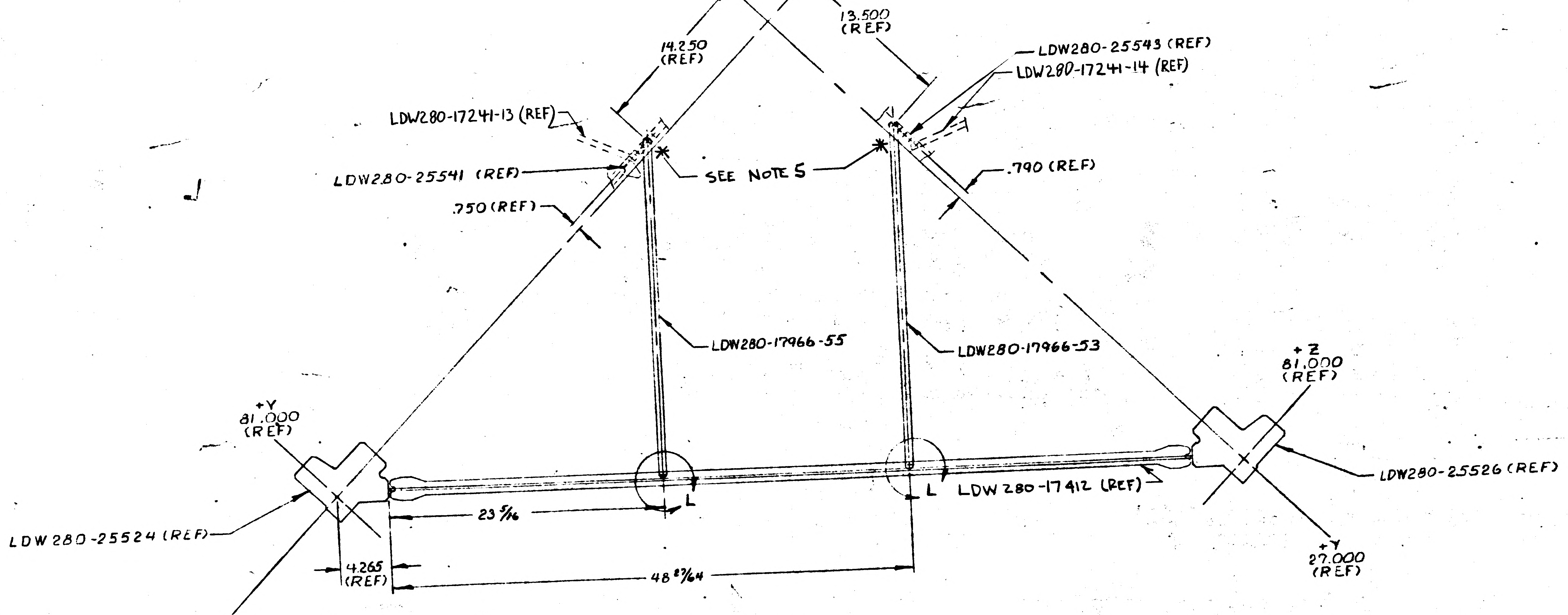
VIEW D-D


SEE NOTE 5
LDW280-17966-4
LDW280-25536(REF)
SEE DETAIL N
LDW280-17966-43(REF)
$16\frac{7}{16}$
SEE NOTE 5
LDW280-17966-43
LDW280-17966-41(REF
LDW280M17103 (REF)
LDW280-17398(REF)
+Y27
$12\frac{3}{64}$
-Z81
SEE DETAIL M
$23\frac{33}{64}$
SEE DETAIL E
SEE D
LDW280-
LDW280-17966-25
LDW280-17966-25
LDW280M17666-1(REF)
SEE DETAIL F
SEE NOTE 5
SEE DETAIL F
LDW280M17660-1(REF)
LDW280-17966-23
J
SEE
SEE DETAIL G
LDW280-17966
LDW280M17103 (REF)
$22\frac{1}{32}$

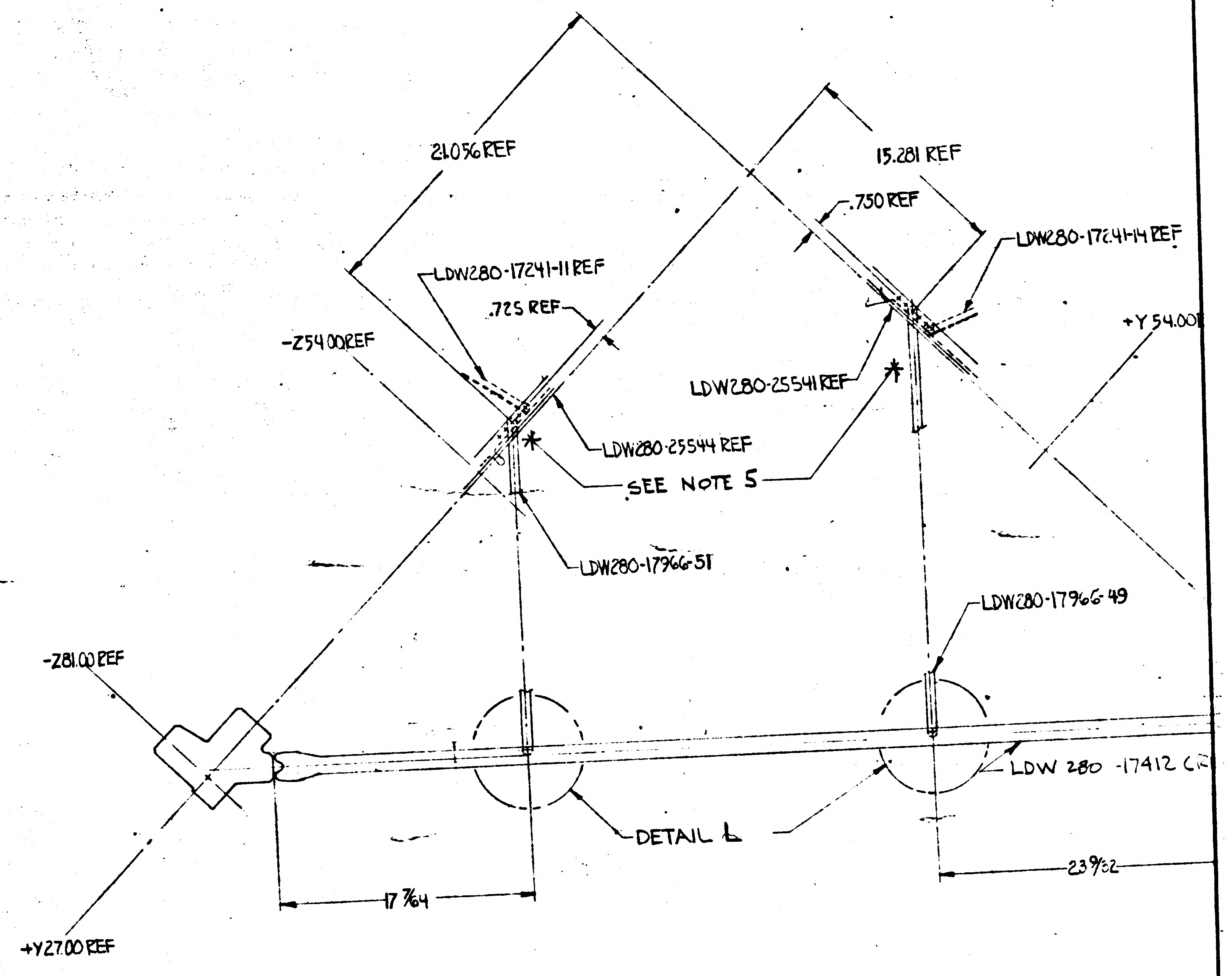
VIEW C


5/16 ± 1/32
7/32 ± 1/32
1/4 MIN
MS20470AD4

DETAIL 'L'
FULL SIZE
TYP 5 PLACES
SEE PROCEDURE NOTE 4


14.250 (REF)
13.500 (REF)
LDW280-25543 (REF)
LDW280-17241-14 (REF)
LDW280-17241-13 (REF)
LDW280-25541 (REF)
SEE NOTE 5
.750 (REF)
.790 (REF)
LDW280-17966-55
LDW280-17966-53
+Y 81.000 (REF)
+Z 81.000 (REF)
LDW280-25526 (REF)
LDW280-25524 (REF)
L
L
LDW 280-17412 (REF)
23 5/16
4.265 (REF)
48 23/64
+Z 27.000 (REF)
+Y 27.000 (REF)

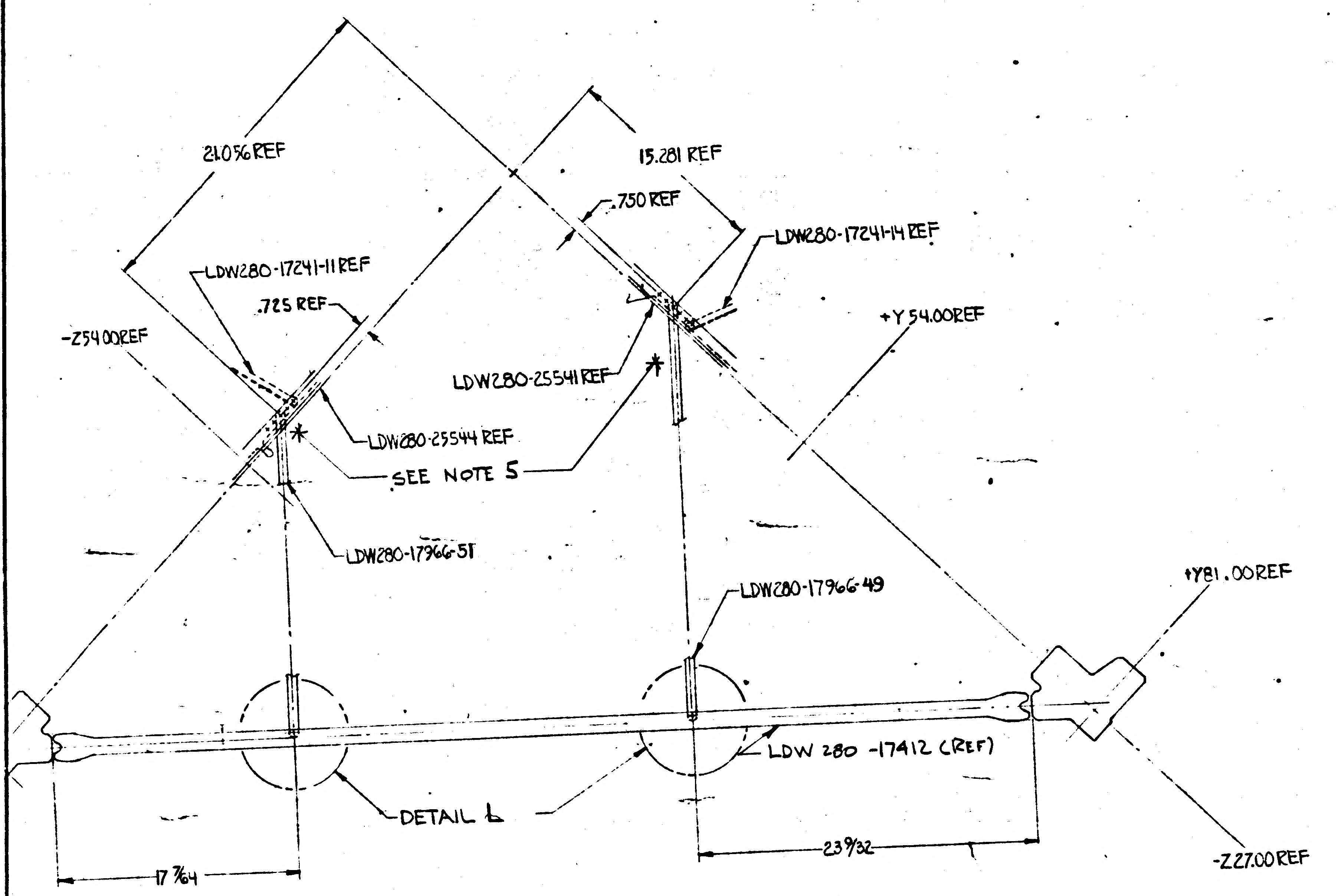
VIEW K-K


21.056 REF
15.281 REF
.750 REF
LDW280-17241-14 REF
LDW280-17241-11 REF
.725 REF
-Z 54.00 REF
+Y 54.00
LDW280-25541 REF
LDW280-25544 REF
SEE NOTE 5
LDW280-17966-51
LDW280-17966-49
-Z 81.00 REF
LDW 280 -17412
DETAIL L
17 7/64
23 9/32
+Y 27.00 REF

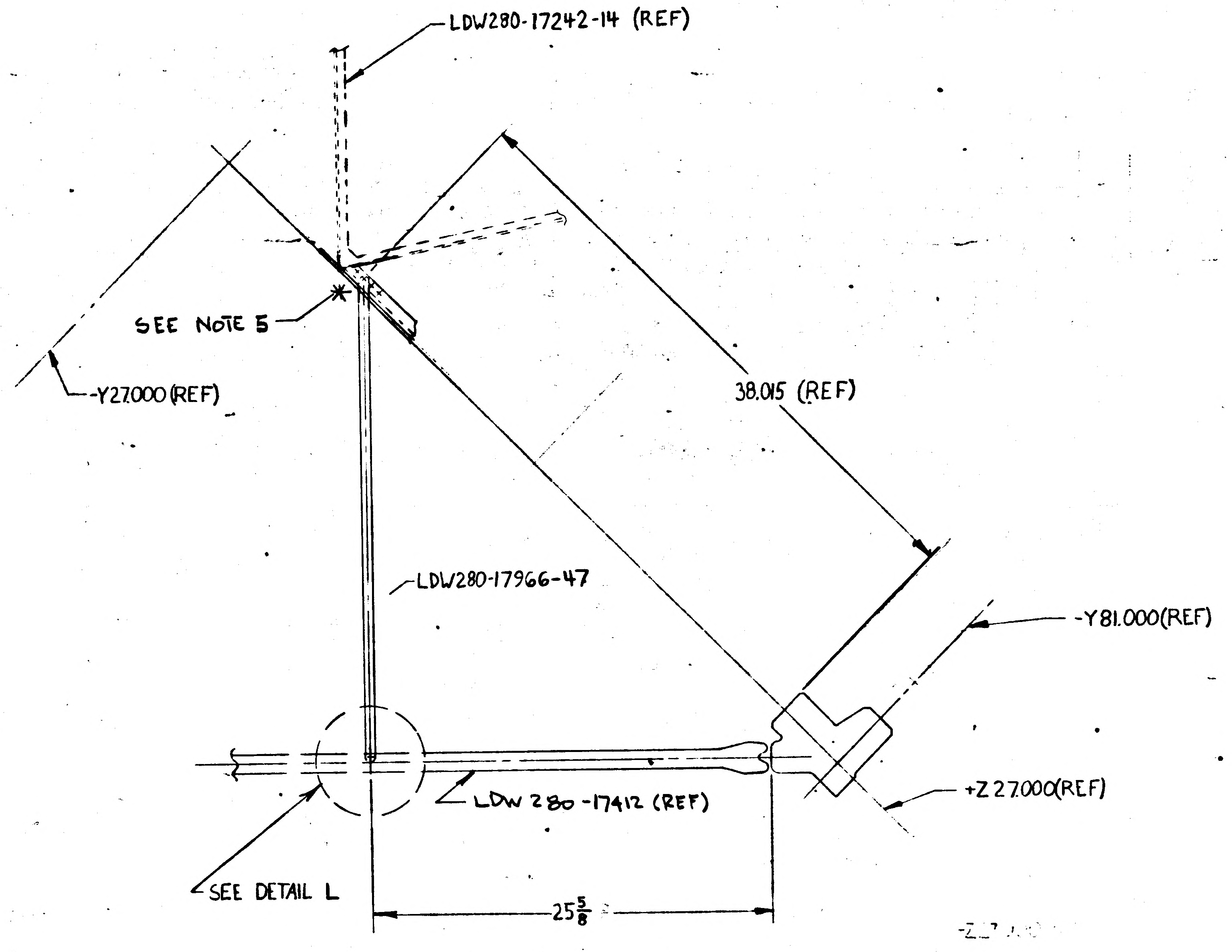
VIEW J-J

7/2

01/02 NAS 9-1100


21.056 REF
15.281 REF
.750 REF
LDW280-17241-14 REF
LDW280-17241-11 REF
.725 REF
-Z54.00 REF
+Y54.00 REF
LDW280-25541 REF
LDW280-25544 REF
SEE NOTE 5
LDW280-17966-51
LDW280-17966-49
+Y81.00 REF
LDW 280 -17412 (REF)
DETAIL L
17 7/64
23 9/32
-Z27.00 REF

VIEW J-J


LDW280-17242-14 (REF)
SEE NOTE 5
-Y27.000 (REF)
38.015 (REF)
LDW280-17966-47
-Y81.000 (REF)
+Z27.000 (REF)
LDW 280 -17412 (REF)
SEE DETAIL L
25 5/8

VIEW H-H

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

02/02 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-28722	
LEM				
MODEL OR END ITEM	SCALE 1/5		SHEET 4 00	

THIS IS AN ORIGINAL DWG

A

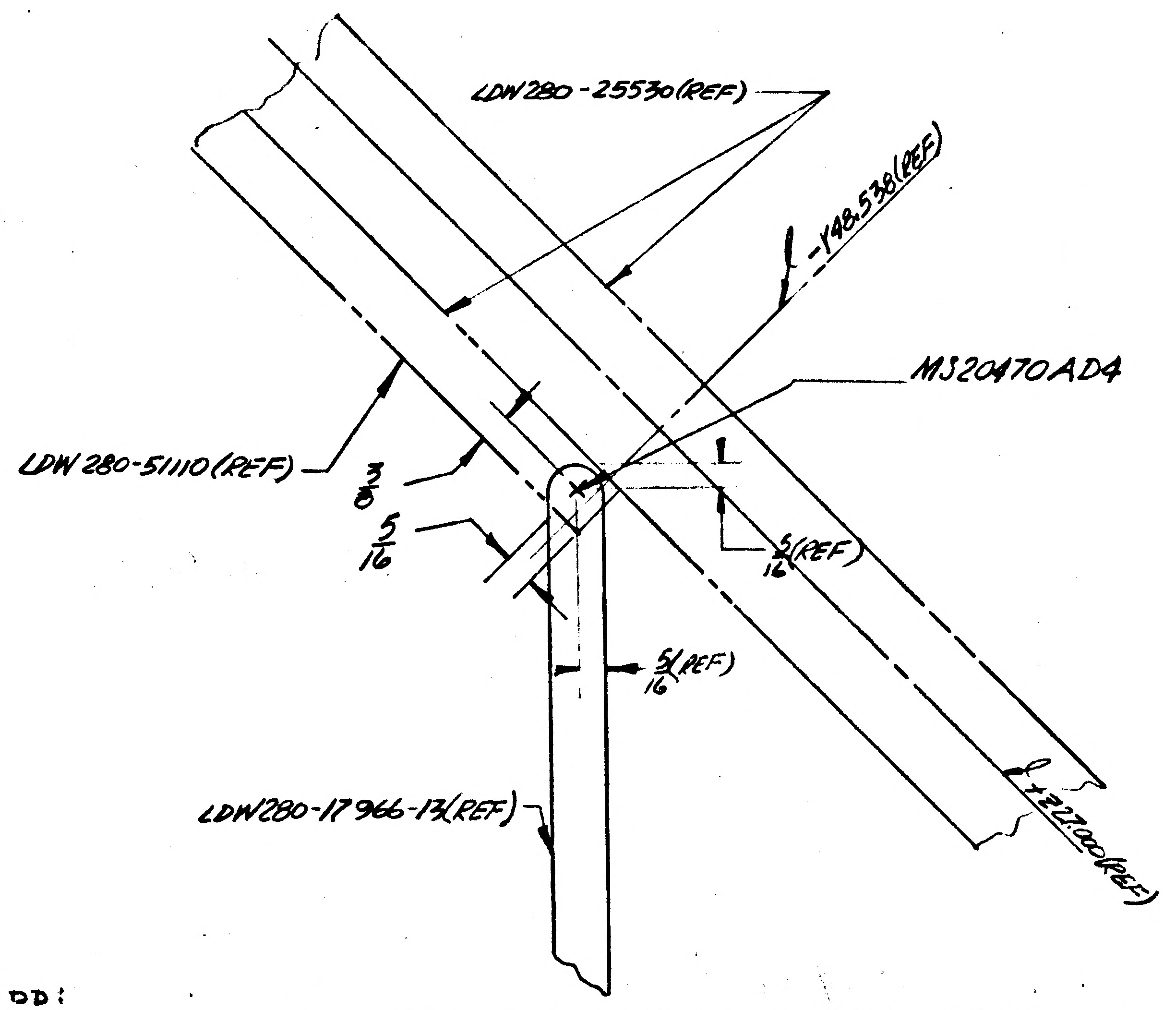
ENG 32.2 REV 3-65

FITH

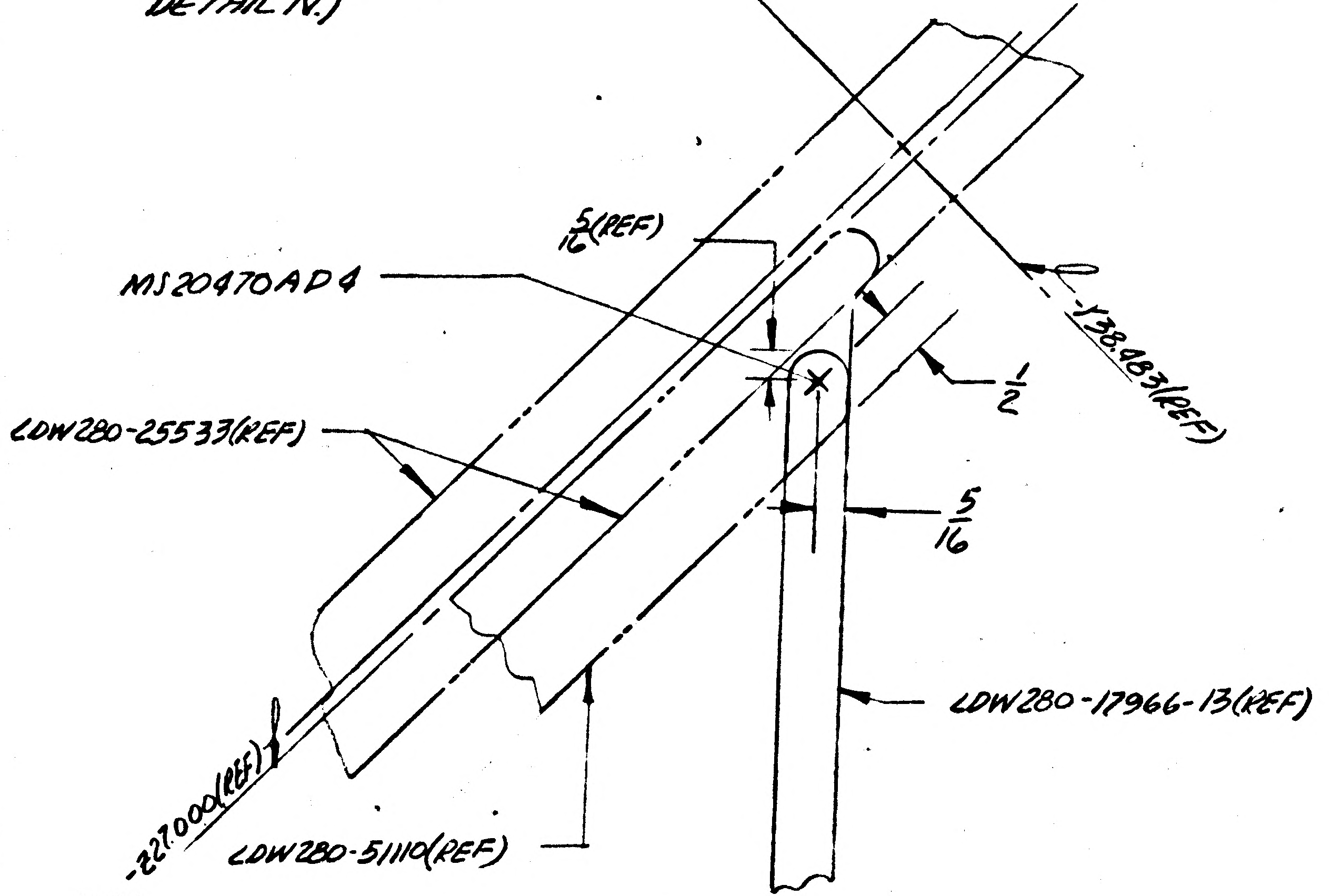
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-28722		EO NO.	A2
CONTROL INFO NO. LDW 280A 6764			

ADD-3 INST'L IDENTICAL TO-1 EXCEPT AS SHOWN BELOW
N/A LDW280-51509 EFF LM-1(31) 1REQ1MOD
IN M/B FOR-1
REMOVE LM-1(31) EFFECTIVITY


LDW280-25530(REF)
℄ -148.538(REF)
MS20470AD4
LDW280-5110(REF)
3/8
5/16
5/16(REF)
5/16(REF)
LDW280-17966-13(REF)
℄ -227.000(REF)

ADD:
VIEW *-* IDENTICAL TO VIEW A-A EXCEPT AS SHOWN ABOVE.
(REMOVED 28 43/64 DIM ALONG LDW280-25530 & ASSOCIATED CALLOUT FOR DETAIL N.)


5/16(REF)
MS20470AD4
℄ -138.083(REF)
1/2
LDW280-25533(REF)
5/16
LDW280-17966-13(REF)
℄ -227.000(REF)
LDW280-5110(REF)

ADD:
VIEW Δ-Δ IDENTICAL TO VIEW B-B EXCEPT AS SHOWN ABOVE.
(REMOVED 36 1/8 DIM ALONG LDW280-25533 & ASSOCIATED CALLOUT FOR DETAIL N.)

-, Δ-Δ - NEXT AVAILABLE LETTERS.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD-1244	5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE FOR QUADS I & II FITH SHIELD.	ADDED -3 INSTL. IN M/B FOR-1: REMOVED LM-1(31) EFFECTIVITY ADDED VIEWS *-* & Δ-Δ	Ⓡ C JL 5-4-7

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		✓		DATE	5/4/67			5/4/67	5/4/67		5/4/67	5-4-67
				REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
LM		LM-1(31)		PRIORITY C												

DRAWING TITLE	DRAWING NO.	EO NO.
STRAP INSTALLATION DES. STAGE DIAGONAL TEE SUPPORT	LDW280-28722	A2

ISSUED BY G. BECKER/J. STRAKOSCH X1153 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

3

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280 28722
EO NO. A3
CONTROL INFO NO. LM5-13526

ON-3 VIEW D-D

21 3/4 WAS 22 1/4

20.0 WAS 28 11/16

RELEASED BY LIAISON

SHOP NOTE

EXTRAN. HOLES SHALL BE PLUGGED USING MS20470AD" " & MS20426AD3(2)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		5

REASON FOR EO: STRAPS RELOCATED DUE TO INTERFERENCE WITH BATT.

DESCRIPTION OF EO: ON-3 VIEW D-D - 21 3/4 WAS 22 1/4 & 20.0 WAS 28 11/16

GAEC EO RELEASE: C
JK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM1(31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	WT AW			~	M.B. JFJ	EVB	Wmb	JRF	
DATE	6-15-67			~	6-15-67	6/15/67	6/19	6/15/67	
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAP INSTL D/S- DIAGONAL TEE SUPT	LDW280-28722	A3

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

LDW280-28723 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51509	LEM-1	1EA
LEM	LDW280-28509	LTA-8	1EA

PART NO.	GAEC SCH NO.
LDW280-28723-1,-2	50-1

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH				
SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED	K	GRUMMAN REL INFO A		
LAST DASH NO. USED	-2	PRIM NO.	LE001	
		207	MP-14	10-14-6-A-

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ± .010 ± 0°30'
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY		RELIABILITY	
LAYOUT BY	C. Russo 6/7/66		
CHECKED BY	G. Zemans 6-13-66		
GR LEADER	6/14/66		
VEH DES INT	Beach		
STRUCTURES	W.H. (KB) 6/15	PROJ ENGR	Plunkett 22 Jun
STRUCTURES	6/20	REL GROUP	Botti 6-24-66
WEIGHTS	6/22		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FITTING INSTL
DECENT STAGE- UPPER DIAGONAL
THERMAL SHIELD SUPT

SIZE	CODE IDENT NO.		
B	26512	LDW280-28723	A
SCALE	NONE	SHEET 1	OF 4

77.1 12-65

SUPERSEDES LDW280-28723 NO CHANGE 8-16-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED NO CHANGE, LAST REVISION NO CHANGE ADDED SH 1.10, SH 1 OF 4 WAS: 1 OF 3 CALDARELLA 8-16-66						
A	1							EO A1	IN M/B REMOVED EFF LEM-2 THRU LEM-6; IN F/D -1 & 2 INSTL, REMOVED 1 15/16 DIM & ADDED DIM 3 5/8 AS SHOWN; ADDED ± Y27 (REF) ± Z27 (REF) BEAM PANEL REF PLANES; REMOVED: DETAIL E, DETAIL F & LDW280M17103-11 (REF); ADDED DETAIL K LDW280M17102-5 (REF) WAS: LDW280M17104-5 (REF); ADDED DETAIL J & NOTE 1. IN B/M ADDED: LDW280M17688-1 (1) REQD, LDW280M17637-1 (3) REQD WAS (4).	NOTED	✓		CALDARELLA 8-16-66 EG		
	2	1.00, 1.10, 2.00, 3.00							IN F/D & B/M REMOVED DETAIL J, NOTE 1, LDW280M17688-1 (2) GB511K-3-4 (4), & GN512-3 (4); IN B/M REMOVED LDW280M17688-1 (2), GB511K-3-4 (4) & GN512-3 (2).	LTA-8 (18) LEM-1 (31)		✓	T. FREDA 9.8.66	MAS	10/12/66

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY					
A			10/10								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28723	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY -2	QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			MS20470AD4	E	RIVET	STD PART						
			MS20426AD4	E	RIVET	STD PART						
3	3		LDW280M17637-1	E	FITTING	SEE DWG						
			LDW280-28723-2	E	FITTING INSTL					NONE	NONE	
			LDW280-28723-1	E	FITTING INSTL					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
88	ANODIZE	LSP14-9030

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-28723

A

SCALE NONE

SHEET 2.00

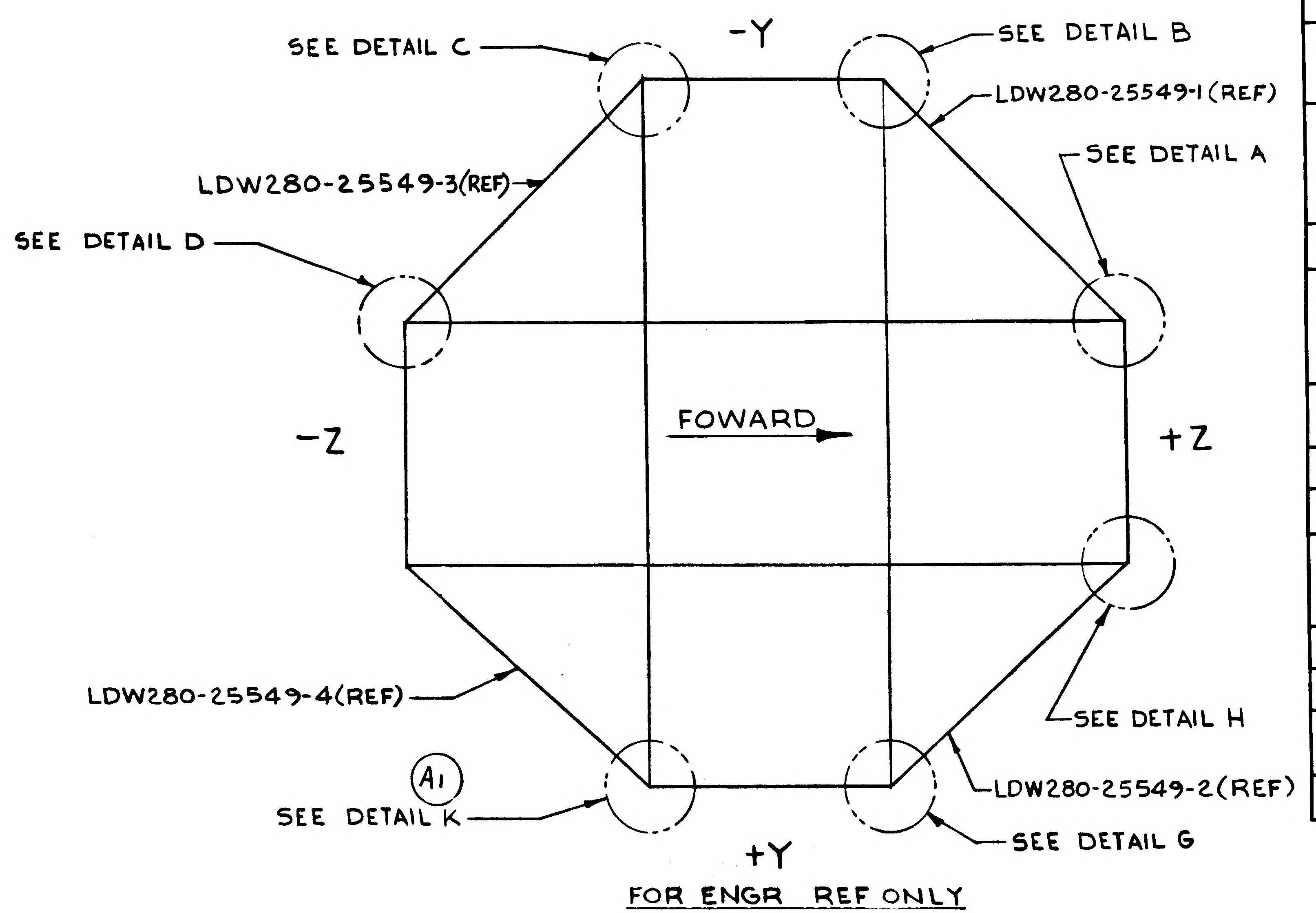
ENG 77.2 7-65

01

NAS 9-1100

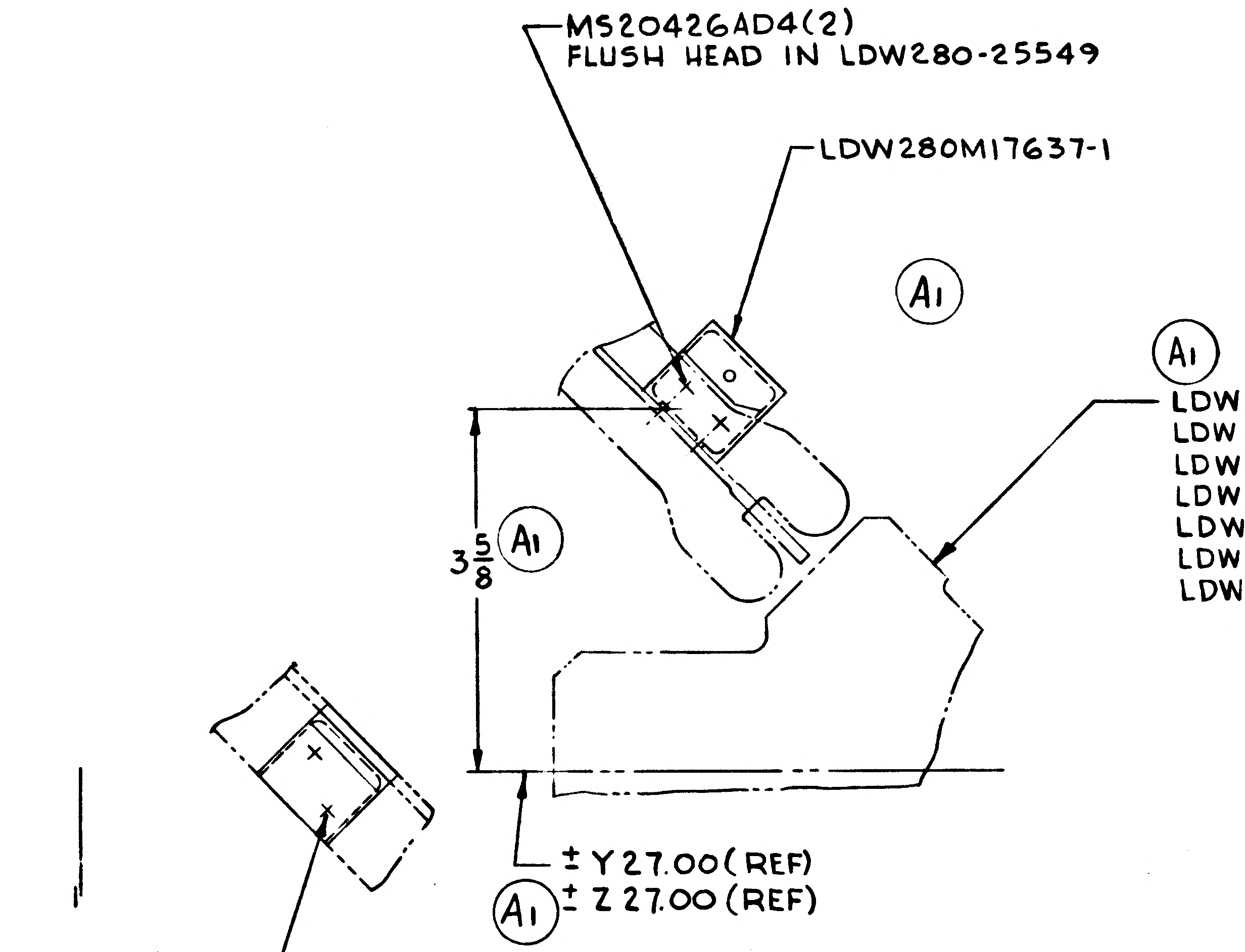
NOTE:
~~1. SHIM AS REQD USING AL ALLOY SH QQ-A-250/12, 7075-T6, FINISH 88~~
2. INSTALL FASTENERS PER LSP14-15302

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL STD 10
200√ FOR ALL DRILLED HOLES
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS
SYMBOL √ DENOTES SURFACE TO BE MACHINED
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED ✓
TOLERANCE ON LOFTED DELINEATIONS IS


SEE DETAIL C
-Y
SEE DETAIL B
LDW280-25549-1 (REF)
SEE DETAIL A
LDW280-25549-3 (REF)
SEE DETAIL D
-Z
FOWARD
+Z
LDW280-25549-4 (REF)
SEE DETAIL H
A1
SEE DETAIL K
LDW280-25549-2 (REF)
SEE DETAIL G
+Y

FOR ENGR REF ONLY
VIEW LOOKING DOWN
AT X 196.00
SCALE: NONE

LDW280-28723-1 INSTL (SHOWN)
-2 INSTL (OPP)


MS20426AD4(2)
FLUSH HEAD IN LDW280-25549
LDW280M17637-1
A1
A1
3 5/8
A1
± Y 27.00 (REF)
A1 ± Z 27.00 (REF)
MS20470AD4(2)

LDW280M10702-6(REF) DETAIL A
LDW280M10702-5(REF) DETAIL B
LDW280M10705-19(REF) DETAIL C
LDW280M17103-13(REF) DETAIL D
LDW280M17104-6(REF) DETAIL G
LDW280M17104-5(REF) DETAIL H
LDW280M17102-5(REF) DETAIL K

DETAIL A
B OPP DETAIL A
C ROTATED 90° CLOCKWISE
D OPP DETAIL C

Ⓐ1
G ROTATED 90° C'CLOCKWISE
H OPP DETAIL G
K IDENT. TO DETAIL B ROTATED 180° C'CLOCKWISE

A1 A2

Q1 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LEM	SIZE E	CODE IDENT NO. 26512	LDW280-28723	A
MODEL OR END ITEM	SCALE NONE & NOTED		SHEET 3.	

*

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

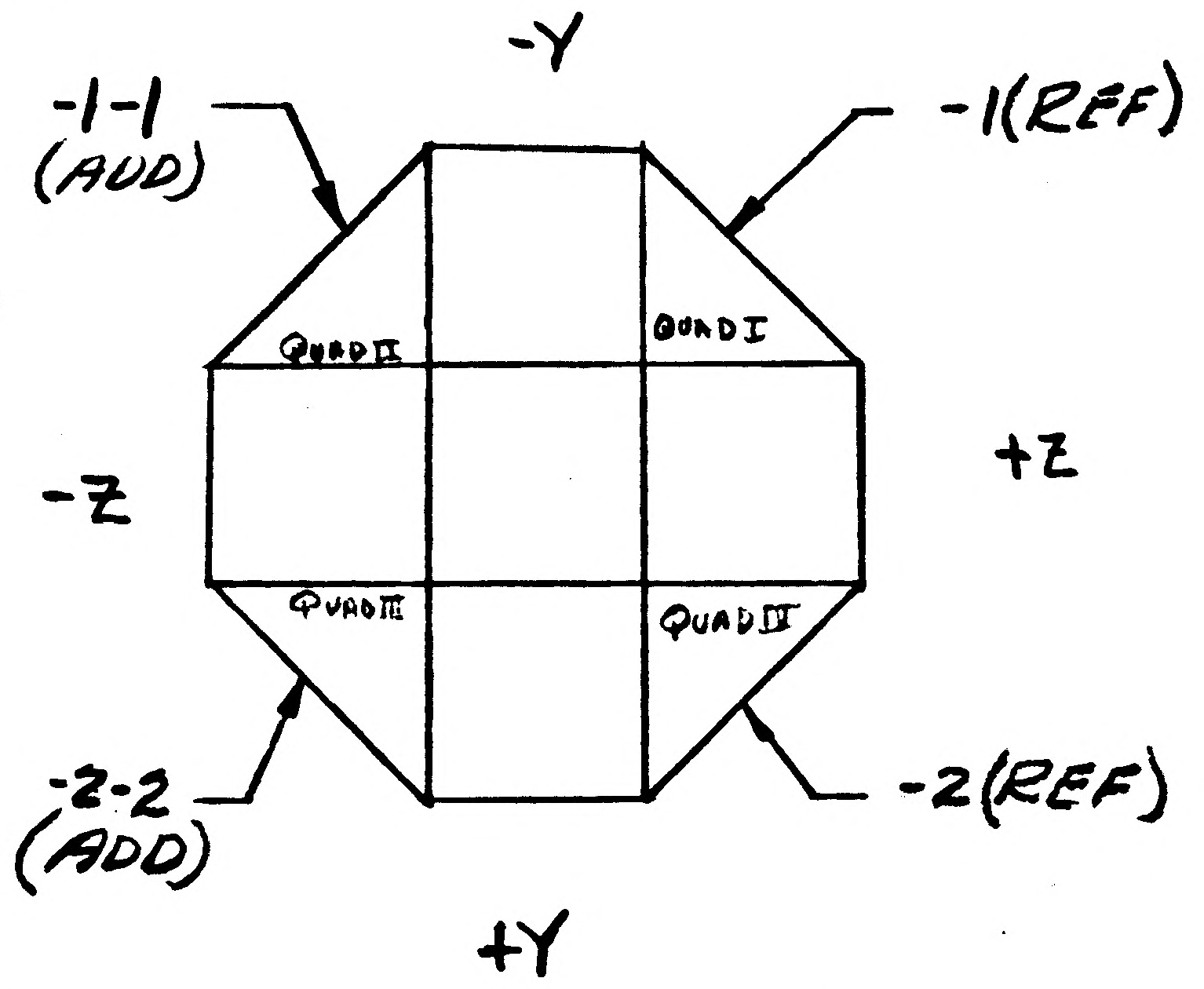
DWG. NO. LDW280-28723		EO NO. B2
CONTROL INFO NO. LDW280A0727		

THIS EO IS A REVISION OF EO B1

ADD -1-1 & -2-2 INSTL IDENT TO -1 & -2 EXCEPT AS NOTED

ON -1, -2: LDW280M17637-1 2 REQ/MOD WAS 4
ON(-1-1) LDW280M17637-1 2 REQ/MOD
ON(-2-2) LDW280M17637-1 1 REQ/MOD

-1-1 & -2-2 EFF. ON LTA-8 & LEM-1 N/A
LDW280-28509 & LDW280-51509



-1-1 & -2-2 MAYBE MADE BY REWORKING -1 & -2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐	2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO RELOCATE THERMAL SHIELD SUPPORT	REF: EO B1 ADDED -1-1 & -2-2 INSTL ON-1 & -2 LDW280M17637-1 2 REQ/MOD, WAS 4	FS 10-7-6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JBB						RMG	
DATE	9/26/66				9/27/66		10-5-66	10/4/66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	FITTING INSTL D.S. UPPER DIAGONAL	LDW280-28723	B2

ISSUED BY R CLARK / J SIKAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 35 EMF

01 NAS 9-1100

LDW280-28724 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53553	LM-3(33)	1
LM	LDW280-52553	LM-2(32)	1
LM	LDW280-51553	LM-1(31)	1
PART NO. LDW280-28724-3		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA-8(18)	1
PART NO. LDW280-28724-1		GAEC SCH NO. 52	

WORK PACKAGE FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	A	GRUMMAN REL INFO A		
		PRIM NO.	JK (001)	
LAST DASH NO. USED	-3	207	MP-AM	-2-22-7

ENG 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/16 ± .030 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	E. MOUQIN	RELIABILITY	
LAYOUT BY	E. MOUQIN	THERMO	KEN GARCIA 8/25/66
CHECKED BY			
GR LEADER	J. STRAKOSCH 7/30/66		
VEH. DES. INT	W. BISCHOFF 7/31/66		
STRUCTURES	J. VISCONTI 8/1/66	PROJ ENGR	R. CARBEE 8/1/66
STRUCTURES	R. HILDERMAN 8/1/66	REL GROUP	BOTTI 8/27/66
WEIGHTS	D. ROBESCH 8/9/66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

COVER INSTL
DESCENT STAGE S-BAND ANT
RECESS

SIZE	CODE IDENT NO.		
B	26512	LDW28028724	A
SCALE	NONE	SHEET 1.00 OF 4	

SUPERSEDES LDW280-28724 N.C. 8/27/66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE- LAST REVISION NO CHANGE SH SIZE 'E' WAS 'J' ADDED SH 1.10	YANOFF	2/9/67				
A	1	1.00, 1.10, 2.00, 3.00					✓	EOA1	ON-1 INSTL REMOVED LDW280-174663 ADDED LDW280P17466-7. ON-3 REMOVED LDW280-17466-1 ADDED LDW280P17466-5. GT835P-8 TAPE WAS LDW280-17590	LTA-8(18) LM-1(31) LM-2(32) LM-3(33)	✓		B. YANOFF 2/9/67		
	2	1.00, 1.10, 2.00, 3.00						EOA2	REF EOA1 ON-1 REMOVED LDW280P17466-3 & ADDED LDW280P17466-5 WAS -7. ON-3 REMOVED LDW280P-17466-1 & ADDED LDW280P17466-7 WAS -5		✓				
	3	1.00							FOR -3 N/A LDW280-53553 WAS LDW280-52553 ECZ.	LM-3	NOT	REQD	J.G. MAYBO 2-14-67	2-15-67	2-15

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY
A		2/14	2/15	2/16		

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28724	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

CL	-3	-1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	AS REQD	AS REQD	GT835P-8	E		TAPE	GRUMMAN STD						
	1		LDW280P17466-7			BLANKET ASSY	SEE DWG						
		1	LDW280P17466-5			BLANKET ASSY	SEE DWG						
C			LDW280-28742-3			INSTL (COVER)					NONE	NONE	
C			LDW280-28742-1	E		INSTL (COVER)					NONE	NONE	

QTY PER ASSEMBLY

CL = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28724	A
SCALE NONE			SHEET 2.00

ENG 77.2 5-64

01 NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ⊠
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP. THDS.
BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION

ALL DIMENSIONS SHOWN TO BE MET
AFTER CADMIUM PLATING
THICKNESS OF PLATE .0003 MIN
TO .0005 MAX MIN THICKNESS TO
BE .0002 ON THREADED AREAS
NO ALLOWANCES FOR PLATING IN
HOLES

$\sqrt{125}$ SURFACE ROUGHNESS
INCLUDING REAMED HOLES
PER MIL STD 10

$\sqrt{200}$ FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

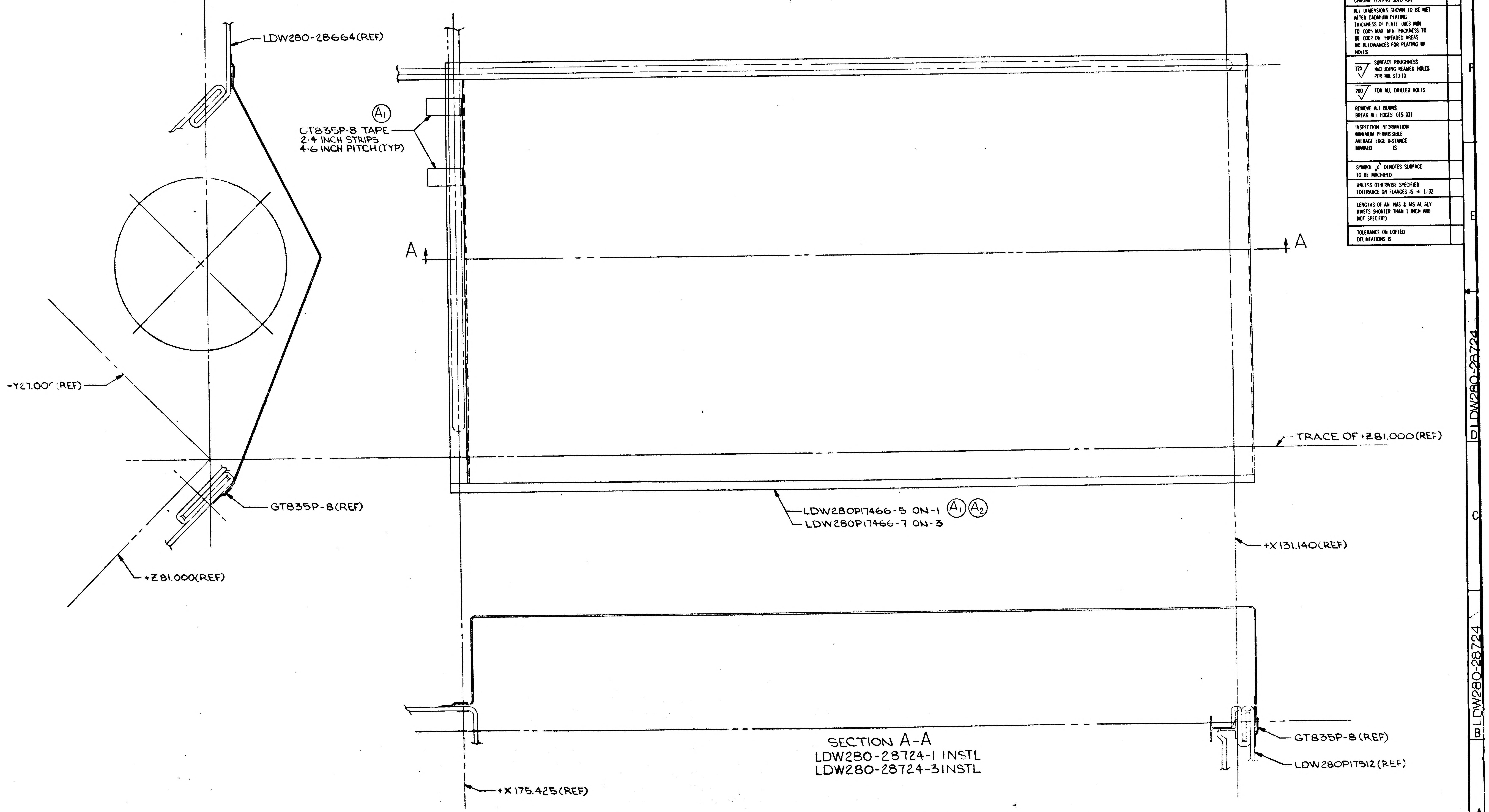
INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL $\sqrt{}$ DENOTES SURFACE
TO BE MACHINED

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY
RIVETS SHORTER THAN 1 INCH ARE
NOT SPECIFIED

TOLERANCE ON LOFTED
DELINEATIONS IS


LDW280-28664(REF)
Ⓐ₁
GT835P-8 TAPE
2-4 INCH STRIPS
4-6 INCH PITCH(TYP)
A
A
-Y27.000(REF)
TRACE OF +Z81.000(REF)
GT835P-8(REF)
LDW280P17466-5 ON-1 Ⓐ₁ Ⓐ₂
LDW280P17466-7 ON-3
+X131.140(REF)
+Z81.000(REF)
GT835P-8(REF)
LDW280P17512(REF)
+X175.425(REF)

SECTION A-A
LDW280-28724-1 INSTL
LDW280-28724-3 INSTL

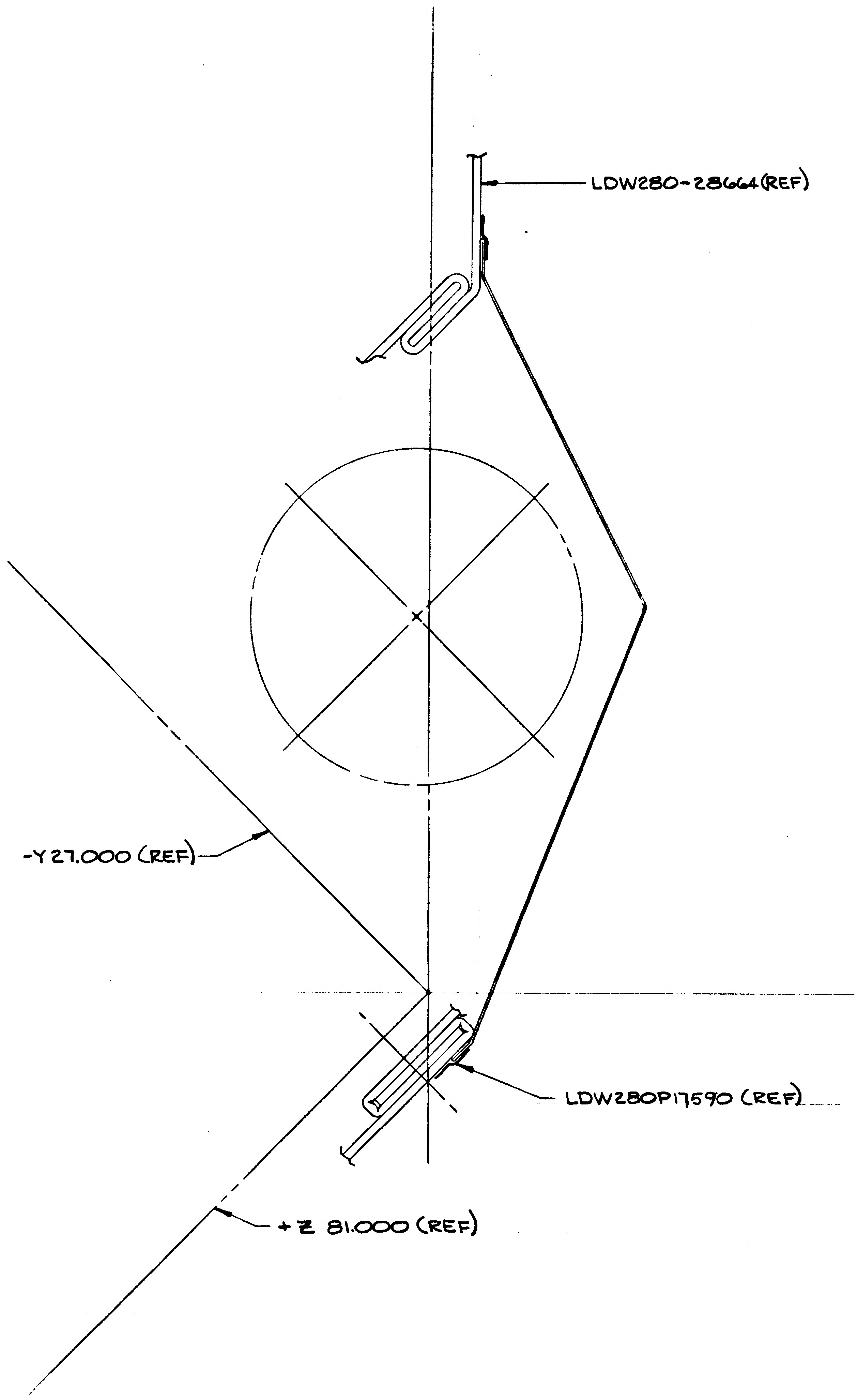
01

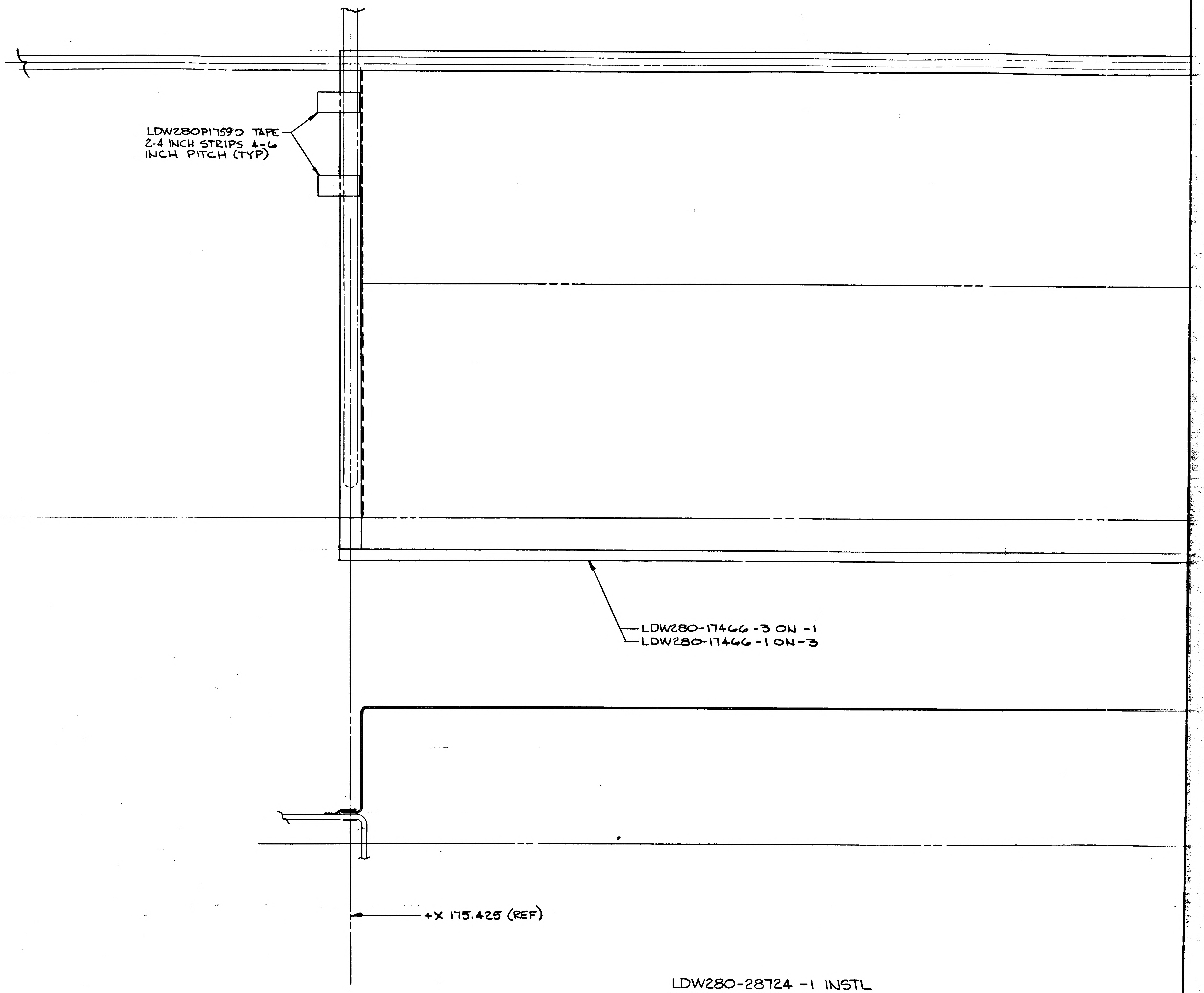
NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK
LM
MODEL OR END ITEM
SIZE E
CODE IDENT NO. 26512
LDW280-28724
A
SCALE 1/2
SHEET 3 OF 30

LDW280-28724

LDW280-28724


LDW280-28664(REF)
-Y27.000 (REF)
LDW280P17590 (REF)
+Z 81.000 (REF)


LDW280P17590 TAPE
2-4 INCH STRIPS 4-6
INCH PITCH (TYP)
LDW280-17466-3 ON -1
LDW280-17466-1 ON-3
+X 175.425 (REF)

LDW280-28724 -1 INSTL
LDW280-28724 -3 INSTL

01/02 NAS 9-1100

ENG 32.1 REV 3-65 (A)

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28724
EO NO. B1
CONTROL INFO NO. LDW280 B0625

1. RESTRICT -3 INSTL. TO LM-1 (31) & LM-2 (32) ONLY
2. CREATE -5 INSTL FOR LM-3 (33) N/A LDW280-53553 (1) REQD PER MODULE.
3. ADD LDW280P17466-9 BLANKET ASSY. TO -5 COVER INSTL. IN FIELD & B/M.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2360

(5)

REASON FOR EO: REDESIGN END BULKHD

DESCRIPTION OF EO: REMOVED EFF. LM-3 FROM -3 INSTL ADDED -5 INSTL.

GAEC EO RELEASE: C (R) K 12/11/67

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-3 (33)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP -3

APPROVED BY					GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~COST~~
DATE	12/8/67				12-8-67	12/11/67		12/8/67	12-12-67
P	VDI	SUPPORT	RELIAB. GROUP						

PRIORITY: C

DRAWING TITLE: COVER INSTL. DESCENT STAGE S-BAND ANTENNA RECESS

DRAWING NO. LDW280-28724

EO NO. B1

3 JAN 68
ISSUED BY E.V.R. CASE / P. THORJUSEN x1153 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28724
EO NO. B2
CONTROL INFO NO. LDW280B2550

ADD LDW280P17466-27 TO -5 INSTL IN F/D & B/M.

LFM

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2360 PKG 11 (5)

REASON FOR EO	DESCRIPTION OF EO	(R) GAEC EO RELEASE
REDESIGN END BULKH'D	ADDED LDW280P17466-27 TO -5 INSTL	JK 3/[illegible]

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM#140	LM-3 (33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	3/5/68	3/8/68		3/5/68	3/[illegible]/68		3/8/68	3-9-68
P	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~COMP~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COVER INSTL - DESCENT STAGE S-BAND ANTENNA RECESS	LDW280-28724	B2

ISSUED BY S. TAMRES/P. THORJUSEN x 1153 SECTION VD1 GROUP NO. 335 PL 25
CDR 031568

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28724 | EO NO. B3
CONTROL INFO NO. LDW280B 3065

CREATE -7 INSTL IDENTICAL TO -5 INSTL EXCEPT LDW280P17466-29
REPLACES LDW280P17466-27

FOR -7, N/A LDW280-53553 1 EA

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓ LCD 2899

PKG 1 (5)

REASON FOR EO: PLUME IMPINGEMENT PROTECTION SEVEN SECOND DOCKING

DESCRIPTION OF EO: ADDED -7

GAEC EO RELEASE: ✓ 4/24/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM-155	LM-3(33)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK | SCRAP)

APPROVED BY			RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	4/19/68	4/22/68		4/19/68	4/22/68		4/22/68	4-24-68
	VDI							

PRIORITY: C

DRAWING TITLE: COVER INSTL D/S - S BAND ANTENNA RECESS

DRAWING NO. LDW280-28724

EO NO. B3

4-26-68
ISSUED BY D.SHAPIRO/P.THORTUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28724
EO NO. B4
CONTROL INFO NO. LDW280B3333

THIS E.O. REVISES E.O. B2

IN EFFECTIVITY BLK, REMOVE LFM #140 REQMT.

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2360 PKG #31 (5)

REASON FOR EO: REDESIGN END BULKHEAD

DESCRIPTION OF EO: REF E.O B2 REMOVED LFM REQMT FROM EFF. BLK.

GAEC EO RELEASE: C JK 5/28/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM # 140	LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK NOT | SCRAP REQD

APPROVED BY									
DATE	5/16/68			5-15-68			5/17/68	5-27-68	
P	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~	

PRIORITY: C
DRAWING TITLE: COVER INSTL ~ D/S ~ S-BAND ANT RECESS
DRAWING NO.: LDW280-28724
EO NO.: B4

CDR 052768
ISSUED BY S TAMRES/P THORJUSEN x 1153 SECTION VD1 GROUP NO. 335 PL 25

0 1 NAS 9-1100

LDW280-28725 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51509	LEM1 (31)	1
LEM	LDW280-28509	LTA8 (18)	1
PART NO. LDW280-28725-1		GAEC SCH NO. 50-2	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	P	GRUMMAN REL INFO A	
LAST DASH NO. USED	-1	PRIM NO. 207	LE(001) ME-3 A-2/4/69

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	L. M. Grieco 6-24-66	RELIABILITY	
LAYOUT BY		THERMO	Tan 8-2-66
CHECKED BY			
GR LDR	6/26/66		
VDI	6/29		
STRUCT	6/30	PROJ ENGR	Plunkett 13 July
STRUCT	Alderman 7/1	REL GROUP	Botti 8-11-66
WTS	7-11		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STANDOFF INSTALLATION
DESC. STG - SEQ BAY UPR &
LWR DECK - THERMAL SHIELD SPT

SIZE	CODE IDENT NO.		
B	26512	LDW280-28725	A
SCALE NONE		SHEET 1.00 OF 4	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
								RETRACED	NO CHG LAST REV NO CHG R. BURTON - 1-24-69						
A	1	1.10, 2.00 3.00	3B 4C 6A						INC EO-A1	LTA-8 LM-1			R. BURTON 1-24-69 CG.		
	2	2.00, 3.00	6C						INC EO-A2						
	3	2.00, 3.00	8A						INC EO-A3						
	4	2.00, 3.00	5B						INC EO-A4						
	5	2.00, 3.00	5B					Ⓟ	INC EO-A5	H.D.					

CHG APPROVED

LTR	GROUP LDR	SUB SYS ENG	STRUCT	STRUCT	WEIGHTS	THERMO					
A											

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28725	A
SCALE NONE			SHEET 1.10

ENG 77.3 5-65

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
2		NAS1133V8	E	BOLT	STD PART						
		NAS1097AD3	E	RIVET	STD PART						
2		NAS697A3	E	NUT PLATE	STD PART						
		MS20470A4	E	RIVET	STD PART						
		MS20470 A3	E	RIVET	STD PART						
1		LDW280P17920-23-4	E	CHANNEL	SEE DWG						7A
1		-23-3	E								5A
1		-23-2	E								7B
1		-23-1	E								6A
1		-21	E								8C
1		-19	E								9C
2		-3	E								5C
1		LDW280P17920-1	E	CHANNEL							5C
1		LDW280P17921-11	E	PLATE							5E
1		LDW280P18048-15	E	CHANNEL							5E
1		LDW280P18048-19	E	CHANNEL							9C
1		LDW280P18048-3	E	CHANNEL ASSY							7D
5		LDW280-23713-5	E	STANDOFF ASSY	SEE DWG						2A
10		LDW280-23712-3	E	STANDOFF ASSY	SEE DWG						4B/10B
1		LDW280-23713-7	E	STANDOFF ASSY	SEE DWG						11C
		LDW280-28725-1	E	STANDOFF INST'L							3A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

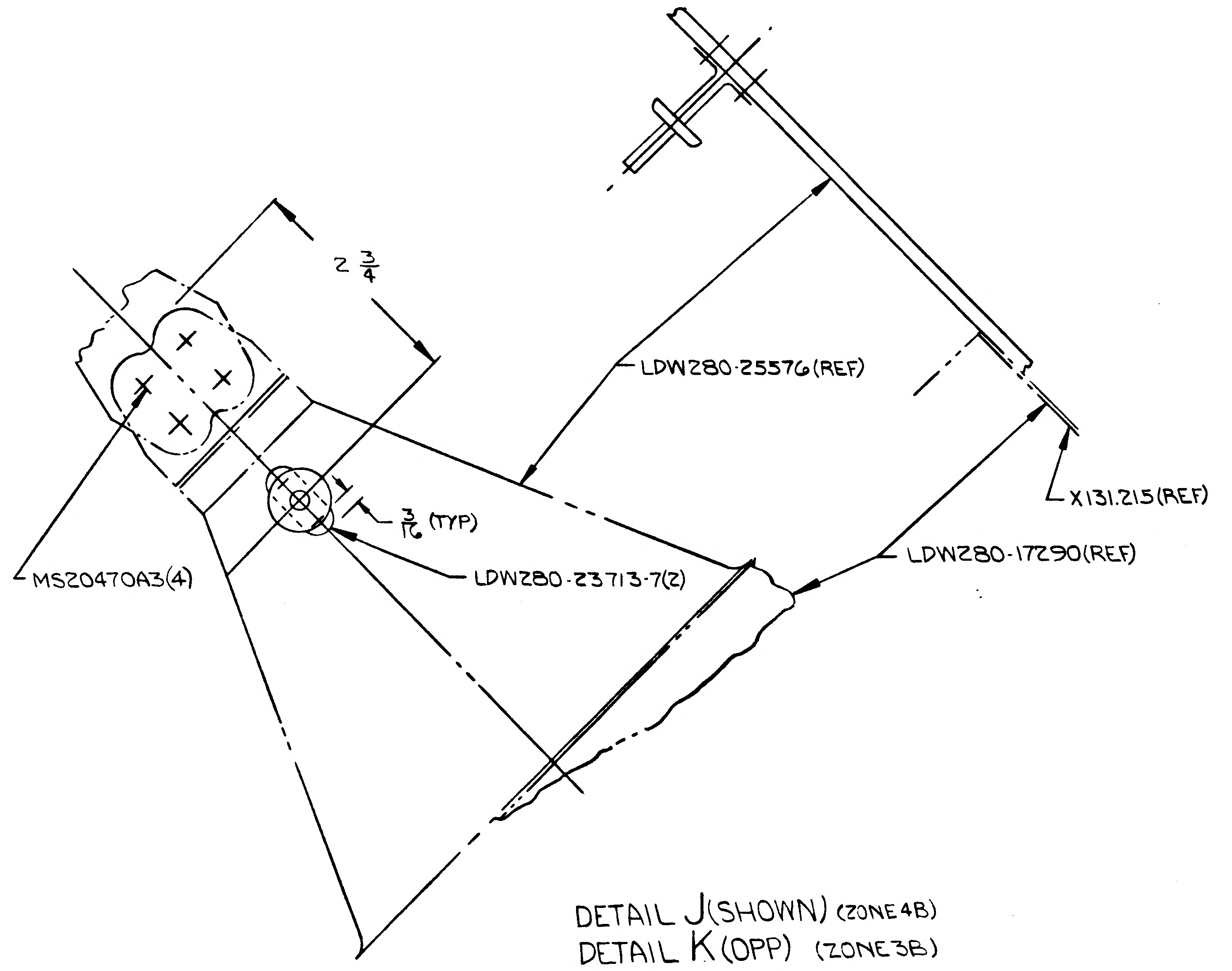
SIZE	CODE IDENT NO.		
B	26512	LDW280-28725	A

SCALE NONE SHEET 2.00

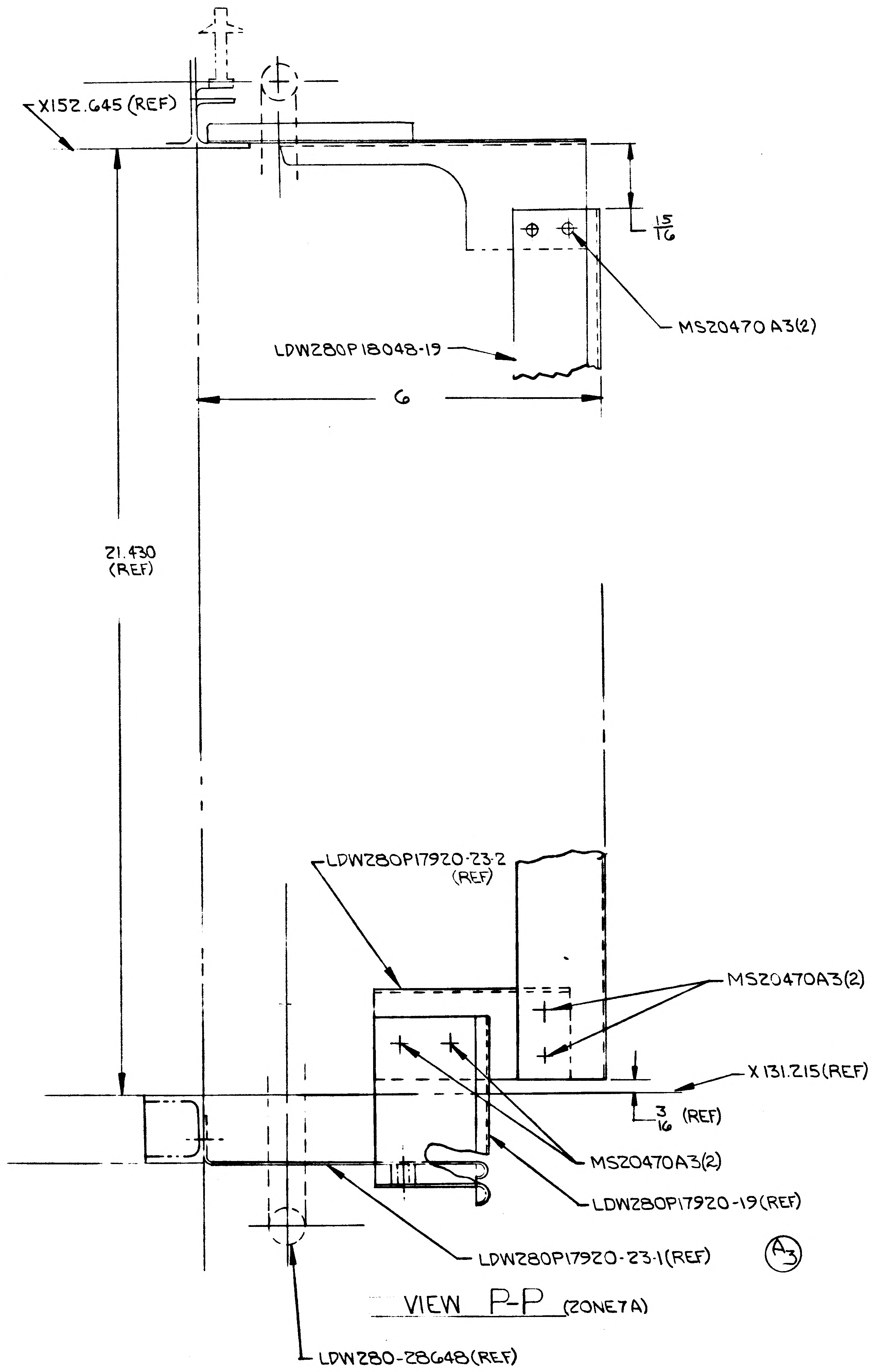
ENG 77.2 7-65

01

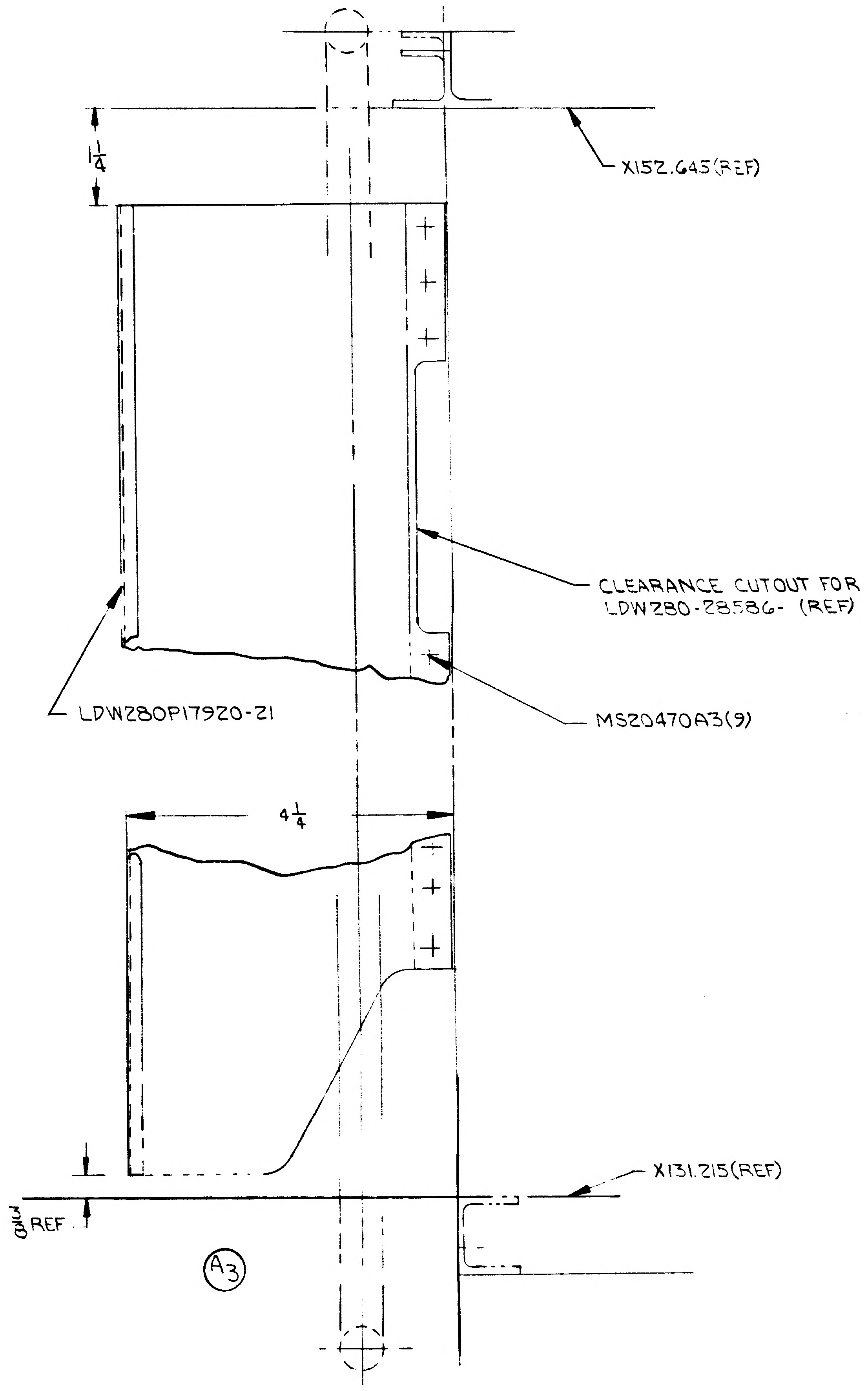
NAS 9-1100


2 3/4
LDW280-25576(REF)
X131.215(REF)
LDW280-17290(REF)
MS20470A3(4)
3/16 (TYP)
LDW280-23713-7(2)

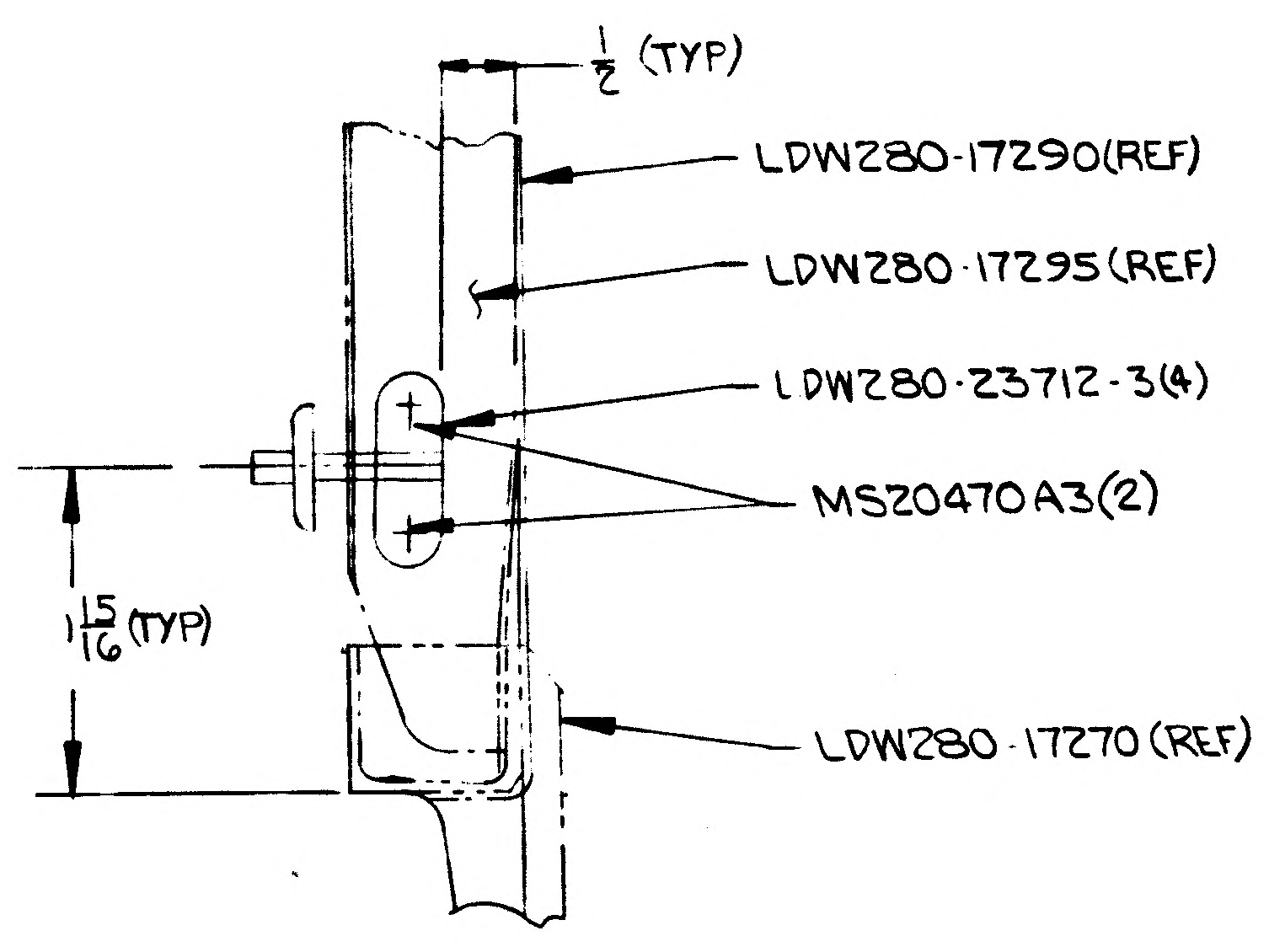
DETAIL J(SHOWN) (ZONE 4B)
DETAIL K(OPP) (ZONE 3B)


X152.645 (REF)
15/16
MS20470 A3(2)
LDW280P18048-19
6
21.430 (REF)
LDW280P17920-23-2 (REF)
MS20470A3(2)
X131.215(REF)
3/16 (REF)
MS20470A3(2)
LDW280P17920-19(REF)
LDW280P17920-23-1(REF)
A3
LDW280-28648(REF)

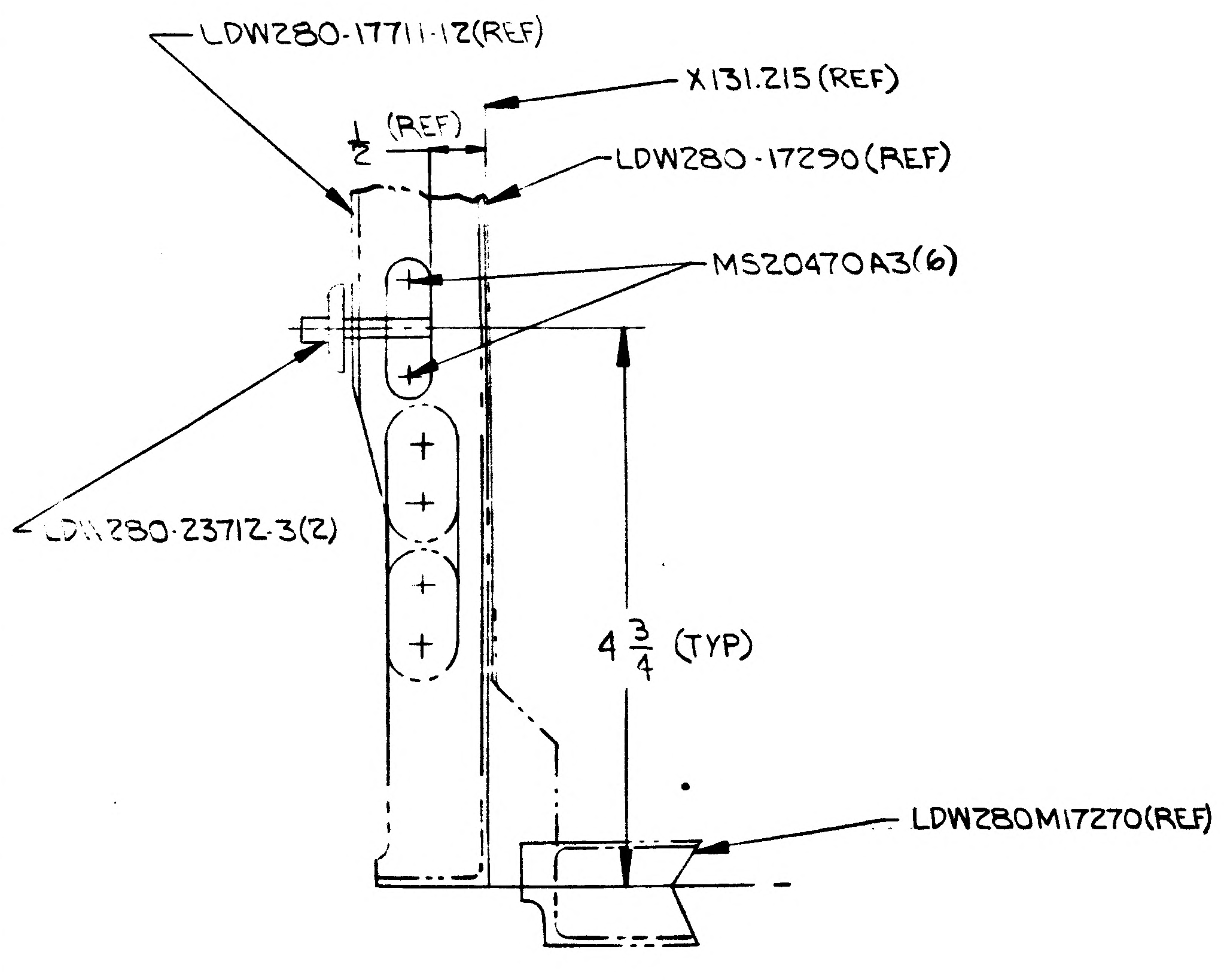
VIEW P-P (ZONE 7A)


1 1/4
X152.643(REF)
CLEARANCE CUTOUT FOR LDW280-28586- (REF)
LDW280P17920-21
MS20470A3(9)
4 1/4
X131.215(REF)
3/4 REF
A3

VIEW N-N (ZONE 5A)


1/2 (TYP)
LDW280-17290(REF)
LDW280-17295(REF)
LDW280-23712-3(4)
MS20470A3(2)
1 5/16 (TYP)
LDW280-17270(REF)

SECTION E-E (SHOWN) (ZONE 4B)
SECTION F-F (OPP) (ZONE 4B)
(ROTATED 45°CCW)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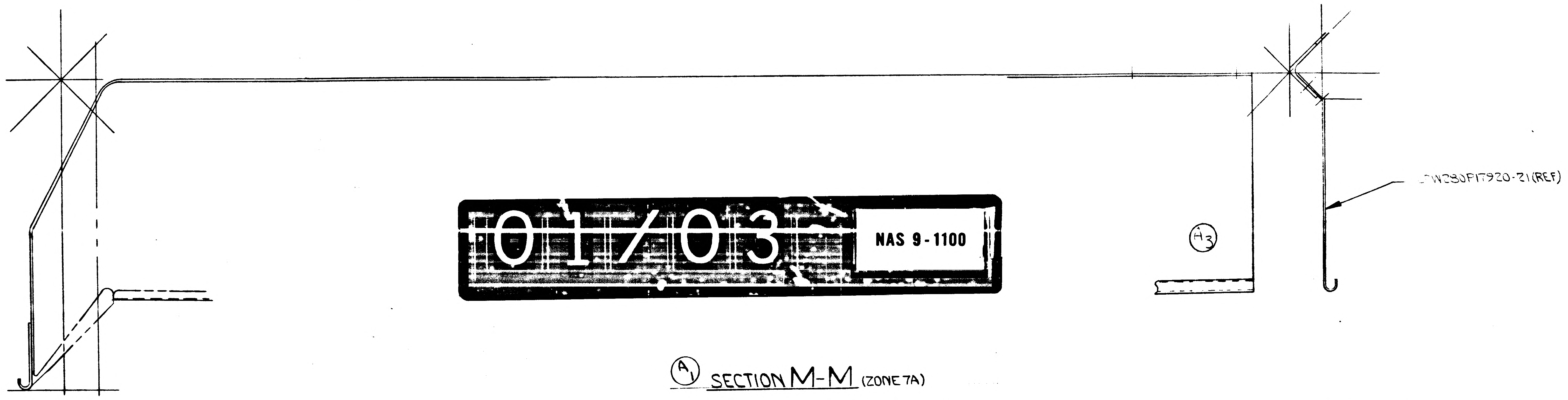
X131.215 (REF)
1/2 (REF)
LDW280-17290(REF)
MS20470A3(6)
LDW280-23712-3(2)
4 3/4 (TYP)
LDW280M17270(REF)

SECTION C-C(SHOWN) (ZONE 4B)
SECTION D-D(OPP) (ZONE 3B)
(ROTATED 45°CCW)


W280P17920-21(REF)
A3

01/03 NAS 9-1100

A1 SECTION M-M (ZONE 7A)

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-28725	3

FRAME 1 FRAME 2

-Y81.0(REF)
55.60(REF)
3
2 (REF)
-Z41.683(REF)
MS20470AD4(3)
X15...5(REF)
MS20470AD4(3)
LDW280F18048-3
LDW280P17920-23-4(REF)
MS20470A4(2)
LDW280P17920-23-2(REF)
CLEARANCE CUTOUT FOR LDW280-28586-(REF)
MS20470A3(9)
2 (REF
1 (REF)
9/16
1 1/8
MS20470A3(3)
2 (REF)
3
-Y41.683(REF)
-Z81.0(REF)
LDW280-23586(REF)
MS20470AD4(3)
LDW280P17920-21(REF)
LDW280P17920-3
P
X152.645(REF)
3/32 (REF)
MS20470A3(2)
LDW280M17269 (REF)
LDW280-25575(REF)
LDW280P17920-1
3/32 REF
MS20470A3(2)
LDW280P17920-3
N
X131.215(REF)
NAS697A3(2)
NAS1097AD3(4)
CSK NR SIDE LDW280-17717
NAS1133V8(2)
℄
LDW280P17921-11
17 3/8 ± 1/32
LDW280-17717(REF)
LDW280P18048-15
MS20470A4(2)
3 7/16 ± 1/32
M
(ZONE 9A)
LDW280-17920-23-2
LDW280P17920-23-1
LDW280P17920-23-3
X131.215(REF)
LDW280P17920-23-4
LDW280P17920-19
MS20470A4(TYP)
MS20470A4(TYP)
5/8 (REF)
1 3/8
2 3/4 (REF)
3 1/4 (REF)
6
2 3/16 (REF)
N
(ZONE 8B)
M
P
(ZONE 9B)
Ⓐ1 VIEW L-L (ZONE 4D)
L
LDW280-23713-5(REF)
26 7/8
13 7/16
1 1/16
26 7/8
13 7/16
A
A (ZONE 2A)
Ⓐ1 (ZONE 6A)
QUAD II (REF)
VIEW LOOK
-Z
LDW280-23712-3
(ZONE 4A)
H
H
QUAD II (REF)
SEE DETAIL J (ZONE 11C)
C (ZONE 11A)
LDW280M17270 (REF)
LDW280-25576 (REF)
9 7/8
F (ZONE 10B)
G (ZONE 4A)
9 7/8
E (ZONE 10B)
D (ZONE 11A)
SEE DETAIL K
OUTBD FACE OF LDW280-17275(REF)
MS20470A3
3/16 (TYP)
LDW280-23712-3(2)
LDW280-17295(REF)
1 5/8
1/2 (TYP)
LDW280-17290(REF)
SECTION H-H (SHOWN)(ZONE 4B)
SECTION G-G (OPP) (ZONE 4B)

02/03 NAS 9-1100

CODE IDENT NO. 26512 DWG NO. LDW280-28725 SHEET 3

280-28725 SHEET 3

FRAME 1 FRAME 2

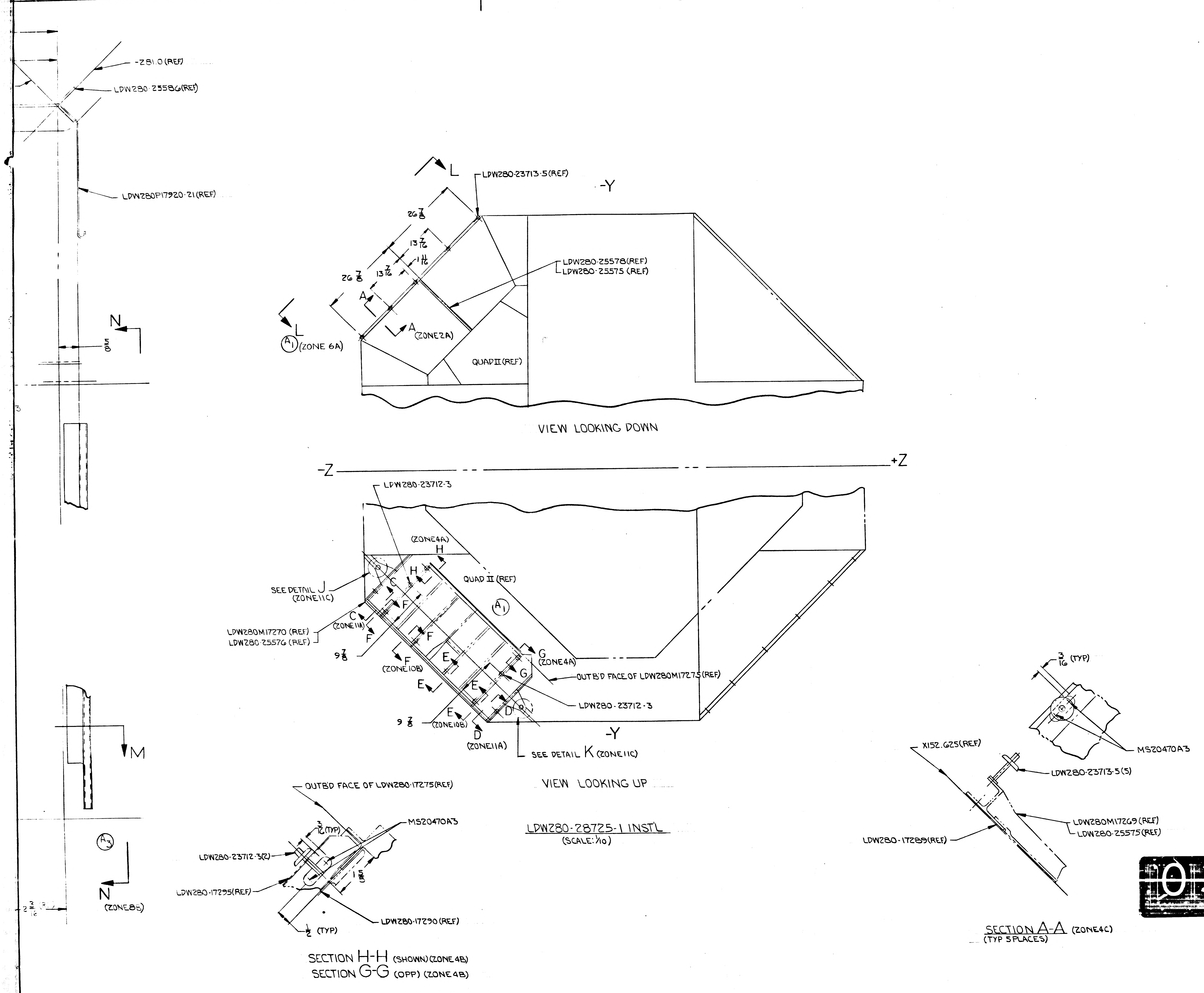
FRAME 2 FRAME 3

EMG 771 2 4-

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	☐
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	☐
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	☐
INSTALL RIVETS IN ACCORDANCE WITH	☐

DWG SIZE 34X121
PRINTING INFO ONLY
PRINT TRIM LINE
FULL SIZE SHEET AREA (36 X 129)= 32.3 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL)= 8.1 SQ FT


4
3
2
1
D
C
B
A
-Z81.0 (REF)
LDW280-23586 (REF)
LDW280P17920-21 (REF)
N
N
M
A3
(ZONE 8B)
2 3/16
L
L
LDW280-23713-5 (REF)
-Y
26 7/8
13 7/16
1 11/16
26 7/8
13 7/16
A
A
(ZONE 2A)
A1 (ZONE 6A)
LDW280-25578 (REF)
LDW280-25575 (REF)
QUAD II (REF)
VIEW LOOKING DOWN
-Z
+Z
LDW280-23712-3
(ZONE 4A)
H
H
QUAD II (REF)
SEE DETAIL J (ZONE 11C)
C
C
(ZONE 11A)
LDW280M17270 (REF)
LDW280-25576 (REF)
F
F
F
F
F
(ZONE 10B)
9 7/8
A1
G
(ZONE 4A)
G
OUTB'D FACE OF LDW280M17275 (REF)
E
E
E
E
(ZONE 10B)
LDW280-23712-3
9 7/8
D
D
(ZONE 11A)
SEE DETAIL K (ZONE 11C)
-Y
VIEW LOOKING UP
LDW280-28725-1 INSTL
(SCALE: 1/10)
OUTBD FACE OF LDW280-17275 (REF)
3/16 (TYP)
MS20470A3
LDW280-23712-3 (2)
1 5/8
LDW280-17295 (REF)
LDW280-17290 (REF)
1/2 (TYP)
SECTION H-H (SHOWN) (ZONE 4B)
SECTION G-G (OPP) (ZONE 4B)
3/16 (TYP)
MS20470A3
X152.625 (REF)
LDW280-23713-5 (5)
LDW280M17269 (REF)
LDW280-25575 (REF)
LDW280-17289 (REF)
SECTION A-A (ZONE 4C)
(TYP 5 PLACES)

03/03

NAS 9-1100

LDW280-28725A

LDW280-28725A

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
SIZE J	CODE IDENT NO. 26512	LDW280-28725	A
SCALE NOTED		SHEET 3.0C	

SUPERSEDES LDW280-28725 7-19-68 NO CHANGE

3 FR.

CODE IDENT NO	DWG NO.	SHEET
26512	LDW280-28725	3

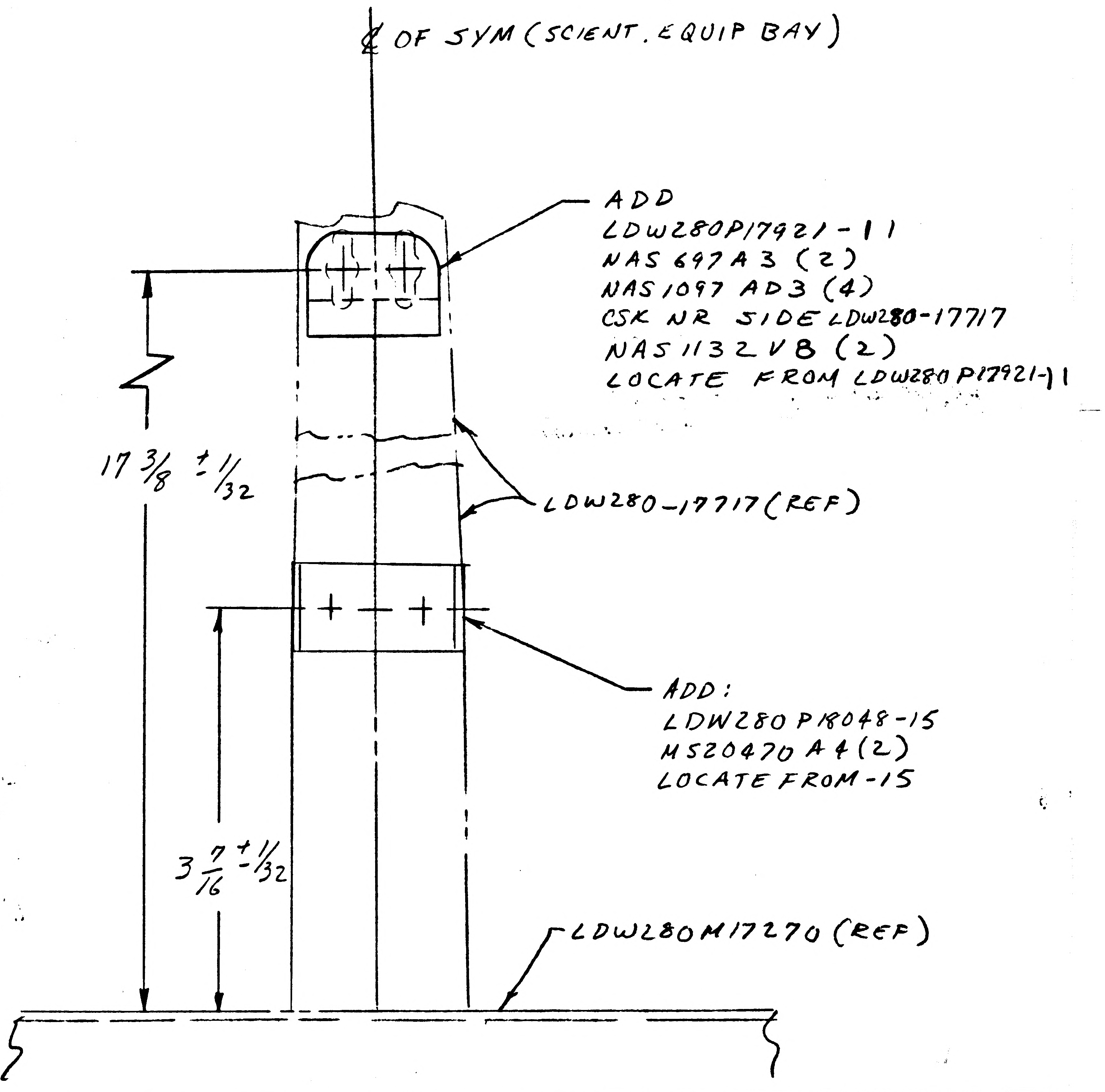
FRAME 2 FRAME 3

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-28725	EO NO.	A4
CONTROL INFO NO.	LM 5-11315		

ON-1 ADD THE FOLLOWING PARTS:



℄ OF SYM (SCIENT. EQUIP BAY)
ADD
LDW280P17921-11
NAS 697 A 3 (2)
NAS 1097 AD3 (4)
CSK NR SIDE LDW280-17717
NAS 1132 VB (2)
LOCATE FROM LDW280 P17921-11
17 3/8 ± 1/32
LDW280-17717 (REF)
ADD:
LDW280 P18048-15
MS20470 A 4 (2)
LOCATE FROM -15
3 7/16 ± 1/32
LDW280M17270 (REF)

RELEASED BY LIAISON

01
NAS 9-1100

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO FACILITATE INSTL OF S.E.Q.B. DOOR

DESCRIPTION OF EO: ON-1 INSTL
ADDED LDW280P18048-15 & MS20470A4(2);
LDW280P17921-11, NAS697A3(2), NAS1097AD3(4) NAS1132V8(2)

GAEC EO RELEASE: f 24

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	
LM		LM1 (31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP								
✓		✓									
				APPROVED BY	WT			–	DR	CH	RMC (EO)
				DATE	12/8/66			–	12-8-66	12-9-66	12-15-66	12-9-66
				5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: STANDOFF INSTL D/S - QUAD II - SEQ ACCESS DOOR

DRAWING NO.: LDW280-28725

EO NO.: A4

ISSUED BY DAN RAGAS X6454 SECTION VD1 GROUP NO. 335 PL 5

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28725
EO NO. A5
CONTROL INFO NO. LM-5-9954

THIS IS A REVISION OF E.O. A4.

ON-1 NAS 1132-V8 (2) S/B NAS 1133-V8 (2)

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐	5

REASON FOR EO: WRONG SIZE HARDWARE CALL OUT

DESCRIPTION OF EO: REF. E.O. A4
ON-1 NAS 1133-V8 (2) WAS NAS 1132-V8 (2)

GAEC ✓ EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY									
DATE	1/25				12/14/6	12-14-66	12-20-66	12/19/66
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: STANDOFF INSTL. D/S QUAD II-SEQ ACCESS DOOR
DRAWING NO.: LDW280-28725
EO NO.: A5

ISSUED BY LIAISON J. JARVIS x6452 SECTION V.D.I. GROUP NO. 280 PL 35

01

NAS 9-1100

LDW280-28727 B

PART NO. LDW 280-28727-19 & -20

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54553	LM-15(45)	4 EA
		LM-14(44)	4 EA
		LM-13(43)	4 EA
		LM-12(42)	4 EA
		LM-11(41)	4 EA
		LM-10(40)	4 EA
		LM-9(39)	4 EA
		LM-8(38)	4 EA
		LM-7(37)	4 EA
		LM-6(36)	4 EA
		LM-5(35)	4 EA
LM	LDW280-54553	LM-4(34)	4 EA

PART NO. LDW 280-28727-17 & -18 GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM-155	LDW280-53553	SEE NOTE 2	4 EA

PART NO. LDW 280-28727-11 & -12 GAEC SCH NO. 52

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53553	LM-3(33)	4 EA

PART NO. LDW280-28727-3 & -4 GAEC SCH NO. 52

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA-8(18)	4 EA

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		1.10	1.11	2.00	2.01	3.00	
REV	B		B	B	B	B	B	
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED B

LAST DASH NO. USED -22

GRUMMAN REL INFO B

PRIM NO. 207 JK(001) MP-1B 7/31/

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ± 1/4 ±.030 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM 1

DOCUMENTATION TYPE II

DRAWN BY	AMBROSIO	RELIABILITY		
LAYOUT BY	AMBROSIO	THERMO	AB	11-9-66
CHECKED BY				
GRP LDR	STRAKOSH 8-5-66			
VEH DES INT	PAULSRUD 8-5-66			
STRUCT	WB 8-6-66	PROJ ENGR	CARBEE 8-7	
STRUCT	HILDERMAN 8-6	REL GROUP	GROD 11-10	
WEIGHTS	ROBESCH 8-9			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTALLATION
DESCENT STAGE - LANDING GEAR
CHOCK PENETRATION THERMAL

SIZE B CODE IDENT NO. 26512 LDW280-28727 B

SCALE NONE SHEET 1.00 OF 6

ENG 77.1 12-65

SUPERSEDES LDW280-28727 NO CHG 11-10-66

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
		RETRACED NO CHG						LAST REV	NO CHG ADDED SH 1.10 I. KULLER 12-13-66						
A	1							EO A1	IN B/M & F/D REMOVED LDW280P17567-11 &-13 REPLACED WITH LDW280P17567-1. REMOVED LDW280P17567-15 &-17. REPLACED WITH LDW280P17567-3. ADDED NOTE TYP 8 PLACES.	LTA-8	✓		KULLER 12-13-66		
	2							EO A2	ADDED -3, -5, -7 & -9 REMOVED -1 & DETAILS A, B, C, D, & E. ADDED NOTE #5 & GT835P-8, GW10H-3 & GR11B-1 QUANTITY AS REQD	LTA-8, LM-1, -2, -3, -4, -5 & -6		✓			
	3							EO A3	IN F/D, B/M & N/A ADDED -4, -6, -8 & -10 IN N/A BLOCK FOR -3 & -7 4 REQD/MOD WAS 8			✓			
	4								ADDED NOTE #1 D.J.HR.	NOT REQD	NOT	REQD			
	5								N/A LDW280-53553 WAS LDW280-52553	LM-3	NOT	REQD	AMBROSO	1-12-67	
B	1	2.00						EO B1	REFERENCE EO A2 QUANTITIES FOR CALLOUTS S/B: GW10H-3(7) & GR11B-1(7). WAS: GW10H-3 & GR11B-1 QUANTITY AS REQ'D.	LTA-8(18) LM-1 THRU LM-6	✓		L. MILLAN 7-29-68 H.D.		
	2	1.00						LEO 280-476	FOR -7 & -8 ADDED LEM-7 THRU LEM 15 EFF.	LM-7 THRU LM-15	NOT	REQD			
	3	1.00 2.00 3.00						EO B3	IN F/D REVISED PICTURE FOR -7 & -8 ADDED VIEW FOR -3 & -4 IN M/B REMOVED LM-1(31) EFF FROM -7 & -8.	LTA-8 LM-1 THRU LM-6	✓				
	4	1.00, 2.00 3.00		P		✓		EO B4 LCD 2360	-7 & -8 EFFECTIVITY WAS LM-2(32) THRU LM-15(45) ADDED -11 THRU -14	LM-3 THRU LM-15		✓			

CHG APPROVED

LTR	~~GROUP LDR~~	VES DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY	THERMO				
A		1/3/67	4/9/67								
B											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28727	B (B)
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
B	5	2.00 3.00		P		✓		EO B5 LCD2360	REF. EO LDW280-28727-B4 LDW280P17567-41 AND -42 SHOULD BE -37&-38. ADDED SH 1.11.	LM-3 THRU LM-15	✓		L. MILLAN 7-29-68		
	6	1.00		P		✓		EO B6 LCD2360, CCA745	IN M/B FOR -7&-8 REMOVED LM-2(32) N/A LDW280-52553	LM-2		-7 -8			
	7	1.00, 2.00 3.00		LFM-155		✓		EO B7 LCD 2899	IN FLD & B/M CREATED -15 & -16 ASSY, & -17 & -18 INSTL. ADDED NOTE 2	LM-3	NOT	REQD			
	8	2.00 3.00					✓	EO B8	ON LDW280-28727-11 ADDED LDW280P17567-39 (1) ON LDW280-28727-12 ADDED LDW280P17567-40(1)	LM-3 THRU LM-15	✓				
	9	1.00, 2.01 3.00		P		✓		EO B9 LCD2360	RESTRICTED -11&-12 FOR USE ON LM-3(33) WAS LM-3(33) THRU LM-15(45). ADDED -19, -20, -21& -22. ADDED SH 2.01	LM-4 THRU LM-15		-11 -12	H.D.		

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY	THERMO				
	B											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28727	B
SCALE NONE			SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100

CL	-18	-17	-16	-15	-14	-13	-6	-5	-12	-11	-4	-3	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C														LDW280-28727-18	E	SHIELD INSTL	SEE NOTE 2				NONE	NONE	
C														-17		SHIELD INSTL							
C	4													-16		SHIELD ASSY							
C		4												LDW280-28727-15		SHIELD ASSY	SEE NOTE 2				NONE	NONE	
							AR	AR			AR	AR		GT835P-8		TAPE	GRUMMAN STD						
	AR	AR	AR	AR	AR	AR			AR	AR				GT15C-9		TAPE	GRUMMAN STD						
			7	7	7	7	7	7						GW10H-3		SNAP	GRUMMAN STD						
			7	7	7	7	7	7						GR11B-1		RETAINER	GRUMMAN STD						
C									1					LDW280P17567-40		BLANKET	SEE DWG						
C			1											LDW280P17567-46		BLANKET	SEE DWG						
C				1										LDW280P17567-45		BLANKET	SEE DWG						
C					1									LDW280P17567-38		BLANKET	SEE DWG						
C						1								LDW280P17567-37		BLANKET	SEE DWG						
C							1							LDW280P17567-10		BLANKET	SEE DWG						
C								1						LDW280P17567-9		BLANKET	SEE DWG						
C										1				LDW280P17567-39		BLANKET	SEE DWG						
C									4					LDW280-28727-14		SHIELD ASSY					NONE	NONE	
C										4				-13		SHIELD ASSY							
C											4			-6		SHIELD ASSY							
C												4		-5		SHIELD ASSY							
C														-12		SHIELD INSTL							
C														-11		SHIELD INSTL							
C														-4		SHIELD INSTL							
C														LDW280-28727-3	E	SHIELD INSTL					NONE	NONE	

CL QTY PER ASSEMBLY

CL : CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28727 B (B)
SCALE NONE
SHEET 2.00

ENG 77.2 7-66

01

NAS 9-1100

				-22	-21	-20	-19	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				7	7				GW10H-3	E	SNAP	GRUMMAN STD						
				7	7				GR11B-1	E	RETAINER	GRUMMAN STD						
				AR	AR	AR	AR		GT 15C-9	E	TAPE	GRUMMAN STD						
C				1					LDW280P17567-50		BLANKET	SEE DWG						
C					1				LDW280P17567-49		BLANKET	SEE DWG						
C						4			LDW280-28727-22		SHIELD ASSY					NONE	NONE	
C							4		-21		SHIELD ASSY							
C									-20		SHIELD INSTL							
C									LDW 280-28727-19	E	SHIELD INSTL					NONE	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

~~I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :~~

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28727	B

SCALE NONE

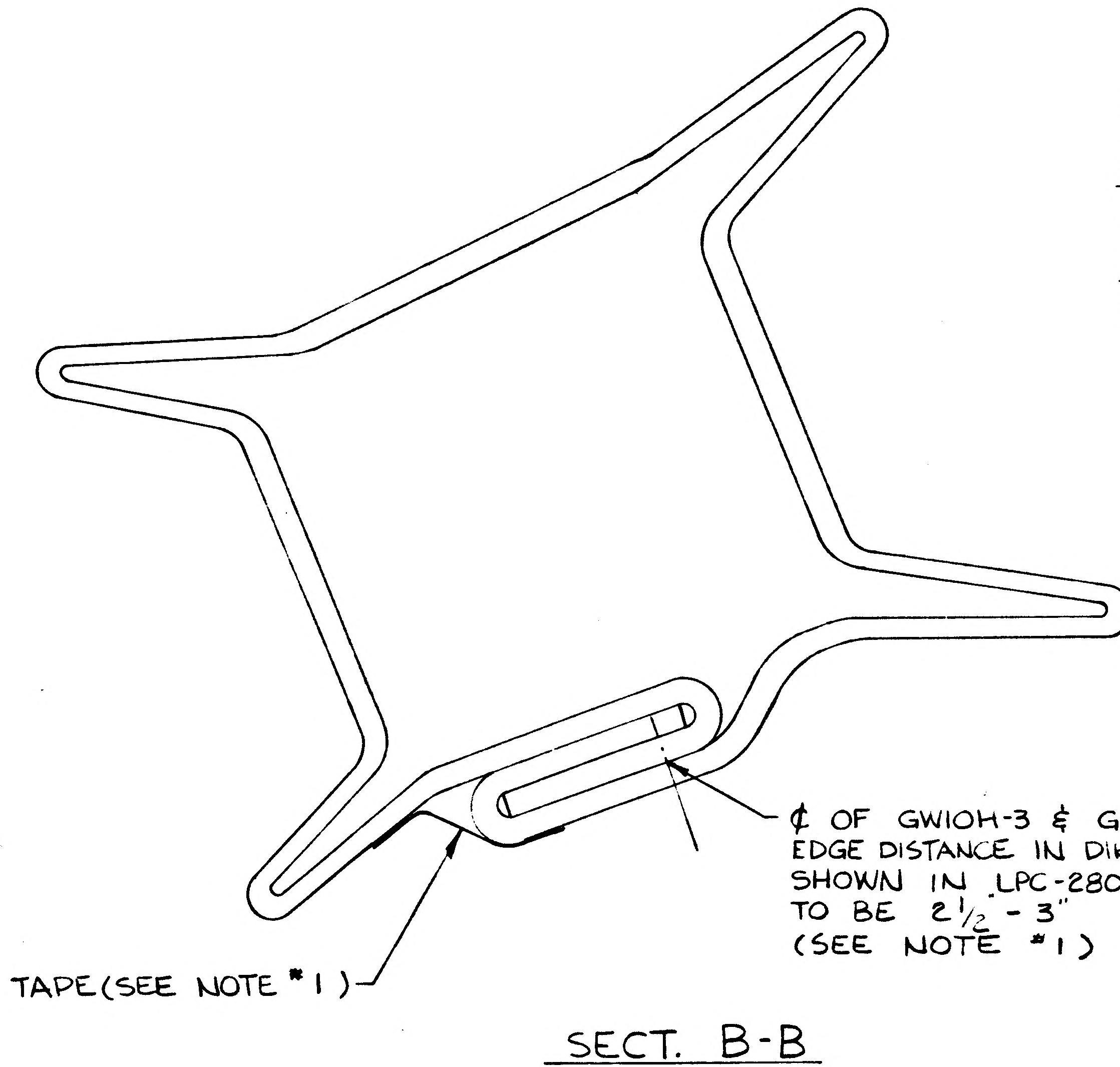
SHEET 2.01

ENG 77.2 7-65

01

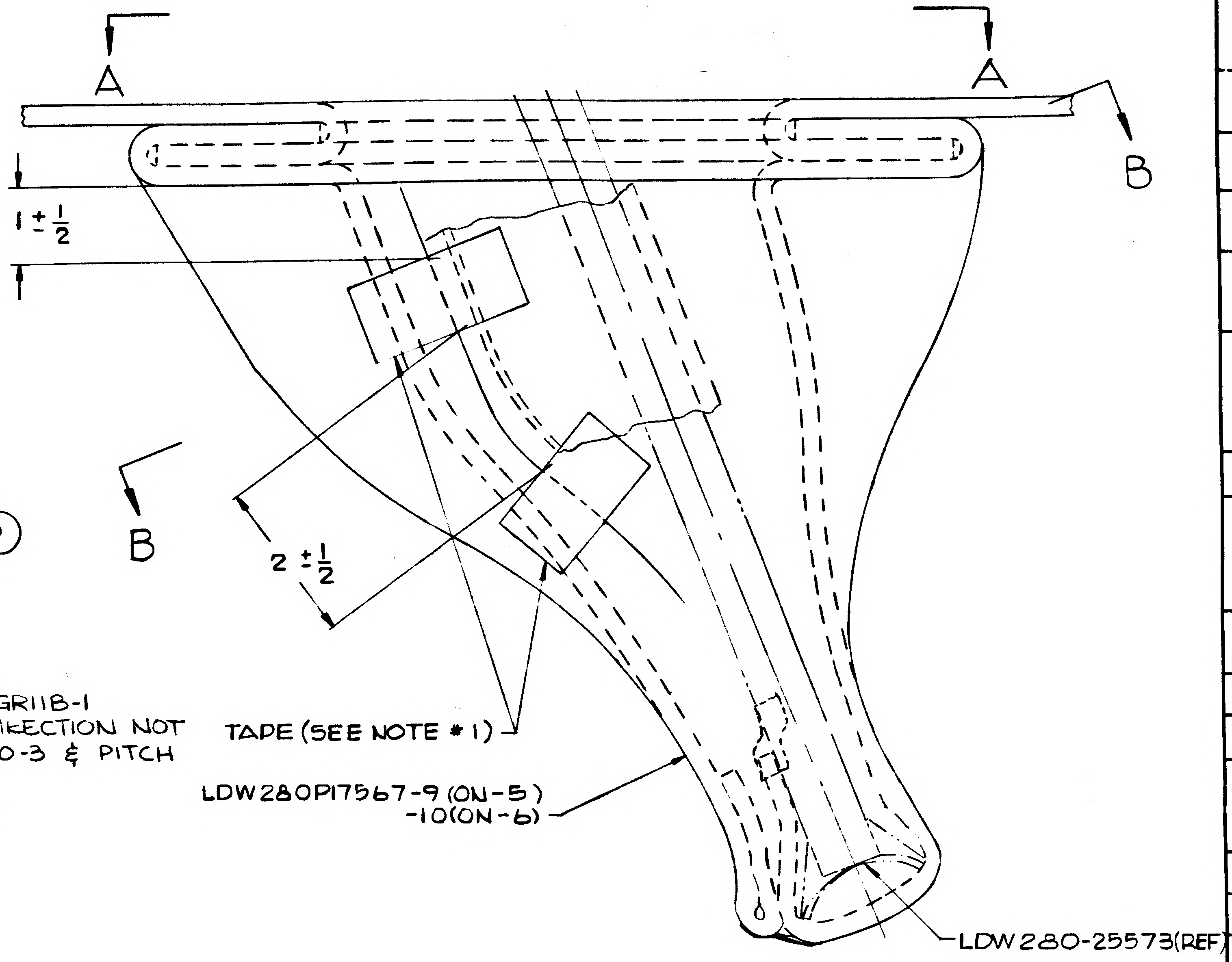
NAS 9-1100

NOTES:
1. INSTALL PER LPC 280-3.
2. THIS DWG AFFECTED BY LFM-155 WHICH MAY BE USED ON LM-3(33).



¢ OF GW10H-3 & GR11B-1
EDGE DISTANCE IN DIRECTION NOT
SHOWN IN LPC-280-3 & PITCH
TO BE 2½ - 3"
(SEE NOTE #1)
TAPE (SEE NOTE #1)

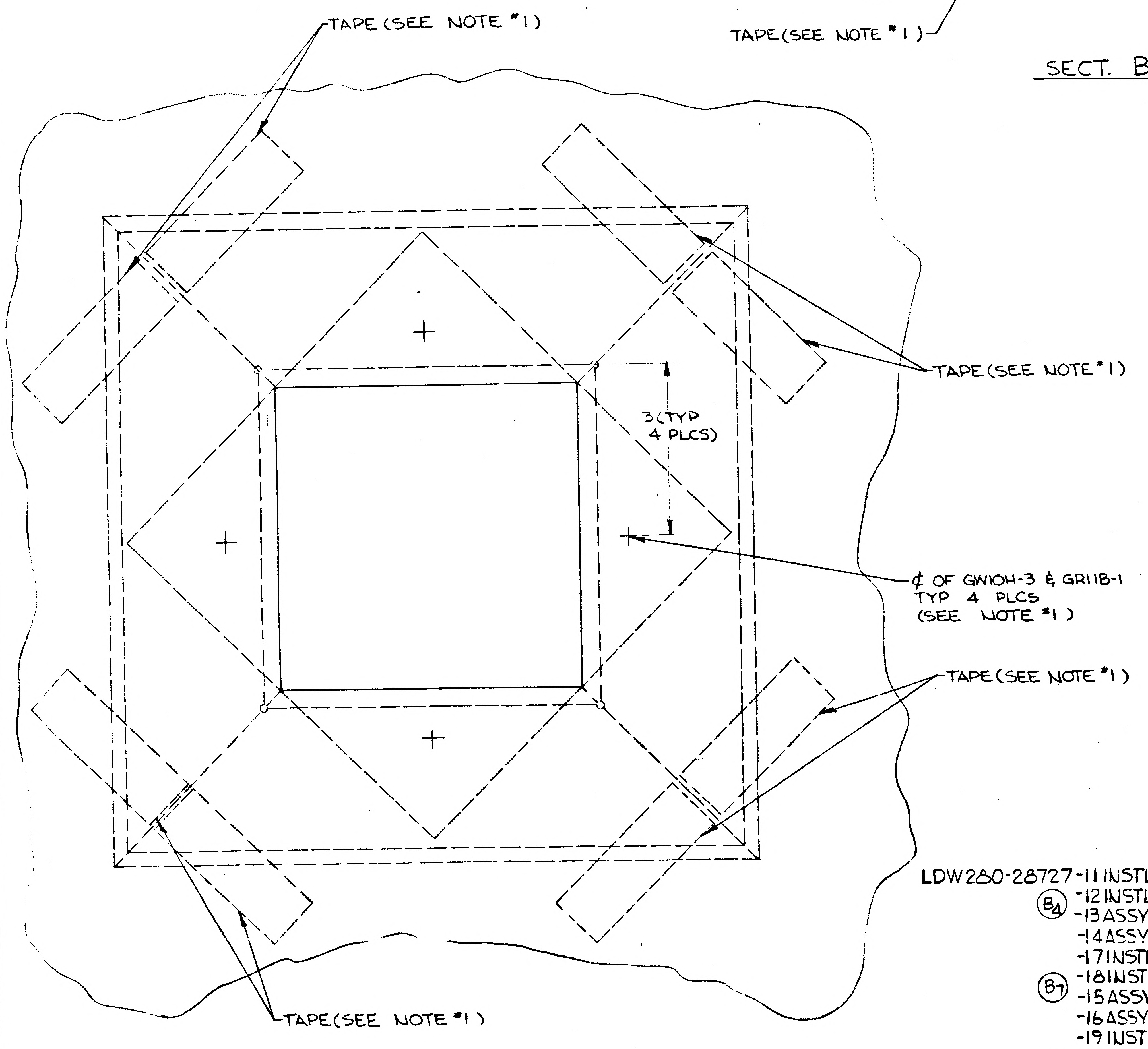
SECT. B-B



A
A
B
B
1 ± ½
2 ± ½
TAPE (SEE NOTE #1)
LDW280P17567-9 (ON-5)
-10 (ON-6)
LDW280-25573(REF)

Ⓑ3 LDW 280-28727-3 INSTL (SHOWN)
-4 INSTL (OPP)
-5 ASSY (SHOWN)
-6 ASSY (OPP)

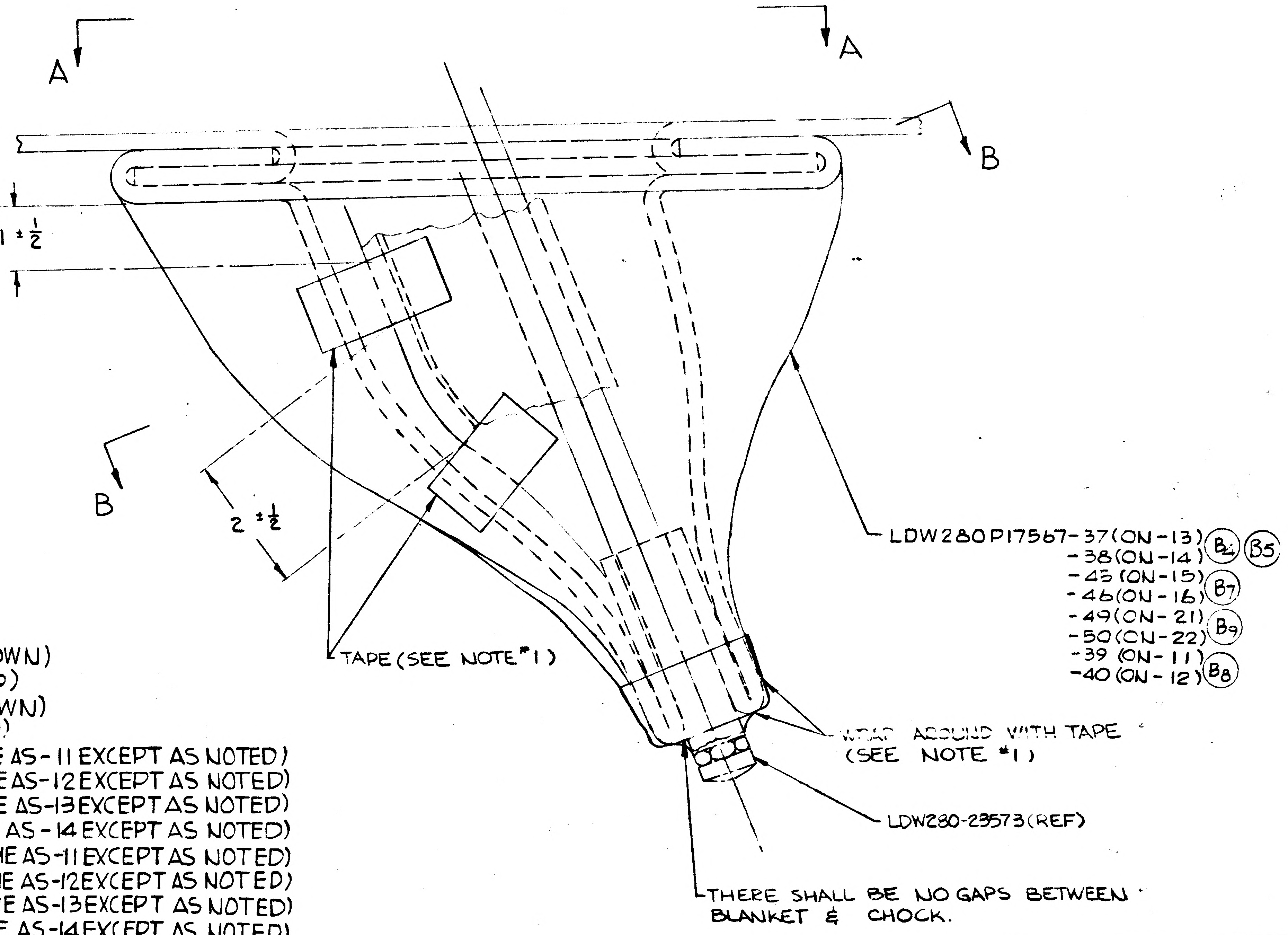
NAS 9-1100



TAPE (SEE NOTE #1)
TAPE (SEE NOTE #1)
3 (TYP 4 PLCS)
¢ OF GW10H-3 & GR11B-1
TYP 4 PLCS
(SEE NOTE #1)
TAPE (SEE NOTE #1)
TAPE (SEE NOTE #1)

LDW280-28727-11 INSTL (SHOWN)
Ⓑ4 -12 INSTL (OPP)
-13 ASSY (SHOWN)
-14 ASSY (OPP)
-17 INSTL (SAME AS -11 EXCEPT AS NOTED)
Ⓑ7 -18 INSTL (SAME AS -12 EXCEPT AS NOTED)
-15 ASSY (SAME AS -13 EXCEPT AS NOTED)
-16 ASSY (SAME AS -14 EXCEPT AS NOTED)
-19 INSTL (SAME AS -11 EXCEPT AS NOTED)
Ⓑ9 -20 INSTL (SAME AS -12 EXCEPT AS NOTED)
-21 ASSY (SAME AS -13 EXCEPT AS NOTED)
-22 ASSY (SAME AS -14 EXCEPT AS NOTED)

SECT. A-A



A
A
B
B
1 ± ½
2 ± ½
TAPE (SEE NOTE #1)
WRAP AROUND WITH TAPE
(SEE NOTE #1)
LDW280-23573(REF)

LDW280P17567-37 (ON-13) Ⓑ4 Ⓑ5
-38 (ON-14)
-45 (ON-15) Ⓑ7
-46 (ON-16)
-49 (ON-21) Ⓑ9
-50 (ON-22)
-39 (ON-11) Ⓑ8
-40 (ON-12)

THERE SHALL BE NO GAPS BETWEEN BLANKET & CHOCK.

MANUFACTURING
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED

TOLERANCE ON LOFTED DELINEATIONS IS

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	E	26512	LDW280-28727	B
	SCALE		SHEET	

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28727
EO NO. A3
CONTROL INFO NO. LDW280-A0463

IN F/D & B/M ADD -4 OPPOSITE TO -3 EXCEPT -6 REPLACES -5
ADD -6 COMPRISES LDW280P17567-10 GR11B-1 & GW10H-3

ADD -8 OPPOSITE TO -7 EXCEPT -10 REPLACES -9
ADD -10 COMPRISES LDW280P17567-32 GR11B-1 & GW10H-3

IN N/A BLOCK FOR -3 4 REQ'D/MOD WAS 8 REQ'D
FOR -4 N/A LDW280-28553 LTA8(18) 4 REQ'D/MOD
FOR -7 4 REQ'D/MOD WAS 8 REQ'D/MOD
FOR -8 N/A LDW280-51553 LEM1(31) 4 REQ'D/MOD
LDW280-52553 LEM2(32) & LEM3(33) 4 REQ'D/MOD
LDW280-54553 LEM4(34), LEM5(35) & LEM6(36) 4 REQ'D/MOD

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: OPP HAND PARTS REQ'D

DESCRIPTION OF EO: IN F/D, B/M & N/A ADDED -4, -6, -8 & -10
IN N/A BLOCK FOR -3 & -7 4 REQ'D/MOD WAS 8

GAEC EO RELEASE: FR 9/29/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA8(18) LEM1(31)	THRU LEM6(36)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	JAS		DAR	RB	WJH			RMC	AE
DATE	9/14/66		10-3	10/8	9/17/66			9-29	9-26-66
✓	VDI	SUPPORT THERMO	~~RELIAB GROUP~~ WTS	~~GROUP~~ LEADER	STRESS GROUP	LIAISON ENGRG		PROJ ENGRG	~~[illegible]~~

PRIORITY: C
DRAWING TITLE: SHIELD ASST. D/S LANDING GEAR CHECK PENETRATION THERMAL
DRAWING NO. LDW280-28727
EO NO. A3

ISSUED BY P. Weisslitz / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 35

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NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG NO. LDW280-28727
EO NO. B1
CONTROL INFO NO. LDW280A-4725

REFERENCE EO A2

QUANTITIES FOR CALLOUTS

SHOULD BE: GW10H-3(7) AND GR11B-1(7).

WAS: GW10H-3 & GR11B-1 QUANTITY AS REQ'D.

THIS EO IS A REVISION OF EO A2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ 5

REASON FOR EO: DUE TO ADDITIONAL THERMO REQUIREMENTS; Q'TY NOT SPECIFIED

DESCRIPTION OF EO: REFERENCE EO A2 QUANTITIES FOR CALLOUTS S/B: GW10H-3(7) & GR11B-1(7). WAS: GW10-3 & GR11B-1 QUANTITY AS REQ'D.

GAEC EO RELEASE: FR 1/7/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	LTA-8(18)		
	LM-1(31) THRU LM-6(36)		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY								
DATE	1/6/67			1/6/67			1/6/67	1-6-67
6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SHIELD INSTALLATION D/S LANDING GEAR CHOCK PENETRATION THERMAL
DRAWING NO.: LDW280-28727
EO NO.: B1

ISSUED BY EMF/B. MAGGIACOMO X4929 SECTION VEH. DES. INT. GROUP NO. 335 PL 35

01 NAS 9-1100

FGG 82.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER LMP 4

DWG NO. LEO280
EO NO. 476
CONTROL INFO NO. LDW280 A 5542

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH* NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM 9 (39), LEM-10(40), LEM-11(41), LEM-12 (42), LEM-13(43), LEM-14(44) AND LEM-15(45) QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280 - 25703 ✓	A6	SEE DRAWING
-25704 ✓	B1	
-25706 ✓	B1	
-25707 ✓	B4	
-25708 ✓	B6	
-28647 ✓	C1	
-28652 ✓	B8	
-28669 ✓	A3	
-28672 ✓	C1	
-28721 ✓	A2	
-28727 ✓	B2	
-28752	B3	
-28761	A4	
-28762	A1	
-28771	B5	
-28774	A8	
-28776	A1	
-28778	A1	
-28779	A4	
-28803	A3	
-28816	A2	
-28819	A2	
-51560	C1	
-51818	A3	
-51823	A1	
-52723	A5	
LDW280		SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL II ENGRG CHG ☐ 2

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: FR 2/21/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12 (42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP NOT REQ'D

APPROVED BY	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
					WJH		RMC	
DATE	2/3/67				2/15/67		2-16-67	2-17-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEQ280
EO NO.: 476

ISSUED BY M. GREY / J. STRAKOSCH · X1453 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL 35

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NAS 9-1100

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NAS 9-1100

B *

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

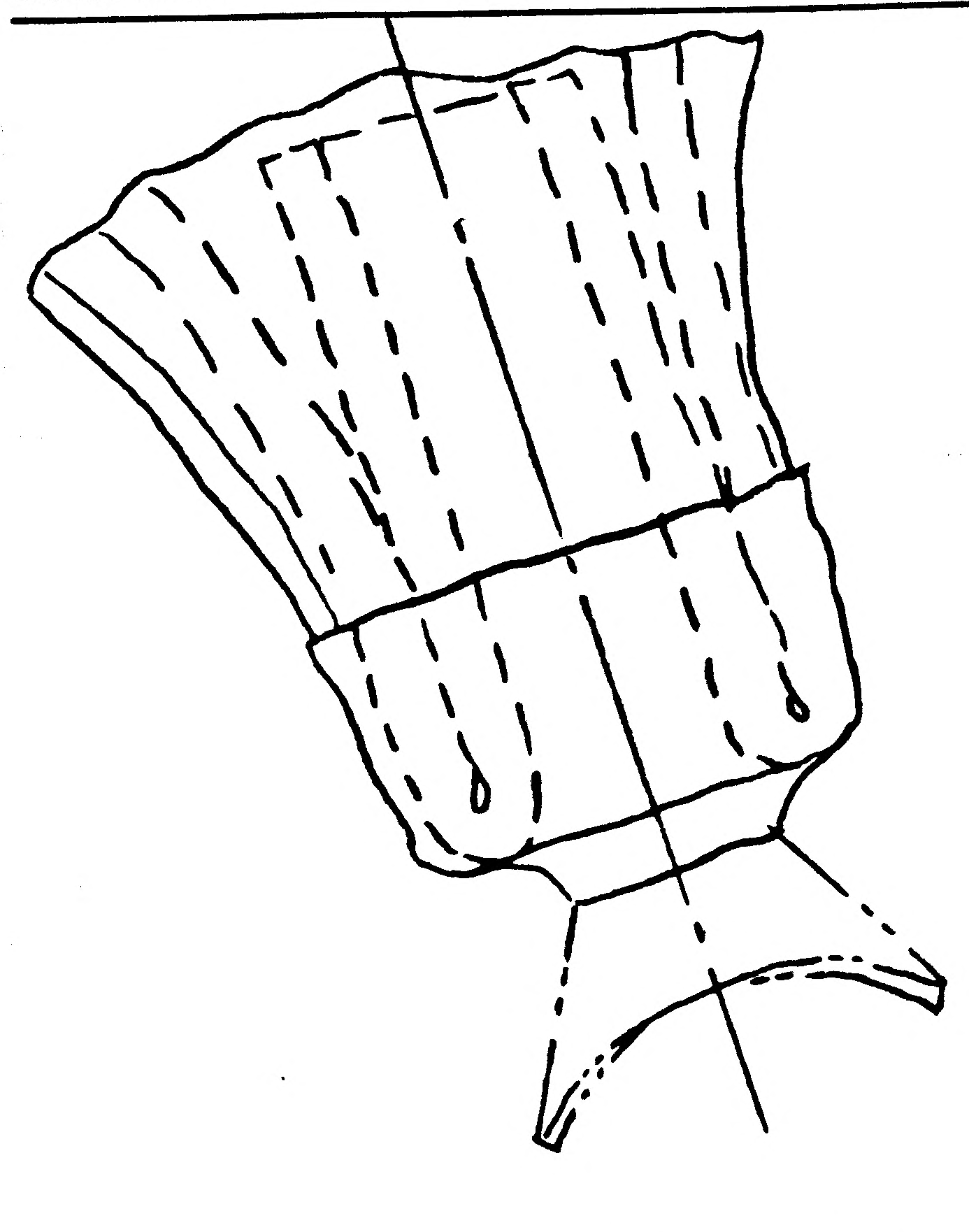
CODE IDENT NO. 26512

ENGINEERING ORDER EMF A

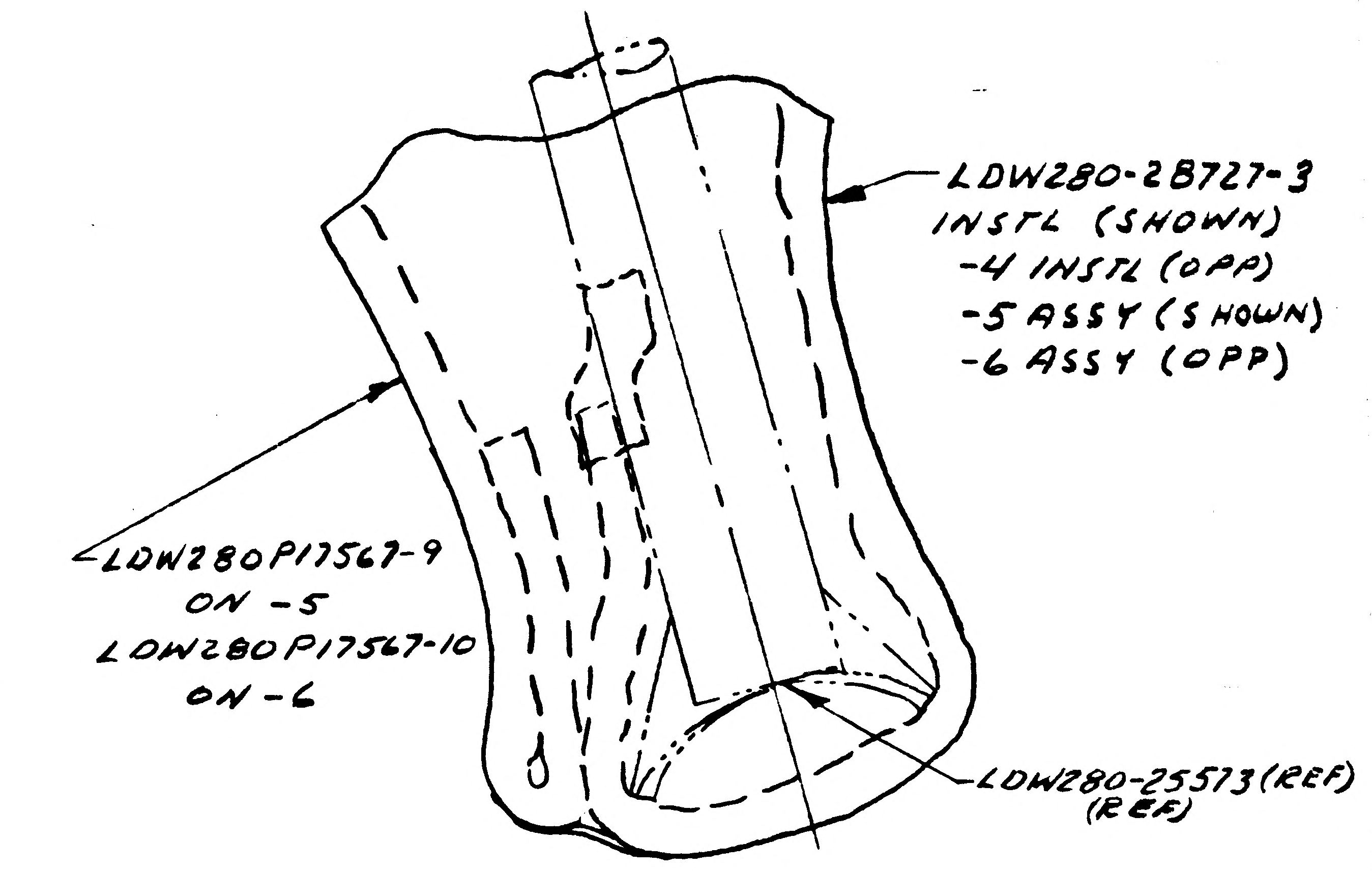
DWG. NO. LDW280-28727

EO NO. B3

CONTROL INFO NO. LM-5-11911



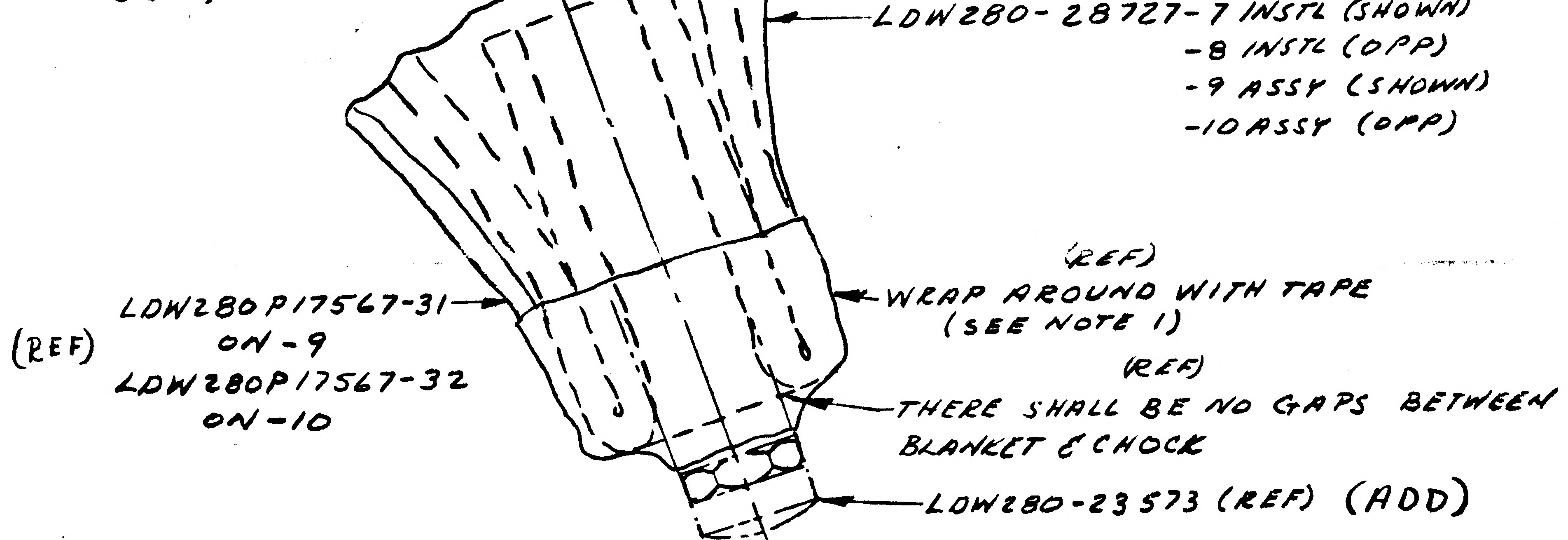
EXISTING VIEW


LDW280-28727-3
INSTL (SHOWN)
-4 INSTL (OPP)
-5 ASSY (SHOWN)
-6 ASSY (OPP)
LDW280P17567-9
ON -5
LDW280P17567-10
ON -6
LDW280-25573(REF)
(REF)

ADD VIEW FOR -3 & -4

IN F/D REVISE PICTURE FOR -7 & -8

ADD SEPERATE VIEW FOR -3 & -4


LDW280-28727-7 INSTL (SHOWN)
-8 INSTL (OPP)
-9 ASSY (SHOWN)
-10 ASSY (OPP)
(REF)
WRAP AROUND WITH TAPE
(SEE NOTE 1)
(REF)
THERE SHALL BE NO GAPS BETWEEN BLANKET & CHOCK
LDW280-23573 (REF) (ADD)
LDW280P17567-31
ON -9
(REF)
LDW280P17567-32
ON -10

REVISE EXISTING VIEW AS SHOWN

*REWORK -3 & -4 INSTL BY OPENING INSIDE HEM AND COVER END OF CHOCK AS SHOWN

IN M/B REMOVE LM-1(31) N/A LDW280-51553 FROM -7 & -8

RELEASED BY LIAISON

5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: INCREASED THERMAL PROTECTION REQUIRED

DESCRIPTION OF EO: IN F/D REVISED PICTURE FOR -7 & -8
ADDED VIEW FOR -3 & -4
IN M/B REMOVED LM-1(31) EFF FROM -7 & -8

GAEC EO RELEASE: ✓ C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(19)	
		LM-1(31)	THRU
		LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK * SCRAP

APPROVED BY	WT ALW			~	JF	CH	RMG	
DATE	2/25/67			~	2-22-67	2-27	3-8-67	2-28-67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY C

DRAWING TITLE: SHIELD INSTL DESCENT STAGE LANDING GEAR CHOCK PENETRATION THERMAL

DRAWING NO. LDW280-28727

EO NO. B3

ISSUED BY H. PALLMEYER X1153 X1724 SECTION VEH DES INT GROUP NO. 335 PL 5

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28727 | EO NO. B4
CONTROL INFO NO. LDW280B0635

IN M/B RESTRICT -7 & -8 TO LM-2(32) (WAS) LM-2(32) THRU LM-15(45)

IN FLD, B/M & M/B CREATE -11 & -12 INSTL, SAME AS -7 & -8 EXCEPT THAT -13 & -14 REPLACE -9 & -10 AND GT15C-9 TAPE (AS REQD) REPLACES GT835P-8 TAPE; NHA LDW280-53553, LM-3(33); NHA LDW280-54553, LM-4(34) THRU LM-15(45); 4 EA REQD/MOD.

IN FLD & B/M CREATE -13 & -14 ASSY, SAME AS -9 & -10 EXCEPT THAT LDW280P17567-41 & -42 REPLACE -31 & -32 AND GT15C-9 TAPE (AS REQD) REPLACES GT835P-8 TAPE.

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ | LCD 2360 | (5)

REASON FOR EO: REMOVE TEMP CONTROL COATED H FILM TAPE

DESCRIPTION OF EO: -7 & -8 EFFECTIVITY WAS LM-2(32) THRU LM-15(45) ADDED -11 THRU -14

GAEC EO RELEASE: JK 12/12/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP -7, -8, -9, -10

APPROVED BY								
DATE	12/8/67			12-8-67	12/4/67		12/8/67	12-12-67
D	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: SHIELD INSTL- D/S- LANDING GEAR CHOCK PENETRATION-THERMAL

DRAWING NO. LDW280-28727 | EO NO. B4

6 JAN 68
ISSUED BY E.J. Comiskey 7033 SECTION VDI / THORJUSEN GROUP NO. 335 PL 25

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NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28727
EO NO. B5
CONTROL INFO NO. LDW280B1077

THIS EO REVISES E.O. LDW280-28727-B4
(CONTROL INFO. NO. LDW 280B0635)

IN FLD & B/M CREATE -13 & -14 ASSY. SAME AS -9 & -10
EXCEPT THAT LDW280P17567-41 & -42 (SHOULD BE -37 & -38)
REPLACE -31 & -32 AND GT15C-9 TAPE (AS REQD) REPLACES GT835P-8 TAPE

(5)
BKGS 11

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2360

REASON FOR EO: REMOVE TEMP. CONTROL H FILM TAPE

DESCRIPTION OF EO: REF. E.O. LDW 280-28727-B4 LDW280P17567-41 AND -42 SHOULD BE -37 & -38

GAEC C EO RELEASE: JK 1/9/68

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY	JAP			P8K	WJH		JAP	Botti
DATE	1/6/68			1-6-68	1-8-68		1/6/68	1-9-68
P	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY C
DRAWING TITLE: SHIELD INSTL. DIS-LANDING GEAR CHOCK PENETRATION-THERMAL
DRAWING NO. LDW 280-28727
EO NO. B5

1/18
ISSUED BY E.V.R.CASE/H. PALLMEYER X1153 SECTION V.D.I./THORVUSEN GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28727 | EO NO. B6
CONTROL INFO NO. LDW280B2184

IN M/B FOR -70-8

REMOVE LM-2(32) N/A LDW280-52553

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG ✓	LCD 2223, CCA 745 PKG7 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LM-2 -UNMANNED	IN M/B FOR-70-8 REMOVED LM-2(32) N/A LDW280-52553	JK 2/14/68

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			✓
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JMS			PJT	NM			2/14/64
DATE	2/13/68			2/13/68	2/13/68		2/13/68	Botti
P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INST'L - D/S - LANDING GEAR CHOCK PENETRATION THERM.	LDW280-28727	B6

23 FEB 68
ISSUED BY J.BACKOFEN/P.THORJUSEN X1153 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1106

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28727
EO NO. B7
CONTROL INFO NO. LDW280 B 2983-

CREATE -17 & -18 INSTL. IDENTICAL TO -11 & -12 EXCEPT -15 & -16 BLANKET ASSY. REPLACES -13 & -14.

-15 & -16 BLANKET ASSY IDENTICAL TO -13 & -14 RESPECTIVELY EXCEPT THAT LDW280P17567-45 & -46 REPLACE LDW280P17567-37 & -38

N/A LDW280-53553 LFM EFF-155

ADD NOTE * (USE NEXT AVAILABLE NOTE NUMBER) THIS DWG. AFFECTED BY LFM-155 WHICH MAY BE USED ON LM-3(33).

LFM

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2899 PKG I

(5)

REASON FOR EO: PLUME IMPINGEMENT PROTECTION SEVEN SECOND DOCKING

DESCRIPTION OF EO: IN FLD & B/M CREATED -15 & -16 ASSY, & -17 & -18 INSTL. ADDED NOTE *

GAEC EO RELEASE: C VK 4/26/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 155	LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK | SCRAP

APPROVED BY			RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
				PSF	WJH		JAP	
DATE	4/19/68	4/24/68		4/19/68	4/22/68		4/22/68	4-25-68
	VDI	~~Support~~						

PRIORITY: C
DRAWING TITLE: SHIELD INSTALLATION~D/S LANDING GEAR~CHOCK PEN. THER.
DRAWING NO.: LDW280-28727
EO NO.: B7

4-26-68
ISSUED BY W. LEIFER / P. THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-28727 | EO NO. B9
CONTROL INFO NO. LDW280B3162

IN M/B RESTRICT -11&-12 FOR USE ON LM-3(33) (WAS) LM-3(33) THRU LM-15(45)

CREATE -19&-20 INSTL IDENTICAL TO -11&-12 EXCEPT -21&-22 ASSYS REPLACE -13&-14

-21&-22 IDENTICAL TO -13&-14 EXCEPT LDW280P17567-49&-50 REPLACE LDW280P17567-37&-38

FOR -19&-20 N/A LDW280-54553 LM-4(34) THRU LM-15(45) 4EA

(5)

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☑ LCD2360 | PK631

REASON FOR EO				DESCRIPTION OF EO									GAEC EO RELEASE	
PLUME IMPINGEMENT PROTECTION				RESTRICTED -11&12 FOR USE ON LM-3(33) WAS LM-3(33) THRU LM-15(45). ADDED -19,-20,-21&-22									JK 5/13/68	
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY						
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓			✓	DATE				5-7-68		5/9/68
LM		LM-4(34)		REVISE DWG	RECORD EO	REWORK	SCRAP	P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
		THRU		PRIORITY	DRAWING TITLE					DRAWING NO.			EO NO.	
		LM-15(45)		C	SHIELD INSTL D/S-LANDING GEAR CHOCK PENETRATION THERMAL					LDW280-28727			B9	

5/21/68
ISSUED BY D. SHAPIRO/P. THORJUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-28727 | EO NO. C1
CONTROL INFO NO. LDW 280-B5039

RESTRICT -19 & -20 TO LM-4(34) AND LM-5(35) EFFECTIVITY. WAS LM-4(34) THRU LM-15(45)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2965 (CCA 1235) PKG 2 (5)

REASON FOR EO: BASE HEAT SHIELD REDESIGN FOR D/E THRUST DECAY

DESCRIPTION OF EO: RESTRICT -19 & -20 TO LM-4(34) AND LM-5(35) EFFECTIVITY. WAS LM-4(34) THRU LM-15(45)

GAEC EO RELEASE: C JK 8/14/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36)	
LM		THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY				C.L.				
DATE	8/13/68			8-13-68	8/14/68		8/14/68	8-16-68
	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~COVT~~

PRIORITY: C
DRAWING TITLE: SHIELD INSTALLATION ~ D/S ~ LANDING GEAR CHOCK PENETRATION THERMAL
DRAWING NO. LDW280-28727
EO NO. C1

CDR 8-23-68
ISSUED BY R.MARONE/ P THORJUSEN SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28727
EO NO. C2
CONTROL INFO NO. LDW280B 5619

IN FLD & B/M

ON -19 ADD LDW280P17567 -39 (1)

ON-20 ADD LDW280 P17567 - 40 (1)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2360 (PKG 31)

REASON FOR EO: TO AGREE WITH DETAIL DWG.

DESCRIPTION OF EO:
IN FLD & B/M
ON-19 ADDED LDW280P17567 -39 (1)
ON-20 ADDED LDW280P17567 - 40 (1)

GAEC EO RELEASE (5) C
R 10/8/

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM- 4 (34)	
		LM- 5 (35)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	VDI	SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CCB
	Jap			RSF	WB		Jap	
DATE	10/7/68	10/7/68		10-7-68	10/7/68		10/7/68	10-8-68

PRIORITY: C
DRAWING TITLE: SHIELD INSTL DIS LANDING GEAR CHOCK PENETRATION THERMAL
DRAWING NO.: LDW280-28727
EO NO.: C2

CDR 10/8/68
ISSUED BY V.A. CHRISTINA / P. THORJUSEN SECTION VDI X1724 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 1185

CONTROL INFO NO. LDW280B5653

CHG LTR		PART NO *		
C3	RESTRICT	LDW280-54664 -51	FOR USE ON LM-4(34)	WAS USED ON LM-4(34) & LM-5(35)
B4	REMOVE	LDW280-54561 -105, -107	REMOVE	WAS USED ON LM-5(35) ONLY
C3	RESTRICT	LDW280-28727 -19, -20	FOR USE ON LM-4(34)	WAS USED ON LM-4(34) & LM-5(35)
B8	RESTRICT	LDW280-25654-11 -13	FOR USE ON LTA-5(15), LTA-8(18) LM-1(31) THRU LM-4(34)	WAS USED ON LTA-5(15) LTA 8 (8) LM-1(31) THRU LM-5(35)
B2	RESTRICT	LDW280-54660-1	FOR USE ON LM-4(34)	WAS USED ON LM-4(34) & LM-5(35)
B2	RESTRICT	LDW280-54725 -1	FOR USE ON LM-4(34)	WAS USED ON LM-4(34) & LM-5(35)
B5	RESTRICT	LDW280-54576 -7	FOR USE ON LM-4(34), DVT(70), TM-5/R	WAS USED ON LM-4(34), LM-5(35), DVT(70), TM-5/R

FOR TITLE SEE DWG.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2965 PKG. 5 CCA 1235 (5)

GAEC C
R EO RELEASE
K 10/2

REASON FOR EO: REDESIGN BASE HEAT SHIELD FOR D/E THRUST DECAY

DESCRIPTION OF EO: RESTRICTED OR REMOVED EFF. OF -* BY REMOVING LM-5(35) EFF.

MODEL	~~PROCURING ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-5(35)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	10/21/68			10/19/68	[illegible]		10/24/68	10-24-68

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO280

EO NO.: 1185

CDR 10-25-68
ISSUED BY Joe Lucchesi / G. Zeman X86046 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1283
CONTROL INFO NO. LDW280B7109

IN MOD BLK: ✳ ADD

LFM 326 N/A LDW200-55503 LM 3(33) 1 REQD/MOD

ON THE FOLLOWING DWGS

DWG NO	DASH ✳ NO	TITLE	EO NO.
✓LDW280-28727	-15 -16	SEE DWG	C4
LDW280-28666	-61	↓	E1
LDW280-56745	-1		A2
LDW280-66645	-5		A2

LFM

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3796 PK50 PG1 ECP B120 (5)

REASON FOR EO: TO PROVIDE SHIELDING FOR REWORK IN Q III

DESCRIPTION OF EO: IN MOD BLK ✳ ADDED LFM 326 N/A LDW200-55503 LM3(33) 1/MOD

GAEC EO RELEASE: 2/7/69

MODEL	EFFECTIVITY: EI ~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 363	LM 3(33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

APPROVED BY							
DATE	2/5/69	2/6/69		2/5/69	2/6/69	2/6/69	2-7-69
	VD1	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG KSC	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1283

CDR 020669
ISSUED BY: DON RAGAS X86046
SECTION: VD1
GROUP NO. 280
PL 25

01
NAS 9-1100

LDW280-28730 B

PART NO.	MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LDW280-28730-23	LM	LDW280-28714	LM-1 (31)	1
LDW280-28730-21	LM	LDW280-28714	LM-2 (32)	1
LDW280-28730-9	LM	LDW280-28714	LTA-8 (18)	1

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	200	300					
REV	B	B	B	B					
SHEET		1.11							
REV		B							
SHEET									
REV									

LAST SECT LTR USED D-D

LAST DASH NO. USED -25

GRUMMAN REL INFO (h)

PRIM NO. 207 JK(001) MP-16 8-9-71

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.030 ±1/2° (A)

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY	Zuver 7-12-66
LAYOUT BY	Zuver 7-12-66
CHECKED BY	(R)
GR LEADER	J. Strakosch 7-14
VEH. DES INT.	W. Bischoff 7-16
STRUCTURES	F. Bunce 7-16
STRUCTURES	R. Hilderman 7-16
WEIGHTS	D Robesch 7-25
PROJ ENGR	J De Sena/RMC 7-26
REL GROUP	A Caramanica 7-26

(R) GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ASSY
DESCENT STAGE~ QUAD I, PLUME IMPINGEMENT SHIELD UPPER

SIZE B CODE IDENT NO. 26512 LDW280-28730 B (7)

SCALE NONE SHEET 1.00 OF 5

ENG 77.1 12-65

SUPERSEDES LDW280-28730 NO CHANGE 7-12-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHG. LAST REV N.C. JGardella	9-15-	66				
A	1	1.10, 3.00						LEO280-188	REWROTE SEAMWELD NOTE & ADDED NOTES 2 & 3	LTA-8, LM-1, -2, -3, -4, -5 & -6	NOT	REQ'D	JGardella 9-15-66 WCG		
	2	1.00, 1.10 2.00, 3.00						EO A2	ADDED -5; REMOVED LM-4, -5 & 6 EFF. FROM -1	NOTED.		-1			
	3	1.10, 3.00						EO A3	IN F/D ON -3; 30 1/16 WAS 30 1/4; 4 3/4 WAS 5 5/8; 14 1/4 THIS SIDE ONLY WAS 16; 3 3/16 WAS 2 1/2; ADDED 26 THIS SIDE ONLY.	LTA-8, LM-1, -2, -3, -4, -5 & -6	-3				
	4	1.00, 1.10 2.00, 3.00						EO A4	IN F/D & M/B ADDED -7 REMOVED LM-1 FROM -1; ADDED LDW360-28297-9 (ON -1) REMOVED LSC360-603-209 FROM -1; ADDED SECTION C-C & D-D.	LTA-8, LM-1 LM-2, LM-3	✓				
	5	1.10, 3.00						LEO280-240	ADDED PART "C" TO NOTE 2.	LTA-8, LM-1 -2, -3, -4, -5 & 6	✓				
B	1	1.00, 1.10, 2.00, 3.00	7A 3B					EO B1	REMOVED -1, -5 & -7 ADDED -9, -11, -13 & -15. ADDED NOTE 6	LTA-8, LM-1, -2, -3, -4, -5 & -6		-1	T. FELDMAN 9-11-68 H.D.		
	2	1.10, 3.00	1B 5B					LEO280-421	ADDED NOTE 7	LTA-8, LM-1 THRU LM-6	NOT	REQD			
	3	1.10, 3.00	6A				✓	EO B3	ADDED SYMBOL FOR LAP DIRECTIONS FOR -11, -13 & -15	LM-1 THRU LM-6	NOT	REQD			
	4	1.10						EO B4	CANCELLED BY EO B5	LM-2 THRU 6		-11 -13			
	5	1.00, 1.10, 2.00, 3.00	5A				✓	EO B5 LCD-928	CANCELLED EO B4. REMOVED -11, -13 & -15 ADDED -21, -23 & -25	LM-1 THRU LM-6	-11 -15	-13			
	6	1.10.					✓	EO B6 LCD-1135	REVISED EO B5 REMOVED DIMENSIONAL DIFFERENCE BETWEEN -25 & -3	LM-1 THRU LM-3	✓				
	7	1.10, 2.00, 3.00	1B 5B 5C				✓	LEO280-559	FROM B/M & FLD REMOVED LDW280-17970-19, -21 & -23 FOR LDW280-28730. REVISED EXISTING NOTE 6 BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E."	LTA-8, LM-1 THRU LM-3	NOT	REQD			

FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28730	B
SCALE NONE			SHEET 1.10

ENG 77.3 5-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
B	8	1.00, 1.11				✓		LEO280-705 LCD 1244	RESTRICTED -21 TO LM-2, WAS LM-2 & LM-3 (ADDED SH 1.11)	LM-2		-21	T. FELDMAN 9-11-68		
	9	1.11, 2.00, 3.00	7C				✓	EOB9	IN FLD OF DWG & B/M REVISED QTY FOR LDW360-28297-9 & -51297-9 S/B 1 REQD/MOD. WAS 2 REQD/MOD.	NOT REQD	NOT	REQD H.D.			
	10	1.11, 2.00 & 3.00	3B				✓		REF LEO 280-559 (B7) REMOVED -3 WELD ASSY. REPLACED BY LPC280-19 REF NOTE 7. EXISTING PARTS MAY BE USED. REMOVED SECTION B-B & NOTES 1, 2 & 3. EFF. LM-1 THRU LM-3 NOT APPLICABLE	LTA-8		-3 H.D.		9/23	LD

CHG APPROVED

LTR	GROUP LDR	VEH. DES. INT.	STRUCTURES	STRUCTURES	RELIABILITY	WEIGHTS	THERMO
B	R. Thorgusen 9/18/68	JAP 9/18		W 9/24/68			9/24

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28730	B Ⓑ

SCALE NONE SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY

				-23	-21	-9	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				1				LDW360-51297-9	E	TEMP. TRAN. INSTL.	SEE DWG						7C
					1	1		LDW360-28297-9		TEMP. TRAN. INSTL.	SEE DWG						7C
				1	1			LDW280-28730-25		SKIN	SEE NOTE 7				NONE	NONE	
								LDW280-28730-23		SKIN ASSY						SEE NOTE 6	
								LDW280-28730-21		SKIN ASSY						SEE NOTE 6	
								LDW280-28730-9	E	SKIN ASSY	SEE NOTE 7				NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28730	B Ⓑ

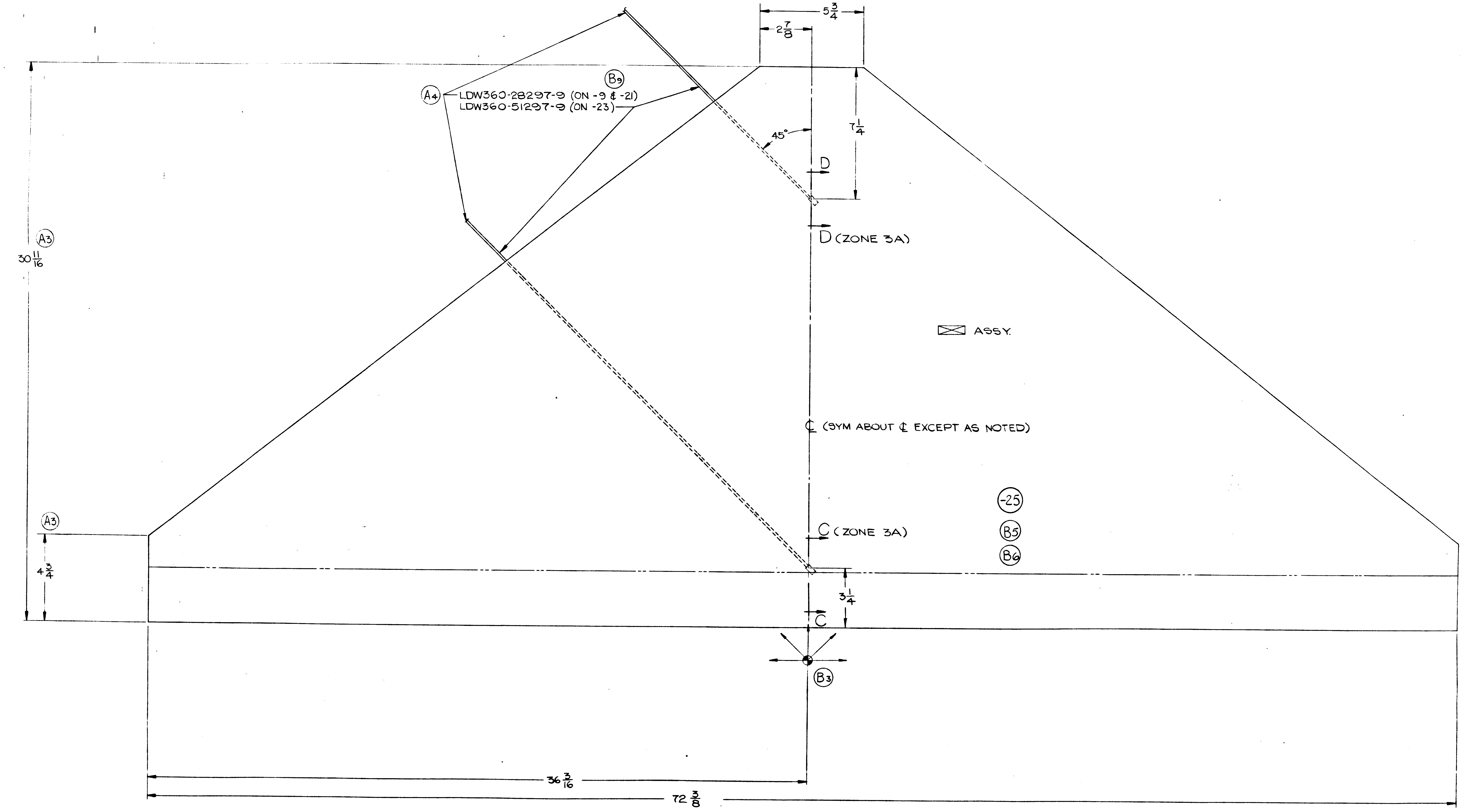
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

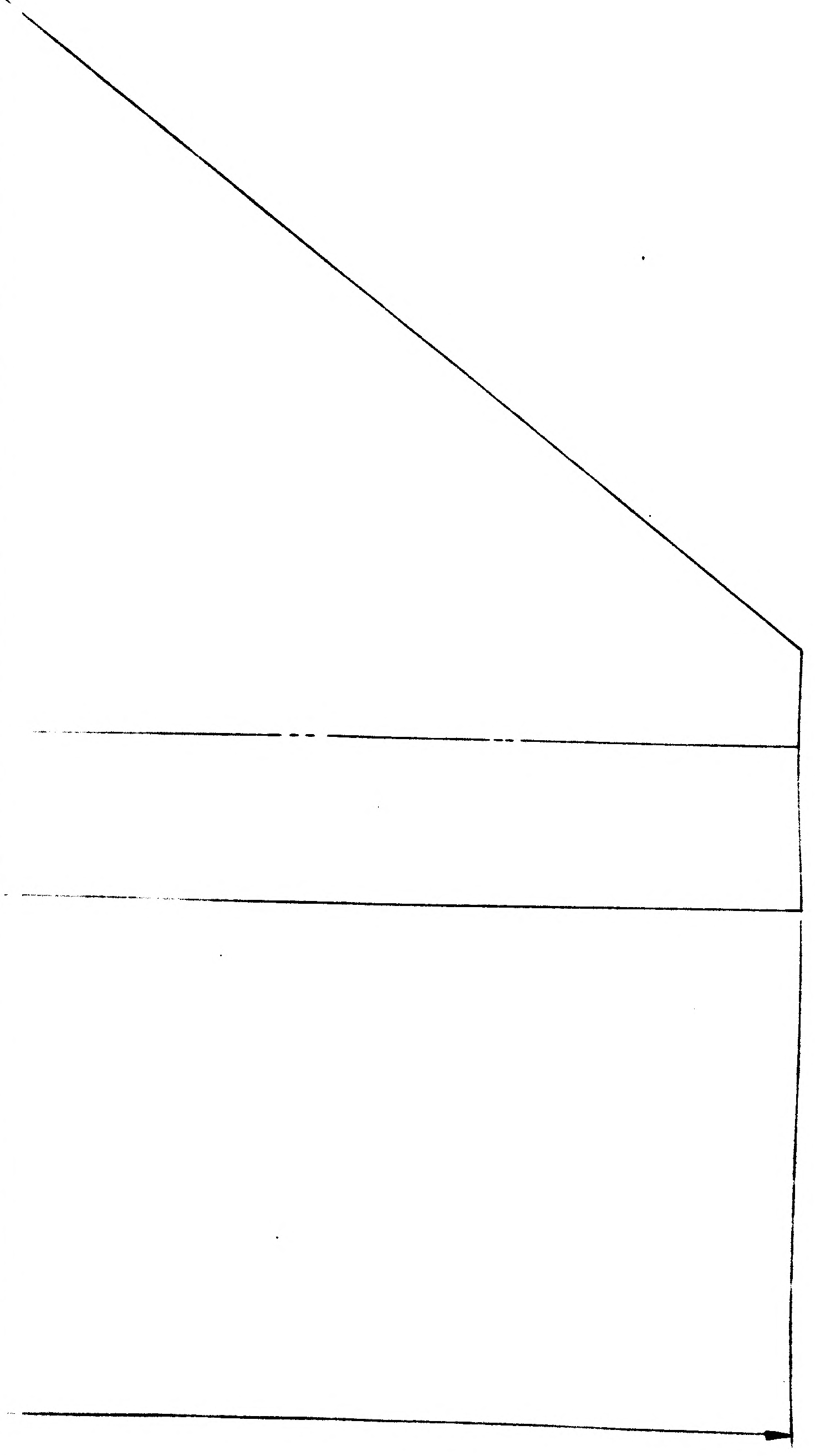
NAS 9-1100

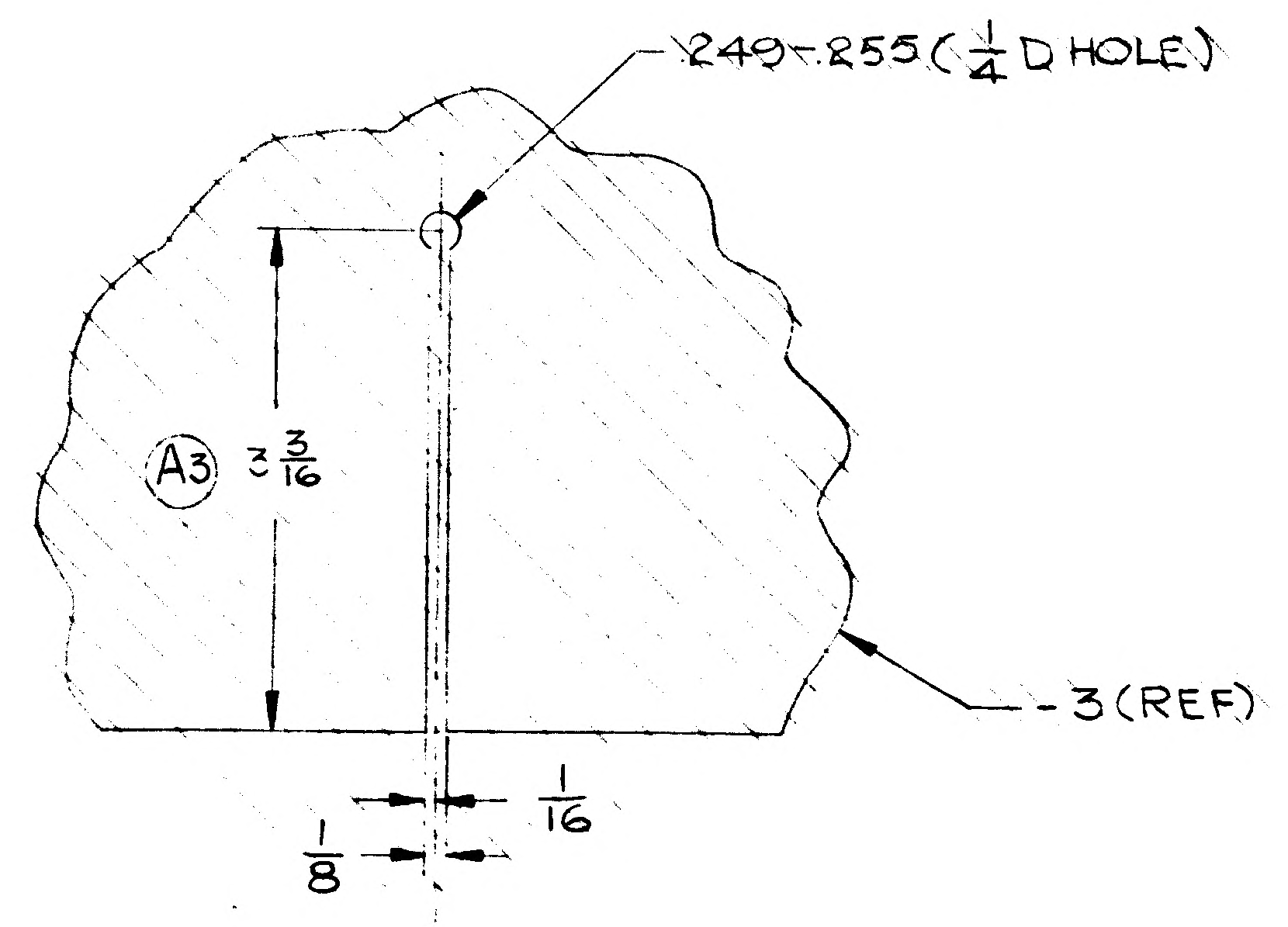

5 3/4
2 7/8
A4
B9
LDW360-28297-9 (ON -9 & -21)
LDW360-51297-9 (ON -23)
45°
7 1/4
D
D (ZONE 3A)
A3
30 11/16
ASSY.
℄ (SYM ABOUT ℄ EXCEPT AS NOTED)
-25
B5
B6
C (ZONE 3A)
A3
4 3/4
3 1/4
C
B3
36 3/16
72 3/8

LDW280-28730-9 ASSY Ⓑ1
-21 ASSY (IDENT TO -9 EXCEPT AS NOTED) (SEE NOTE 6) Ⓑ5 Ⓑ1
-23 ASSY (IDENT TO -9 EXCEPT AS NOTED) (SEE NOTE 6)
Ⓑ7

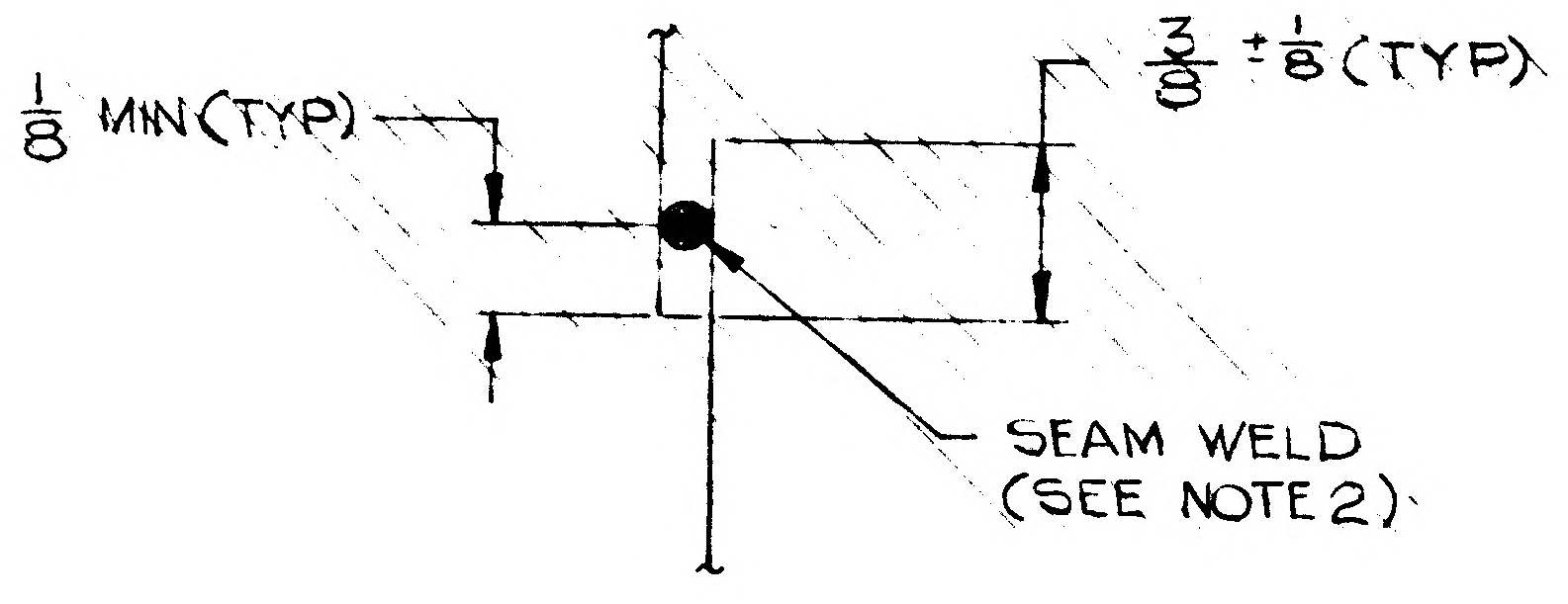
01/02 NAS 9-1100

CODE IDENT NO 26512
LDW280-28730 SH 3

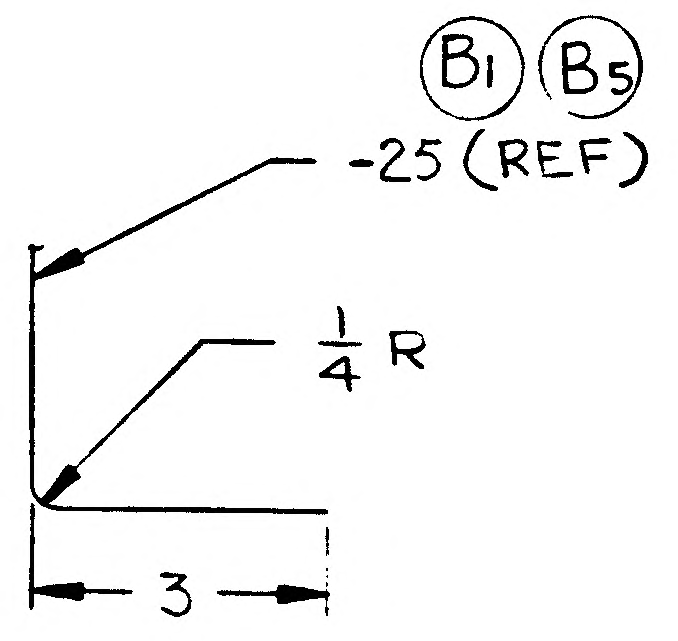


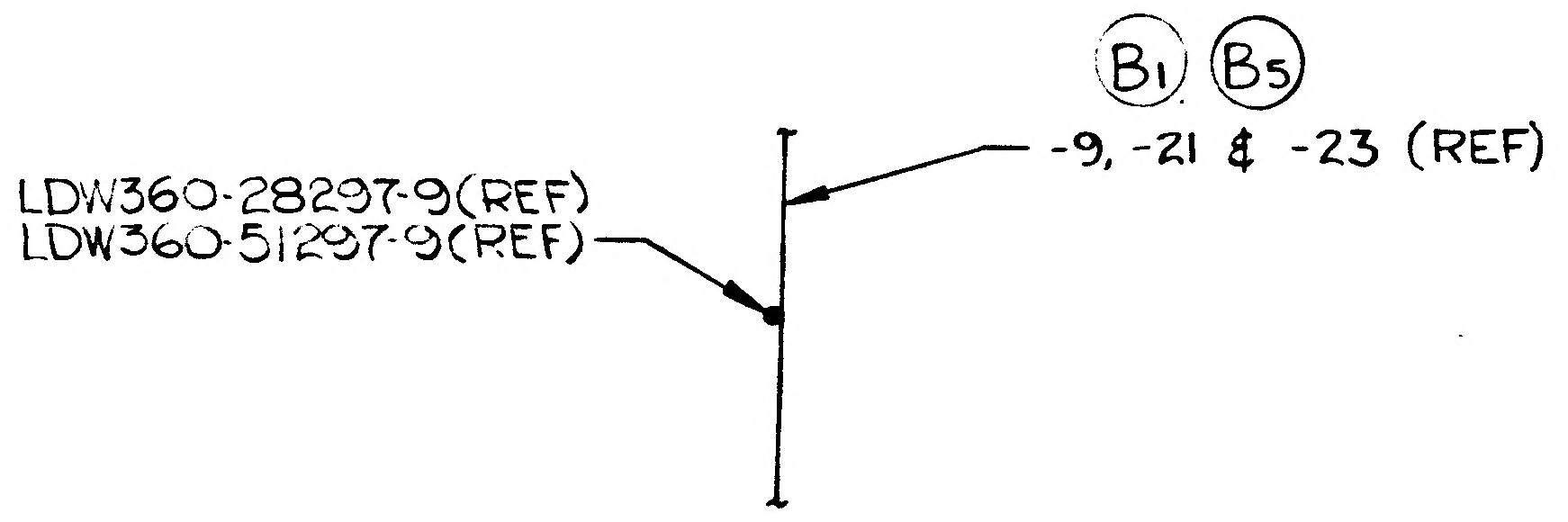


DETAIL A (ZONE 8A)
(TYP 8 PLACES)
SCALE - FULL
(B1)



SECT B-B (ZONE 5B)
SCALE - NONE
(B10)





(A4) SECT C-C (ZONE 6A) (SHOWN)
SECT D-D (ZONE 6B) (IDENT. TO C-C)

NOTE:
1. SEAM WELD PER LSP14-6102 EXCEPT THAT SPOTS SHALL BE TANGENT $+\frac{1}{32}, -0$.

2 PERMISSIBLE IRREGULARITIES IN WELDED ASSYS ARE AS FOLLOWS:
  a HOLES IN THE SEAMWELD ROWS UP TO 1/8 MAX. & AT LEAST 1" APART.
  b. CRACKS IN THE FREE EDGE OF WELDED JOINTS NO CLOSER TOGETHER THAN 1/8 & NOT EXTENDING PAST THE WELD LINE.
  c. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) & (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

3. WELDED ASSYS MAY HAVE RANDOM WRINKLED APPEARANCE.

4. FABRICATION OF SKIN ASSY TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011 LEVEL "C"

5. NO TOOLING HOLES PERMITTED IN PARTS.

6 FINISH IN ACCORDANCE WITH LPC 280-5 PAINTED SURFACE NEAR SIDE (ON -21 & -23 ONLY)

7. MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 90) = 22.5 SQ. FT.

PRINT TRIM LINE

LDW280-28730 B

LDW280-28730 B

02/02

NAS 9-1100

CODE IDENT NO 26512
LDW280-28730 SH 3

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-28730	B

SCALE AS NOTED
SHEET 300

2FR

HG

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280 | EO NO. 240
CONTROL INFO NO. LEM-2-2642

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE ✳.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LOW 280-25703	A4	A5	✳, ✳✳, ✳✳✳
-25704	A3	A4	✳, ✳✳, ✳✳✳
-25705	B5	C2	✳, ✳✳
-25706	A3	A5	✳, ✳✳, ✳✳✳
-25707	B1	B2	✳, ✳✳, ✳✳✳
-28730	A1	A5	✳
-28734	A1	A4	✳
-28735	A1	B1	✳
-28737	A1	A2	✳
-28738	A1	A2	✳
-28740	A1	A2	✳
-28741	A1	A2	✳
-28743	A1	A2	✳
-28744	A1	A2	✳
-28746	A1	A2	✳
-28747	A1	A2	✳
-28749	A1	A2	✳
-28750	A1	A2	✳
-28755	A1	A3	△
-28756	A1	A3	△
-28759	A1	A3	✳
-28760	A1	A2	✳
-28764	A1	A2	✳
-28765	A1	A2	✳
-28771	A2	A3	✳
-28772	A2	A3	✳
-28774	A1	A2	✳
LOW 280 -28775	A1	A2	✳

EFFECTIVITY:
✳✳✳ - QUAL TEST (72)
✳✳ - LTA-5 (15)
✳ - LEM-1 (31) THRU -6 (36) & LTA-8 (18)
△ - LTA-8, LEM-1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG							ⓟ GAEC C EO RELEASE
REASON FOR EO: TO FACILITATE MANUFACTURING				DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE ✳.							2
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO	DISPOSITION OF PARTS: REWORK ✓ / SCRAP	APPROVED BY: JHS	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP: CAW 8/23/66	LIAISON ENGRG: CAW 8/23/66
LEM		SEE ABOVE		PRIORITY: C_2		DATE: 1/18/66					
						DATE: 8-20-66 VDI					
						DRAWING TITLE: —				DRAWING NO. LEO-280	

PROJ ENGRG: RMC (E) 9-3
~~GOVT~~: 8-30-66
EO NO. 240

ISSUED BY LIAISON G. MARTELL x3604 SECTION VDI (DESCENT STAGE) GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28730 | EO NO. B1
CONTROL INFO NO. LDW280-A-0296

REMOVE -1,5,7
ADD -9 SKIN ASSY IDENTICAL TO -1 EXCEPT REMOVE DETAIL "A" AND 1/8" SLOTS (8)

ADD -11, -13 & -15 IDENTICAL TO -1, -5 & -7 RESPECTIVELY EXCEPT REMOVE DETAIL 'A' & 1/8" SLOTS (8). FINISH IN ACCORDANCE WITH WITH LPC280-5, PAINTED SURFACE NEAR SIDE

EFFECTIVITY

-9	LTA-8 (18)
-11	LEM-2 (32) & LEM-3 (33)
-13	LEM-4 (34), LEM-5 (35) & LEM-6 (36)
-15	LEM-1

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐	2

REASON FOR EO	DESCRIPTION OF EO	Ⓕ GAEC C+ EO RELEASE
ADDITIONAL THERMAL REQUIREMENTS	REMOVED -1, -5 & -7 ADDED -9, -11, -13 & -15	FR 9/22/6

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LEM			
LEM		NOTED	
LEM			

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			-1
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JAS	LBG			WJM		RMC Ⓔ	Botti
DATE	9/10/66	9/22/66			9/12/66		9-21	9-20-66
9-10-66	V.D.I.	~~SUPPORT~~ WTS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONS~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY - DES. STG. QUAD I, PLUME IMPINGEMENT SHIELD UPPER	LDW280-28730	B1

ISSUED BY E. MOUQUIN x1153 SECTION VEH. DES. INT. GROUP NO. 335 PL 35 EMF

8

ENG 32.2 REV 3-60

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EM-A

DWG. NO. LEO 280 | EO NO. 421
CONTROL INFO NO. LDW280A-4411

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM6	B 2	
LDW280-28734	"	A 8	
LDW280-28735	"	C 3	
LDW280-28746	LTA8(18) LM-1(31) THRU LM-15(45)	B 3	
LDW280-28747	LTA8 (18) LM-1 (31) THRU LM-6(36)	B 1	
LDW280-28749	"	A 7	
LDW280-28750	"	B 3	
LDW280-28752	"	B 2	
LDW280-28753	"	A 3	
LDW280-28755	LTA8(18) LM-1(31)	A 7	
LDW280-28756	LTA8(18) LM-1(31) THRU LM-15(45)	A 6	
LDW280-28759	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28760	"	B 1	
LDW280-28768	LM-1(31)	B 2	
LDW280-28769	LM-1(31)	B 1	
LDW280-28771	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28772	"	B 1	
LDW280-28774	"	A 7	
LDW280-28775	"	B 2	
LDW280-28803	"	A 2	
LDW280-28805	"	A 1	
LDW280-51824	LM-1(31) THRU LM-15(45)	A 1	
LDW280-51825	"	A 2	
LDW280-51829	"	A 1	
LDW280-51830	"	A 1	
LDW280-51834	"	A 1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: 12/20

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO

DISPOSITION OF PARTS: NOT REWORK; REQ'D SCRAP

APPROVED BY	JAF	AB		JMS				
DATE	12/16/66	12/16/66		12/19/66	12/16/66		12/20	12-20-66
1	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 421

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01 NAS 9-1100

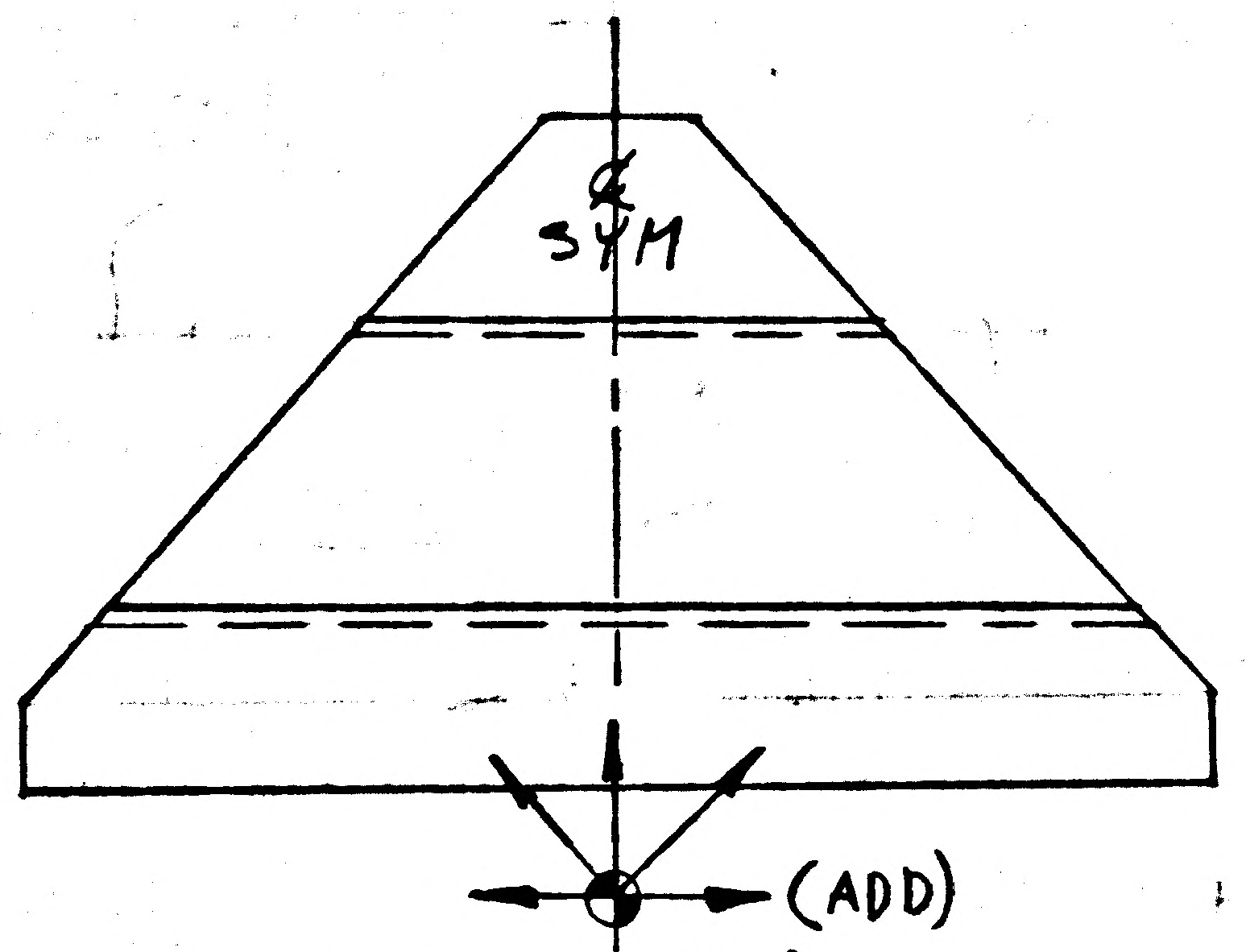
B *

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28730
EO NO. B3
CONTROL INFO NO. LDW280A4341

ON-11,-13 & -15 ADD SYMBOL INDICATING PERMISSIBLE DIRECTION OF LAP JOINTS



* THIS CHANGE HAS BEEN INCORPORATED ON LM-1 (31)

THERMAL SHLD
2

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: PROVIDE COMPLETE FABRICATION AND INSPECTION INFO

DESCRIPTION OF EO: ADDED SYMBOL FOR LAP DIRECTIONS FOR -11, -13 & -15

GAEC EO RELEASE: 1/6/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-1 (31)	
↕		THRU	
LM		LM-6 (36)	

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
✓		NOT REQ D	

APPROVED BY								
DATE	1/3/67	1/3/67		1/3/67	1/3/67		1-4-67	1/5/67
5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY-D/S ~ QUAD I, PLUME INPINGEMENT SHIELD UPPER	LDW280-28730	B3

ISSUED BY Jos. Euan / John Strakosch X1441
SECTION VDI
GROUP NO. 335 PL 35

01 NAS 9-110C

A

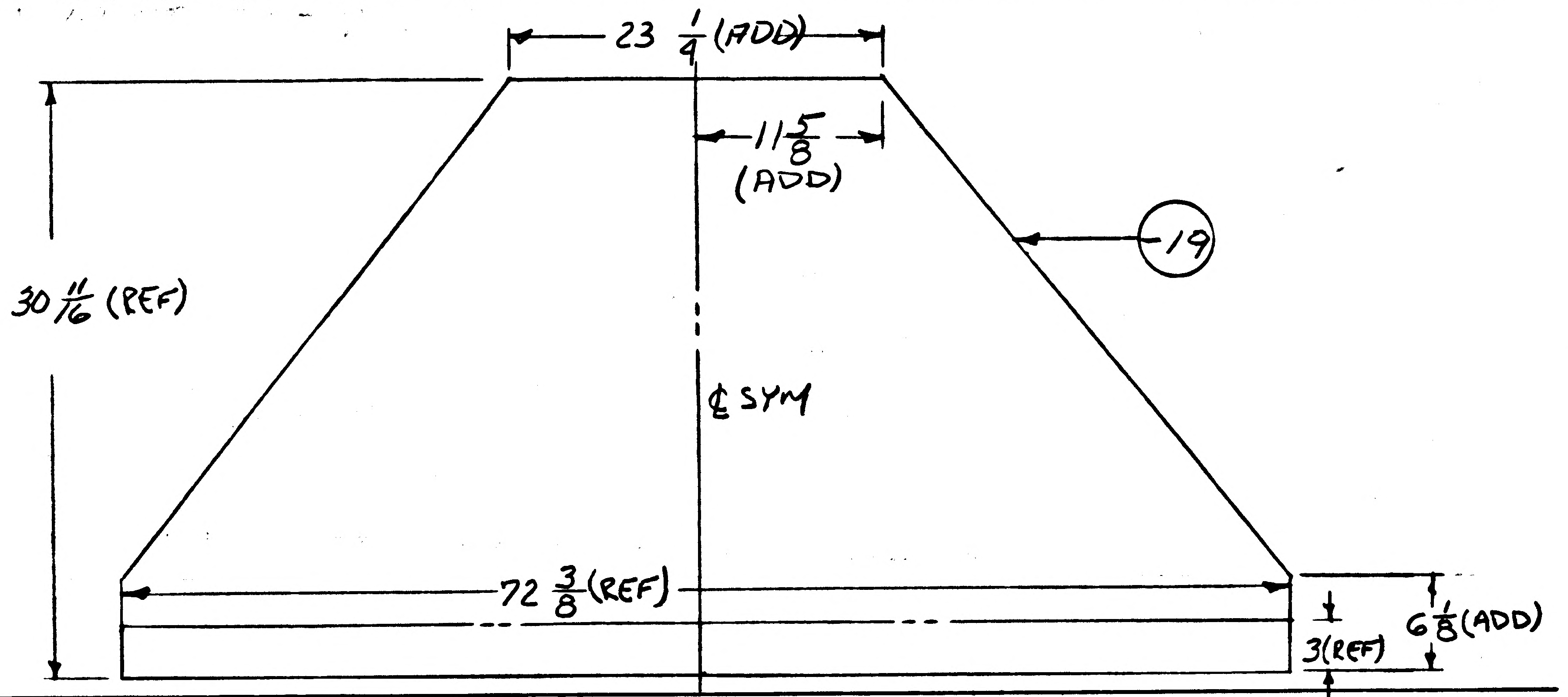
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER EMF. A

DWG. NO. LDW280-28730
EO NO. B4
CONTROL INFO NO. LDW 280A5454

REMOVE -11 & -13, ADD -17 IDENT TO -11 EXCEPT -17 TO BE MADE FROM INCONEL 600 FOIL 12" WIDE THICKNESS .00125 PER AMS 5540E N/A LDW280-28714 EFF: LM-2(32)
-ADD -19 IDENT TO -17 EXCEPT AS NOTED BELOW, N/A LDW280-28714: EFF LM-3(33)



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO: LCR-928 INCREASED SKIN THICKNESS

DESCRIPTION OF EO: REMOVED -11 & -13 ADDED -17 & -19

GAEC EO RELEASE: FR 2/23/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
LM		THRU	
LM		LM-6(36)	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO

DISPOSITION OF PARTS: REWORK; -11 -13 SCRAP

			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY									
DATE	2/16/67				2/16/67	2/17/67		2/21/67	2/22/67
5	VD1								

PRIORITY: C

DRAWING TITLE: SKIN ASSY-D/S QUAD I PLUME IMPINGEMENT SHIELD UPPER

DRAWING NO.: LDW280-28730

EO NO.: B4

ISSUED BY T. AMBROSIO / STRAKOSCH X1392 SECTION VD1 GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

A

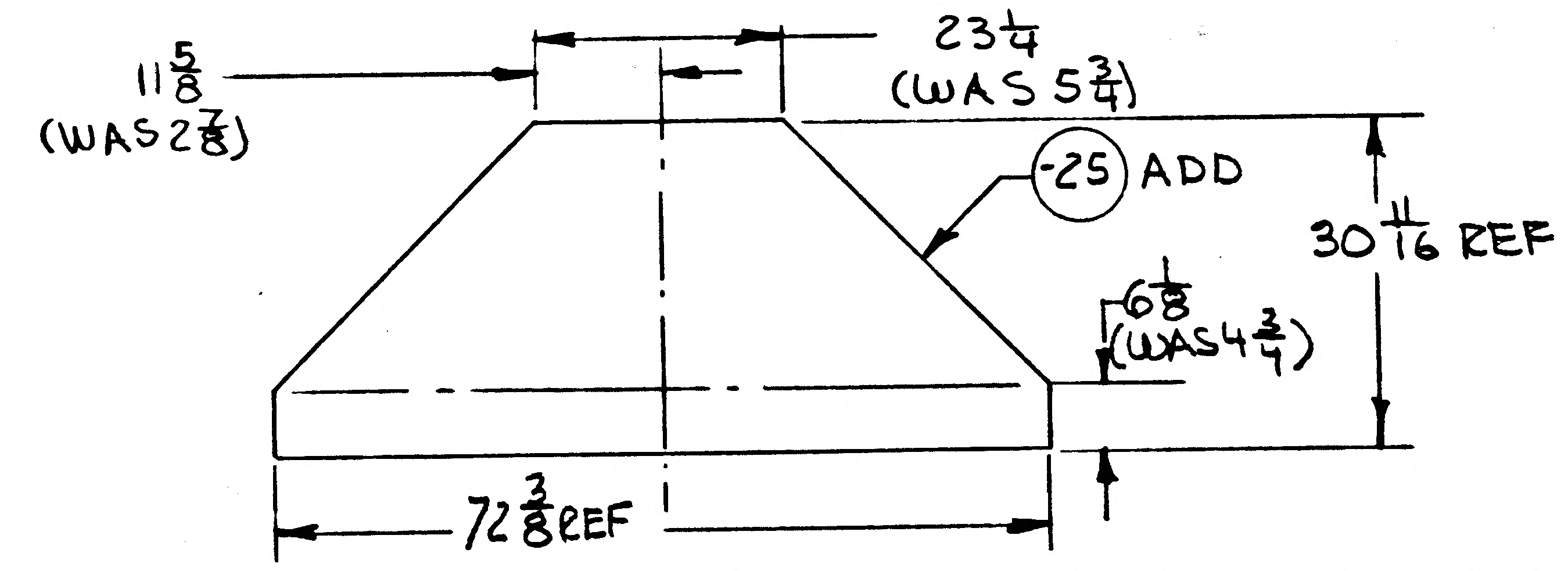
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO.	LDW280-28730	EO NO.	B5
CONTROL INFO NO.	LDW280A-5672		

THIS EO CANCELS EO B4 LDW 280-28730

IN VD & LM REMOVE -11, -13 & -15. ADD -21 & -23 SKIN ASSY'S IDENT TO -11 & -15 EXCEPT -25 SKIN REPLACES -3 WELD ASSY. ADD -25 SKIN IDENT TO -3 EXCEPT MATL TO BE INCONEL 600 .00125 THICK PER AMS 5540E AND AS SHOWN BELOW.



EFF FOR -21 LM-2(32) & LM-3(33) 1 REQD N/A LDW280-28714
EFF FOR -23 LM-1(31) 1 REQD N/A LDW280-28714
(NOTE: -13 IS REPLACED BY LDW280-54730 FOR LM-4(34) THRU LM-15(45))

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCR 928	2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LCR 928 - IMPROVE PAINT ADHESION	CANCELLED EO B4. REMOVED -11, -13 & -15 ADDED -21, 23 & -25	DK 3/10/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	LM-6(36)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		-11 -15	-13

APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	3/4/67			3/1/67	3/6/67		3/7/67	3/10/67
5	VD1	SUPPORT	RELIAB. GROUP					

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY DES STAGE QUAD I UPPER	LDW280-28730	B5

ISSUED BY G. ZEMAN / J. STRATOSCH SECTION VD1 GROUP NO. 335 PL 35

01 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28730
EO NO. B6
CONTROL INFO NO. LDW280A 6175

THIS EO REVISES E.O. B5

REVISE EO B5 BY REMOVING ALL DIMENSIONAL DIFFERENCES BETWEEN -25 SKIN AND -3 WELD ASSY

"-25 SKIN IDENT TO -3 EXCEPT MATL TO BE INCONEL 600 .00125 THICK PER AMS 5540E" (REF) -25

-25 IS DIMENSIONALLY THE SAME AS -3

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 19-1135	2

REASON FOR EO: ADDITIONAL THERMAL PROTECTION LCD 19-1135

DESCRIPTION OF EO: REVISED EO B5 REMOVED DIMENSIONAL DIFFERENCE BETWEEN -25 & -3

Ⓡ EO GAEC RELEASE: C SK 4/5/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-1 (31)	
		THRU	
		LM-3 (33)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY								
DATE	4/3/67			4/1/67	4/3/67		4/3/67	4-5-67
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG Dam	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SKIN ASSY DESCENT STAGE - QUAD I UPPER
DRAWING NO.: LDW280-28730
EO NO.: B6

ISSUED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 | EO NO. 559
CONTROL INFO NO. LDW 280A 6306

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW
REMOVE LDW280-17970 - ALL DASH NUMBERS AND ADD
"SEE NOTE *"
IN F/D REMOVE LDW280-17970 - ALL DASH NUMBERS

REVISE NOTE *
(REF) "MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19."
(ADD) PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

DRAWING No.	CHANGE #	SYMBOL	EFFECTIVITY	TITLE
✓LDW280-18130	A7	⬡	LTA-8 LM-1 THRU LM-15	SEE DWG
✓LDW280-18141	A3	⬡	LM-1 THRU LM-15	
✓LDW 280-28730	B7	□	LTA-8 LM-1 THRU LM-3	
LDW 280-28734	B2	□	LTA-8 LM-1 THRU LM-3	
LDW 280-28738	A7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28740	B3	□	LTA-8 LM-1	
LDW 280-28741	A6	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28744	A7	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28747	B4	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28750	B9	□	LTA-8 LM-1 THRU LM-15	
LDW280-28753	A5	□	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	□	LTA-8 LM-1 THRU LM-15	
LDW280-28760	B5	□	LTA-8 LM-1 THRU LM-3	
LDW280-28765	A7	⬡	LTA-8 LM-1 THRU LM-6	
LDW280-28769	B2	□	LM-1	
LDW 280-28772	B6	□	LM-1 THRU LM-15	
LDW 280-28775	B7	□	LTA 8 LM-1 THRU LM-15	
LDW 280-28805	A6	□	LM-1 THRU LM-15	
LDW 280-28806	A4	□	LTA 8 LM-1 THRU LM-15	SEE DWG
LDW 280-51824	A3	□	LM-1 THRU LM-15	

NOTE △ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY WITH LPC 280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM □ REVISE NOTE *.
FOR SYM ⬡ ADD NOTE △ TO DWG

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☑ | CL I ENGRG CHG ☐

REASON FOR EO: UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE

DESCRIPTION OF EO: REMOVED LDW280-17970 FROM B/M & F/D (ALL DASH NO'S) FOR DWG'S □ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ⬡ ADDED NOTE △

GAEC EO RELEASE: JS 4-19-7

5
C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	
		ABOVE	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK NOT | SCRAP REQ

APPROVED BY | DATE 4/10/67

6 | VD1 | SUPPORT | RELIAB. GROUP | GROUP LEADER 4/10/67 | STRESS GROUP 4/10/67 | LIAISON ENGRG | PROJ ENGRG 4/12 | ~~GOVT~~ Bott 4-18-67

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 559

ED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LE0280
EO NO. 705
CONTROL INFO NO. LDW280A 8997

IN M/B RESTRICT THE FOLLOWING PARTS FOR USE AS SHOWN.

DWG No	DASH No*	**REST. FOR USE ON	***WAS USED ON	CH. LTR	TITLE
✓LDW280-18125	-15,-17&-18	LTA-8, LM-1 & LM-2	LTA-8& LM-1 THRU LM-15	B1	↑
✓LDW280-18130	-11,-13&-14	LTA-8, LM-1 & LM-2	LTA-8& LM-1 THRU LM-15	A8	
✓LDW280-18168	-17	LM-1 & LM-2	LM-1 THRU LM-15	A2	
✓LDW280-28730	-21	LM-2	LM-2 & LM-3	B8	
LDW280-28737	-15,-17,-19 -21,-25&-27	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	SEE DWG
	-35	LM-1 & LM-2	LM-1 THRU LM-15		
LDW280-28738	-9	LM-1 & LM-2	LM-1 THRU LM-15	A8	
LDW280-28746	-15&-31	LM-1 & LM-2	LM-1 THRU LM-15	B4	
LDW280-28747	-13	LM-1 & LM-2	LM-1 THRU LM-15	B5	
LDW280-28755	-13	LM-2	LM-2 THRU LM-15	A8	
LDW280-28756	-13	LM-2	LM-2 THRU LM-15	C1	↓

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1244 ok

REASON FOR EO: PROVISIONS FOR FITH SHIELD

DESCRIPTION OF EO: FOR * NOTED DWGS RESTRICTED DASH No * TO ** WAS ***.

GAEC EO RELEASE: JK 9/7/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			✓	DATE	8/31/67			8/30/67	9/1/67		9/1/67	9/6/67
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LE0280	705

9/1 ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25 gD

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28730
EO NO. B9
CONTROL INFO NO. LM 29-1114

IN F/D & B/M QTY. FOR LDW360-28297-9 S/B 1 REQD/MOD WAS 2 REQD/MOD.
LDW360-51297-9 S/B 1 REQD/MOD WAS 2 REQD/MOD

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

29

REASON FOR EO: INCORRECT QTY. PARTS CONFORM TO INSTL DWGS.

DESCRIPTION OF EO: IN F/D & B/M REVISED QTY FOR LDW360-28297-9 & -51297-9 S/B 1 REQD/MOD. WAS 2 REQD/MOD.

Ⓡ GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	NOT REQ'D		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP — NOT REQD

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JAS					W.Z.	JP	
DATE	12/2/67					11/29/67	12/2/67	11-22-67
	VD1							

PRIORITY: E 29
DRAWING TITLE: SKIN ASSY DESCENT STAGE-QUAD I PLUME IMPINGEMENT SHIELD UPPER
DRAWING NO.: LDW280-28730
EO NO.: B9

ISSUED BY LIAISON C. J. MONTEBELLO X7930 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28731 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52553	LM-2 (32)	7

PART NO: LDW280-28731-7

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52553	LM-2 (32)	1

PART NO. LDW280-28731-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51553	LM-1 (31)	1

PART NO. LDW280-28731-9

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA-8 (18)	4 EA

PART NO. LDW280-28731-5 & -6 — GAEC SCH NO. 52

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51553	LM-1 (31)	7

PART NO. LDW280-28731-3 — GAEC SCH NO. 52

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52553	LM-2 (32)	8
LM	LDW280-51553	LM-1 (31)	8
LM	LDW280-28553	LTA-8 (18)	8

PART NO. LDW280-28731-1 — GAEC SCH NO. 52

WORK PKG FUNCTION NO 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00				
REV	B	B	B	B	B				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	E	GRUMMAN REL INFO B	
LAST DASH NO. USED	-15	PRIM NO. 208	JK(001) ME-3

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	N. JAEGGI 12/19/66	THERMO	3/7/67
LAYOUT BY	WEISSLITZ		
CHECKED BY	EG 12-28-66		
GR LDR	3/1/67		
VEH DES INT			
STRUCTURE		PROJ ENGR	O.G. McGuilan 3/15/67
STRUCTURE		REL GROUP	
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTL
DESCENT STAGE~LOWER OUTRGR
INTERNAL & EXTERNAL

SIZE	CODE IDENT NO.		
B	26512	LDW280-28731	B
SCALE NONE		SHEET 1.00 OF 5	

ENG 77.1 12-65

Q1 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00 & 3.00						EO A1	EO A1 INITIAL DRAWING RELEASE. PARTS MADE PER E.O. WG EG	LTA-8, LM-2 THRU LM-15	NOT	REQD	JAEGGI 12/19/66		
	2	1.00, 1.10 2.00, 3.00 4.00					✓	EO A2	ON-1 INSTL ADDED GT835P-8 & REMOVED LPC 280-7. ADDED LM-1 (31) EFF. ADDED -3, -5 & -6 INSTL & NOTES 2(a) & (b), 3(a) & (b). & 4. ADDED SH 4.00.	LTA-8, LM-1 THRU LM-15	✓		H. DEUTSCH 2-20-67 EG		
	3	1.10, 2.00 3.00, 4.00							REF EO A2: IN F/D LDW280P17590-11 WAS LDW280-17590-1. ADDED 5/16 LOCATING DIM WAS REF. NOTE 2 WAS 2(a) & (b). D.J.	NOTED	NOT	REQ'D			
B	1	1.00, 1.10, 3.00					✓	EO B1 LCD-1136	ON-1 IN FLD/DWG IN FLD NOTE ALUMINIZED POLYIMIDE WAS ALUMINIZED MYLAR, ADDED NOTE 6	LTA-8, LM-1 THRU LM-15	✓		F. RODGERS 10-31-68		
	2	1.00, 1.10, 2.00 4.00					✓	EO-B2 LCD-1212	IN FLD/DWG & B/M FOR -3, RESTRICT LDW280P18252-1, ADDED LDW280P18252-3, LDW280-51584-1 & GT835P-8 TAPE & SECT E-E.	LM-2 THRU LM-15					
	3	1.00, 1.10, 2.00 4.00					✓	EO-B3 LCD-1212	REF EO B2: IN FLD/DWG & B/M RESTRICTED -3 TO LM-1, (REMOVED LM-2 THRU LM-15) ADDED -7. LM-2 THRU LM-15 EFF.						
	4	1.00, 1.10, 2.00, 3.00, 4.00				✓		EO-B4 LCD 1220 CCA-526	IN FLD/DWG, B/M & MOD/BLK ADDED -9 & -11 INSTL; REVISED QTY/MOD FOR -3 WAS 8 REQD, FOR LM-1, REVISED QTY/MOD FOR -7 WAS 8 REQD FOR LM-2 THRU LM-15.	LM-1 THRU LM-15		✓			
	5	1.00, 1.10, 2.00, 3.00		P		✓		EO-B5 LCD 2360	IN MOD BLK FOR -7 & -11 REMOVED LM-3 THRU LM-15 EFF, ADDED -13 & -15	LM-3 THRU LM-15	✓				
	6	1.00, 1.10, 2.00, 3.00				✓		LEO-280-849 LCD 2360	IN MOD BLK FOR -13 & -15 REMOVED EFF LM-3 (33) THRU LM-15 (45).			✓	E.C.G.		
	7	1.00, 1.10				✓		EO B7 LCD 2360	IN MOD BLK: RESTRICTED -1 FOR USE ON LTA 8(18), LM-1(31), LM-2(32). -1 WAS USED ON LTA 8(18), LM-1(31 THRU LM-15(45)				EDLICH 10-31-68 ECG		11-12-68

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28731	B
SCALE	NONE		SHEET 1.10

FOR CONTINUATION OF REVISIONS SEE SHEET ________

ENG 77.3 5-65

01

NAS 9-1100

QTY PER ASSEMBLY																	
-11	-9	-7	-6	-5	-3	-1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						AS REQD	SEE NOTE 6	E		STRIPS, POLYIMIDE							
							MS20470DD5			RIVET	STD PART						
							MS20426AD3			RIVET	STD PART						
			1	1			NAS698A08			NUT PLATE	STD PART						
			3	3			NAS697A08			NUT PLATE	STD PART						
			6	6			GF510C-5-2			BLIND FASTENER	GRUMMAN STD						
AS REQD		AS REQD				AS REQD	GT835P-8			TAPE	GRUMMAN STD						
104	104	104	52	52	104		GW10H-3			WASHER	GRUMMAN STD						
104	104	104	52	52	104		GR11B-1			SNAP	GRUMMAN STD						
8							LDW280P18252-7			BLANKET ASSY	SEE DWG						
	8						LDW280P18252-5			BLANKET ASSY							
		8					LDW280P18252-3			BLANKET ASSY							
			4	4	8		LDW280P18252-1			BLANKET ASSY							
AS REQD	AS REQD	AS REQD	AS REQD	AS REQD	AS REQD		LDW280P17590-11			TAPE							
8		8					LDW280-51584-1			SHIELD ASSY							
			4	4			LDW280-18253-15			SUPPORT							
			4	4			LDW280-18253-13			SUPPORT							
			4	4			LDW280-18253-11			SUPPORT	SEE DWG						
							LDW280-28731-11			SHIELD INSTL					NONE	NONE	
							LDW280-28731-9			SHIELD INSTL					NONE	NONE	
							LDW280-28731-7			SHIELD INSTL					NONE	NONE	
							LDW280-28731-6			SHIELD INSTL					NONE	NONE	
							LDW280-28731-5			SHIELD INSTL					NONE	NONE	
							LDW280-28731-3			SHIELD INSTL					NONE	NONE	
							LDW280-28731-1	E		SHIELD INSTL					NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28731	B

SCALE NONE SHEET 200

ENG 77.2 5-64

01

NAS 9-1100

NOTES:

1. ALUMINIZED MYLAR 0.00015" THICKNESS, MAY BE PURCHASED FROM: McCORDI & CO., MAMARONECK, N.Y., CODE IDENT. 24761

2. ON-5 & -6 PENETRATION PATCH PER LPC 280-6 (D & L AS REQD)

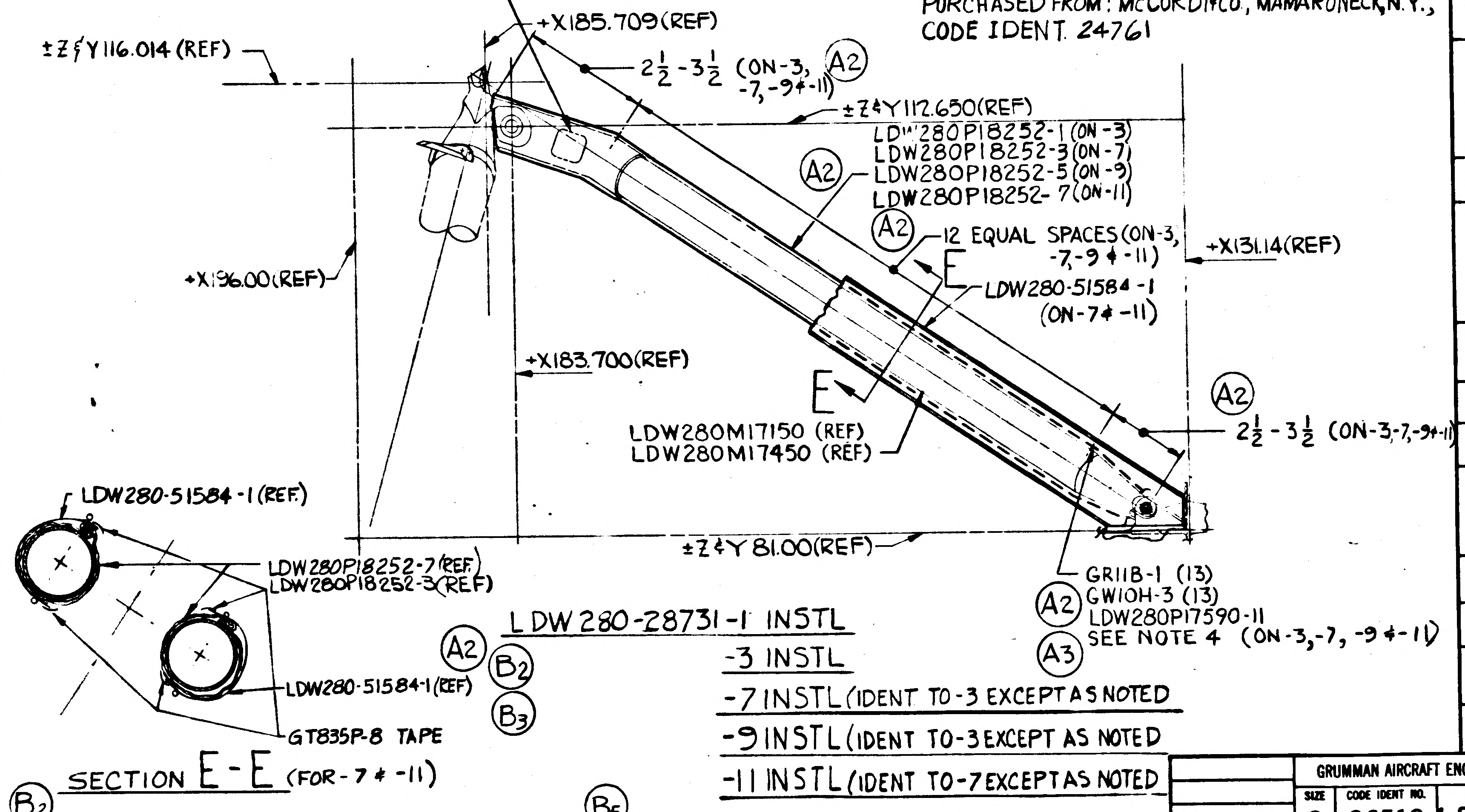
3 a. ON-5 & 6 PROTRUSION WRAP PER LPC 280-7 (W & L AS REQ) COVERING ENTIRE BRACKET.
   b. ON-5 & 6 PROTRUSION WRAP PER LPC 280-7 (W & L AS REQ) CONTINUOUSLY WRAPPED 18" BEYOND BLANKET.

4. INSTALL PER LPC 280-3.

5. INSTALL FASTENERS PER LSP-14-15301 & LSP-14-15302

6. ALUMINIZED POLYIMIDE .0005 IN. THICK, MAY BE PURCHASED FROM: McCORDI & CO, MAMARONECK, N.Y., CODE IDENT. 24761

ON-1 ONLY:
Ⓑ1 Ⓐ2 THROUGH THIS OPENING IN THE LANDING GEAR SUPPORT FITTING, INSERT ALUMINIZED POLYIMIDE STRIPS THE ENTIRE LENGTH OF STRUT. MATERIAL TO BE LOOSELY PACKED IN PLACE. MINIMUM SIZE OF ALUMINIZED POLYIMIDE STOCK PRIOR TO INSERTION IN STRUT IS 1FT x 3FT. AFTER INSERTION OF POLYIMIDE STRIPS ADD GT835P-8 TAPE IN A CRISS CROSS PATTERN OVER OPENING. (DO NOT SEAL TIGHT). (SEE NOTE 6)


±Z & Y 116.014 (REF)
+X185.709 (REF)
2½ - 3½ (ON-3, -7, -9 & -11) Ⓐ2
±Z & Y 112.650 (REF)
Ⓐ2 LDW280P18252-1 (ON-3)
LDW280P18252-3 (ON-7)
LDW280P18252-5 (ON-9)
LDW280P18252-7 (ON-11)
Ⓐ2 12 EQUAL SPACES (ON-3, -7, -9 & -11)
+X131.14 (REF)
E
LDW280-51584-1 (ON-7 & -11)
+X196.00 (REF)
+X183.700 (REF)
E
LDW280M17150 (REF)
LDW280M17450 (REF)
Ⓐ2
2½ - 3½ (ON-3, -7, -9 & -11)
±Z & Y 81.00 (REF)
GR11B-1 (13)
Ⓐ2 GW10H-3 (13)
LDW280P17590-11
Ⓐ3 SEE NOTE 4 (ON-3, -7, -9 & -11)
LDW280-51584-1 (REF)
LDW280P18252-7 (REF)
LDW280P18252-3 (REF)
LDW280-51584-1 (REF)
GT835P-8 TAPE
Ⓑ2 SECTION E-E (FOR -7 & -11)
Ⓐ2
Ⓑ2
Ⓑ3
Ⓑ5
Ⓑ6
4
3
2
1
D
C
B
A

LDW280-28731-1 INSTL
-3 INSTL
-7 INSTL (IDENT TO -3 EXCEPT AS NOTED
-9 INSTL (IDENT TO -3 EXCEPT AS NOTED
-11 INSTL (IDENT TO -7 EXCEPT AS NOTED

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

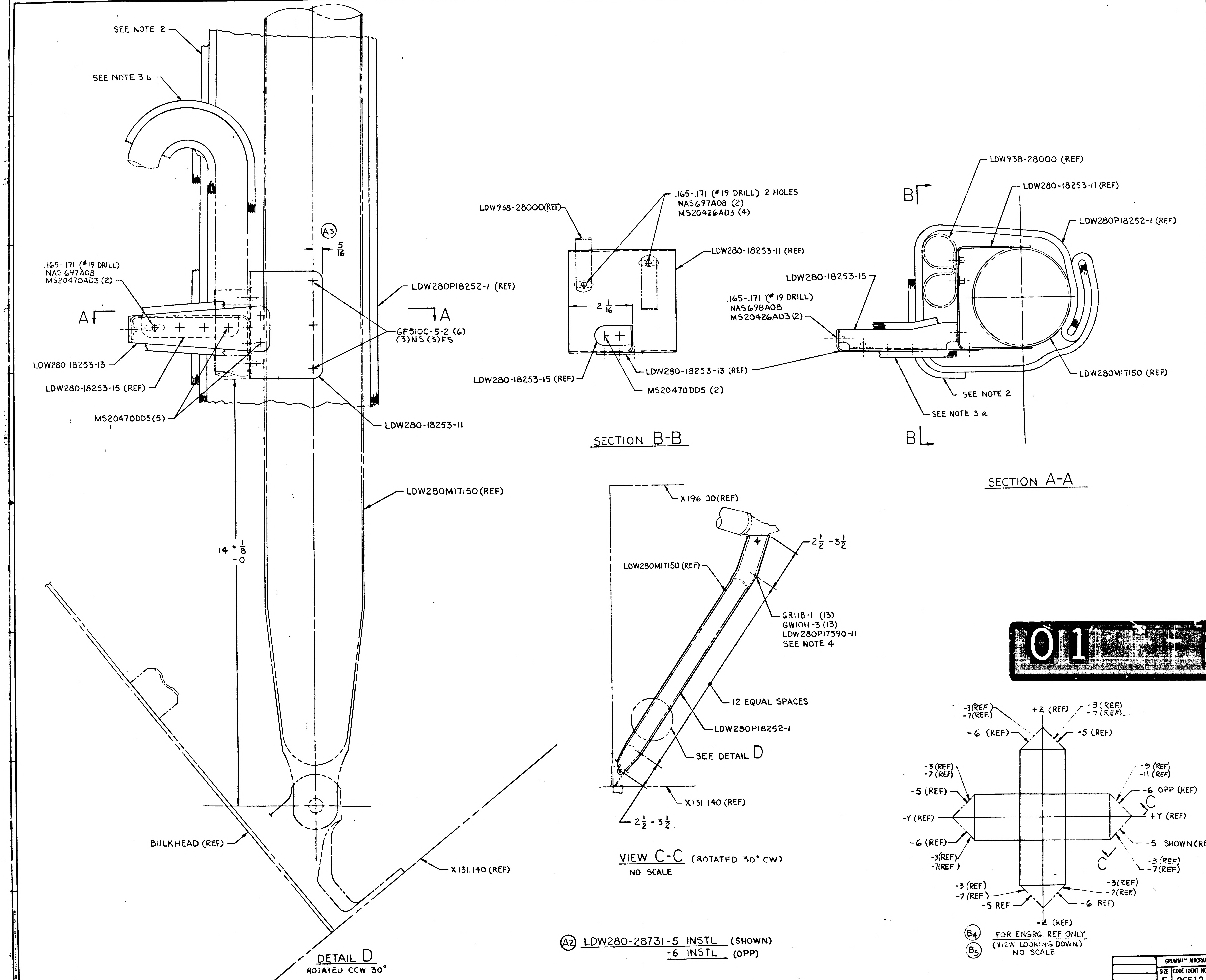
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE EDGE DISTANCE IS 1½ FASTENER DIA. FROM FASTENER ℄	✓
SYMBOL ∱ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-28731	B
	SCALE NONE			SHEET 3.00

01

NAS 9-1100


SEE NOTE 2
SEE NOTE 3 b
.165-.171 (#19 DRILL)
NAS 697A08
MS20470AD3 (2)
A
A
A3
5/16
LDW280P18252-1 (REF)
GF510C-5-2 (6)
(3)NS (3)FS
LDW280-18253-13
LDW280-18253-15 (REF)
MS20470DD5(5)
LDW280-18253-11
LDW280M17150(REF)
14 +1/8 -0
BULKHEAD (REF)
X131.140 (REF)
DETAIL D
ROTATED CCW 30°
LDW938-28000(REF)
.165-.171 (#19 DRILL) 2 HOLES
NAS697A08 (2)
MS20426AD3 (4)
LDW280-18253-11 (REF)
2 1/16
LDW280-18253-15 (REF)
LDW280-18253-13 (REF)
MS20470DD5 (2)
SECTION B-B
LDW938-28000 (REF)
LDW280-18253-11 (REF)
B
LDW280P18252-1 (REF)
LDW280-18253-15
.165-.171 (#19 DRILL)
NAS698A08
MS20426AD3 (2)
LDW280M17150 (REF)
SEE NOTE 2
SEE NOTE 3 a
B
SECTION A-A
X196.00(REF)
2 1/2 - 3 1/2
LDW280M17150 (REF)
GR11B-1 (13)
GW10H-3 (13)
LDW280P17590-11
SEE NOTE 4
12 EQUAL SPACES
LDW280P18252-1
SEE DETAIL D
X131.140 (REF)
2 1/2 - 3 1/2
VIEW C-C (ROTATED 30° CW)
NO SCALE
+Z (REF)
-3(REF)
-7(REF)
-3 (REF)
-7 (REF)
-6 (REF)
-5 (REF)
-3 (REF)
-7 (REF)
-9 (REF)
-11 (REF)
-5 (REF)
-6 OPP (REF)
C
-Y (REF)
+Y (REF)
-6 (REF)
-5 SHOWN (REF)
-3(REF)
-7(REF)
C
-3 (REF)
-7 (REF)
-3 (REF)
-7 (REF)
-3(REF)
-7(REF)
-5 REF
-6 REF
-Z (REF)
B4
B5
FOR ENGRG REF ONLY
(VIEW LOOKING DOWN)
NO SCALE
8
7
6
5
4
3
2
1

A2 LDW280-28731-5 INSTL (SHOWN)
-6 INSTL (OPP)

01 NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

ТЕЕ

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE E	CODE IDENT NO. 26512	LDW280-28731	
MODEL OR END ITEM	SCALE		SHEET	

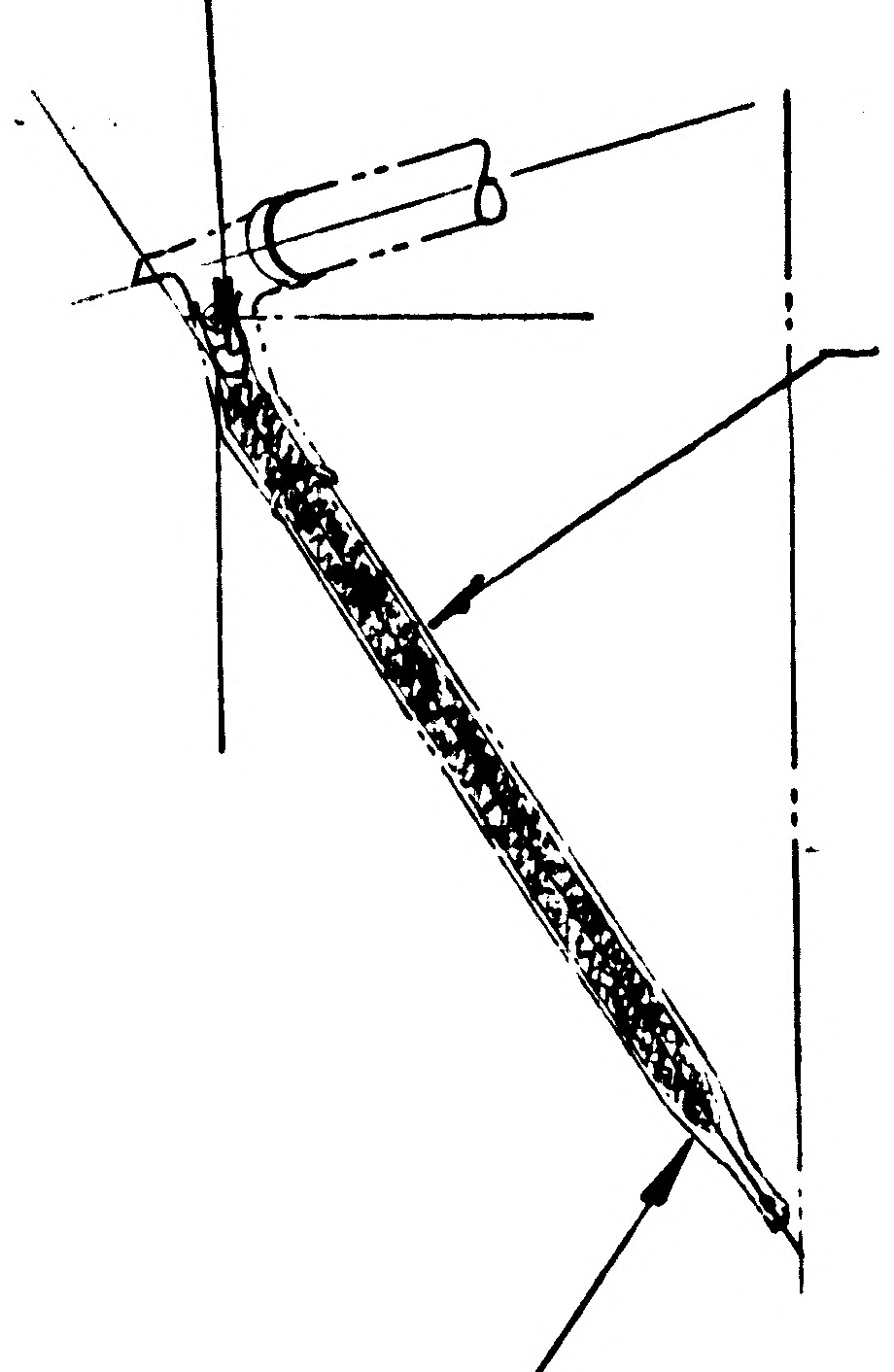
ENG 32.2 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28731 | EO NO. A1
CONTROL INFO NO. LDW280A 3993

THROUGH THIS OPENING IN THE LANDING GEAR SUPPORT FITTING INSERT ALUMINIZED MYLAR STRIPS THE ENTIRE LENGTH OF STRUT. MATERIAL TO BE LOOSELY PACKED IN PLACE. MIN. SIZE OF ALUMINIZED MYLAR STOCK PRIOR TO INSERTION IN STRUT IS 1 FT x 3 FT (SEE NOTE #1)



LDW280M17150 REF.
LDW280M17450 REF.

LOWER STRUT OF LANDING GEAR
PROTRUSION WRAP PER
LPC 280-7 W=14 L=13½

LDW280-28731-1 SHIELD INSTL.
N/A LDW280-28553 LTA 8(18) 8REQ'D/MOD
LDW280-52553 LM 2(32) 8REQ'D/MOD
LDW280-53553 LM 3(33) 8REQ'D/MOD
LDW280-54553 LM 4(34) THRU LM15(45) 8REQ'D/MOD

CONTRACT # NAS 9-1100
LINE ITEM #I
DOCUMENTATION TYPE II
PRIMARY 208

NOTE #1 ALUMINIZED MYLAR 0.00015" THICK, MAY BE PURCHASED FROM: McCORDI & CO., MAMARONECK, N.Y. CODE IDENT. 24761

* DWG NOT MADE

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PREVENT TUNNEL HEAT LEAK LCR #610	E.O. A1 INITIAL DWG RELEASE PARTS MADE PER E.O.	FR 12/6/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	REVISE DWG	RECORD EO	REWORK	SCRAP
LM		LTA 8(18) THRU LM15(45)	LM 2(32)	*	.	NOT	REQ'D

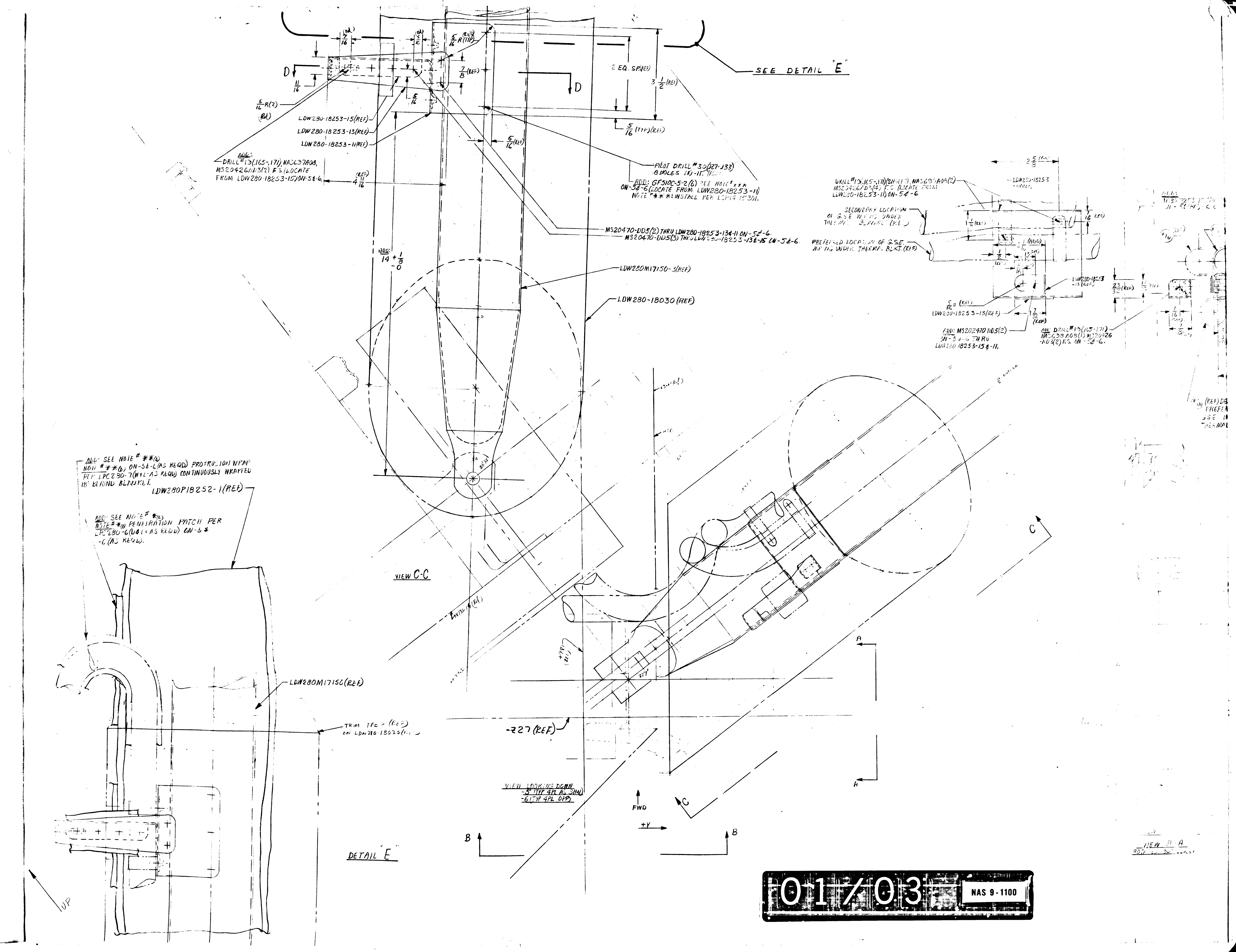
		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY		TAT		JRB	WJM		RAC WP	Butt
DATE	12/3/66	12/5/66		12/3/66	12/5/66		12-5-66	12-5-66
5	VDI	THOMAS						

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL D/S LOWER OUTRGR INTERNAL & EXT.	LDW280-28731	A1

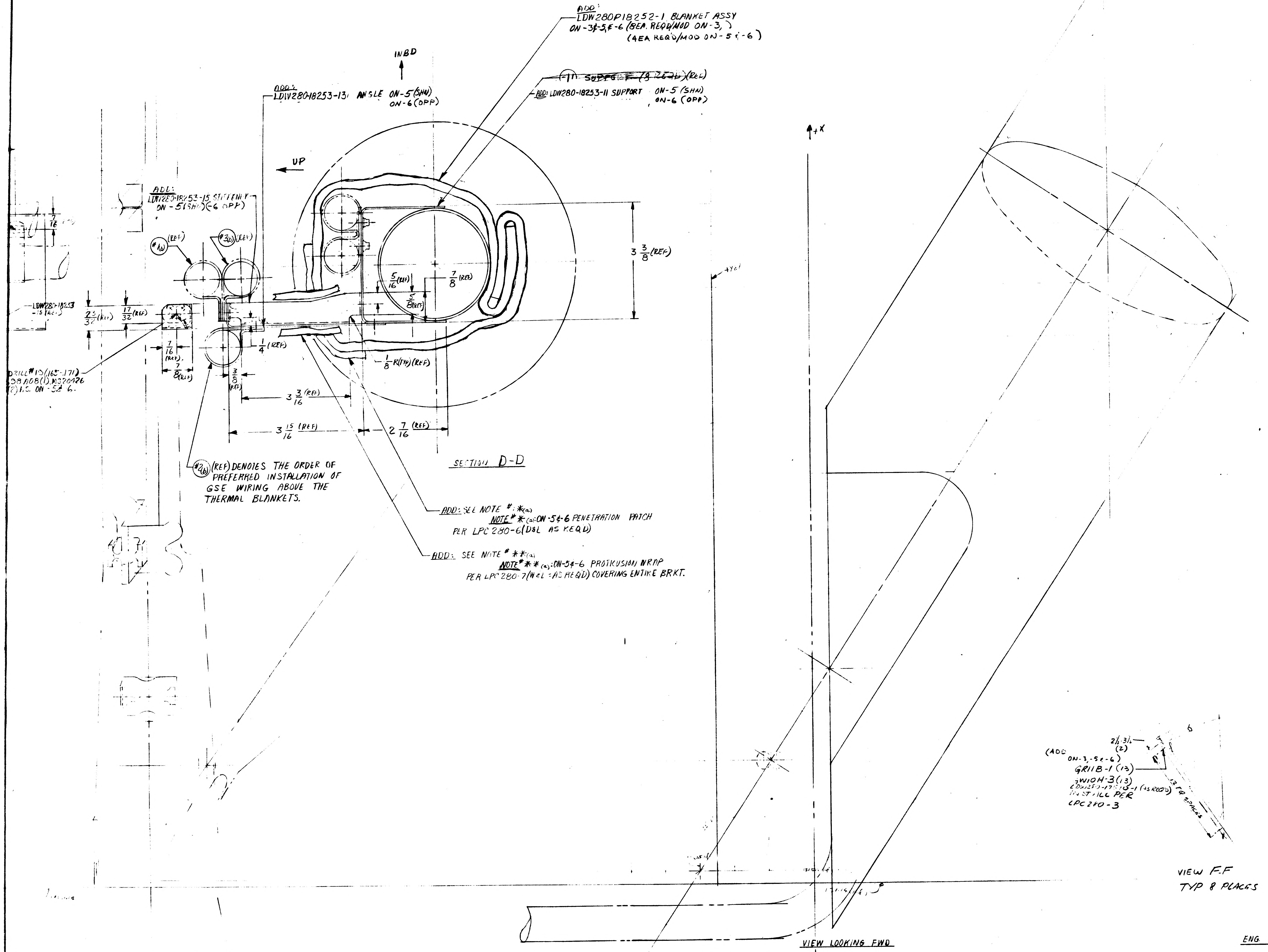
CDR - 12/9/66

ISSUED BY P. WEISSLITZ / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100


SEE DETAIL "E"
D
D
7/16 (REF)
5/16 (REF)
5/16 R (TYP) (REF)
11/16
7/8 (REF)
5/16
5/16 R(2) (REF)
2 EQ. SP.(REF)
3 1/2 (REF)
5/16 (TYP)(REF)
5/16 (REF)
LDW280-18253-15(REF)
LDW280-18253-13(REF)
LDW280-18253-11(REF)
ADD: DRILL #13(.165-.171), NAS697A08, MS20426AD3(2) F.S.(LOCATE FROM LDW280-18253-15)ON-5¢-6.
4 11/16 (REF)
PILOT DRILL #30(.127-.133) 8 HOLES THRU -11.
ADD: GF510C-5-2(6) SEE NOTE #*** ON-5¢-6(LOCATE FROM LDW280-18253-11)
NOTE #***: INSTALL PER LSP14-15301.
MS20470-DD5(2) THRU LDW280-18253-13¢-11 ON-5¢-6.
MS20470-DD5(3) THRU LDW280-18253-13¢-15 ON-5¢-6.
ADD: 14 +1/8 -0
LDW280M17150-3(REF)
LDW280-18030(REF)
VIEW C-C
2 5/8 (REF)
DRILL #19(.165-.171)(2 HOLES), NAS697A08(2) MS20426AD3(4) F.S.(LOCATE FROM LDW280-18253-11) ON-5¢-6
LDW280-18253 -11(REF)
SECONDARY LOCATION OF G.S.E. WIRING UNDER THERMAL BLANKET (REF)
PREFERRED LOCATION OF G.S.E. WIRING UNDER THERMAL BLKT. (REF)
1 1/4 (REF)
7/16 (REF)
2 1/16 (ADD)
1/2 (REF)
13/16 (REF)
5/16 (REF)
LDW280-18253 -15(REF)
5/16 R (REF)
LDW280-18253-13(REF)
1 7/32 (REF)
ADD: MS202470DD5(2) ON-5¢-6 THRU LDW280 18253-15¢-11.
ADD: DRILL #19(.165-.171) NAS698A08(1) MS20426 -AD3(2) F.S. ON-5¢-6.
23/32 (REF)
7/16 (REF)
7/8 (REF)
ADD: SEE NOTE #**(6)
NOTE #**(6) ON-5¢-6(AS REQD) PROTRUSION WRAP PER LPC280-7(W&L-AS REQD) CONTINUOUSLY WRAPPED 18" BEYOND BLANKET.
LDW280P18252-1(REF)
ADD: SEE NOTE #*(6)
NOTE #*(6) PENETRATION PATCH PER LPC280-6(D&L=AS REQD) ON-5¢ -6(AS REQD).
LDW280M17150(REF)
TRIM TPE-(REF) ON LDW280-18030(REF)
DETAIL "E"
UP
C
C
A
A
B
B
-227(REF)
VIEW LOOKING DOWN -5 (TYP 4PL AS SHN) -6 (TYP 4PL OPP)
FWD
+Y
VIEW A-A

01/03 NAS 9-1100

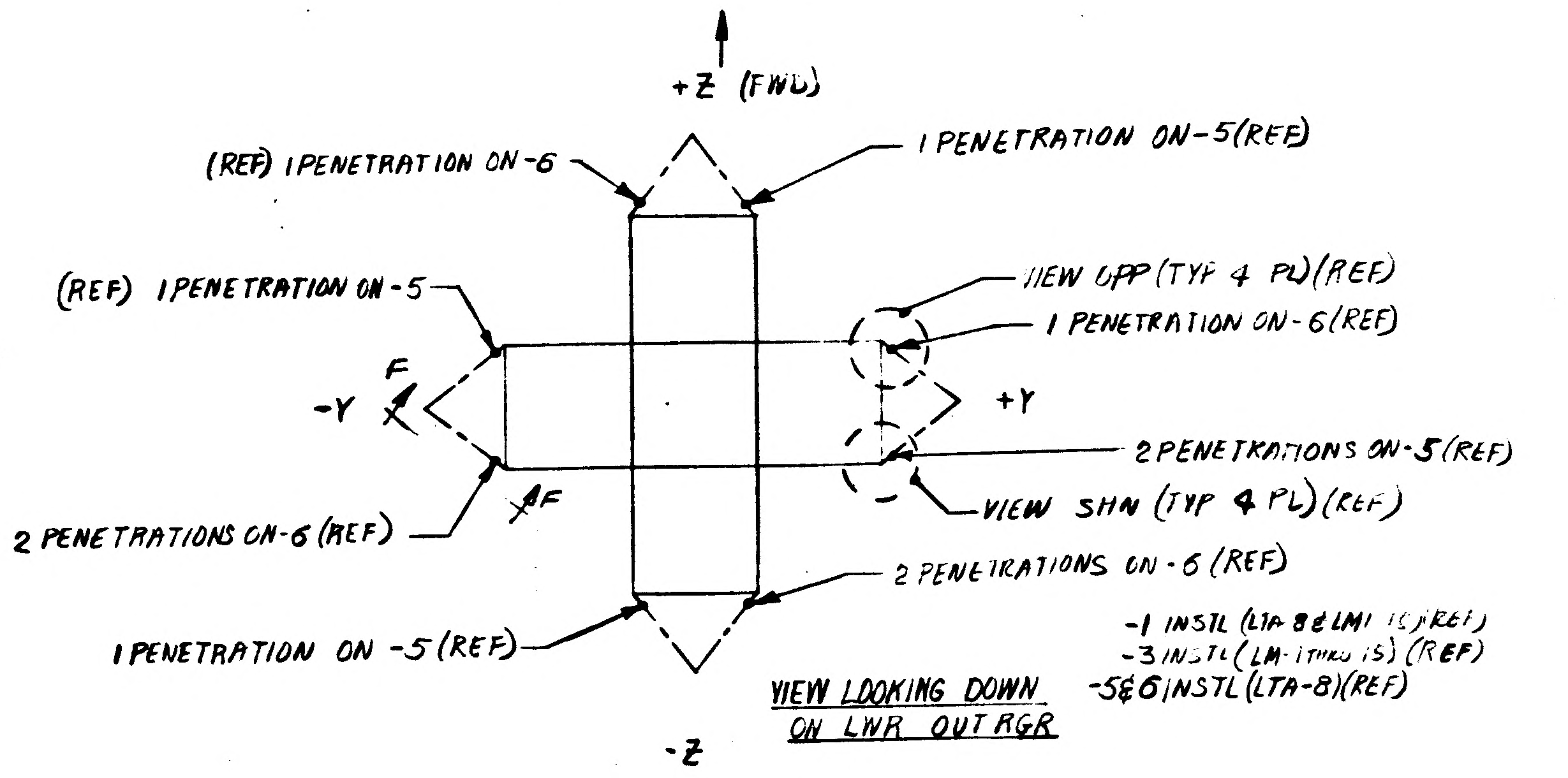

ADD: LDW280P18252-1 BLANKET ASSY ON-3,-5,&-6 (8EA. REQD/MOD ON-3,) (4EA REQ'D/MOD ON-5 & -6)
INBD
~~(-11) SUPPORT (8 262D) (REF)~~
ADD: LDW280-18253-11 SUPPORT ON-5 (SHN), ON-6 (OPP)
ADD: LDW280-18253-13 ANGLE ON-5 (SHN) ON-6 (OPP)
UP
ADD: LDW280-18253-15 STIFFENER ON-5 (SHN) (-6 OPP)
#1(b) (REF)
#3(b) (REF)
3 3/8 (REF)
5/16 (REF)
7/8 (REF)
5/8 (REF)
LDW280-18253 -15 (REF)
23/32 (REF)
17/32 (REF)
1/4 (REF)
7/16 (REF)
7/8 (REF)
1/8 R(TYP) (REF)
3/8 (REF)
3 3/16 (REF)
3 15/16 (REF)
2 7/16 (REF)
DRILL #19 (.165-.171) 98A08(1), MS20426 (2) H.S. ON -5 & 6.
#2(b) (REF) DENOTES THE ORDER OF PREFERRED INSTALLATION OF GSE WIRING ABOVE THE THERMAL BLANKETS.
SECTION D-D
ADD: SEE NOTE #: *(a)
NOTE # *(a): ON-5 & -6 PENETRATION PATCH PER LPC 280-6 (D&L AS REQD)
ADD: SEE NOTE # **(a)
NOTE # **(a): ON-5 & -6 PROTRUSION WRAP PER LPC 280-7 (W&L AS REQD) COVERING ENTIRE BRKT.
+X
+Y
VIEW LOOKING FWD
INBD
VIEW B-B
VIEW LKG INBD -Y
VIEW A-A
ROTATED 90° CLOCKWISE
(ADD ON-3, -5 & -6)
2½-3½ (2)
GR11B-1 (13)
GW10H-3 (13)
LDW280-17510-1 (AS REQ'D)
INSTALL PER LPC 280-3
12 EQ SPACES
VIEW F-F
TYP 8 PLACES

ON-1 INSTL: REMOVE LPC280-7, ADD GT935P-8 TO B/M & IN F/D ADD TO CALLOUT: "AFTER INSERTION OF MYLAR STRIPS ADD GT935P-9 TAPE IN A CRISS CROSS PATTERN OVER OPENING (DO NOT SEAL TIGHT)"

(ON-1) ADD LM1 EFF N/A LDW280-51553 8 REQD/MOD

ADD -3 INSTL N/A LDW280-51553 (8 REQD/MOD) (1, 2)
-52553
53553 (3)
54553 (8 REQD/MOD), (4 THRU 15)

ADD -5 & -6 INSTL N/A LDW280-28553 (4EA REQ/MOD) LTA8

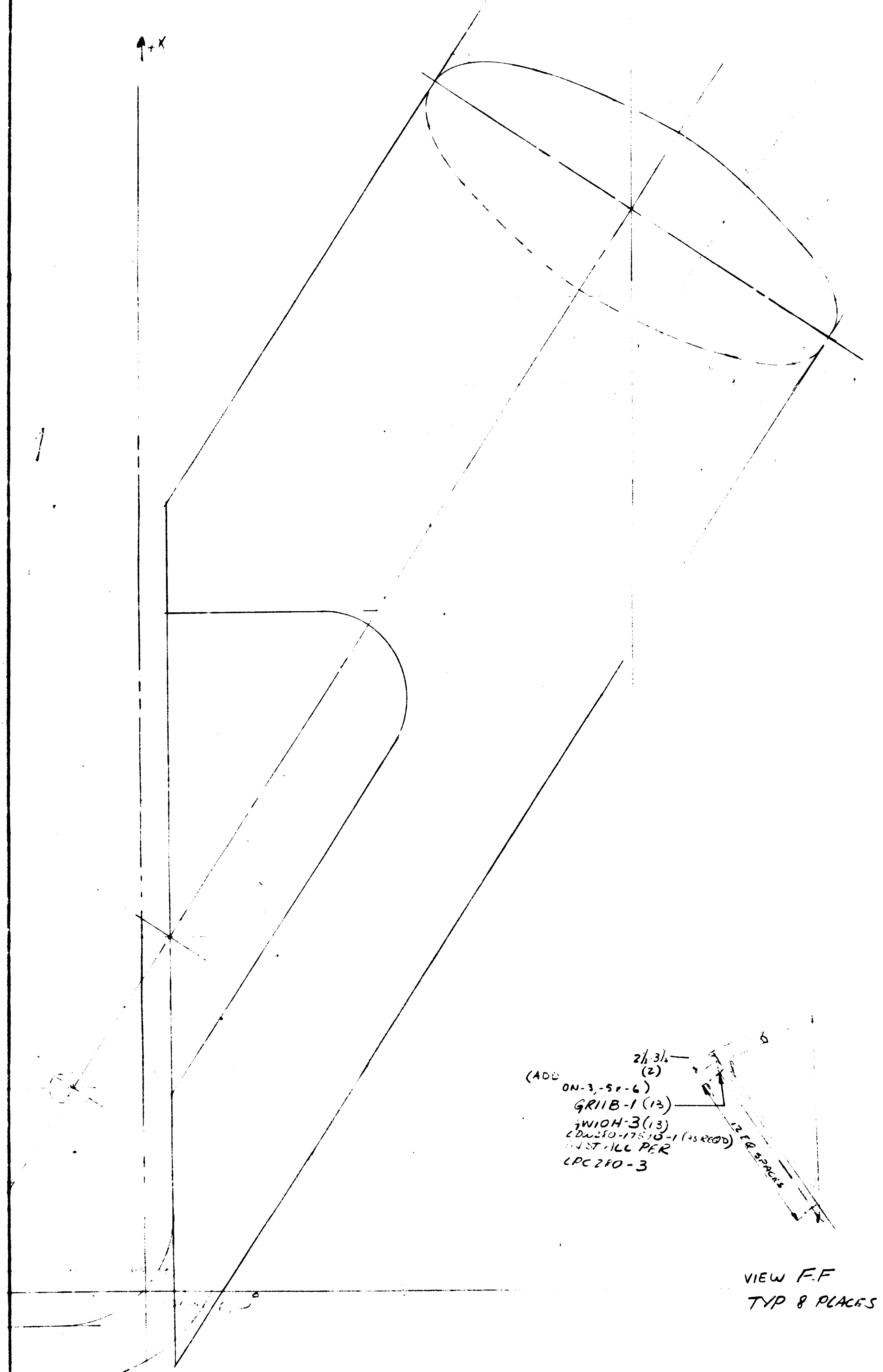

ENG REF ONLY
+Z (FWD)
(REF) 1 PENETRATION ON-6
1 PENETRATION ON-5 (REF)
(REF) 1 PENETRATION ON-5
VIEW OPP (TYP 4 PL) (REF)
1 PENETRATION ON-6 (REF)
-Y
F
F
+Y
2 PENETRATIONS ON-5 (REF)
VIEW SHN (TYP 4 PL) (REF)
2 PENETRATIONS ON-6 (REF)
2 PENETRATIONS ON-6 (REF)
1 PENETRATION ON -5 (REF)
-Z

VIEW LOOKING DOWN ON LWR OUT RGR

-1 INSTL (LTA 8 & LM1 15) (REF)
-3 INSTL (LM-1 THRU 15) (REF)
-5 & 6 INSTL (LTA-8) (REF)

02/03

NAS 9-1100


+X
(ADD ON-3,-5 & -6)
2½·3½
(2)
GR11B-1 (13)
W10H-3 (13)
LDW280-17510-1 (45 REQD)
INSTALL PER
LPC 280-3
12 EQ SPACES
6

VIEW F-F
TYP 8 PLACES

VIEW LOOKING FWD

INBD

VIEW B-E

ON-1 INSTL: REMOVE LPC280-7, ADD GT835P-8 TO B/M & IN F/D ADD TO CALLOUT: "AFTER INSERTION OF MYLAR STRIPS ADD GT835P-8 TAPE IN A CRISS CROSS PATTERN OVER OPENING (DO NOT SEAL TIGHT)"

(ON-1) ADD LM1 EFF N/A LDW280-51553 8 REQD/MOD.

ADD -3 INSTL N/A LDW280-51553 (8 REQD/MOD) (LM1)
-52553 (LM2)
53553 (LM3)
54553 (8 REQD/MOD) (LM4 THRU 15)

ADD-5 & -6 INSTL N/A LDW280-28553 (4EA REQD/MOD) LTA8(18)

ALL INFORMATION OTHER THAN THAT REQD TO MANUFACTURE LDW280-28731-1,-3,-5&-6. IS FOR REF ONLY (FULL SIZE PRINTS MAY BE SCALED)

~~MAT'L: .032 CRES SHT~~ B.R. = 5/32

~~FINISH: #88 (ANODIZE) LSP14-9850~~

TOL: FRACTIONAL ± 1/32 ANGLE ± 1/2° DECIMAL ±.020

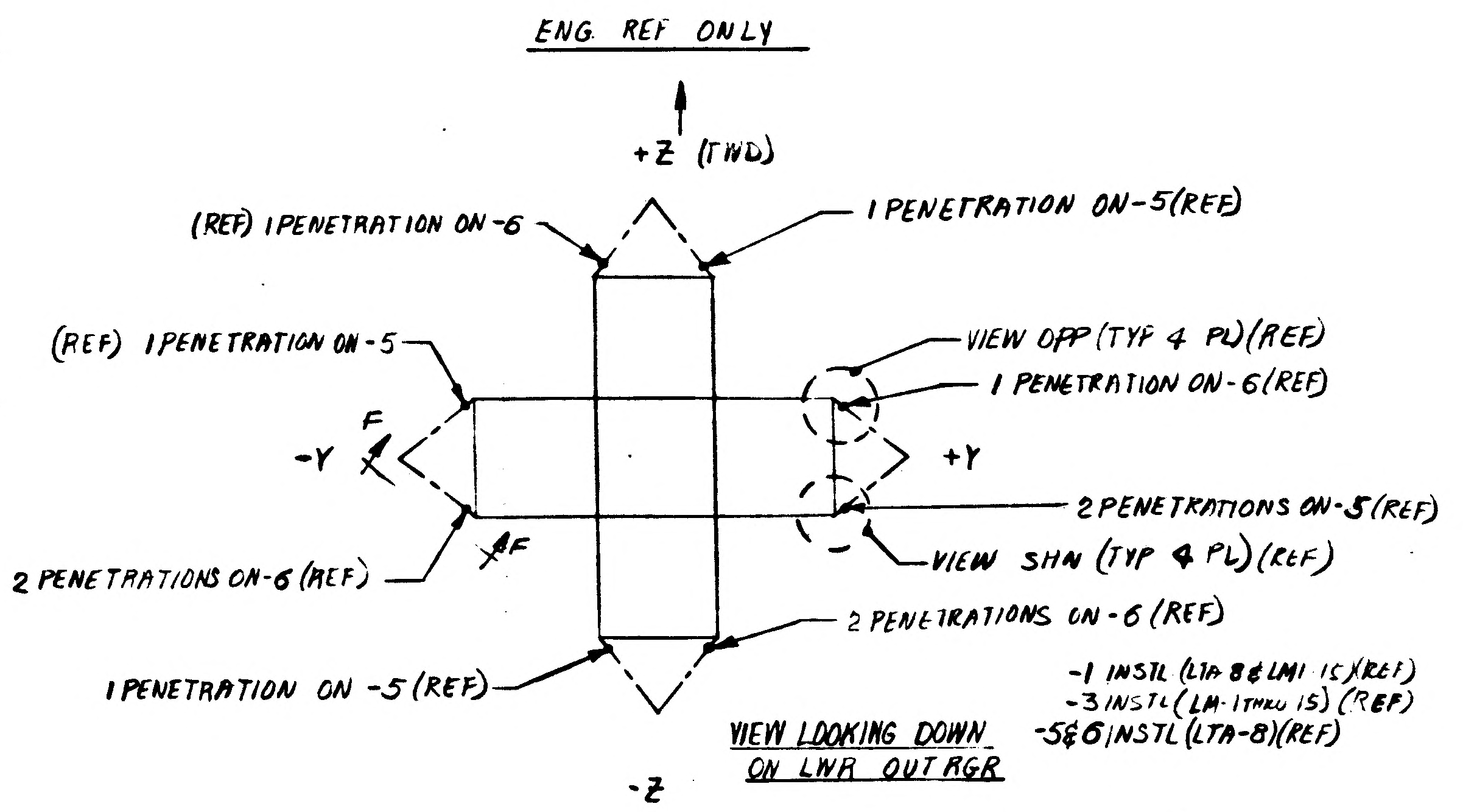
CONTRACT #NAS 9-1100, LINE ITEM #1, DOCUMENTATION TYPE II

I&T = E

~~EFF. LTA-8(18)~~

~~N/A LDW280-28731~~ E.O. CONTROL # LDW280A4754

03/03 NAS 9-1100


ENG REF ONLY
+Z (FWD)
(REF) 1 PENETRATION ON-6
1 PENETRATION ON-5 (REF)
(REF) 1 PENETRATION ON-5
VIEW OPP (TYP 4 PL)(REF)
1 PENETRATION ON-6 (REF)
-Y
F
+Y
F
2 PENETRATIONS ON-5 (REF)
VIEW SHN (TYP 4 PL)(REF)
2 PENETRATIONS ON-6 (REF)
2 PENETRATIONS ON-6 (REF)
1 PENETRATION ON -5 (REF)
-Z

-1 INSTL (LTA 8 & LM1 15)(REF)
-3 INSTL (LM-1 THRU 15) (REF)
-5 & 6 INSTL (LTA-8)(REF)

VIEW LOOKING DOWN ON LWR OUTRGR

*(a) & (b), **(a) & (b), *** = ASSIGN NEXT AVAILABLE NOTE #.

~~* DWG NO. MALE~~

THIS WORK ACCOMPLISHED ON LTA-8

DETAIL SPEC REQD		CLASS II ENGRG CHG	✓	CLASS I ENGRG CHG						CONTROL INFO NO. LDW280A-475	
REASON FOR EO: TO PROVIDE SUPPORT FOR GSE HIK & INSTRUMENTATION LINES (LCR 762)				DESCRIPTION OF EO: ON-1 INSTL ADDED GT835P-8 & REMOVED LPC 280-7. ADDED LM1(31)EFF) ADDED -3,-5 & -6 INSTL & NOTES *(a) & (b), **(a) & (b), ***						GRUMMAN EO RELEASE: E 11/11	
MODEL	EFFECTIVITY: PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING REVISION REQD		DISPOSITION OF PARTS		BY / DATE			
LM		LTA-8(18)		✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP	1/31/67 VDI	1/1/67 ~~SUPPORT~~ THERMO	RELIAB GROUP	GROUP LEADER 1/31/67
LM		LM-1(31)								STRESS GROUP	LIAISON ENGRG
LM		THRU LM-15(45)		PRIORITY: C	DRAWING TITLE: SHIELD INSTL ~ D.S. ~ LOWER OUTRGR INTERNAL & EXTERNAL					PROJ ENGR 1/3/67	GOV'T
								ENGINEERING ORDER		DRAWING NO. LDW280-28731	EO NO. A2
ISSUED BY J. ROGERS / J. STEFOSCH X1392	SECTION VEH. DESIGN	GROUP NO. 335	PL 35	CODE IDENT NO. 26512	GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE, L. I., N. Y.						

ENG 32.3 REV 3-65

B *

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

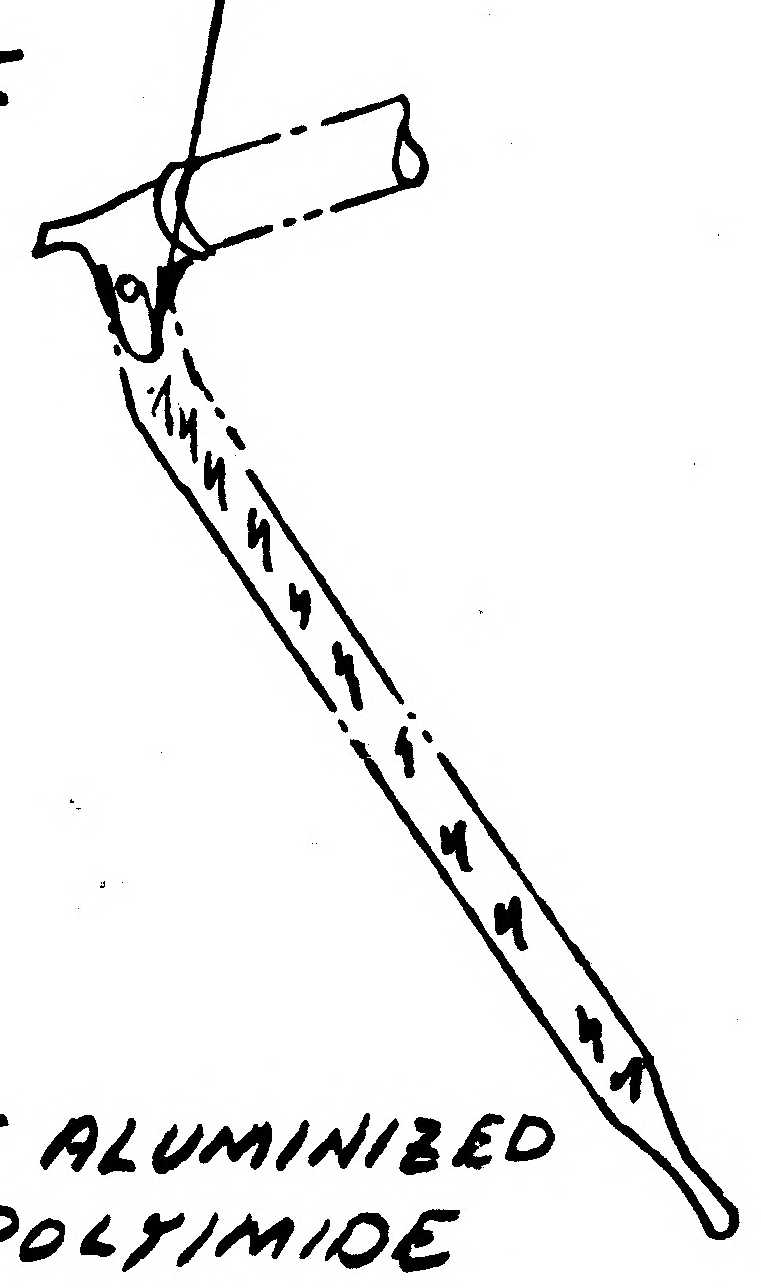
ENGINEERING ORDER

DWG. NO. LDW280-28731 | EO NO. B1

CONTROL INFO NO. LDW280A 6116

FOR -1 INSTL

THROUGH THIS OPENING IN THE LANDING GEAR SUPPORT FITTING INSERT ALUMINIZED POLYIMIDE [(WAS) MYLAR] STRIPS THE ENTIRE LENGTH OF STRUT. MATERIAL TO BE LOOSELY PACKED IN PLACE. MIN SIZE OF ALUMINIZED POLYIMIDE [(WAS) MYLAR] STOCK PRIOR TO INSERTION IN STRUT IS 1FT×3FT (SEE NOTE **) [(WAS) NOTE #1]



(ADD) NOTE*. ALUMINIZED POLYIMIDE .0005 IN. THICK, MAY BE PURCHASED FROM McCORDI CO., MAMARONECK N.Y. CODE IDENT 24761

REWORK LTA-8(18), LM-1(31) & LM-2(32) BY REMOVING THE ALUMINIZED MYLAR AND REPLACE WITH ALUMINIZED POLYIMIDE

* = NEXT AVAILIBLE NOTE NO.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 19-1136	5

REASON FOR EO: TO PROVIDE FIRE PROTECTION LCD 19-1136

DESCRIPTION OF EO: ON -1 IN F/D IN FIELD NOTE* ALUMINIZED POLYIMIDE WAS ALUMINIZED MYLAR.

Ⓡ GAEC EO RELEASE C: JS 3-29-7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31) THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	Jap	ab		JHS	WM		Dam	JF
DATE	3/28/67	3/28/67		3/27/67	3/28/67		3/28/67	4/3/67
5	VD1	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL DESCENT STAGE LOWER OUTRIGGER INTERNAL AND EXTERNAL	LDW280-28731	B1

ISSUED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

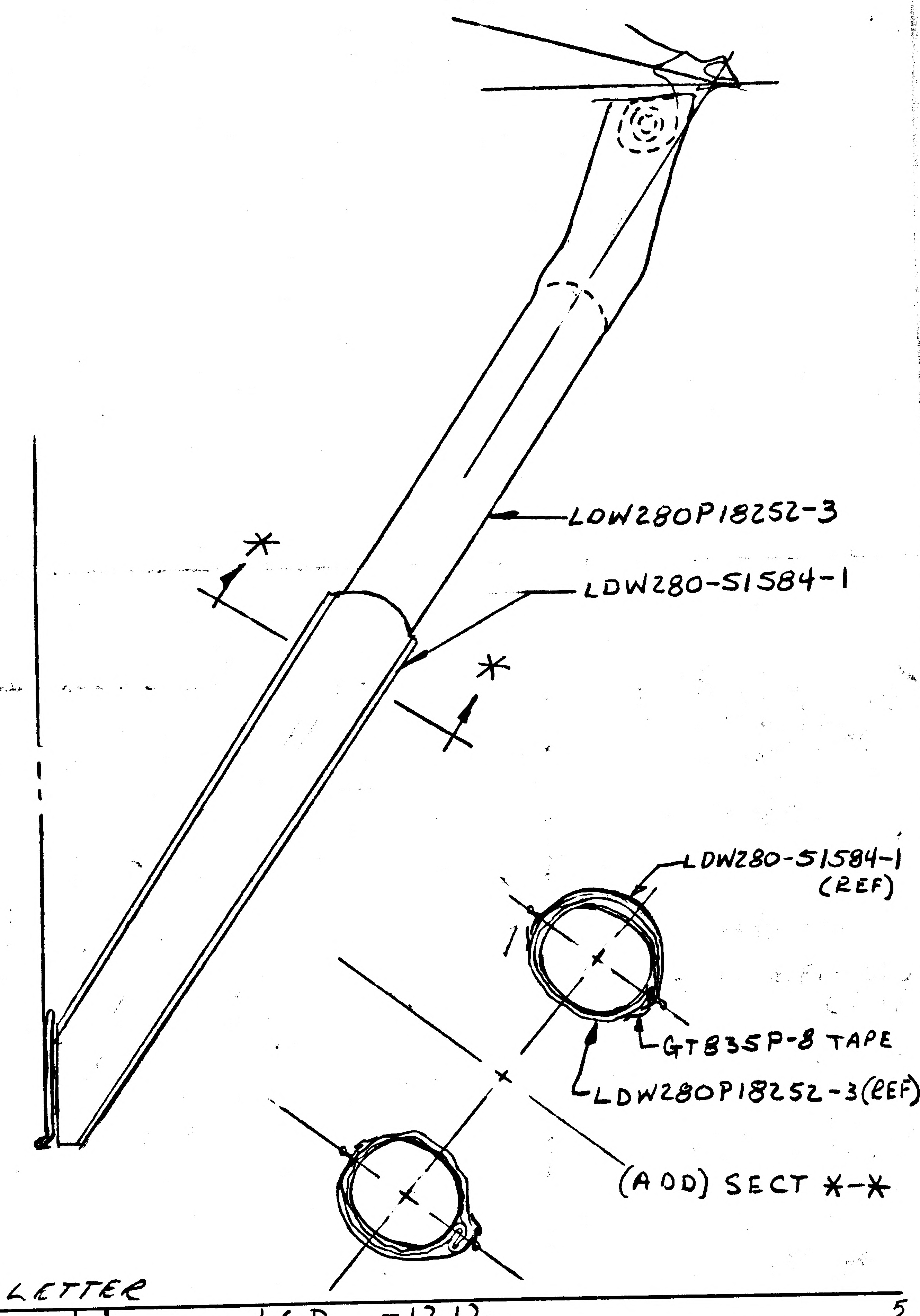
B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EM#A

DWG. NO. LDW280-28731		EO NO.	B2
CONTROL INFO NO.	LDW280A 6368		

IN F/D & B/M FOR -3
RESTRICT . LDW280P18252-1(8) TO LM-1.
ADD LDW280P18252-3(8) &
LDW 280-51584-1 SHIELD ASSY (8)
& GT835 P.8 TAPE FOR LM-2 THRU LM-15



*= NEXT AVAILIBLE SECTION LETTER

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

LCD -1212

5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDITIONAL THERMAL PROTECTION	IN F/D & B/M FOR -3 RESTRICT LDW280P18252-1 ADDED LDW280P18252-3, LDW280-51584-1 & GT835P-8 TAPE & SECT *-*	C JL 2-15-67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-2 (32)	
		THRU	
		LM-15 (45	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		-3	

APPROVED BY								
		HLE		JHS	WJH		Dam	
DATE	4/13/67	5/9/67		4/14/67	5/9/67		4/19/67	5-15-67
5	VDI	THERMO SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL DESCENT STAGE LOWER OUTRIGGER - INTERNAL & EXTERNAL -	LDW280-28731	B2

ISSUED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

01
NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28731
EO NO. B3
CONTROL INFO NO. LDW280A7500

THIS E.O. REVISES E.O. B2

RESTRICT -3 TO LM-1(31) ADD -7 LM-2(32) THRU LM-15(45); -7 IDENTICAL TO -3 EXCEPT LDW280P18252-3 (8REQ) REPLACES LDW280P18252-1 (8 REQD) ; ADD LDW280-51584-1 (8 REQD) & ADD GT835P-8 TAPE

IN F/D SECT ✱-✱ (ADD) FOR -7 ONLY

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD-1212 5

REASON FOR EO: ADDITIONAL THERMAL PROTECTION

DESCRIPTION OF EO: IN F/D & B/M RESTRICTED -3 TO LM-1 (REMOVED LM-2 THRU LM-15) ADDED -7 LM-2 THRU LM-15
REF: EO B2

GAEC EO RELEASE: C SK 6/23/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK -3 SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JAF			JAS	NH		Dam	
DATE	6/12/67			6/12/67	6/12/67		6/14/67	
5	VDI							

PRIORITY: C

DRAWING TITLE: SHIELD INSTL DESCENT STAGE LOWER OUTRIGGER - INTERNAL & EXTERNAL

DRAWING NO.: LDW280-28731

EO NO.: B3

ISSUED BY H. PALLMEYER / J STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

A.

ENG 22.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28731
EO NO. 84
CONTROL INFO NO. LDW280A7440

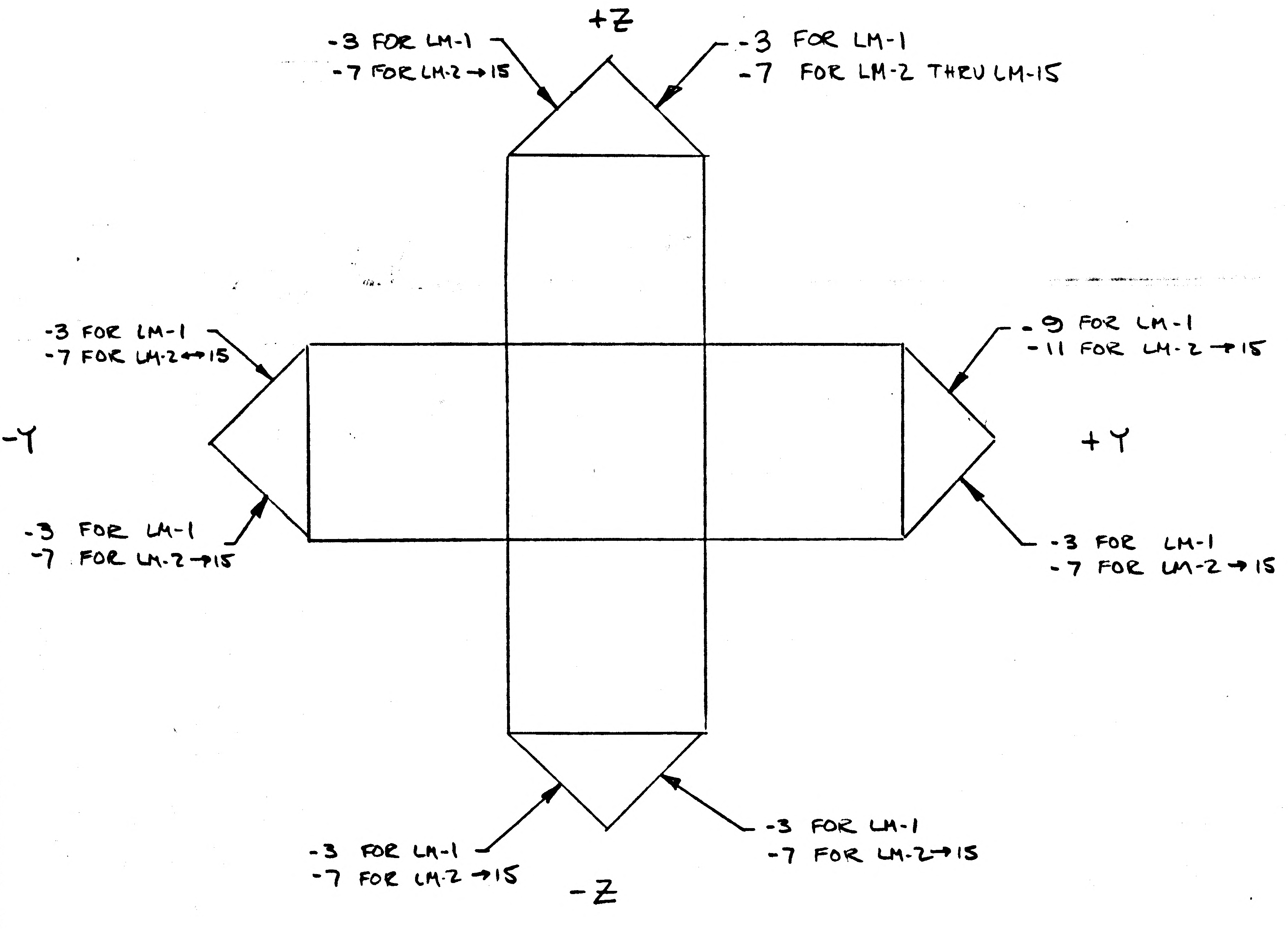
ADD -9 INSTL IDENT TO -3 INSTL EXCEPT THAT LDW280P18252-5 REPLACES LDW280P18252-1

ADD -11 INSTL IDENT TO -7 INSTL EXCEPT THAT LDW280P18252-7 REPLACES LDW280P18252-3

-9	N/A	LDW280-51553	1/MOD	EFF LM-1(31)
-11	N/A	LDW280-52553	1/MOD	EFF LM-2(32)
	N/A	LDW280-53553	1/MOD	EFF LM-3(33
	N/A	LDW280-54553	1/MOD	EFF LM-4(34) THRU LM-15(45)

IN MOD/BLK FOR -3 REVISE QTY/MOD FOR EFF LM-1(31) TO 7 REQD (WAS 8 REQD)

IN MOD/BLK FOR -7 REVISE QTY/MOD FOR EFF LM-2(32) THRU LM-15(45) TO 7 REQD (WAS 8 REQD)


+Z
-3 FOR LM-1
-7 FOR LM-2→15
-3 FOR LM-1
-7 FOR LM-2 THRU LM-15
-Y
-3 FOR LM-1
-7 FOR LM-2→15
-3 FOR LM-1
-7 FOR LM-2→15
+Y
-9 FOR LM-1
-11 FOR LM-2→15
-3 FOR LM-1
-7 FOR LM-2→15
-3 FOR LM-1
-7 FOR LM-2→15
-3 FOR LM-1
-7 FOR LM-2→15
-Z

VIEW LOOKING DOWN

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑

LCD 1220 CCA 526. 5

REASON FOR EO: SUPPORT LM/SLA UMBILICAL CABLE LCD 1220

DESCRIPTION OF EO: IN F/D, B/M & MOD/BLK ADDED -9 & -11 INSTL; REVISED QTY/MOD FOR -3 WAS 8 REQD FOR LM-1; REVISED QTY/MOD FOR -7 WAS 8 REQD FOR LM-2 THRU LM-15

GAEC EO RELEASE: C JK 6/20/67

MODEL: LM

EFFECTIVITY: GAEC UNIT NO. LM-1(31) THRU LM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY: 5 VDI; DATE 6/15/67

GROUP LEADER: 6/15/67

STRESS GROUP: 6/16/67

PROJ ENGRG: 6/16/67

PRIORITY: C

DRAWING TITLE: DESCENT STAGE – LOWER OUTRGR SHILLS INSTL INTERNAL & EXTERNAL

DRAWING NO. LDW280-28731

EO NO. 84

ISSUED BY G. BARNES / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65 (R)

DWG. NO. LDW280-28731	EO NO. B5
CONTROL INFO NO. LDW280B0616	

IN M/B FOR -7 & -11 INSTL'S REMOVE EFF. LM-3(33) THRU LM-15(45).

ADD -13 INSTL IDENTICAL TO -7 INSTL EXCEPT THAT LDW280P18252-9 REPLACES LDW280P18252-3.

ADD -15 INSTL IDENTICAL TO -11 INSTL EXCEPT THAT LDW280P18252-29 REPLACES LDW280P18252-7.

EFFECTIVITY FOR -13	LM-3(33)	N/A LDW280-53553	7 REQ'D/MOD.
	LM-4(34) THRU LM-15(45)	N/A LDW280-54553	7 REQ'D/MOD.
EFFECTIVITY FOR -15	LM-3(33)	N/A LDW280-53553	1 REQ'D/MOD
	LM-4(34) THRU LM-15(45)	N/A LDW280-54553	1 REQ'D/MOD

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 2360 (5)

REASON FOR EO: PLUME HEATING PROTECTION

DESCRIPTION OF EO: IN M/B FOR -7 & -11 REMOVED LM-3 THRU LM-15. ADDED -13 & -15.

GAEC EO RELEASE: (R) C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		-7 -11	

APPROVED BY									
DATE	12/8/67			12-8-67	12/9/67		12/8/67	12-12-67	
P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL - DESCENT STAGE-LOWER OUTRGR-INTERNAL & EXTERNAL	LDW280-28731	B5

28 DEC '67
ISSUED BY J.BACKOFEN/H.PALLMEYER/P. THORJUSEN X1153 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01
NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 849
CONTROL INFO NO. LDW280B1448

FOR ALL DASH NO.* ON THE FOLLOWING DWGS
REMOVE LM-3(33) THRU LM-15(45) EFF

DRAWING NO. *	TITLE	CHANGE NO.
✓ LDW280-28731-13,15	SEE DWG	B6
LDW280-51584-1	SEE DWG	A1
LDW280-51592-1	SEE DWG	A1
LDW280-51594-1	SEE DWG	A1
LDW280P18252-9 -27-29 & -31	SEE DWG	B5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD2360	(5) FKG20

REASON FOR EO: PLUME IMPINGEMENT PROTECTION

DESCRIPTION OF EO: IN MODEL BLOCK FOR * REMOVED EFF LM-3(33) THRU LM-15(45)

EO RELEASE: C JK 1/30/8

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU	LM-15(45)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

APPROVED BY					WJH			
DATE	1/25/68			1-24-68	1-25-68		1/24/68	1-29-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	849

1-26-68
ISSUED BY J. ANDERSEN / P. THORVUSEN 1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-28731	EO NO.	B7
CONTROL INFO NO.	LDW280135339		

RESTRICT -1 FOR USE ON LTA-8(18), LM-1(31)
LM-2(32)
WAS USED ON LTA 8(18), LM-1(31) THRU LM-15(45)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓

LCD 2360 PKG 31 (5)

REASON FOR EO	DESCRIPTION OF EO
DWG CORRECTION LDW280-28731 REPLACED BY LDW280-53731 FOR LM-3(33) THRU LM-5(15)	RESTRICTED -1 FOR USE ON LTA 8(18), LM-1(31) LM-2(32) -1 WAS USED ON LTA8(18), LM-1(31) THRU LM-15(45)

GAEC EO RELEASE: C ②

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

APPROVED BY								
DATE	8/29/68	9/4/68		8/29/68	9/4/68		9/11/68	9-9-68
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL ~ D/S ~ LWR OUTRGR ~ INT. & EXT	LDW280-28731	B7

CDR 091368
ISSUED BY A. MEVORAH/P. THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280 28733 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28664	LM3 (33)	1

PART NO. LDW280 28733-5

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW 280-51664	LM-2(32)	1
LM	LDW280-51664	LM-1(31)	1

PART NO. LDW280-28733-3

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28664	LTA8(18)	1

PART NO. LDW280-28733-1

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00	3.00				
REV	A	A		A	A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED E

LAST DASH NO. USED -5

GRUMMAN REL INFO A

PRIM NO. 207

JK(001) ME-1A 5/1/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED

FRACTIONS - DECIMALS – ANGLES

±1/8 ±.030 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM 1

DOCUMENTATION TYPE II

DRAWN BY E.MOQUIN 7-21-66

LAYOUT BY E.MOQUIN 7-21-66

CHECKED BY J.G.

GRP LEADER J.STRAKOSCH 7-21-66

VEH DES INT W.BISCHOFF 7-22-66

STRUCT W.HAUCK 7-22-66

STRUCT R.HILDERMAN 7-22-66

WEIGHTS D.ROBESCH 8-2-66

RELIABILITY

PROJ ENGR R.M. CARBEE (EV) 8-2-66

REL GROUP C.BOTTI 8-8-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSY
DESCENT STAGE QUAD I
PLUM IMPINGEMENT

SIZE B

CODE IDENT NO. 26512

LDW280-28733 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERCEDES LDW280-28733 NO CHANGE 8-8-66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE ~ LAST REV NO CHANGE DRAWING SH 1 OF 4 WAS 1 OF 1 & "H" SIZE DWG WAS "J" SIZE						
A	1	1.00 1.10 2.00 3.00	8C 8B						INC EO A1	LTA-8 LM-1 THRU LM-6			W. DIONISIO 2-12-69		
	2	3.00							INC EO A2						
	3	1.00 2.00 3.00	3C 4B 4C						INC EO A3	LM-1 THRU LM-6					
	4	2.00 3.00	3C 4B						INC LEO 280-589	LM-1 THRU LM-3					
	5	2.00 3.00	8D						INC EO A5	NOT REQD					
	6	1.00 2.00 3.00	7B 7C	P				Ⓟ	INC EO A6	LM-3			E.C.O.		

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY				
A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28733	A

SCALE NONE

SHEET 1-10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY						CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			-5	-3	-1											
			A/R	A/R			GS577A-4	E	STAPLE	GRUMMAN STD						
																4C
			1				GS11K-3-151		STRIP							7C
			1				GS11K-1-10									7C
			1	1			GS11K-3-066									2C 5C
			1	1			GS11K-1-5									2C 5C
			1	1			GS11K-3-082									3C 6C
			1	1			GS11K-1-6									3C 6C
			1	1			GS11K-3-186									4C 7B
			1	1			GS11K-1-13									4C 7B
				1			GS11K-3-156									4B
				1			GS11K-1-11		STRIP	GRUMMAN STD						4B
			1	1			LDW280-28734-23		SKIN ASSY	SEE DWG						
			9	9	9		LDW280-17932-13		WASHER							
			9	9	9		LDW280-23720-3		BUTTON							
			1	1	1		LDW280-28735-9		FOIL ASSY							
			1	1	1		LDW280-28735-7		FOIL ASSY							
					1		LDW280-28734-5		SKIN ASSY	SEE DWG						
							LDW280-28733-5		SHIELD ASSY					NONE	NONE	
							LDW280-28733-3		SHIELD ASSY					NONE	NONE	
							LDW280-28733-1	E	SHIELD ASSY					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

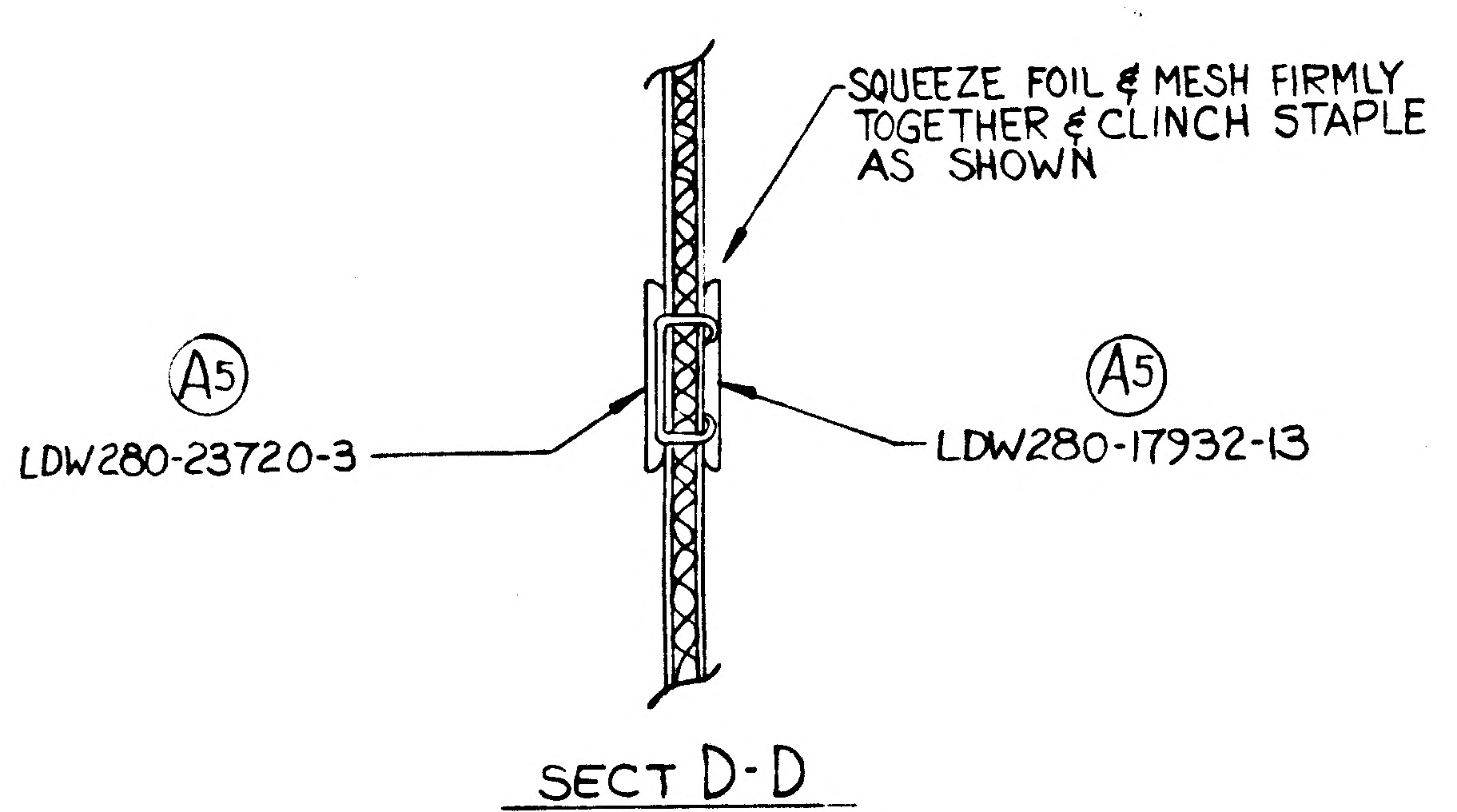
SIZE B | CODE IDENT NO. 26512 | LDW280-28733 | A

SCALE NONE | SHEET 2.00

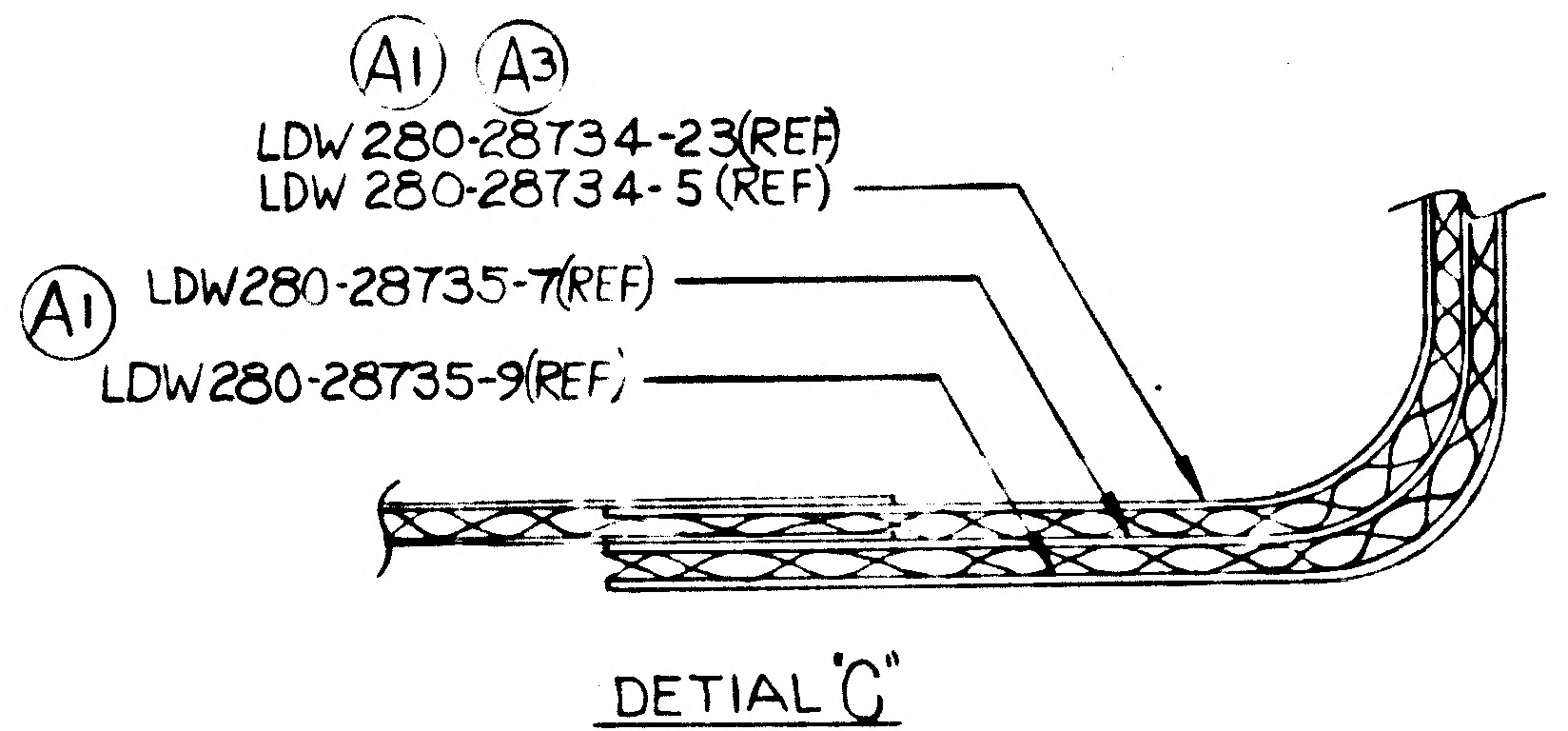
ENG 77.2 7-65

01

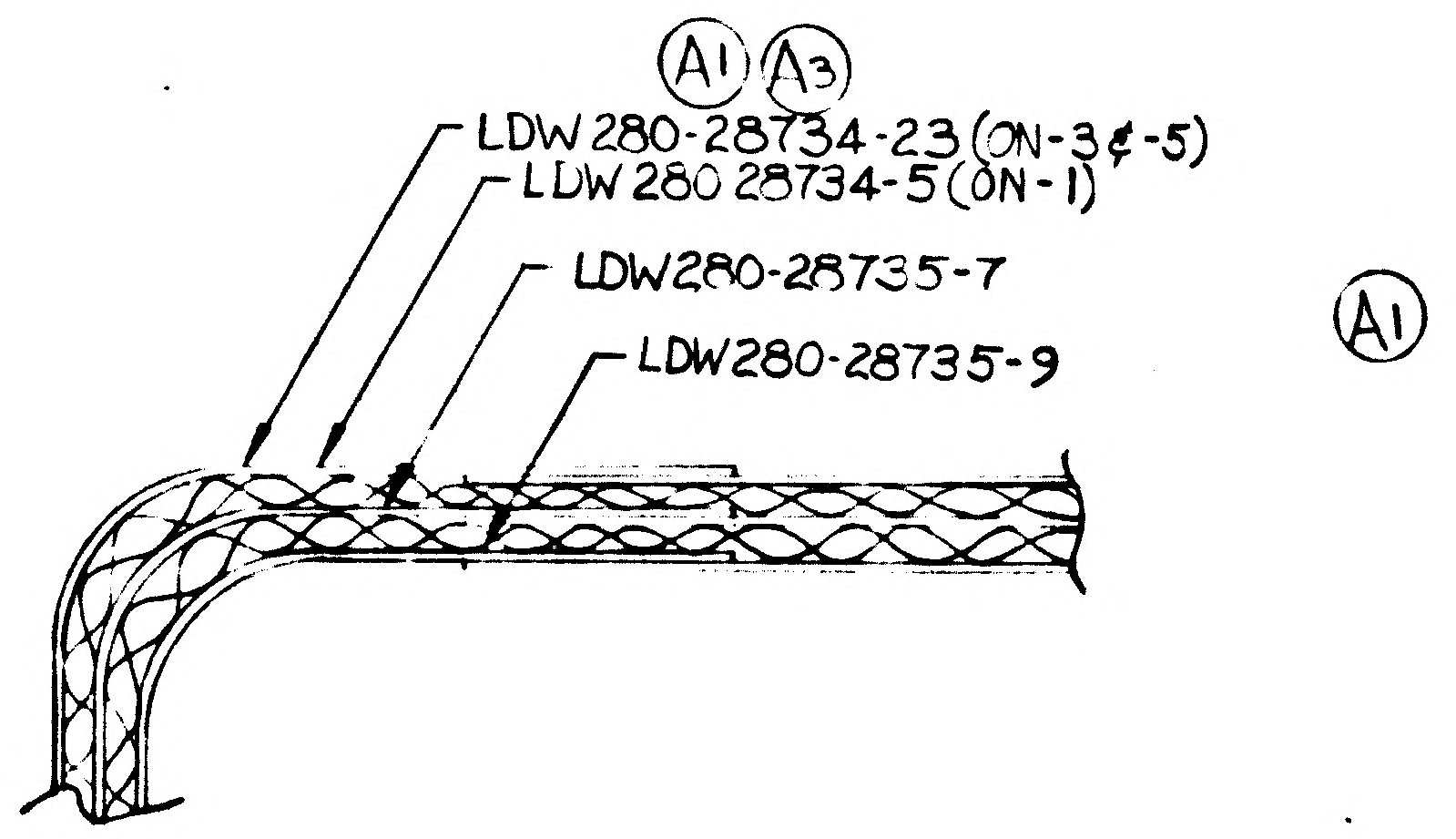
NAS 9-1100


SQUEEZE FOIL & MESH FIRMLY TOGETHER & CLINCH STAPLE AS SHOWN
A5
LDW280-23720-3
A5
LDW280-17932-13

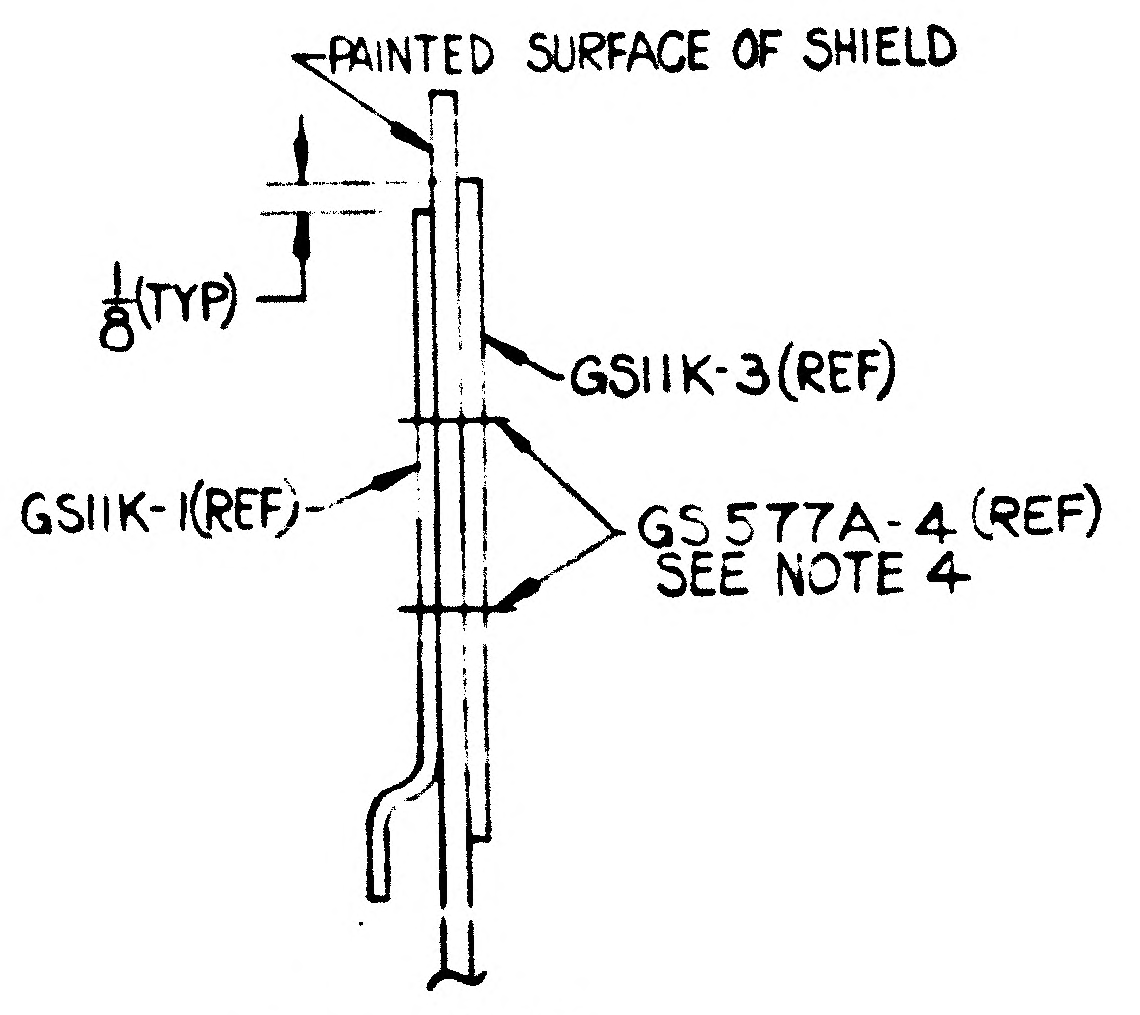
SECT D-D
ZONE 3C & 6C
SCALE NONE
(TYP 9 PLACES)


A1 A3
LDW 280-28734-23(REF)
LDW 280-28734-5 (REF)
A1 LDW280-28735-7(REF)
LDW280-28735-9(REF)

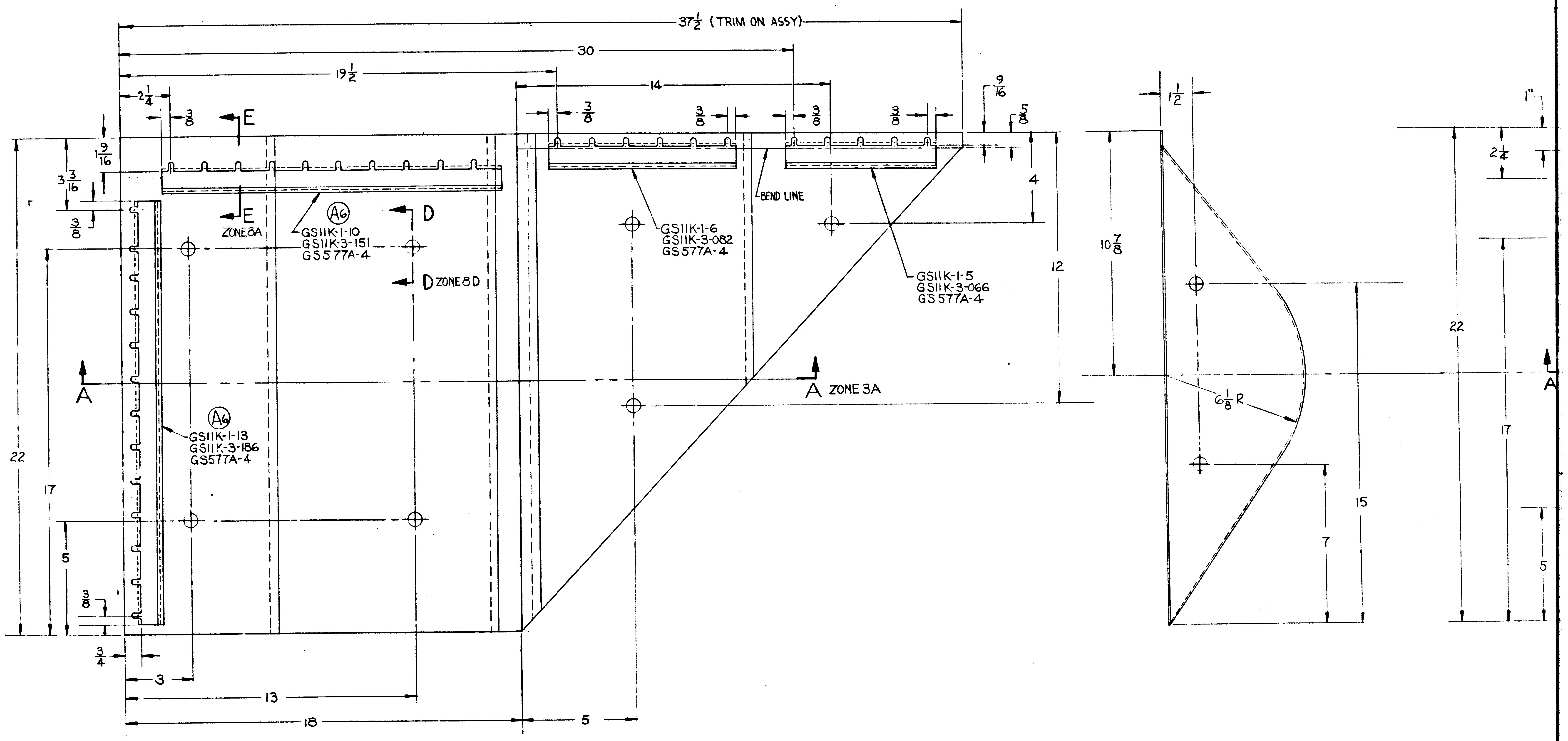
DETIAL "C"
ZONE 3A
SCALE NONE


A1 A3
LDW 280-28734-23 (ON-3 & -5)
LDW 280 28734-5 (ON-1)
LDW280-28735-7
LDW280-28735-9
A1

DETIAL 'B'
ZONE 3A
SCALE NONE


PAINTED SURFACE OF SHIELD
1/8 (TYP)
GS11K-3 (REF)
GS11K-1(REF)
GS 577A-4 (REF) SEE NOTE 4

SECT E-E
ZONE 4C & 7C
SCALE NONE


37 1/2 (TRIM ON ASSY)
30
19 1/2
14
2 1/4
3/8
E
9/16
5/8
3/8
3/8
3/8
3/8
1 1/2
1"
2 1/4
9/16
3 3/16
3/8
E
ZONE 8A
A6
GS11K-1-10
GS11K-3-151
GS577A-4
D
D ZONE 8D
GS11K-1-6
GS11K-3-082
GS577A-4
BEND LINE
GS11K-1-5
GS11K-3-066
GS577A-4
4
12
10 7/8
22
A
A ZONE 3A
A
6 1/8 R
A6
GS11K-1-13
GS11K-3-186
GS577A-4
22
17
5
3/8
3/4
3
13
18
5
15
7
17
5

LDW280 28733-5 ASSY

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CODE IDENT NO	DWG NO	SHEET
26512	LDW 280-28733	3

FRAME 1 FRAME 2

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

DWG. SIZE 29X88

PRINTING INFO ONLY

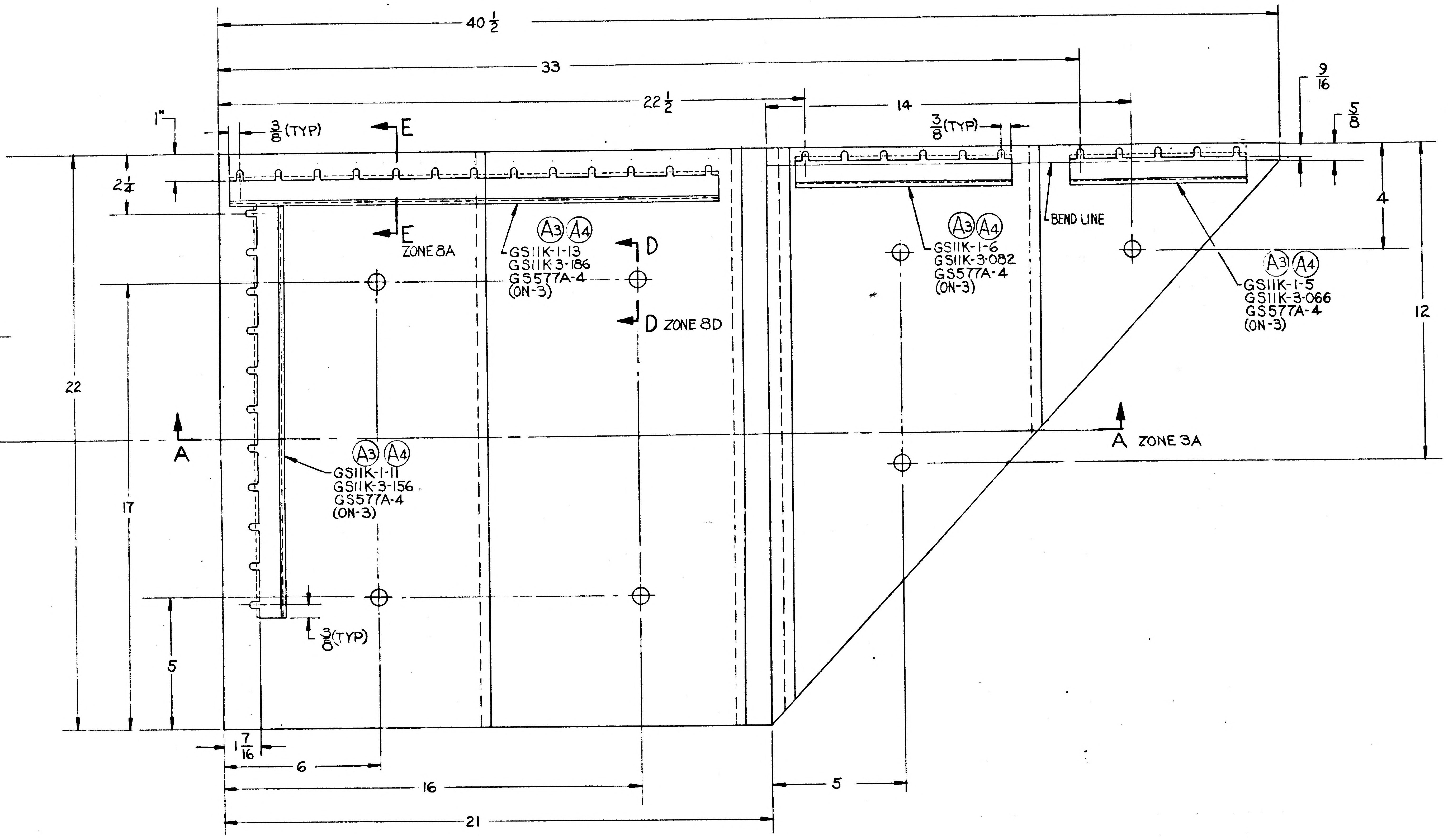
FULL SIZE SHEET AREA 0.X90 = 18.75 SQ FT

¼ SIZE SHEET AREA (¼ OF FULL) = 4.7 SQ FT

PRINT TRIM LINE

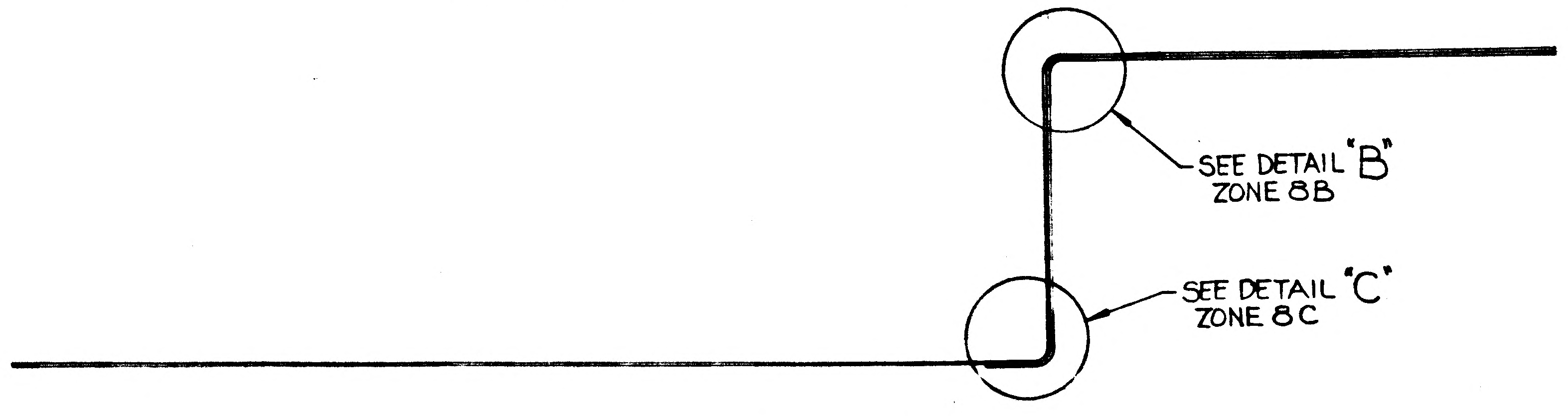
NOTE:

1. FABRICATION OF LDW 280-28733-1, -3 & -5 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011 LEVEL "C".
2. TAPE PER LPC 280-4.
3. FABRICATE PER LPC 280-25.



40 1/2
33
22 1/2
14
9/16
5/8
1"
3/8 (TYP)
3/8 (TYP)
E
E ZONE 8A
2 1/4
4
12
22
17
15
7
5
3/8 (TYP)
1 7/16
6
16
21
5
Ⓐ3 Ⓐ4 GS11K-1-13 GS11K-3-186 GS577A-4 (ON-3)
D
D ZONE 8D
Ⓐ3 Ⓐ4 GS11K-1-6 GS11K-3-082 GS577A-4 (ON-3)
BEND LINE
Ⓐ3 Ⓐ4 GS11K-1-5 GS11K-3-066 GS577A-4 (ON-3)
A
A ZONE 3A
Ⓐ3 Ⓐ4 GS11K-1-11 GS11K-3-156 GS577A-4 (ON-3)

LDW 280-28733-1 ASSY SHOWN
-3 ASSY IDENTICAL EXCEPT AS NOTED



SEE DETAIL "B" ZONE 8B
SEE DETAIL "C" ZONE 8C

SECT A-A
ZONE 3C & 6C

02/02 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
	SIZE H	CODE IDENT NO. 26512	LDW280-28733	A
MODEL	SCALE 1/2 NOTED		SHEET 3.00	

LDW280-28733 A

28733 SHEET 3

FRAME 2

2FR

ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28733 | EO NO. A1
CONTROL INFO NO. LDW280-A-0354

IN FLD & B/M
LDW280-28735-5&-7 SHOULD BE LDW280-28735-7&-9
RESPECTIVELY (DWG ERROR)

FOR -1 REMOVE LEM-1 THRU LEM-3 EFFECTIVITY

ADD -3 ASSY IDENTICAL TO -1 ASSY EXCEPT REMOVE
LDW280-28734-5 & ADD LDW280-28734-21 EFF OF
-3 ASSY TO BE LEM-1 THRU LEM-6 N/A LDW280-51664

ADD NOTE * "TAPE PER LPC280-4"

ADD NOTE ** "DIRECTION OF LDW280-23720-1 STAPLE
OPTIONAL"

(*, ** USE NEXT AVAILABLE NOTE NO.)

(-1 MAY BE REWORKED TO -3)

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL THERMAL REQUIREMENTS

DESCRIPTION OF EO: FOR -1 REMOVED LEM-1 THRU LEM-3 ADDED -3 ASSY, NOTE'S * & **

GAEC EO RELEASE: 10/4

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
LM		LM-1(31) THRU	
LM		LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY							RWC (E3)	
DATE	9/14/66				9/15/66		9-30	9/29/66
9-13-66	V.D.I.							

PRIORITY: C
DRAWING TITLE: SHIELD ASSY~DESCENT STAGE~QUAD I PLM/MP SIDE
DRAWING NO. LDW280-28733
EO NO. A1

ISSUED BY E MOUQUIN x1153 SECTION VEH. DES. INT. GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28733
EO NO. A2
CONTROL INFO NO. LDW280-A-2916

REMOVE NOTE ** "DIRECTION OF LDW280-23720-1
STAPLE OPTIONAL"
** APPLICABLE, NOTE ASSIGNED BY EO A1

THIS IS A REVISION OF EO A1

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO
TO PROVIDE PAINTED SURFACE ON OUTSIDE

DESCRIPTION OF EO
REF EO A1
REMOVED NOTE **

Ⓡ GAEC EO RELEASE: FK 11/10/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
LM		LM-1(31) THRU	
LM		LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY		M.S.		JAD			RM	
DATE		11/9/66		11/3/66			11-9-66	11-9-66
5	YD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SHIELD ASSY~DESCENT STAGE-QUAD I PLM/MP SIDE
DRAWING NO.: LDW280-28733
EO NO.: A2

ISSUED BY M. RANKEL X1392 SECTION VEH. DES. INT. GROUP NO. 335 PL. 35

01 NAS 9-1100

B

*

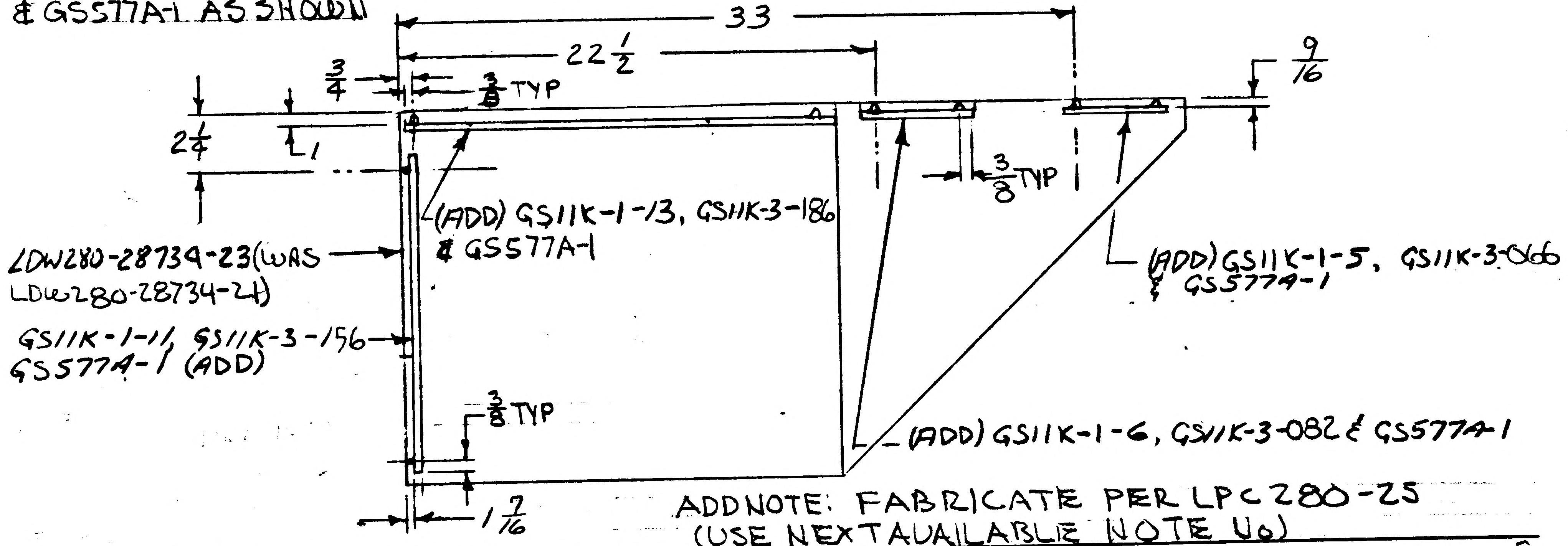
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-28733		EO NO.	A3
CONTROL INFO NO. LDW 280A-5462			

ON-3 ASS'Y REMOVE EFF LM-4(34) THRU LM-6(36)

REMOVE LDW280-28734-21 SKIN ASSY & ADD LDW280-28734-23 SKIN ASSY
ADD GS11K-1-11, GS11K-3-156, GS11K-1-13, GS11K-3-186, GS11K-1-6, GS11K-3-082, GS11K-1-5, GS11K-3-066
& GS577A-1 AS SHOWN


33
22 1/2
3/4
3/8 TYP
2 1/4
L1
9/16
3/8 TYP
(ADD) GS11K-1-13, GS11K-3-186 & GS577A-1
LDW280-28734-23 (WAS LDW280-28734-21)
(ADD) GS11K-1-5, GS11K-3-066 & GS577A-1
GS11K-1-11, GS11K-3-156 GS577A-1 (ADD)
3/8 TYP
(ADD) GS11K-1-6, GS11K-3-082 & GS577A-1
1 7/16

ADD NOTE: FABRICATE PER LPC280-25
(USE NEXT AVAILABLE NOTE No)

2
C

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LCR-928 TO IMPROVE PAINT ADHESION	ON-3 ASS'Y REMOVED EFF LM-4 THRU LM-6. REMOVED LDW280-28734-21 & ADDED LDW280-28734-23. ADDED GS11K-1--- GS11K-3--- & GS577A-1. ADDED NOTE FABRICATE PER LPC280-25	JK 2/27/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-6 (36)	
LM		THRU	
LM		LM-1(31)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP	APPROVED BY								
✓			✓	DATE	2/14/67			2/13/67	2/14/67		2/17/67	2/27/67
				5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~SOFT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASS'Y D/S QUAD I PLM/IMP SIDE	LDW280-28733	A3

ISSUED BY T. AMBROSIC / STRAKOSCH X 1392 SECTION VDI GROUP NO. 335 PL 35

01
NAS 9-1100

B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 589
CONTROL INFO NO. LDW280A6772

ON THE DWGS LISTED BELOW IN L/M & F/D AT INSTL OF ALL GS11K-1--- TAB STRIPS REMOVE GS577A-1 & ADD GS577A-4 STAPLE

DWG No *	EFF	CHANGE No	TITLE
LDW280-28559-5	LM-1(31)	B3	
LDW280-28665-5	LM-1(31)	B10	
LDW280-28733-3	LM-1(31) THRU LM-3(33)	A4	
LDW280-28736-5 & -7	LM-1(31) THRU LM-15(45)	A5	
LDW280-28748-11, -13 & -15	LM-1(31) THRU LM-15(45)	A10	
LDW280-28754-7 & -9	LM-1(31) THRU LM-15(45)	A9	
LDW280-28758-5 & -7	LM-1(31) THRU LM-3(33)	B3	SEE
LDW280-28770-5	LM-1(31) THRU LM-15(45)	B5	
LDW280-28773-11 & -13	LM-1(31) THRU LM-3(33)	A8	
LDW280-28804-5	LM-1(31) THRU LM-15(45)	A6	
LDW280-28817-7	LM-1(31) THRU LM-15(45)	A4	DWG
LDW280-51742-3	LM-1(31)	A4	
LDW280-51831-1	LM-1(31) THRU LM-15(45)	A2	
LDW280-52739-3	LM-2(32) THRU LM-15(45)	A2	
LDW280-52742-1, -3, -5, -7, -9 & -11	LM-2(32) THRU LM-15(45)	A7	
LDW280-52763-9 & -11	LM-2(32) THRU LM-15(45)	A5	
LDW280-52767-1 & -3	LM-2(32) THRU LM-15(45)	B3	
LDW280-53600-3 & -5	LM-3(33)	A3	
LDW280-54605-1	LM-4(34) THRU LM-15(45)	A2	
LDW280-54714-1	LM-4(34) THRU LM-15(45) & DES. VER. 70	A5	
LDW280-54733-1	LM-4(34) THRU LM-15(45)	A2	
LDW280-54758-1 & -3	LM-4(34) THRU LM-15(45)	A1	
LDW280-54784-1	LM-4(34) THRU LM-15(45) & DES. VER. 70	A2	
LSK280-10993-17, -19 & -21	DES. VER. 70	A4	

CDR = 5/10/67

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

LCD 928

REASON FOR EO: TO PROVIDE CORRECT STAPLE CALLOUT

DESCRIPTION OF EO: ON * REPLACED GS577A-1 WITH GS577A-4

Ⓡ GAEC EO RELEASE: 2 C JK 5/9/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	(NOTED ABOVE)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY							
DATE	5/4/67				5/4/67		5/6/67 5/8/67
5	VDI						

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO. LEO280
EO NO. 589

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28733 | EO NO. A5
CONTROL INFO NO. LM29-1105

ON -1 & -3 ASS'YS

LDW280-17392-11 S/B LDW280-17392-13
LDW280-23720-1 S/B LDW280-23720-3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: ADDITIONAL WASHER THKNESS REQD FOR THERMAL CONTROL

DESCRIPTION OF EO: ON -1 & -3
LDW280-17932-13 WAS LDW280-17932-11
LDW280-23720-3 WAS LDW280-23720-1

GAEC EO RELEASE: JK (29)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	NOT REQ'D		

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK | SCRAP)

APPROVED BY			—	~	W.F.		
DATE	11/13/67		—	~	11/9/67	11/13/67	11/9/67
9/6/67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: E29
DRAWING TITLE: SHIELD ASS'Y ~ D/S ~ QUAD I PLUME IMPINGEMENT SHIELD
DRAWING NO.: LDW280-28733
EO NO.: A5

ISSUED BY LIAISON W. FRANK (7230) SECTION YDI GROUP NO. 335 PL 25

01 NAS 9-1100

A

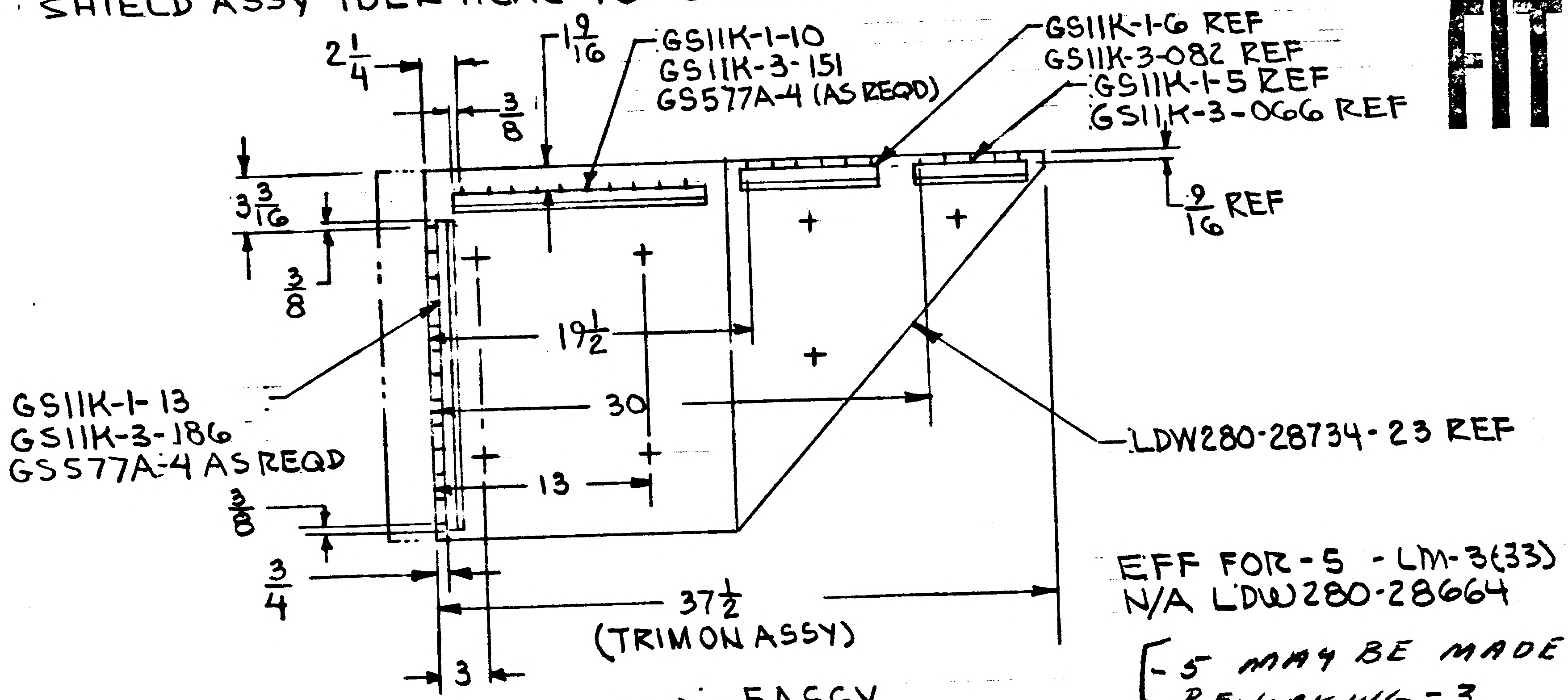
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28733 | EO NO. A6
CONTROL INFO NO. LDW280 B1189

IN F/D & L/M RESTRICT -3 SHIELD ASSY FOR USE ON LM-1 & LM-2. ADD -5 SHIELD ASSY IDENTICAL TO -3 EXCEPT AS SHOWN.

FITH



2 1/4
3/8
1 9/16
GS11K-1-10
GS11K-3-151
GS577A-4 (AS REQD)
GS11K-1-6 REF
GS11K-3-082 REF
GS11K-1-5 REF
GS11K-3-066 REF
9/16 REF
3 3/16
3/8
19 1/2
30
13
LDW280-28734-23 REF
GS11K-1-13
GS11K-3-186
GS577A-4 AS REQD
3/8
3/4
37 1/2
(TRIM ON ASSY)
3

(ADD) -5ASSY

EFF FOR -5 - LM-3(33) 1 REQD
N/A LDW280-28664

{-5 MAY BE MADE BY REWORKING -3}

PKG 46 (5)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 1244

REASON FOR EO: PROVISION FOR: FITH SHIELD

DESCRIPTION OF EO: RESTRICTED -3. WAS USED ON LM-1 THRU LM-3 ADDED -5

GAEC EO RELEASE: JK 1/17/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓ -3	

APPROVED BY								
DATE	1/12/68			1-12-68	1-13-68		1/12/68	1-17-68
P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SHIELD ASSY QDI SIDE
DRAWING NO.: LDW280-28733
EO NO.: A6

CDR 2/5/68
ISSUED BY G. ZEMAN/ P. THORJUSEN
SECTION VDI
GROUP NO. 335
PL 25

01

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LDW280-28734 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28733	LM-3(33)	1
LM	LDW280-28733	LM-2(32)	1
LM	LDW280-28733	LM-1(31)	1
PART NO. LDW280-28734-23			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28733	LTA-8(18)	1
PART NO. LDW280-28734-5			

WORK PKG FUNCTION NO.111 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00	3.00				
REV	B	B		B	B				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED: A

LAST DASH NO. USED: -23

GRUMMAN REL INFO

PRIM NO. 207

JK(001) MP-168-11/14/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.030 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY C.BAIS 7/15/66

LAYOUT BY

CHECKED BY AC DF

GR LEADER J. STRAKOSCH 7/15

VEH DSGN INT

STRUCTURES WH F.E.B. 8/24/66

STRUCTURES HILDERMAN 8/24/66

WEIGHTS

PROJ ENGR J. Casateri 11/15/67

REL GROUP ⓢ P.G. 11/15/67 (9/16)

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ASSEMBLY
DESCENT STAGE-PLUME IMPINGEMENT
QUAD I SHIELD-SIDE

SIZE B

CODE IDENT NO. 26512

LDW280-28734 B (B)

SCALE NONE

SHEET 1.00 OF 4

SUPERSEDES LDW280-28734 NO REV 9/16/66

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHG-LAST REV NO CHG-SH SIZE E WAS F-ORIGINAL DWG LOST G.ZARCADOOLAS 11-2-67						
									ADDED SH 1.10, 2.00 & 3.00						
A	1	3.00						LE0280-188	REWROTE SEAMWELD NOTE 3 & ADDED NOTES 4 & 5	LTA-8, LM-1 THRU LM-6	NOT	REQD	G.ZARCADOOLAS 11-3-67		
	2	2.00,3.00						E0A2	TRIMMED-1 ASSY (20 WAS 20 7/8)-ADDED-5,-7,-9,-11, & -13 IN NOTE NO. 2 REMOVED-1 & ADDED-5		✓				
	3	2.00,3.00						E0A3	REF E0A2: IN B/M REMOVED-7 SKIN ASSY: IN-5 ASSY REMOVED-3 & -7, ADDED -1 & -11		✓				
	4	3.00						LE0280-240	REF LE0280-188: ADDED PART "C" TO NOTE 4		✓				
	5	2.00,3.00						E0A5	ADDED -17, -19 & -21. ON -5 ASSY REMOVED -9, -11 & LM-1 THRU LM-6 EFF - ADDED GT15B TAPES TO -5 & -21			-9, -11			
	6	3.00						E0A6	ON -17 AUTHORIZED OVERLAPPING WRINKLES		✓				
	7	3.00						E0A7	REF E0A5 - 1 9/16 WAS 1, 4 5/16 WAS 2 1/4		NOT	REQD			
	8	3.00						LE0280-421	ADDED NOTE 6		NOT	REQD			
	9	3.00					✓	E0A9	ADDED SYMBOL FOR LAP DIRECTIONS	LM-1 THRU LM-3	NOT	REQD			
	10	1.00, 2.00 3.00						E0A10	ON -21 REMOVED EFF LM-2(32) THRU LM-6(36) ADDED -23 ASSY EFF LM-2(32) & LM-3(33)	NOTED		-21			
B	1	1.00					✓	E0B1	REVISED E0A10 - REMOVE-21 WAS FOR -21 REMOVE LM-2 THRU LM-6 - EFF FOR -23 LM-1 THRU LM-3 WAS LM-2 THRU LM-3	NOTED		✓			
	2	3.00					✓	LE0280-559	FROM B/M & FLD REMOVED LDW280-17970-REVISED EXISTING NOTE 6 BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS5540E"	LTA-8, LM-1 THRU LM-3	NOT	REQD			
	3	2.00,3.00							REF E0A1, E0A4: REMOVED NOTE 3, 4 & 5 REF E0A2: REMOVED DETAIL B & C REF E0A3: REMOVED -1 FROM -5 ASSY REF E0A10: REMOVED -17 & -19 FROM -5 } NO LONGER REQD BECAUSE OF FABRICATION PROCEDURE OF LPC280-19 (NOTE 6) ADDED PER LE0280-421 & LE0280-559	LTA-8, LM-1 THRU LM-3		✓			
	4	2.00,300						A·B	REF E0A2: REMOVED NOTE 2 & TRANSFERRED INFORMATION TO SH 2		NOT	REQD			

FOR CONTINUATION OF REVISIONS SEE SHEET ________

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28734	B
SCALE NONE		SHEET 1.10	

ENG 77.3 5-65

01

NAS 9-1100

					1		GT15B-13	E	TAPE	GRUMMAN STD						
					1		GT15B-11		TAPE	GRUMMAN STD						
					1		GT15B-6		TAPE	GRUMMAN STD						
					1		GT15B-5		TAPE	GRUMMAN STD						
C							LDW280-28734-23		SKIN ASSY	SEE	NOTE 6			NOTE6	NOTE7	
C							LDW280-28734-5	E	SKIN ASSY	SEE	NOTE 6			NOTE6	NONE	
▨				-23	-5	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
CL	QTY PER ASSEMBLY															

CL-CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

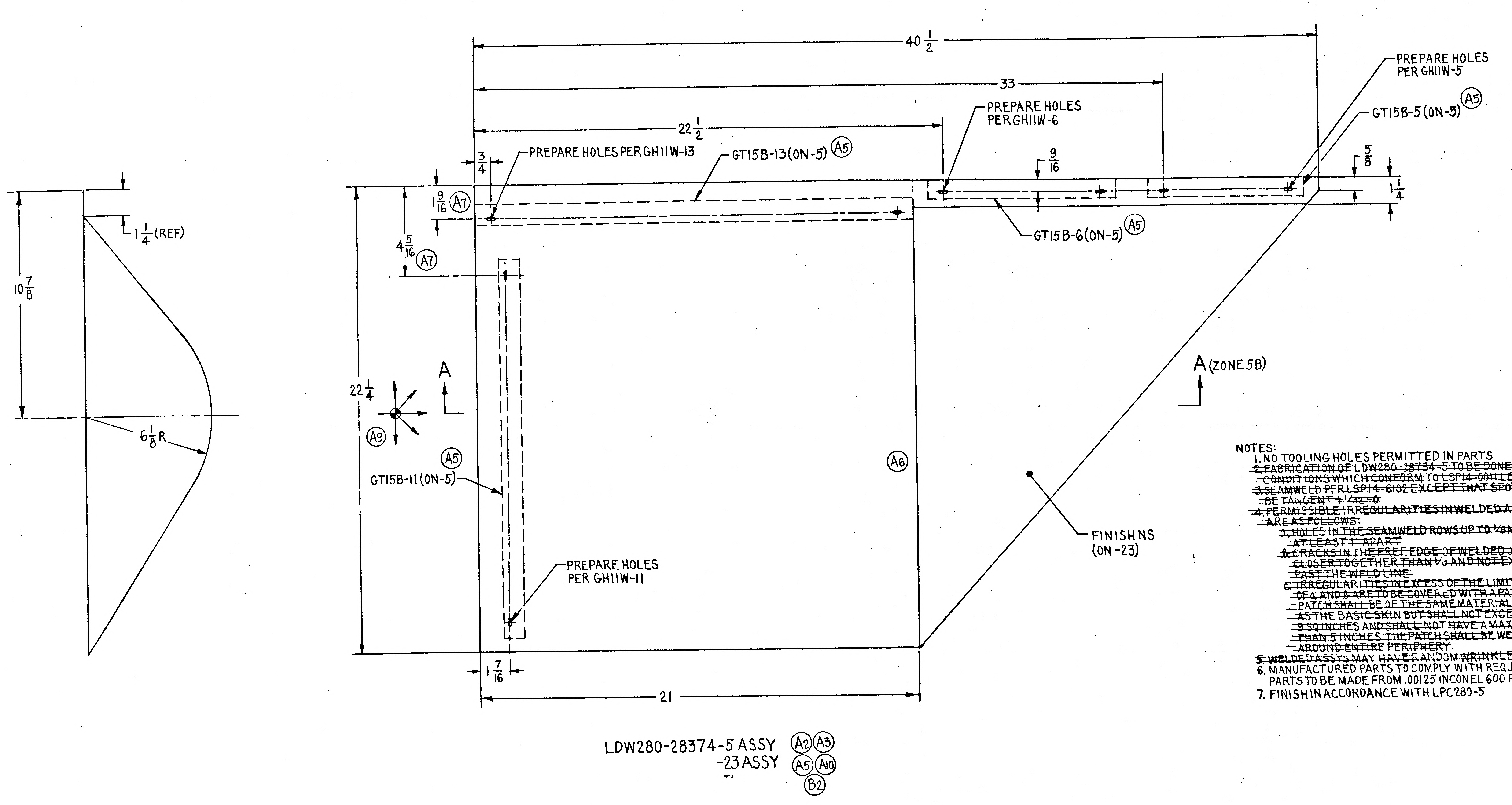
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28734	B Ⓑ
SCALE NONE			SHEET 2.00

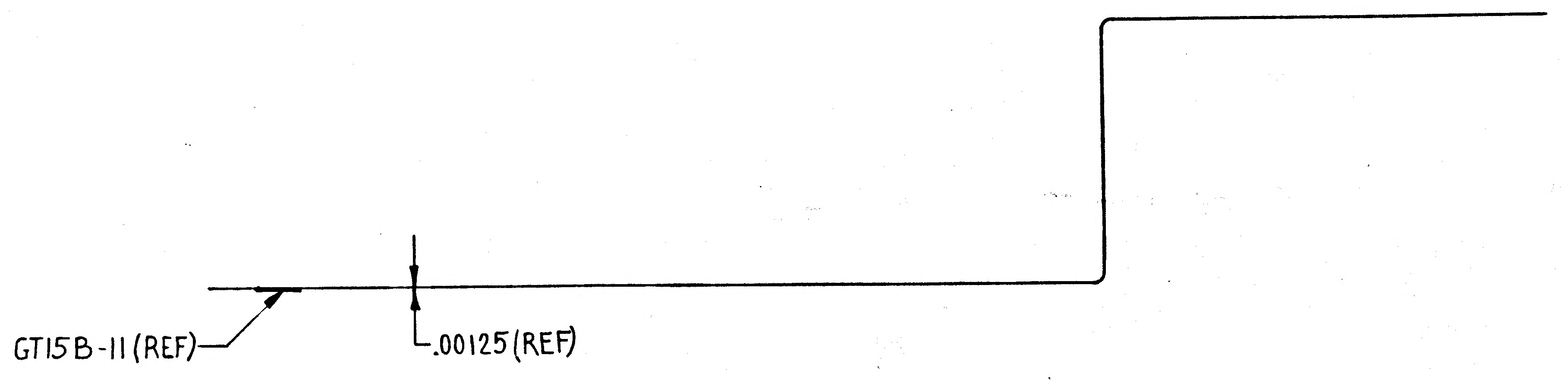
ENG 77.2 7-65

01

NAS 9-1100


40 1/2
33
22 1/2
3/4
PREPARE HOLES PER GH11W-13
GT15B-13(ON-5) (A5)
PREPARE HOLES PER GH11W-6
9/16
PREPARE HOLES PER GH11W-5
GT15B-5(ON-5) (A5)
5/8
1 1/4
GT15B-6(ON-5) (A5)
1 9/16 (A7)
4 5/16 (A7)
1 1/4 (REF)
10 7/8
6 1/8 R
22 1/4
A
(A9)
(A5)
GT15B-11(ON-5)
(A6)
A (ZONE 5B)
FINISH NS (ON-23)
PREPARE HOLES PER GH11W-11
1 7/16
21
LDW280-28374-5 ASSY (A2)(A3)
-23 ASSY (A5)(A10)
(B2)

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS
~~2. FABRICATION OF LDW280-28734-5 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011 LEVEL "C"~~
~~3. SEAMWELD PER LSP14-6102 EXCEPT THAT SPOTS SHALL BE TANGENT +1/32 -0~~
~~4. PERMISSIBLE IRREGULARITIES IN WELDED ASSYS ARE AS FOLLOWS:~~
  ~~a. HOLES IN THE SEAMWELD ROWS UP TO 1/8 MAX AND AT LEAST 1" APART~~
  ~~b. CRACKS IN THE FREE EDGE OF WELDED JOINTS NO CLOSER TOGETHER THAN 1/2 AND NOT EXTENDING PAST THE WELD LINE~~
  ~~c. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF a AND b ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ INCHES AND SHALL NOT HAVE A MAX DIM. OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY~~
~~5. WELDED ASSYS MAY HAVE RANDOM WRINKLED APPEARANCE~~
6. MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC280-19 PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS5540E
7. FINISH IN ACCORDANCE WITH LPC280-5


GT15B-11 (REF)
.00125 (REF)

SECTION A-A
(ZONE 3F)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

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NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE E	CODE IDENT NO. 26512	LDW280-28734	B
LM MODEL OR END ITEM	SCALE 1/2		SHEET 3.00	

HG

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280
EO NO. 240
CONTROL INFO NO. LEM-2-2642

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE *

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LDW 280-25703	A4	A5	*,**,***
-25704	A3	A4	*,**,***
-25705	B5	C2	*, **
-25706	A3	A5	*,**, ***
-25707	B1	B2	*,**,***
-28730	A1	A5	*
-28734	A1	A4	*
-28735	A1	B1	*
-28737	A1	A2	*
-28738	A1	A2	*
-28740	A1	A2	*
-28741	A1	A2	*
-28743	A1	A2	*
-28744	A1	A2	*
-28746	A1	A2	*
-28747	A1	A2	*
-28749	A1	A2	*
-28750	A1	A2	*
-28755	A1	A3	△
-28756	A1	A3	△
-28759	A1	A3	*
-28760	A1	A2	*
-28764	A1	A2	*
-28765	A1	A2	*
-28771	A2	A3	*
-28772	A2	A3	*
-28774	A1	A2	*
LDW 280 -28775	A1	A2	*

EFFECTIVITY:
*** - QUAL TEST (72)
** - LTA-5 (15)
* - LEM-1 (31) THRU -6 (36) & LTA-8 (18)
△ - LTA-8, LEM-1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: TO FACILITATE MANUFACTURING

DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE *.

GAEC EO RELEASE: 2

MODEL: LEM

EFFECTIVITY: PROCURING ACTIVITY NO.: GAEC UNIT NO.: SEE ABOVE SUB CONTR UNIT NO.:

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY: NJS

DATE: 8-20-66

SUPPORT: RELIAB. GROUP: GROUP LEADER: STRESS GROUP: CAW 8/23/66 LIAISON ENGRG: CAW 8/23/66 PROJ ENGRG: PMC 9-3 GOVT: 8-30-66

PRIORITY: C_2

DRAWING TITLE: —

DRAWING NO.: LEO-280

EO NO.: 240

ISSUED BY: LIAISON G. MARTELL x3604 SECTION: VD1 (DESCENT STAGE) GROUP NO. 335 PL 35

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NAS 9-1100

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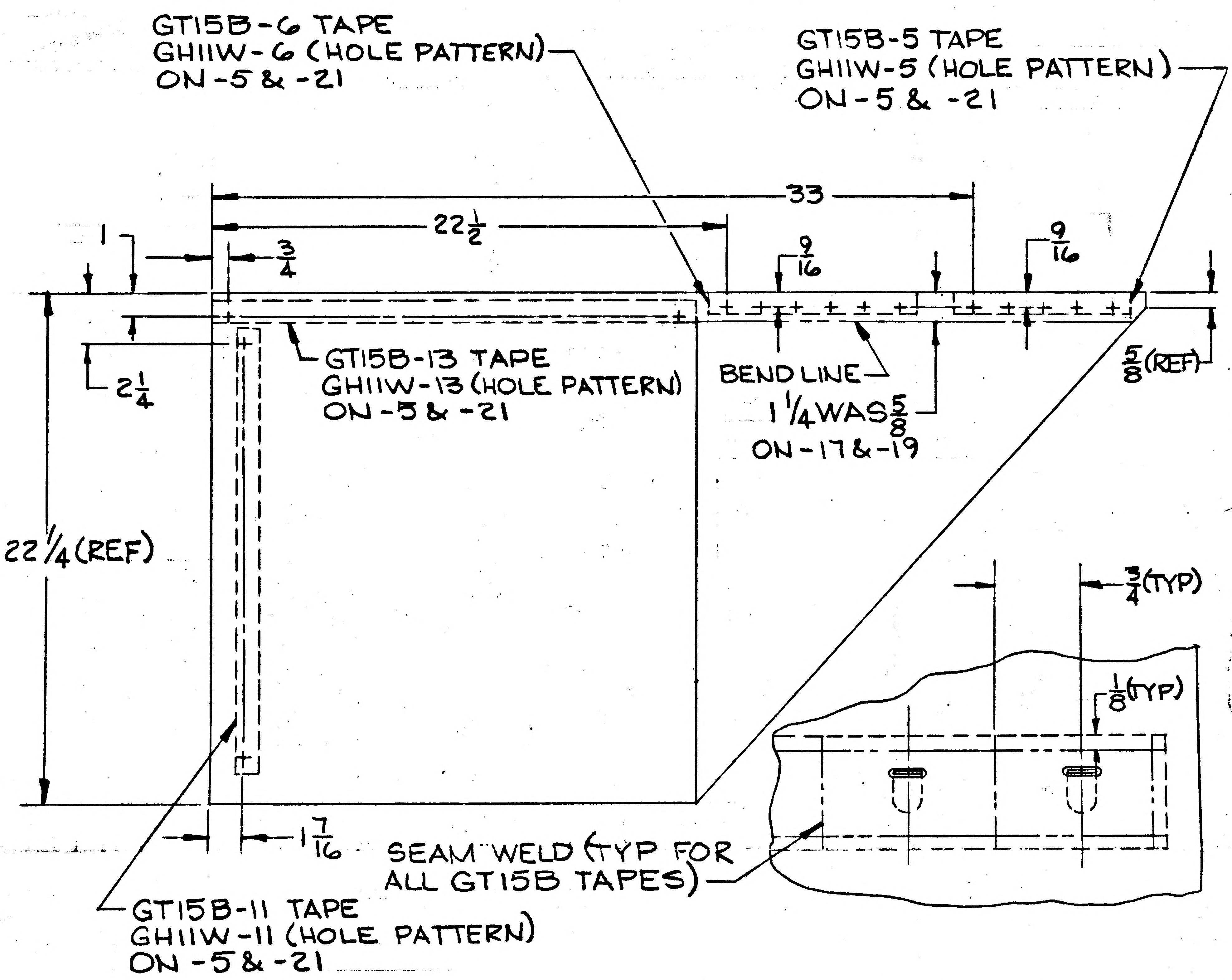
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28734 | EO NO. A5
CONTROL INFO NO. LDW280-A-0355



GT15B-6 TAPE
GH11W-6 (HOLE PATTERN)
ON -5 & -21
GT15B-5 TAPE
GH11W-5 (HOLE PATTERN)
ON -5 & -21
33
22 1/2
1
3/4
9/16
9/16
2 1/4
GT15B-13 TAPE
GH11W-13 (HOLE PATTERN)
ON -5 & -21
BEND LINE
1 1/4 WAS 5/8
ON -17 & -19
5/8 (REF)
22 1/4 (REF)
3/4 (TYP)
1/8 (TYP)
1 7/16
SEAM WELD (TYP FOR ALL GT15B TAPES)
GT15B-11 TAPE
GH11W-11 (HOLE PATTERN)
ON -5 & -21

CREATE -17 IDENTICAL TO -11 EXCEPT AS SHOWN (1 1/4 WAS 5/8)

CREATE -19 IDENTICAL TO -9 EXCEPT AS SHOWN (1 1/4 WAS 5/8)

REWORK -5 ASSY REMOVE -9 & -11 ADD -19 & -17

FOR -5 REMOVE LM-1 THRU LM-6 EFFECTIVITY

CREATE -21 ASSY IDENTICAL TO -5 ASSY EXCEPT FINISH IN ACCORDANCE WITH LPC280-5. PAINTED SURFACE TO BE NEAR SIDE. EFF OF -21 TO BE LM-1 THRU LM-6

ADD GT15B TAPES TO -5 & -21 ASSY'S AS SHOWN

(-5 MAY BE REWORKED TO -21)

✓

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL THERMAL REQUIREMENTS

DESCRIPTION OF EO: ADDED -17, -19 & -21. ON -5 ASSY REMOVED -9, -11 & LM-1 THRU LM-6 EFF. ADDED GT15B TAPES TO -5 & -21

GAEC EO RELEASE: R 10/21

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
LM		LM-1 (31) THRU	
LM		LM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP -9 -11

APPROVED BY	JJS				WJH		RMC (WD)	
DATE	9/14/66				9/15/66		10-19-66	10/19/66
9-12-66	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: SKIN ASSY-DESCENT STAGE PLM/MP-QUAD I-SHIELD-SIDE

DRAWING NO. LDW280-28734

EO NO. A5

ISSUED BY E MOUQUIN x 1153 SECTION VEH. DES. INT. GROUP NO. 335 PL 35

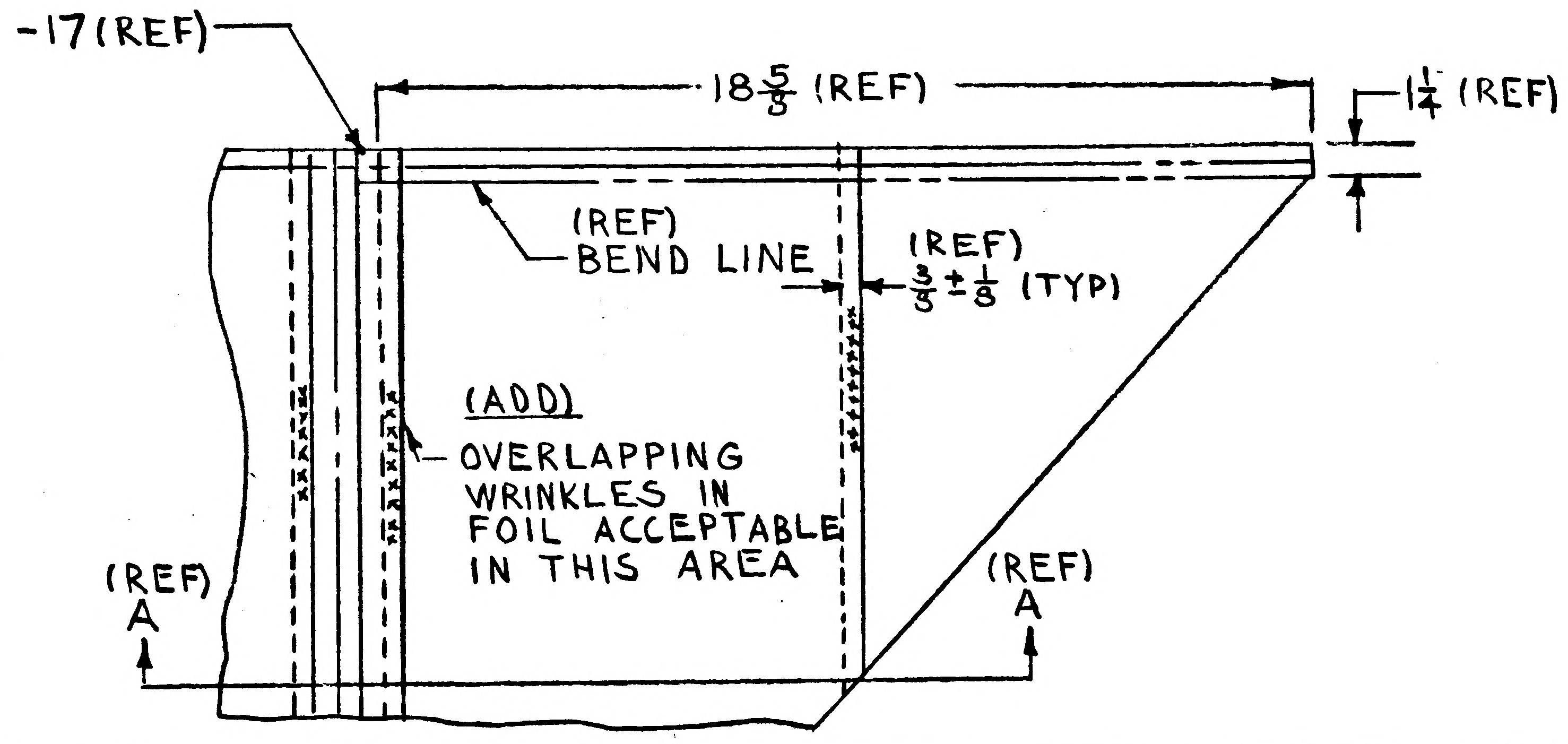
H.G.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28734		EO NO. A6
CONTROL INFO NO. LM-2-3017		

IN F/D. ON -17 ADD NOTE TO AGREE WITH EO.



-17 (REF)
18 5/8 (REF)
1 1/4 (REF)
(REF) BEND LINE
(REF) 3/8 ± 1/8 (TYP)
(ADD) OVERLAPPING WRINKLES IN FOIL ACCEPTABLE IN THIS AREA
(REF) A
(REF) A

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
FOIL WRINKLES ON FORMING	ON-17 AUTHORIZED OVERLAPPING WRINKLES	FR

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (31) THRU	
		LM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY	JAS				caw	caw	RMC	
DATE	12/14/66				11/17/66	11/17/66	11-22-66	11-18-66
-1-	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C2	SKIN ASSY. - DESCENT STAGE PLM/MP ~ QUAD I - SHIELD ~ SIDE	LDW280-28734	A6

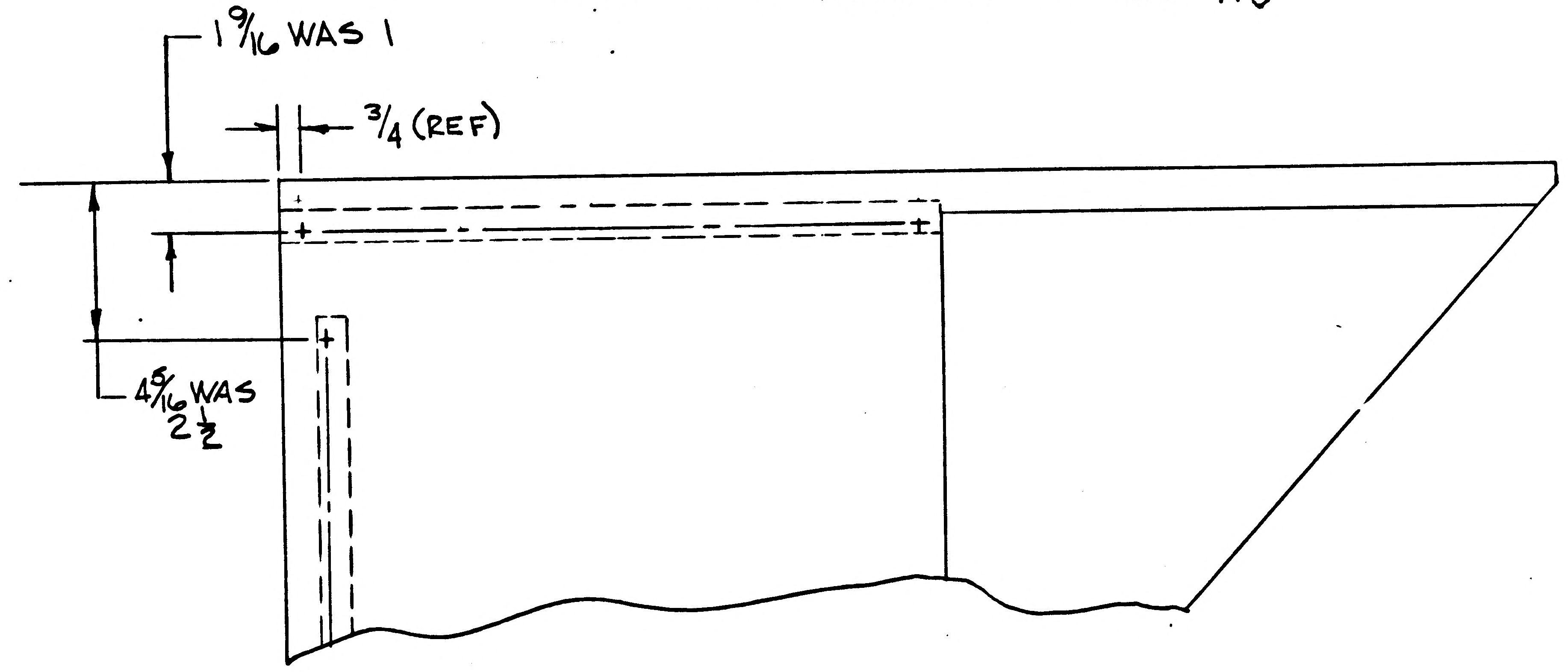
ISSUED BY LIAISON - T.J. MARTIN X3604 - 11-17-66 SECTION V.D.I. GROUP NO. 335 PL 35

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *
ENG 32.1 REV 3-65

DWG. NO. LDW280-28734 | EO NO. A7
CONTROL INFO NO. LDW280-A-3625

THIS IS A REVISION OF EO A5



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO: ADDITIONAL THERMAL REQUIREMENTS

DESCRIPTION OF EO: REF EO A5 $1\frac{9}{16}$ WAS 1, $4\frac{5}{16}$ WAS $2\frac{1}{4}$

GAEC EO RELEASE: FR 11/23/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
LM		LM-1(31) THRU	
LM		LM-6(36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY		MS			WJH		RMC	JR
✓		NOT REQD		DATE	11/23	11/23			11/23/66		11-23-66	11/23/66
REVISE DWG	RECORD EO	REWORK	SCRAP	1	YDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY~DESCENT STAGE PLM/MP~QUAD I~SHIELD~SIDE	LDW280-28734	A7

ISSUED BY E MOUQUIN x1153 11-22-66 SECTION VEH. DES. INT GROUP NO. 335 PL 35

01 NAS 9-1100

B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EM-A

DWG. NO. LEO 280
EO NO. 421
CONTROL INFO NO. LDW280A-4411

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM6	B 2	
LDW 280-28734	"	A 8	
LDW 280-28735	"	C 3	
LDW 280-28746	LTA8 (18) LM-1 (31) THRU LM-15 (45)	B 3	
LDW280-28747	LTA8 (18) LM-1 (31) THRU LM-6 (36)	B 1	
LDW280-28749	"	A 7	
LDW280-28750	"	B 3	
LDW280-28752	"	B 2	
LDW280-28753	"	A 3	
LDW280-28755	LTA 8 (18) LM-1 (31)	A 7	
LDW280-28756	LTA8 (18) LM-1 (31) THRU LM-15 (45)	A 6	
LDW280-28759	LTA8 (18) LM-1 (31) THRU LM-6 (36)	B 2	
LDW280-28760	"	B 1	
LDW280-28768	LM-1 (31)	B 2	
LDW280-28769	LM-1 (31)	B 1	
LDW280-28771	LTA8 (18) LM-1 (31) THRU LM-6 (36)	B 2	
LDW 280-28772	"	B 1	
LDW280-28774	"	A 7	
LDW 280-28775	"	B 2	
LDW 280-28803	"	A 2	
LDW 280-28805	"	A 1	
LDW280-51824	LM-1 (31) THRU LM-15 (45)	A 1	
LDW280-51825	"	A 2	
LDW280-51829	"	A 1	
LDW280-51830	"	A 1	
LDW280-51834	"	A 1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: ① E 12/20

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REQ'D — REWORK / SCRAP

APPROVED BY	Gaf	AB		JAS	VJH		Blaic	Cal
DATE	12/16/66	12/16/66		12/19/66	12/16/66		12/20	12-20-66
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO. LEO 280
EO NO. 421

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01 NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER ~~EMF~~ A

DWG. NO. LDW280-28734		EO NO. A10
CONTROL INFO NO. LDW280A-5456		

ON - 21: REMOVE EFF LM-2(32) THRU LM-6(36)

— ADD -23 ASSY IDENT TO -21 ASSY EXCEPT ON -23 ASSY REMOVE GH11W-11, GH11W-13, GH11W-6 & GH11W-5 HOLE PATTERN AND GT15B-11, GT15B-13, GT15B-6 & GT11B-5 TAPE

- 23 TO BE MADE FROM INCONEL 600 FOIL 12" WIDE, THICKNESS .00125 PER AMS 5540E WAS MADE FROM INCONEL 600 FOIL 12" WIDE THICKNESS .0005 (-17 & -19)

-23 EFF LM-2(32) AND LM-3(33) N/A AND QUANTITIES SAME

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: NEW LCR -928- TO IMPROVE PAINT ADHESION

DESCRIPTION OF EO: ON-21 REMOVED EFF LM-2(32) THRU LM-6(36); ADDED -23 ASS'Y

GAEC EO RELEASE: Ⓡ C FR 2/23/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36)	
LM		THRU	
LM		LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-21

APPROVED BY	Jaf			JHS	W/H			
DATE	2/14/67			2/13/67	2/14/67		2/17/67	2-20-67
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASS'Y D/S PLM IMP QUAD I SHIELD SIDE	LDW280-28734	A10

ISSUED BY T. AMBROSIO / STRAKOSCH X1392 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

/

ENG 32.1 REV 3-65

(A

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-28734 | EO NO. B1
CONTROL INFO NO. LDW280A-5674

THIS IS A REVISION OF EO A10 LDW280-28734

REMOVE -21 (WAS FOR -21 REMOVE LM-2(32) THRU LM-6(36))
FOR-23 EFF LM-1(31) THRU LM-3(33) WAS LM-2(32) AND LM-3(33)
N/A FOR-23 LDW280-28733 (REF)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCR 928

REASON FOR EO: LCR 928 IMPROVE PAINT ADHESION

DESCRIPTION OF EO: REVISED EO A10 · REMOVE -21 WAS FOR-21 REMOVE LM-2 THRU LM-6 EFF FOR-23 · LM-1 THRU LM-3 WAS LM-2 THRU LM-3

Ⓡ GAEC EO RELEASE: C
2
VK 3/10/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	LM-6(36)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			✓	DATE	3/4/67			3/7/67	3/6/67		3/7/67	3/10/67
REVISE DWG	RECORD EO	REWORK	SCRAP	S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	Dam

PRIORITY: C
DRAWING TITLE: SKIN ASSY DES. STAGE QUAD I SIDE
DRAWING NO. LDW280-28734
EO NO. B1

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

C

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER *

DWG. NO.	LEO 280	EO NO.	559
CONTROL INFO NO.	LDW 280A 6306		

ENG 32.2 REV 3-65

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW · REMOVE LDW280-17970 · ALL DASH NUMBERS AND ADD "SEE NOTE *"

IN F/D REMOVE LDW280-17970-ALL DASH NUMBERS

REVISE NOTE *

(REF) "MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19."

(ADD) PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

DRAWING No.	CHANGE#	SYMBOL	EFFECTIVITY	TITLE
✓LDW280-18130	A7	⬡	LTA-8 LM-1 THRU LM-15	SEE DWG
✓LDW280-18141	A3	⬡	LM-1 THRU LM-15	
✓LDW 280-28730	B7	□	LTA-8 LM-1 THRU LM-3	
✓LDW 280-28734	B2	□	LTA-8 LM-1 THRU LM-3	
LDW280-28738	A7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28740	B3	□	LTA-8 LM-1	
LDW 280-28741	A6	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28744	A7	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28747	B4	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28750	39	□	LTA-8 LM-1 THRU LM-15	
LDW280-28753	A5	□	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	□	LTA-8 LM-1 THRU LM-15	
LDW280-28760	B5	□	LTA-8 LM-1 THRU LM-3	
LDW280-28765	A7	⬡	LTA-8 LM-1 THRU LM-6	
LDW280-28769	B2	□	LM-1	
LDW 280-28772	B6	□	LM-1 THRU LM-15	
LDW280-28775	B7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28805	A6	□	LM-1 THRU LM-15	
LDW 280-28806	A4	□	LTA-8 LM-1 THRU LM-15	
LDW 280-51824	A3	□	LM-1 THRU LM-15	SEE DWG

NOTE △ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY WITH LPC 280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM □ REVISE NOTE *.
FOR SYM ⬡ ADD NOTE △ TO DWG

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE

DESCRIPTION OF EO: REMOVED LDW280-17970 FROM B/M & F/D (ALL DASH NO'S) FOR DWG'S □ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ⬡ ADDED NOTE △

GAEC EO RELEASE: (R) 5 C JS 4-19-7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQ

APPROVED BY	Jap			GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	4/10/67			4/10/67	4/11/67		J 4/13	Bott 4-18-67
6	VD1	SUPPORT	RELIAB. GROUP					

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 559

ED BY H. PHLLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28735 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28733	LEM-6 (36)	1 EA
		LEM-5 (35)	1 EA
		LEM-4 (34)	1 EA
		LEM-3 (33)	1 EA
		LEM-2 (32)	1 EA
		LEM-1 (31)	1 EA
LEM	LDW280-28733	LTA-8 (18)	1 EA

PART NO. LDW280-28735-7 ‡-9

GAEC SCH NO. 52

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00			
REV	B	B	B		B			
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED C

LAST DASH NO. USED -25

GRUMMAN REL^C INFO^A

PRIM NO. 207 | LE(001) MP-14 | 11-17-6A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 ±.030 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	C. BAIS 7/15/66	RELIABILITY	
LAYOUT BY			P. Bender 11/14/66
CHECKED BY			
GROUP LDR	J. STRAKOSCH 7/15/66		
VEH DES INT	W. BISCHOFF 7/16		
STRUCTURE	FEB 7/16	PROJ ENGR	F. DeSeva/RMC 7/26
STRUCTURE	HILDERMAN 7/16	REL GROUP	BOTTI 7/26/66
WEIGHTS	D. ROBESCH 7/25		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL ASSY
DESCENT STAGE - PLM/MP

SIZE B | CODE IDENT NO. 26512 | LDW280-28735 | B

SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDES LDW280-28735 NO CHANGE 7-26-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	SCRAP	CHANGED BY AND DATE	ENGRG APPD	[illegible]T APPD
		RETRACED NO CHANGE - LAST REVISION NO CHANGE - SHEET SIZE "E" (WAS) "F" ADDED SHEET 1.10 - 2.00 & 3.00 - SHEET 1 OF 4 (WAS) 1 OF 1 J.PAWLITZ 9-1-66													
A	1	3.00						LE0280-188	REWROTE SEAMWELD NOTE #3 & ADDED NOTES #7 & #8	LTA-8(18)	NOT	REQ'D	J PAWLITZ 9-1-66		
	2	1.10 & 3.00 1.00 & 2.00						EOA2	REMOVED -1 REVISED TRIM OF -3 ASSY, 20. WAS 20 7/8 ADDED -7, -9, -11, -13, -15, -17, & -19. IN NOTE #2 REMOVED -1 & ADDED -7 & -9	LEM-1(31) THRU LEM-6(36)	-3	-1			
B	1	1.10 & 3.00						LE0280-240	REF LE0280-118, ADDED PART "C" TO NOTE #7	NOT REQD	NOT	REQD			
	2	2.00 & 3.00							REMOVED -15 -17 & -19. ADDED -21 -23 & -25	NOTED		-15 -17 & -19	JK		

CHG APPROVED

LTR	~~[illegible]~~	VDI	STRESS					THERMO	PROJ ENGR	REL GROUP
A		9/13/66	9/14					PB 11/14/66		
B		11/14/66	9/14					PB 11/14/66		

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28735	B
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01 NAS 9-1100

-23	-25	-13	-11	-5	-3	-9	-7	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						AS REQD	AS REQD		NOTE #4		MESH							
1				2					LDW280-17950-45	E	FOIL	SEE DWG						
1									LDW280-17950-39		FOIL	SEE DWG						
	1								LDW280-28735-23		FOIL ASSY WELDED					FLW		
		1	1						-25		FOIL ASSY							
		1	1						-21		FOIL				LDW280-17950-45			
						1			-13		FOIL ASSY WELDED					FLW		
							1		-11		ASSY WELDED					FLW		
					1				-5		ASSY WELDED					FLW		
			1						-3		FOIL ASSY							
									-9		FOIL ASSY					NONE	NONE	
									LDW280-28735-7	E	FOIL ASSY					NONE	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELD	LSP14-6102

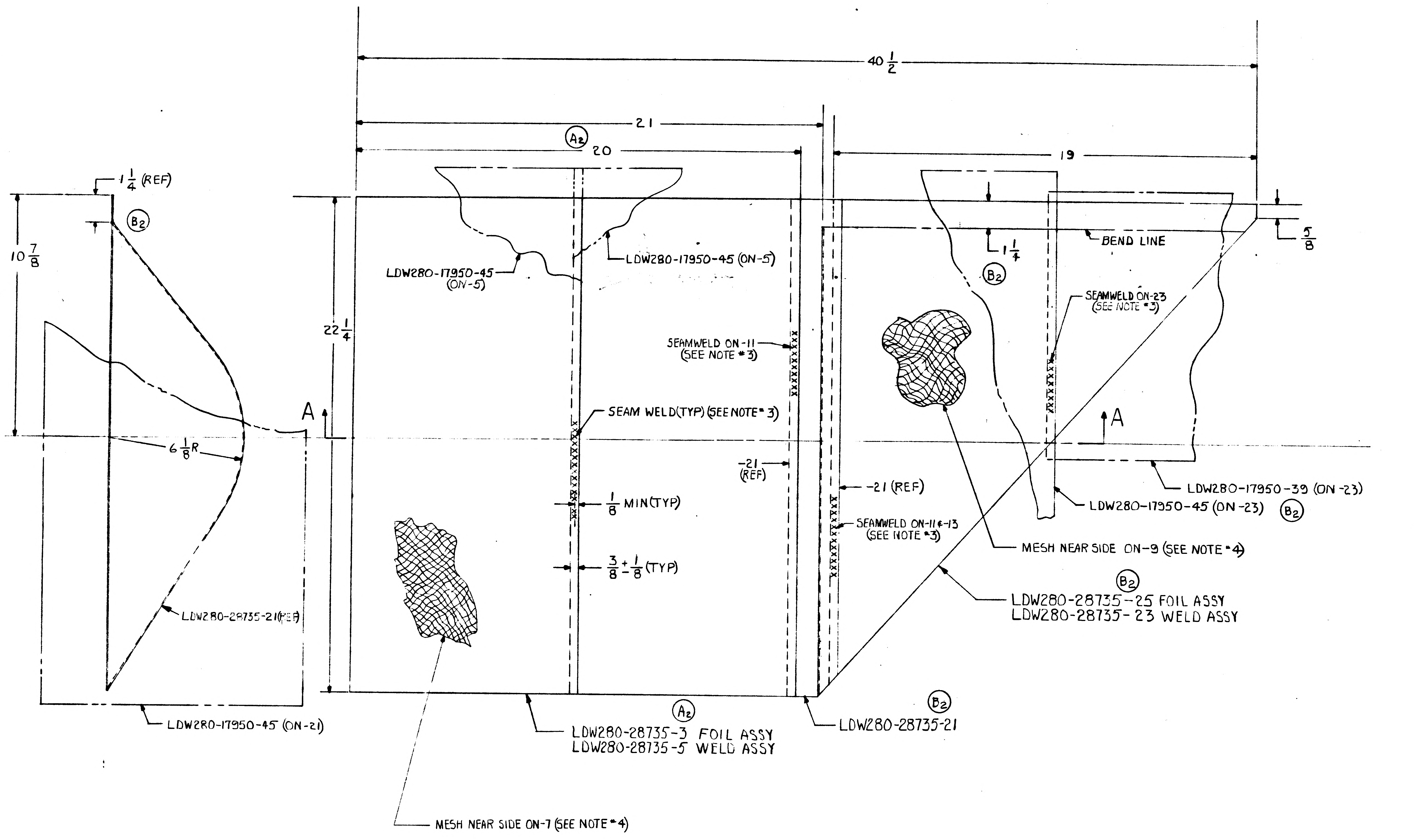
I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28735	B
SCALE NONE		SHEET 2.00	

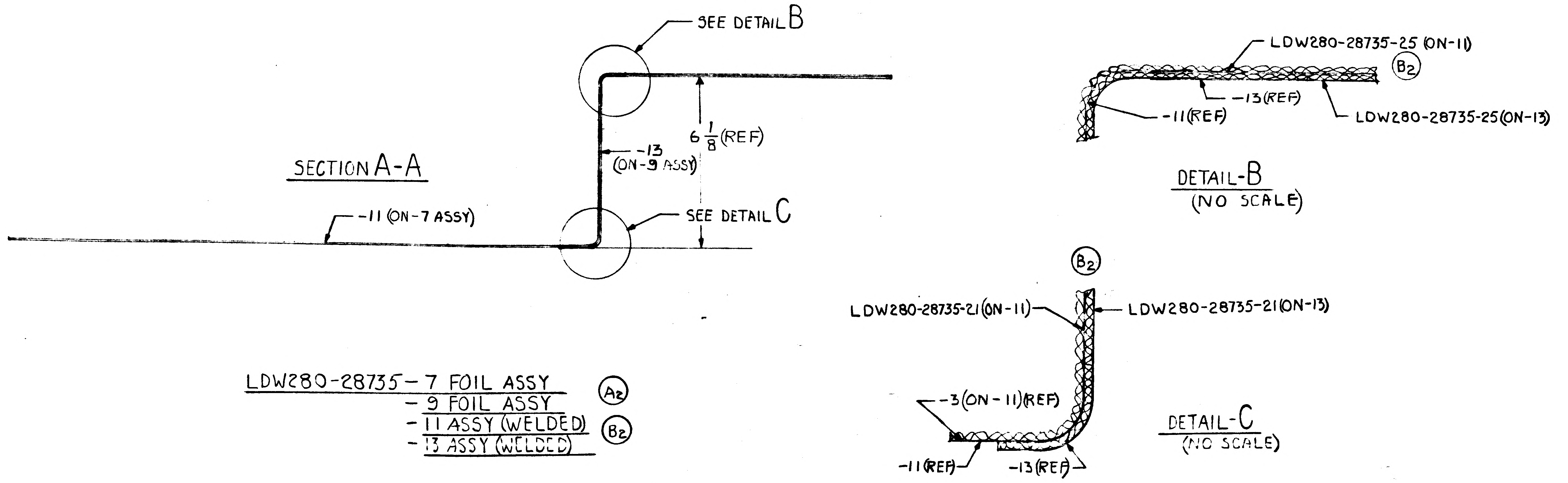
ENG 77.2 7-65

01 NAS 9-1100


40 1/2
21
20
19
(A2)
1 1/4 (REF)
(B2)
10 7/8
6 1/8 R
22 1/4
A
LDW280-17950-45 (ON-5)
LDW280-17950-45 (ON-5)
SEAMWELD ON-11 (SEE NOTE * 3)
SEAM WELD (TYP) (SEE NOTE * 3)
1/8 MIN (TYP)
3/8 + 1/8 (TYP)
-21 (REF)
-21 (REF)
SEAMWELD ON-11 & -13 (SEE NOTE * 3)
LDW280-28735-21 (REF)
LDW280-17950-45 (ON-21)
LDW280-28735-3 FOIL ASSY
LDW280-28735-5 WELD ASSY
(A2)
(B2)
LDW280-28735-21
MESH NEAR SIDE ON-7 (SEE NOTE * 4)
1 1/4
(B2)
BEND LINE
5/8
SEAMWELD ON-23 (SEE NOTE * 3)
A
LDW280-17950-39 (ON-23)
LDW280-17950-45 (ON-23) (B2)
MESH NEAR SIDE ON-9 (SEE NOTE * 4)
(B2)
LDW280-28735-25 FOIL ASSY
LDW280-28735-23 WELD ASSY

NOTES:-
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. FABRICATION OF LDW280-28735-7 & -9 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011 LEVEL "C"
3. SEAMWELD PER LSP14-6102 EXCEPT THAT SPOTS SHALL BE TANGENT +1/32 -0
4. INCONEL KNITTED SLEEVING TO BE 6 TO 8 INCHES WHEN FLATTENED. WIRE TO BE .0035 TO .0040 INCHES DIA. INCONEL "600". ALLOY KNIT PATTERN SQUARE TYPE, 5 TO 7 SQUARES PER LINEAR INCH. MAY BE PURCHASED FROM MONTGOMERY METAL FABRIC CO., WINDSOR LOCKS, CONN. (CODE IDENT 94725)
5. ALL ABBREVIATIONS AS PER MIL-STD 12B EXCEPT AS NOTED. PLM/MP = PLUME IMPINGEMENT
6. WELD INCONEL KNITTED SLEEVING TO FOIL SHEET PER LDW280-17522.
7. PERMISSIBLE IRREGULARITIES IN WELDED ASSYS ARE AS FOLLOWS:
   a. HOLES IN THE SEAMWELD ROWS UP TO 1/8 MAX & AT LEAST 1" APART.
   b. CRACKS IN THE FREE EDGE OF WELDED JOINTS NO CLOSER TOGETHER THAN 1/8" & NOT EXTENDING PAST THE WELD LINE
   c. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) & (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN, BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIM. OF GREATER THAN 5 IN. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.
8. WELDED ASSEMBLIES MAY HAVE RANDOM WRINKLED APPEARANCE.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	


SEE DETAIL B
6 1/8 (REF)
-13 (ON-9 ASSY)
SECTION A-A
-11 (ON-7 ASSY)
SEE DETAIL C
LDW280-28735-7 FOIL ASSY (A2)
-9 FOIL ASSY
-11 ASSY (WELDED) (B2)
-13 ASSY (WELDED)
LDW280-28735-25 (ON-11) (B2)
-13 (REF)
-11 (REF)
LDW280-28735-25 (ON-13)
DETAIL-B (NO SCALE)
(B2)
LDW280-28735-21 (ON-11)
LDW280-28735-21 (ON-13)
-3 (ON-11) (REF)
-11 (REF)
-13 (REF)
DETAIL-C (NO SCALE)

01 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LEM	SIZE E	CODE IDENT NO. 26512	LDW280-28735	B
MODEL OR END ITEM	SCALE 1/2 NOTED		SHEET 3.00	

HG

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280
EO NO. 240
CONTROL INFO NO. LEM-2-2642

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE *.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LDW 280-25703	A4	A5	*, **, ***
-25704	A3	A4	*, **, ***
-25705	B5	C2	*, **
-25706	A3	A5	*, **, ***
-25707	B1	B2	*, **, ***
-28730	A1	A5	*
-28734	A1	A4	*
-28735	A1	B1	*
-28737	A1	A2	*
-28738	A1	A2	*
-28740	A1	A2	*
-28741	A1	A2	*
-28743	A1	A2	*
-28744	A1	A2	*
-28746	A1	A2	*
-28747	A1	A2	*
-28749	A1	A2	*
-28750	A1	A2	*
-28755	A1	A3	△
-28756	A1	A3	△
-28759	A1	A3	*
-28760	A1	A2	*
-28764	A1	A2	*
-28765	A1	A2	*
-28771	A2	A3	*
-28772	A2	A3	*
-28774	A1	A2	*
LDW 280 -28775	A1	A2	*

EFFECTIVITY:
*** - QUAL TEST (72)
** - LTA-5 (15)
* - LEM-1 (31) THRU -6 (36) & LTA-8 (18)
△ - LTA-8, LEM-1

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: TO FACILITATE MANUFACTURING

DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE *.

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM-1		SEE ABOVE	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE 8-20-66	VDZ				CAW 8/23/66	CAW 8/23/66	RMC 9-3	8-30-66

PRIORITY: C_2

DRAWING TITLE: —

DRAWING NO.: LEO-280

EO NO.: 240

ISSUED BY LIAISON G. MARTELL x3604 SECTION VD1 (DESCENT STAGE) GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 316
CONTROL INFO NO. LDW280A0936

ON THE FOLLOWING DRAWINGS ADD NOTE *:
*) INCONEL KNITTED SLEEVNG TO BE OXIDIZED BY EXPOSURE TO 1650 ±50°F IN AIR FOR FOUR(4) HOURS. FOR LTA5 (15) AND LTA 8 (18) OXIDIZATION IS OPTIONAL

DRAWING:	EFF	CHANGE NO.	TITLE
LDW280-25708	QUAL TEST LM1 THRU LM6 LTA5 & 8	B3	SEE DRAWING
LDW280-28735	LM1 THRU LM6 LTA8	C1	
LDW280-28737	"	A4	
LDW280-28740	"	B1	
LDW280-28743	"	A4	
LDW280-28746	"	B1	
LDW280-28749	"	A6	
LDW280-28752	"	B1	
LDW280-28755	LTA-8 & LM-1	A5	
LDW280-28759	LTA-8 LM1 THRU LM-6	B1	
LDW280-28764	"	B1	
LDW280-28768	LM-1 &	B1	
LDW280-28771	LTA-8, LM-1 THRU LM-6	B1	
LDW280-28774	"	A6	
LDW280-28803	"	A1	SEE DRAWING
LDW280-28819	"	A1	SEE DRAWING

* - USE NEXT AVAILABLE NUMBER

3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: THERMO REQUIREMENT

DESCRIPTION OF EO: ADDED NOTE *

GAEC C EO RELEASE: LE 10/18

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	
LM			
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	JHB			KGM	WJH		[illegible]	[illegible]
DATE	10/3/[illegible]			MAT'LS 10/7/66	10/4/[illegible]		10/12/66	10/15/66
	VDI	SUPPORT	RELIAB. GROUP	~~GROUP~~ LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 316

ISSUED BY AMBROSIO/ STRACOSCH X1153 SECTION V. D. 1 GROUP NO. 335 PL 35 EMF

01 NAS 9-1100

H.G.

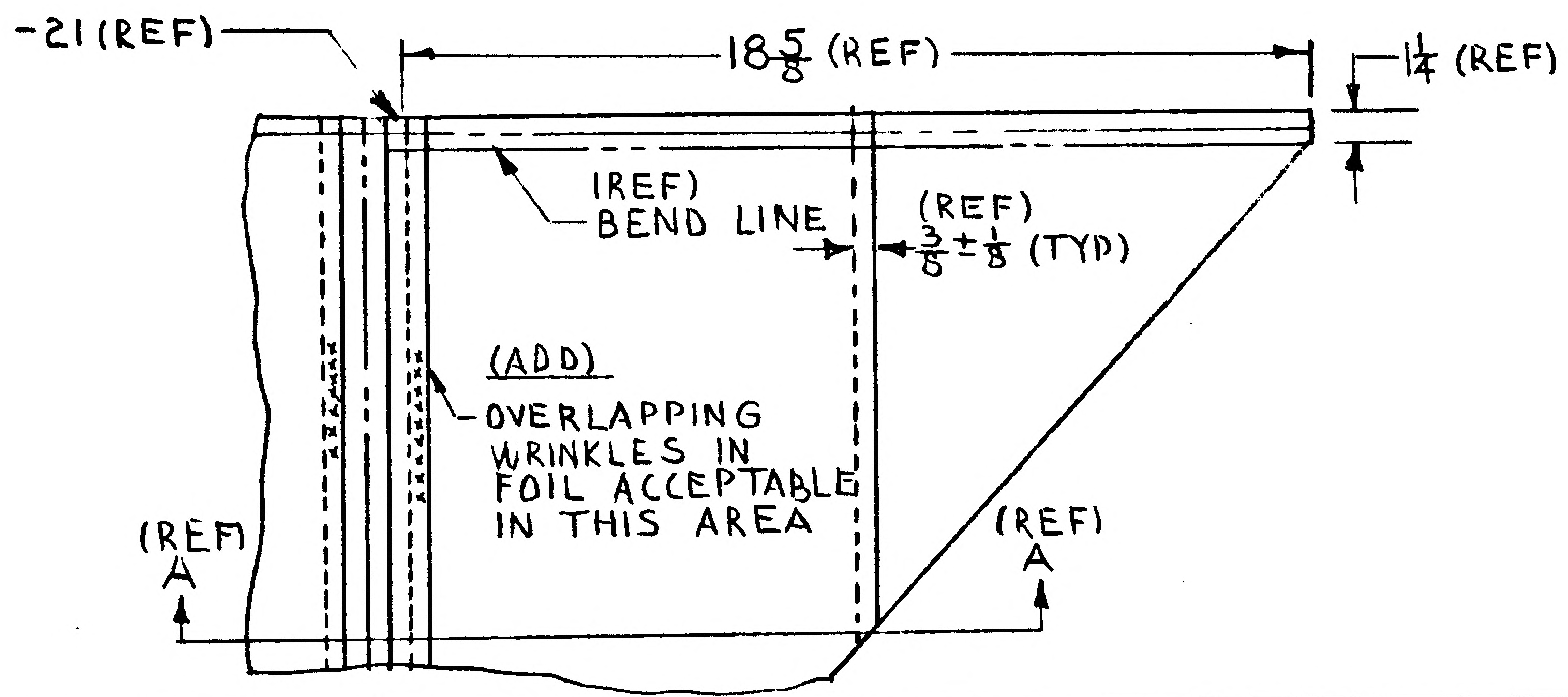
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28735		EO NO. C2
CONTROL INFO NO. LM-2-3018		

IN F/D. ON-21 ADD NOTE TO AGREE WITH E.O.



-21 (REF)
18 5/8 (REF)
1 1/4 (REF)
(REF) BEND LINE
(REF) 3/8 ± 1/8 (TYP)
(ADD)
OVERLAPPING WRINKLES IN FOIL ACCEPTABLE IN THIS AREA
(REF) A
(REF) A

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
FOIL WRINKLES ON FORMING	ON-21 AUTHORIZED OVERLAPPING WRINKLES	FR

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (31) THRU	
		LM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY					caw	caw	RMe	
DATE	12/14/66				11/17/66	11/17/66	11-20-66	11/18/66
-1-	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C2	SKIN ASSY.~ DESCENT STAGE PLM/MP~	LDW280-28735	C2

ISSUED BY LIAISON -T.J. MARTIN-X3604-11-17-66 SECTION V.D.I. GROUP NO. 335 PL 35

01

NAS 9-1100

B

ENG 22.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMP-A

DWG. NO. LEO 280 | EO NO. 421
CONTROL INFO NO. LDW280A-4411

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM6	B 2	
LDW280-28734	"	A 8	
LDW280-28735	"	C 3	
LDW280-28746	LTA8 (18) LM-1 (31) THRU LM-15 (45)	B 3	
LDW280-28747	LTA8 (18) LM-1 (31) THRU LM-6 (36)	B 1	
LDW280-28749	"	A 7	
LDW280-28750	"	B 3	
LDW280-28752	"	B 2	
LDW280-28753	"	A 3	
LDW280-28755	LTA 8 (18) LM-1 (31)	A 7	
LDW280-28756	LTA8 (18) LM-1 (31) THRU LM-15 (45)	A 6	
LDW280-28759	LTA8 (18) LM-1 (31) THRU LM-6 (36)	B 2	
LDW280-28760	"	B 1	
LDW280-28768	LM-1 (31)	B 2	
LDW280-28769	LM-1 (31)	B 1	
LDW280-28771	LTA8 (18) LM-1 (31) THRU LM-6 (36)	B 2	
LDW280-28772	"	B 1	
LDW280-28774	"	A 7	
LDW280-28775	"	B 2	
LDW280-28803	"	A 2	
LDW280-28805	"	A 1	
LDW280-51824	LM-1 (31) THRU LM-15 (45)	A 1	
LDW280-51825	"	A 2	
LDW280-51829	"	A 1	
LDW280-51830	"	A 1	
LDW280-51834	"	A 1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: K 12/20

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO

DISPOSITION OF PARTS: NOT REWORK; REQ'D SCRAP

APPROVED BY		AB						
DATE	12/16/66	12/16/66		12/16/66	12/16/66		12/20	12-20-66
1	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 421

ISSUED BY T. AMBROSIO / STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28735
EO NO. C4
CONTROL INFO NO. LDW280A6278

IN M/B FOR -7 & -9
REMOVE EFF LM-4(34) THRU LM-6(36)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	2

REASON FOR EO: TO REVISE DWG TO AGREE WITH N/A

DESCRIPTION OF EO: IN M/B FOR -7 & -9 ON N/A LDW280-28733 REMOVED EFF LM-4(34) - LM-6(36)

GAEC EO RELEASE: Ⓡ JK 4/17/7 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) -	
↓		LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE		SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
✓			✓	JAP 4/8/67	6 VDI			JAS 4/8/67	WJ 4/10/67		RMC Ⓦ 4-11-67	4/14/67

PRIORITY: C
DRAWING TITLE: SKIN ASSY DESCENT STAGE - PLM/MP
DRAWING NO.: LDW280-28735
EO NO.: C4

ISSUED BY STEA / STRAKOSCH 1156 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-28736 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52665	LM-2(32)	1
PART NO. LDW280-28736-7		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28665	LM-1(31)	1
PART NO. LDW280-28736-5		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28665	LTA-8	1
PART NO. LDW280-28736-3		GAEC SCH NO. 52	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED C

LAST DASH NO. USED -7

GRUMMAN REL INFO A

PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.030 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	[illegible] 15 Jul 66	THERMO	[illegible]
LAYOUT BY	F. MADDEN		
CHECKED BY			
G. LEADER	[illegible]		
VEH DES INT	[illegible] 7/10		
STRUCTURE	[illegible] 7/12	PROJ ENGR	[illegible]
STRUCTURE	Hilberman 7/18	REL GROUP	[illegible] 8-27-66
WEIGHT	[illegible] 7-29		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSY, D/S
UPPER DECK, QUAD 2, PLUME IMPENGEMENT

SIZE B | CODE IDENT NO. 26512 | LDW280-28736 A

SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED SH 3.00 NO CHANGE-LAST REV NO CHANGE G.DUMITRESKU 7-18-68						
A	1	1.00, 1.10, 2.00, 3.00	5A 8A					EOA1	REMOVED -1, ADDED -3 & -5, NOTE 2 & "DIRECTION OF STAPLES OPTIONAL" IN DETAIL B. ADDED SH 1.10	LTA-8, LM-1 THRU LM-6		-1	G. DUMITRESKU 9-26-68		
	2	3.00	8A					EOA2	REF EOA1: IN DETAIL "B" REMOVE "NOTE DIRECTION OF STAPLES OPTIONAL"		✓				
	3	1.00						EOA3	FOR-5: 1. LM-1 N/A S/B LDW280-28665 (WAS LDW280-51665). 2. LM-2 THRU LM-6 N/A S/B LDW280-52665 (WAS LDW280-53665). 3. ADD LM-7 THRU LM-15 REQMTS FOR-5	LM-1 THRU LM-15	NOT	REQD			
	4	1.00 1.10 2.00 3.00	1D 3C 4A 5A 7C				✓	EOA4 LCD928	FOR-5 REMOVED LDW280-28738-7 & ADDED LDW280-28738-9, GS11K-1-27, GS11K-1-42, GS577A-1 FOR-5 REMOVED LM-2 THRU LM-15 EFF. ADDED-7. ADDED NOTE "FABRICATE PER LPC 280-25"			-5			
	5	3.00	4A 7D				✓	LEO280-589 LCD 928	ON-5 & -7: REPLACED GS577A-1 WITH GS577A-4		✓				
	6	1.00				✓		LEO280-704 LCD1244 Ⓒ	RESTRICTED -7 TO LM-2 WAS LM-2 THRU LM-15	LM-3 THRU LM-15		-7	ES		

CHG APPD LTR	GR LEADER	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS	THERMO
A						

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28736	A Ⓡ
SCALE NONE	-	SHEET 1.10	

ENG 77.3 5-68

01

NAS 9-1100

-7	-5	-3	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
QTY PER ASSEMBLY													
AR	AR			GS577A-4	E	STAPLE	GRUMMAN STD						
1				GS11K-3-622		STRIP							
	1			GS11K-3-396		STRIP							
1				GS11K-1-42		STRIP							
	1			GS11K-1-27		STRIP	GRUMMAN STD						
10	10	10		LDW280-23720-1		STAPLE ASSY	SEE DWG						4C
10	10	10		LDW280-17932-11		WASHER							4C
	1			LDW280-28738-9		SKIN							3C
1		1		LDW280-28738-5		SKIN							3C
1	1	1		LDW280-28737-19		FOIL ASSY							4A
1	1	1		LDW280-28737-17		FOIL ASSY							4A
1	1	1		LDW280-28737-15		FOIL ASSY	SEE DWG						3B
				LDW280-28736-7		SHIELD ASSY					NONE	NONE	5A
				LDW280-28736-5		SHIELD ASSY					NONE	NONE	5A
				LDW280-28736-3	E	SHIELD ASSY					NONE	NONE	5A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

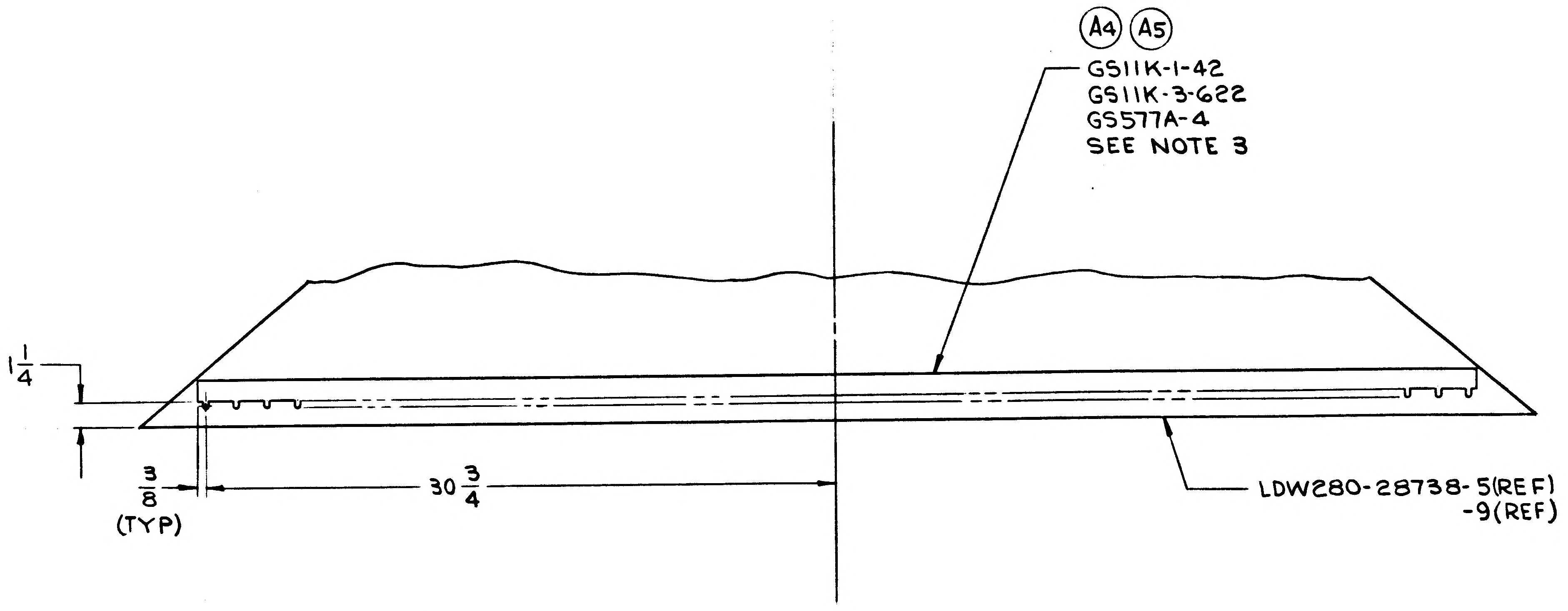
SIZE B | CODE IDENT NO. 26512 | LDW280-28736 | A

SCALE NONE | SHEET 2.00

ENG 77.2 7-65

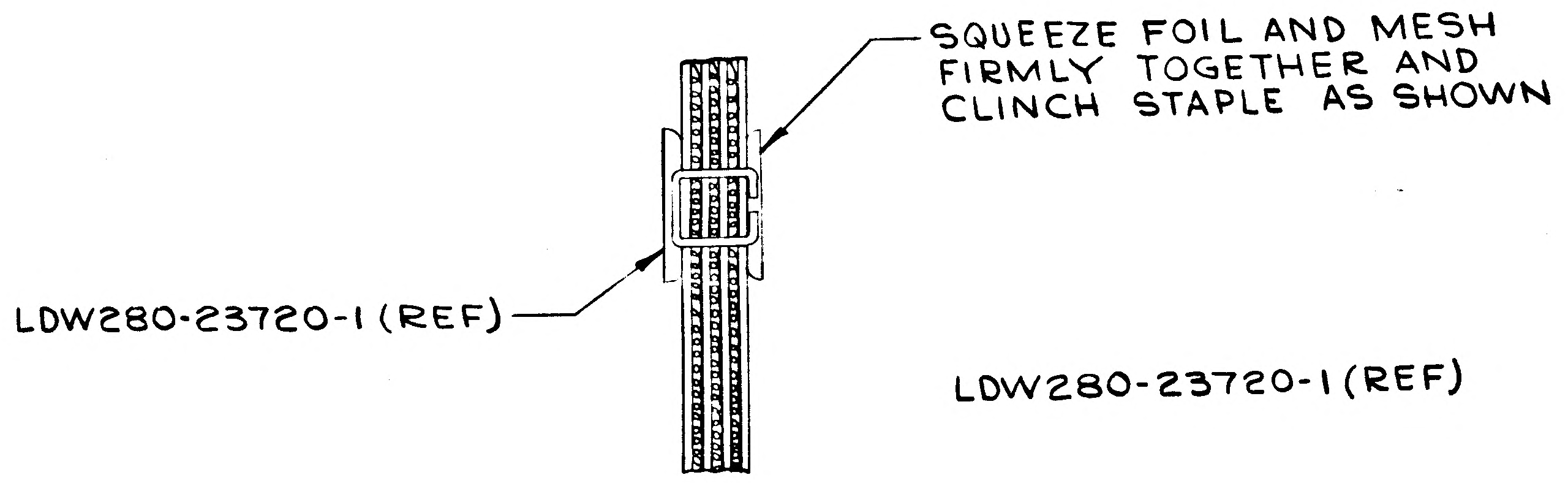
01

NAS 9-1100



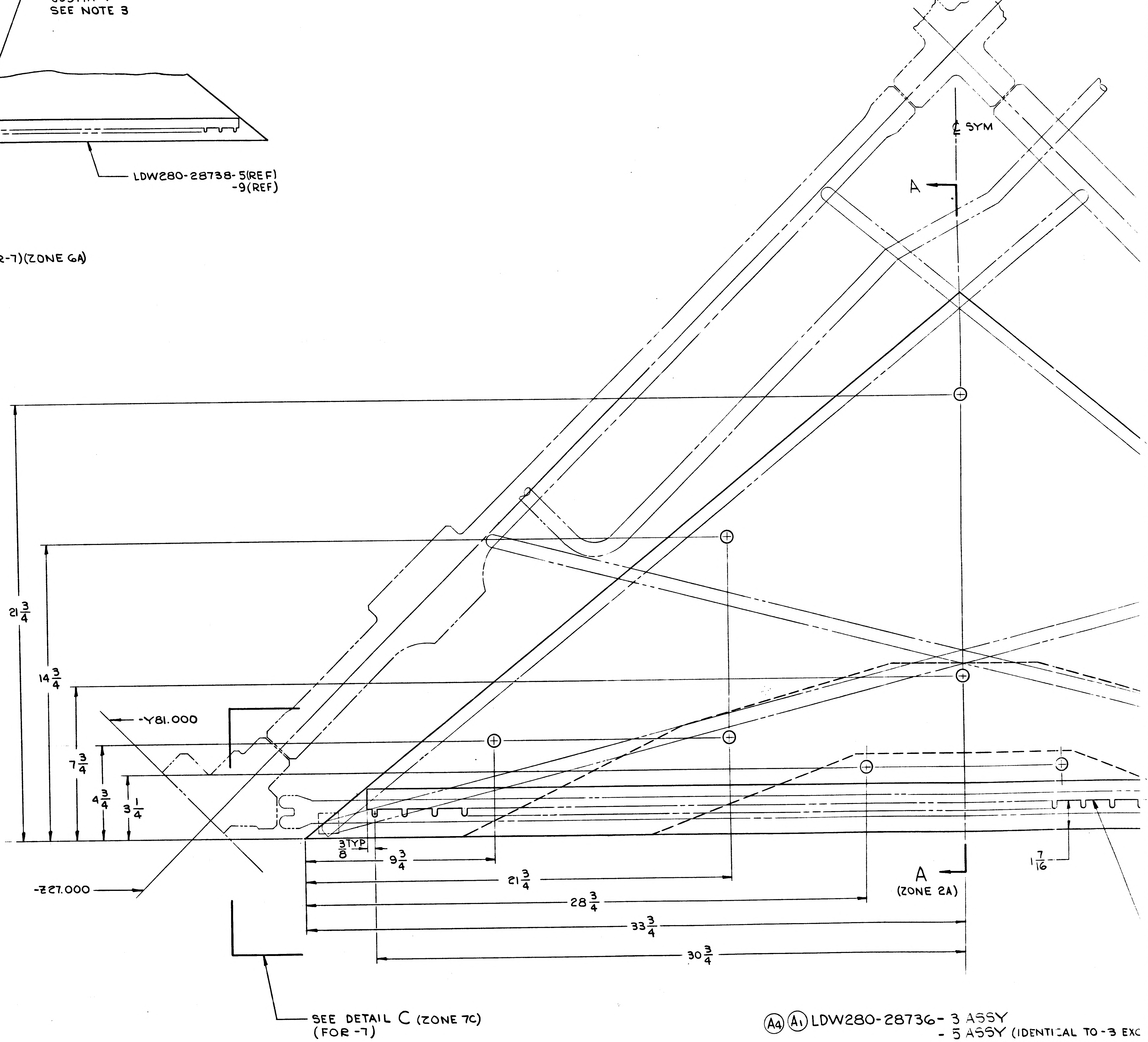
(A4) (A5)
GS11K-1-42
GS11K-3-622
GS577A-4
SEE NOTE 3
1 1/4
3/8 (TYP)
30 3/4
LDW280-28738-5(REF)
-9(REF)

DETAIL C (FOR-7)(ZONE 6A)
SCALE 1/4



SQUEEZE FOIL AND MESH FIRMLY TOGETHER AND CLINCH STAPLE AS SHOWN
LDW280-23720-1(REF)
LDW280-23720-1(REF)

(A2) DETAIL B (ZONE 2B)
SCALE: NONE



℄ SYM
A
21 3/4
14 3/4
7 3/4
4 3/4
3 1/4
-Y81.000
-Z27.000
3/8 TYP
9 3/4
21 3/4
28 3/4
33 3/4
30 3/4
1 7/16
A
(ZONE 2A)
SEE DETAIL C (ZONE 7C) (FOR -7)

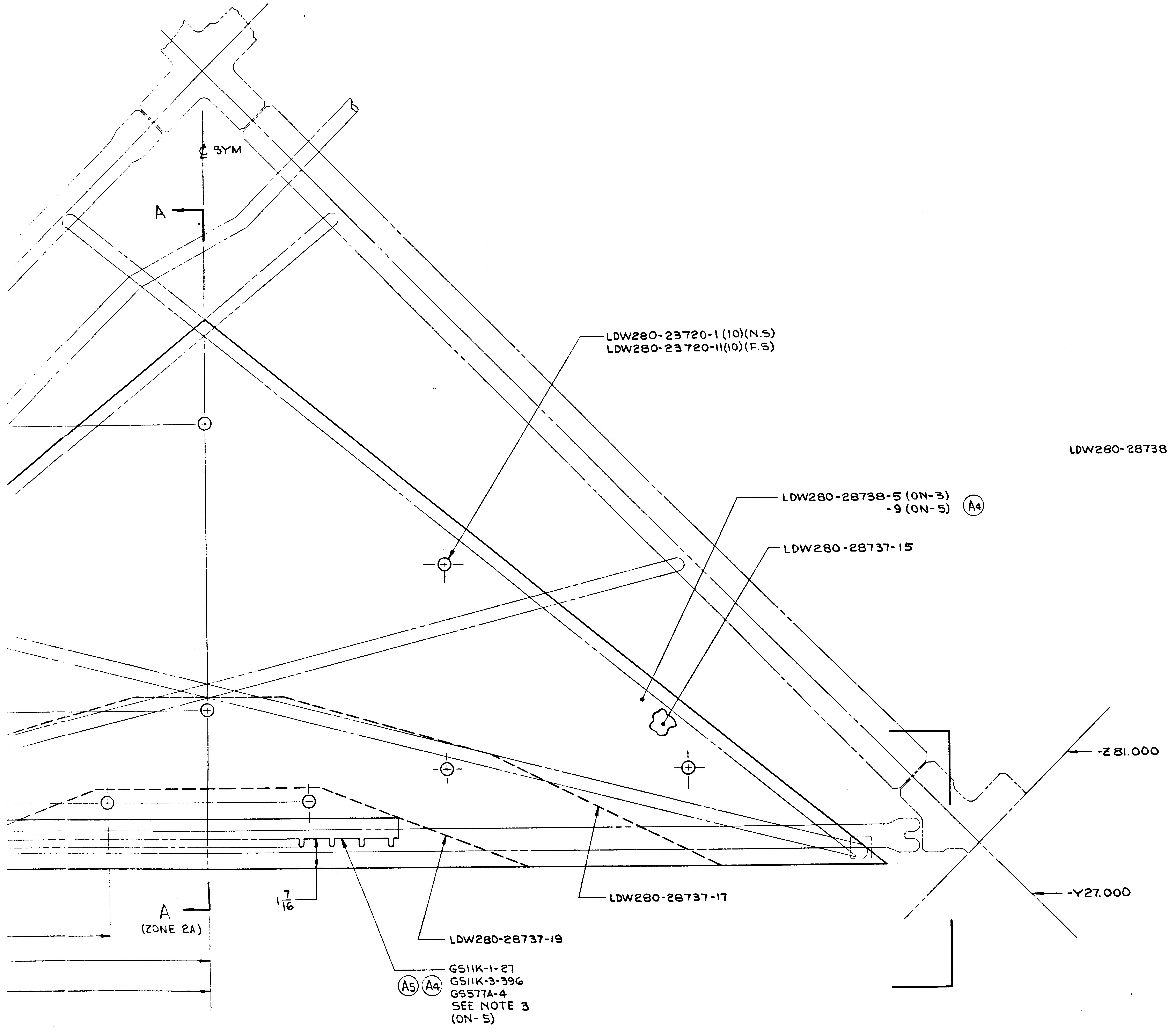
(A4) (A1) LDW280-28736- 3 ASSY
- 5 ASSY (IDENTICAL TO -3 EXC
- 7 ASSY (IDENTICAL TO -5 EX

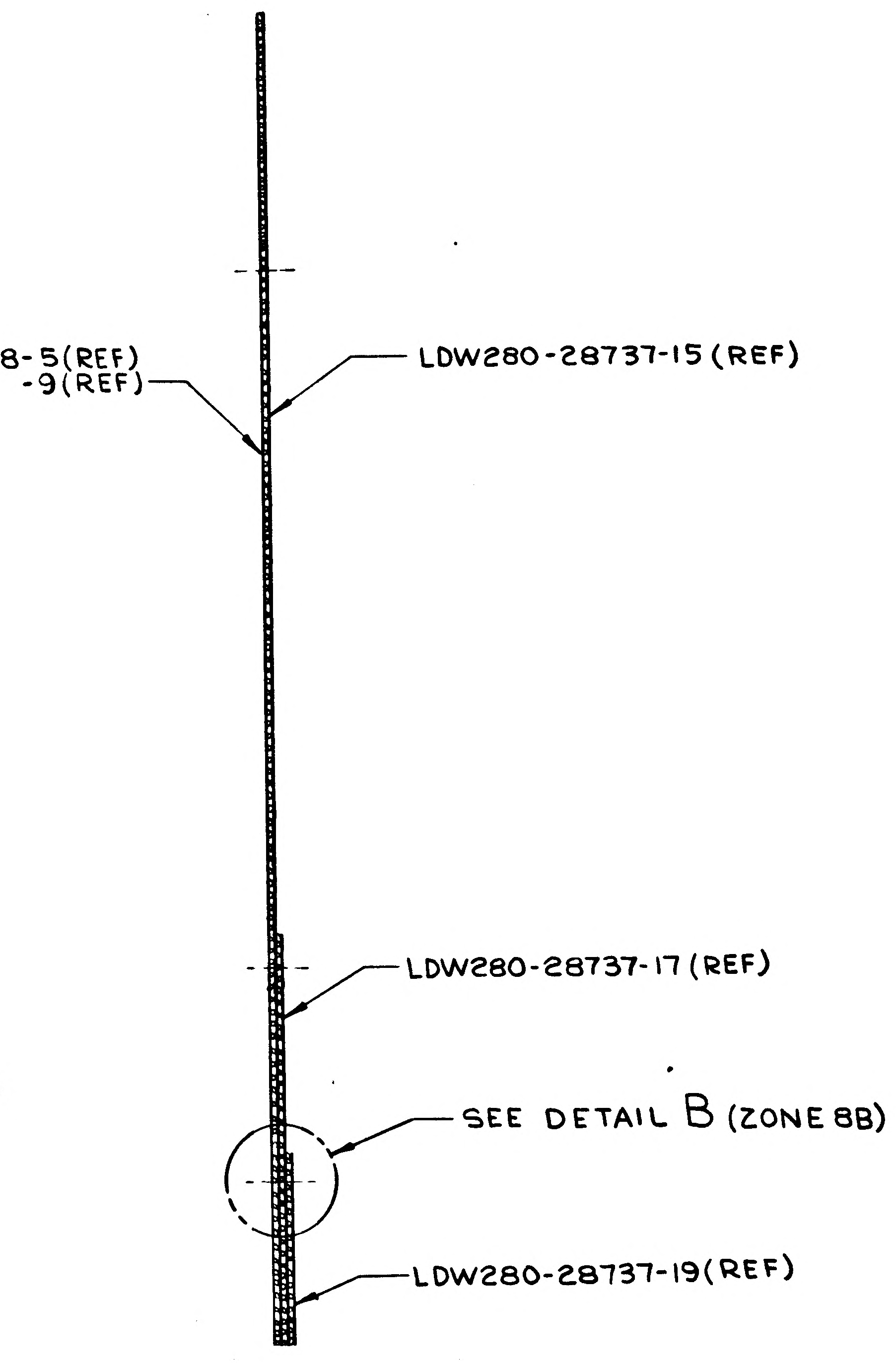
01/02 NAS 9-1100

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-28736	3

FRAME 1 FRAME 2

NOTES:
1. FABRICATION OF LDW280-28736-3,-5,-7 TO BE DONE UNDER UNDER CONDITIONS WHICH CONFORM TO LSP14-0011 LEVEL "C".
2. TAPE EDGES OF FOIL LAYERS ON ASSY PER LPC280-4.
3. FABRICATE PER LPC280-25.


℄ SYM
A
LDW280-23720-1(10)(N.S)
LDW280-23720-11(10)(F.S)
LDW280-28738-5 (ON-3)
-9 (ON-5) (A4)
LDW280-28737-15
-Z81.000
-Y27.000
A
(ZONE 2A)
$1\frac{7}{16}$
LDW280-28737-17
LDW280-28737-19
GS11K-1-27
GS11K-3-396
(A5) (A4) GS577A-4
SEE NOTE 3
(ON-5)


LDW280-28738-5(REF)
-9(REF)
LDW280-28737-15 (REF)
LDW280-28737-17 (REF)
SEE DETAIL B (ZONE 8B)
LDW280-28737-19(REF)

SECTION A-A (ZONE 5A)

(A4) (A) LDW280-28736- 3 ASSY
- 5 ASSY (IDENTICAL TO -3 EXCEPT AS NOTED)
- 7 ASSY (IDENTICAL TO -5 EXCEPT AS NOTED)

02/02 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
SIZE J	CODE IDENT NO. 26512	LDW280-28736	A
SCALE 1/2 & NOTED		SHEET 3.00	

SUPERSEDES LDW280-287361 NO CHG 8-27-66 2FR

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-28736	3

FRAME FRAME 2

LDW280-28736 A

PART NO. LDW280-28737-21 & -25

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54714	LM-15(45)	1EA
		LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
		LM-10(40)	1EA
		LM-9(39)	1EA
		LM-8(38)	1EA
		LM-7(37)	1EA
		LM-6(36)	1EA
		LM-5(35)	1EA
	LDW280-54714	LM-4(34)	1EA
	LDW280-28714	LM-3(33)	1EA
		LM-2(32)	1EA
		LM-1(31)	1EA
LM	LDW280-28714	LTA-8(18)	1EA

GAEC SCH NO. 52

LDW280-28737 A

PART NO. LDW280-28737-35

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28745	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
		LM-3(33)	1
		LM-2(32)	1
LM	LDW280-28745	LM-1(31)	1

GAEC SCH NO. 52

PART NO. LDW280-28737-29

LM	LDW280-28745	LTA-8(18)	1

PART NO. LDW280-28737-15

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28736	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
		LM-3(33)	1
		LM-2(32)	1
		LM-1(31)	1
LM	LDW280-28736	LTA-8(18)	1

GAEC SCH NO. 52

WORK PKG FUNCTION 110

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.01	1.10	2.00	3.00
REV	A	A	A	A	A
SHEET					
REV					
SHEET					
REV					

LAST SECT LTR USED: E

LAST DASH NO. USED: -35

GRUMMAN REL INFO A

PRIM NO. -207 US (001) MP-14 A 3/27/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/16 ±.030 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	F.MADDEN	THERMO	R. HASLETT
LAYOUT BY	F.MADDEN	RELIAB	
CHECKED BY	L.MARSH		
GRP LDR	J.STRAKOSCH 7-14-66		
VEH DES	W.BISCHOFF 7-19-66		
STRUCT	F.BUNCE 7-20-66	PROJ ENGR	R.CARBEE 8-9-66
STRUCT	R.HILDERMAN 7-20-66	REL GROUP	A.CARAMANICA 8-13-66
WEIGHTS	D.ROBESCH 8-1-66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL ASSEMBLY (WELDED)
DESCENT STAGE-DIAGONAL QUADS
PLUME SHIELD UPPER

SIZE B CODE IDENT NO. 26512 LDW280-28737 A
SCALE NONE SHEET 1.00 OF 5

NG 77.1 12-65

SUPERSEDES LDW280-28737 N/C 8-13-66

01 NAS 9-1100

LDW280-28737 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28754	LM-15(45)	1EA
		LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
		LM-10(40)	1EA
		LM-9(39)	1EA
		LM-8(38)	1EA
		LM-7(37)	1EA
		LM-6(36)	1EA
		LM-5(35)	1EA
		LM-4(34)	1EA
		LM-3(33)	1EA
		LM-2(32)	1EA
		LM-1(31)	1EA
	LDW280-28754	LTA-8(18)	1EA
	LDW280-28736	LM-15(45)	1EA
		LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
		LM-10(40)	1EA
		LM-9(39)	1EA
		LM-8(38)	1EA
		LM-7(37)	1EA
		LM-6(36)	1EA
LM	LDW280-28736	LM-5(35)	1EA

PART NO. LDW280-28737-17 &-19 — GAEC SCH NO. 52

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28736	LM-4(34)	1EA
		LM-3(33)	1EA
		LM-2(32)	1EA
		LM-1(31)	1EA
LM	LDW280-28736	LTA-8(18)	1EA

PART NO. LDW280-28737-17&-19

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28745	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
LM	LDW280-28745	LM-11(41)	1

PART NO. LDW280-28737-27 (CONT.) — GAEC SCH NO. 52

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28745	LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
		LM-3(33)	1
		LM-2(32)	1
		LM-1(31)	1
	LDW280-28745	LTA-8(18)	1
	LDW280-54174	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
	LDW280-54174	LM-4(34)	1
	LDW280-28714	LM-3(33)	1
		LM-2(32)	1
		LM-1(31)	1
LM	LDW280-28714	LTA-8(18)	1

PART NO. LDW280-28737-27 — GAEC SCH NO. 52

SH REV STATUS: ~~FOR DESCRIPTION OF REV SEE SUBQ SH~~

SHEET / REV / SHEET / REV / SHEET / REV

LAST SECT LTR USED

LAST ~~DASH NO. USED~~

~~GRUMMAN REL INFO~~

PRIM NO.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES

~~ORIG DWG AUTH~~

~~DETAIL SPEC REQUIREMENT~~

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO.

LINE ITEM

~~DOCUMENTATION TYPE~~

DRAWN BY

LAYOUT BY

CHECKED BY

PROJ ENGR

~~REL GROUP~~

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-28737 A

SCALE NONE | SHEET 1.01 OF

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED N/C LAST REV N/C ADDED SH 1.01, 1.10, R.E. KINGSBURY 2-16-67						
A	1	3.00,1.10						LEO280-188	REWROTE SEAMWELD NOTE & ADDED NOTES 6 & 7	LTA-8	NOT	REQD	R.E. KINGSBURY 2-16-67		
	2	3.00,1.10						LEO280-240	REF LEO280-118: ADDED PART "C" TO NOTE #6	LM-1 THRU LM-6	✓				
	3	1.00,1.01,1.10, 2.00,3.00						EOA3	REMOVED -1,-3,-5,-7,-9 & -11; ADDED -15,-17,-19,-21,-25,-27, -29,-31 & -33			✓			
	4	1.10,3.00						LEO280-316	ADDED NOTE 8		✓				
	5	1.00,1.01, 1.10,2.00, 3.00						EOA5	ADDED -35; LM-7 THRU LM-15 FOR -27; REMOVED NOTES 1 THRU 8, -13,-31,-33 ADDED NOTES 9,10 & 11 IN FLD & B/M REMOVED: LDW280-17950-11,-21,-31,-33 & -35, SECT B-B & 3/8 ± 1/8 DIM (2 PLCS) IN FLD INCONEL MESH (NEAR SIDE) SEE NOTE 9 WAS INCONEL MESH NEAR SIDE (TYP) IN B/M SEE NOTE 11 WAS SEE NOTE 4	LM-1 THRU LM-15		✓			
	6	1.10							REF LEO280-240 IN DESCRIPTION OF EO: REF LEO 280-118 SHOULD BE REF LEO 280-188	NOT REQD	NOT	REQD			
	7	1.10,3.00							REMOVED DETAIL "A" & ADDED SECT. E-E						
	8	1.00,1.01, 1.10							IN MOD BLK: FOR -27 ADDED LM-4 THRU LM-15 N/A LDW280-54714 WAS LDW280-28714 FOR LM-4,-5 & -6; FOR -17 & -19 ADDED LM-4 THRU LM-15 FOR N/A LDW280-28736 & LDW280-28754; FOR -15 ADDED LM-4 THRU LM-15; FOR -21 & -25 ADDED LM-4 THRU Ⓡ LM-15 N/A LDW280-54714 WAS LDW280-28714 FOR LM-4,-5 & -6	NOTED	NOT	REQD			

FOR CONTINUATION OF REVISIONS SEE SHEET ________

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-28737	A
SCALE NONE		SHEET 1.10	

ENG 77.3 5-65

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QTY PER ASSEMBLY																		
-35	-29	-27	-25	-21	-19	-17	-15	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AS REQUIRED								SEE NOTE 11	E		MESH							
1								LDW280-18125-17	E		ZEE	SEE DWG						
								LDW280-28737-35	E		FOIL ASSY (WELDED)					FLW	NONE	
								-29										
								-27										
								-25										
								-21										
								-19										
								-17										
								LDW280-28737-15	E		FOIL ASSY (WELDED)					FLW	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELD	LSP-14-6102

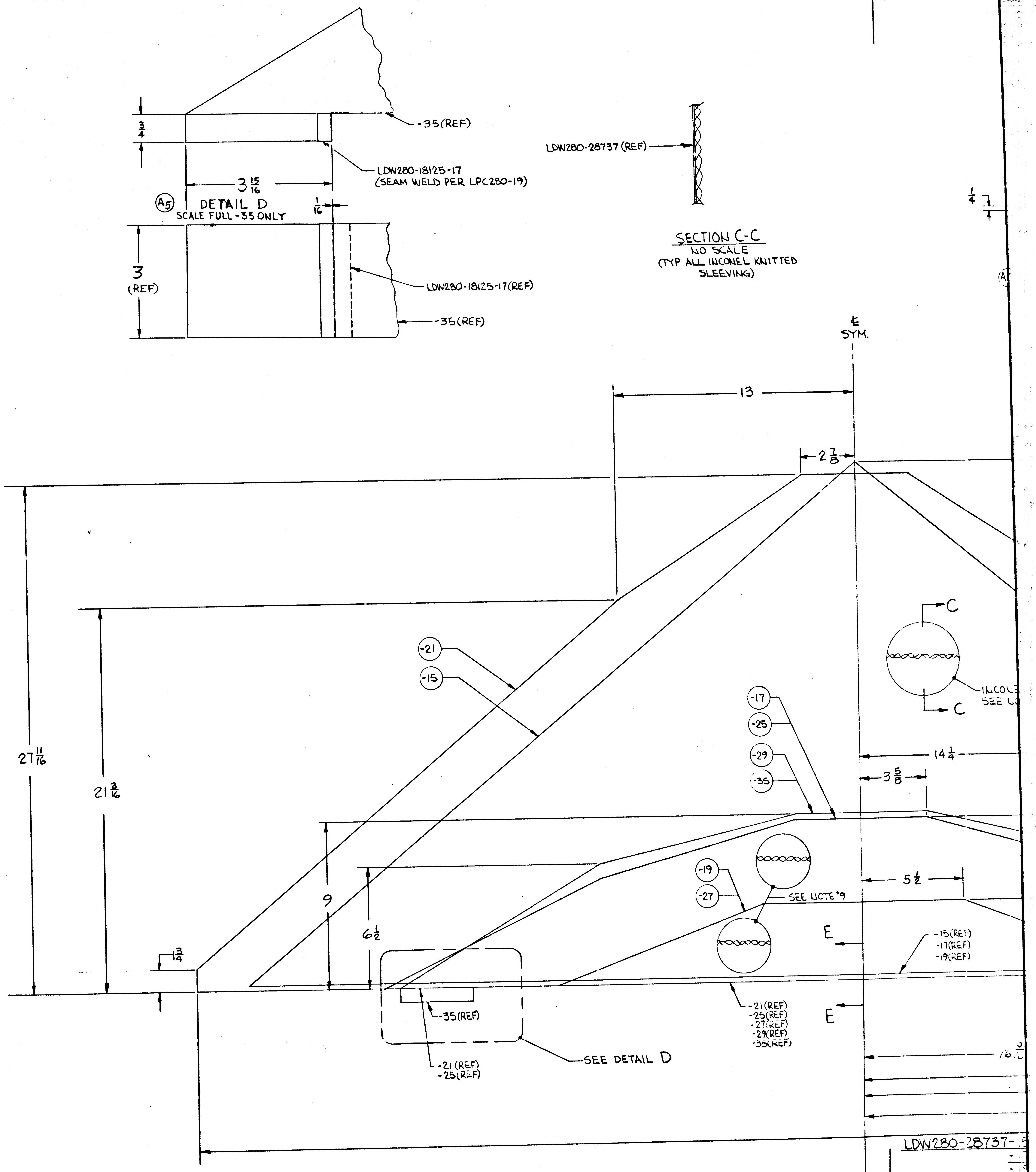
I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28737	A
SCALE NONE			SHEET 2.00

ENG 77.2 5-64

01 NAS 9-1100


-35(REF)
3/4
LDW280-18125-17
(SEAM WELD PER LPC280-19)
3 15/16
1/16
A5
DETAIL D
SCALE FULL -35 ONLY
3
(REF)
LDW280-18125-17(REF)
-35(REF)
LDW280-28737 (REF)
SECTION C-C
NO SCALE
(TYP ALL INCONEL KNITTED
SLEEVING)
℄
SYM.
13
2 7/8
27 11/16
21 3/16
-21
-15
C
C
INCON
SEE N
-17
-25
-29
-35
14 1/4
3 5/8
9
6 1/2
1 3/4
-19
-27
SEE NOTE 9
5 1/2
E
E
-15(REF)
-17(REF)
-19(REF)
-35(REF)
-21(REF)
-25(REF)
-27(REF)
-29(REF)
-35(REF)
-21 (REF)
-25(REF)
SEE DETAIL D
16
LDW280-28737-

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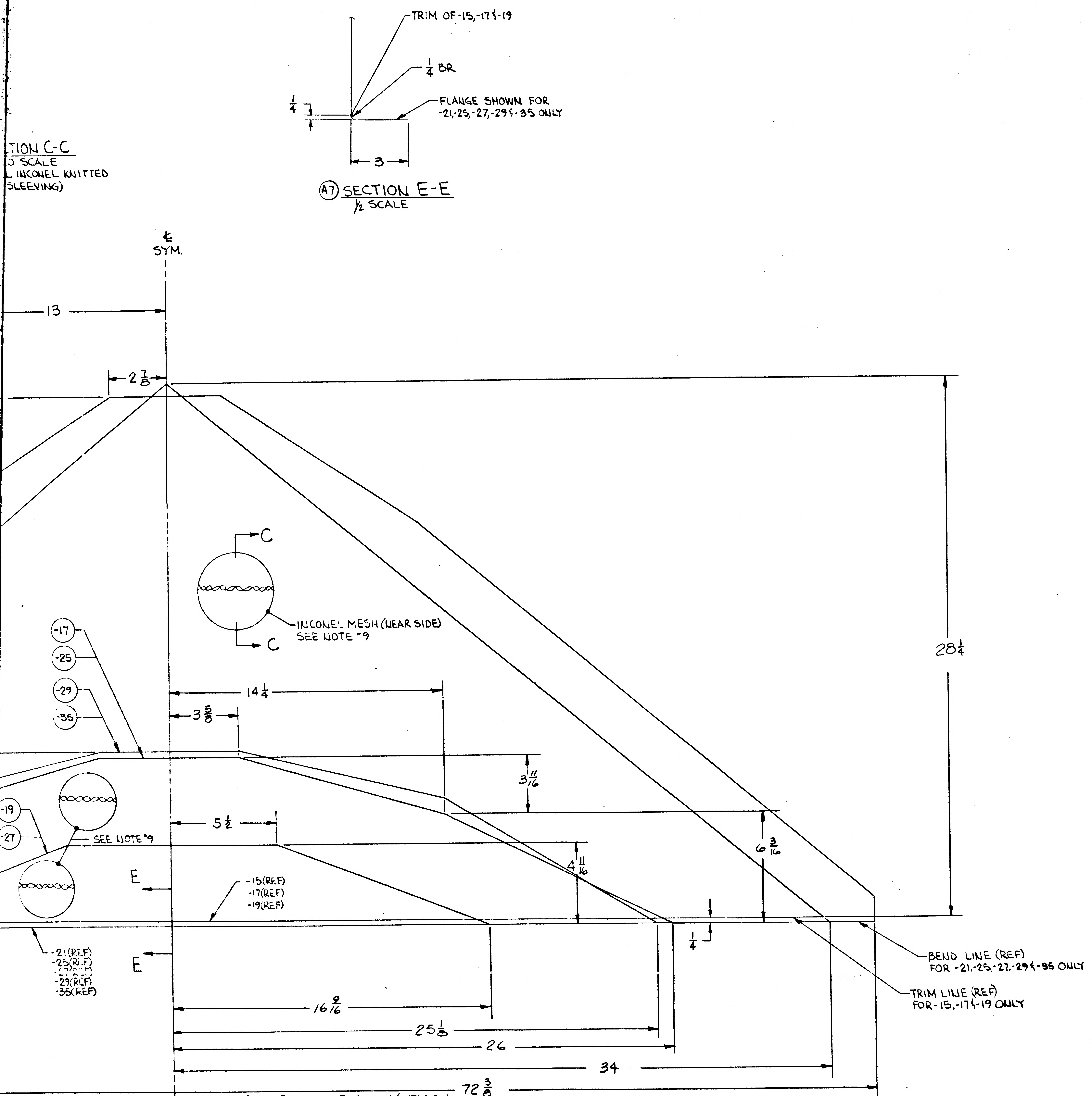
LDW280-28737 3



LDW280-28737-15 ASSY (WELDED)
-17 ASSY (WELDED)
-19 ASSY (WELDED) Ⓐ3
-21 ASSY (WELDED)
-25 ASSY (WELDED)

LDW280-28737-27 ASSY (WELDED)
-29 ASSY (WELDED) Ⓐ5
-35 ASSY (WELDED)

NOTES:

1. ~~LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT.~~
2. ~~WELD INCONEL KNITTED SLEEVING TO -1,-3,-5 & -7 PER LDW280-17522 AFTER TRIMMING AND FORMING.~~
3. ~~SEAMWELD PER LSP14-6102 EXCEPT THAT SPOTS SHALL BE TANGENT + 1/32 -0.~~
4. ~~INCONEL KNITTED SLEEVING TO BE 6 TO 8 INCHES WHEN FLATTENED. WIRE TO BE .0035 TO .0040 INCH DIA ROUND, INCONEL 600 ALLOY KNIT PATTERN SQUARE TYPE 5 TO 7 SQUARES PER LINEAR INCH. MAY BE PURCHASED FROM MONTGOMERY METAL FABRIC CO., 59 CANAL ST, WINDSOR LOCKS, CONN. (CODE IDENT NO. 94725)~~
5. ~~FABRICATION OF FOIL TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011 LEVEL "C"~~
6. ~~PERMISSIBLE IRREGULARITIES IN WELDED ASSYS ARE AS FOLLOWS:~~
   - ~~a. HOLES IN THE SEAMWELD ROWS UP TO 1/8 MAX. & AT LEAST 1" APART.~~
   - ~~b. CRACKS IN THE FREE EDGE OF WELDED JOINTS NO CLOSER TOGETHER THAN 1/8 & NOT EXTENDING PAST THE WELD LINE.~~
   - ~~c. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) & (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL & THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQUARE INCHES & SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.~~
7. ~~WELDED ASSY'S MAY HAVE RANDOM WRINKLED APPEARANCE.~~
8. ~~INCONEL KNITTED SLEEVING TO BE OXIDIZED BY EXPOSURE TO 1650° ± 50°F. IN AIR FOR FOUR (4) HOURS. FOR LTA-5(15) & LTA-8(18) OXIDATION IS OPTIONAL.~~
9. FABRICATE -15,-17,-19,-21,-25,-27,-29 & -35 PER LPC280-19
10. INCONEL KNITTED SLEEVING MAY BE PURCHASED FROM MONTGOMERY METAL FABRIC CO., 59 CANAL ST., WINDSOR LOCKS, CONN., (CODE IDENT NO. 94725).
11. -15,-17,-19,-21,-25,-27,-29 & -35 TO BE MADE FROM .0005 THICK × 12" WIDE BRIGHT ROLLED NICKEL FOIL. COMMERCIALLY PURE (INCO 200 OR EQUIV.)

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MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 90) = 22.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 5.7 SQ. FT.
PRINT TRIM LINE

LDW280-28737 A

LDW280-28737 A

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28737	A
MODEL OR END ITEM	SCALE 1/2 & NOTED		SHEET 3.00	

2FR

LDW280-28737 | 3

HG

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280 | EO NO. 240
CONTROL INFO NO. LEM-2-2642

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE ✱.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LOW 280-25703	A4	A5	✱, ✱✱, ✱✱✱
-25704	A3	A4	✱, ✱✱, ✱✱✱
-25705	B5	C2	✱, ✱✱
-25706	A3	A5	✱, ✱✱, ✱✱✱
-25707	B1	B2	✱, ✱✱, ✱✱✱
-28730	A1	A5	✱
-28734	A1	A4	✱
-28735	A1	B1	✱
-28737	A1	A2	✱
-28738	A1	A2	✱
-28740	A1	A2	✱
-28741	A1	A2	✱
-28743	A1	A2	✱
-28744	A1	A2	✱
-28746	A1	A2	✱
-28747	A1	A2	✱
-28749	A1	A2	✱
-28750	A1	A2	△
-28755	A1	A3	△
-28756	A1	A3	✱
-28759	A1	A3	✱
-28760	A1	A2	✱
-28764	A1	A2	✱
-28765	A1	A2	✱
-28771	A2	A3	✱
-28772	A2	A3	✱
-28774	A1	A2	✱
LOW 280 -28775	A1	A2	✱

EFFECTIVITY:
✱✱✱ - QUAL TEST (72)
✱✱ - LTA-5 (15)
✱ - LEM-1 (31) THRU -6 (36) & LTA-8 (18)
△ - LTA-8, LEM-1

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: TO FACILITATE MANUFACTURING

DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE ✱.

GAEC C EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		SEE ABOVE	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE 8-20-66	VDI				CAW 8/23/66	CAW 8/23/66	RMC 9-3	8-30-66

PRIORITY: C2

DRAWING TITLE: —

DRAWING NO. LEO-280

EO NO. 240

ISSUED BY LIAISON G. MARTELL x3604 SECTION VDI (DESCENT STAGE) GROUP NO. 335 PL 35

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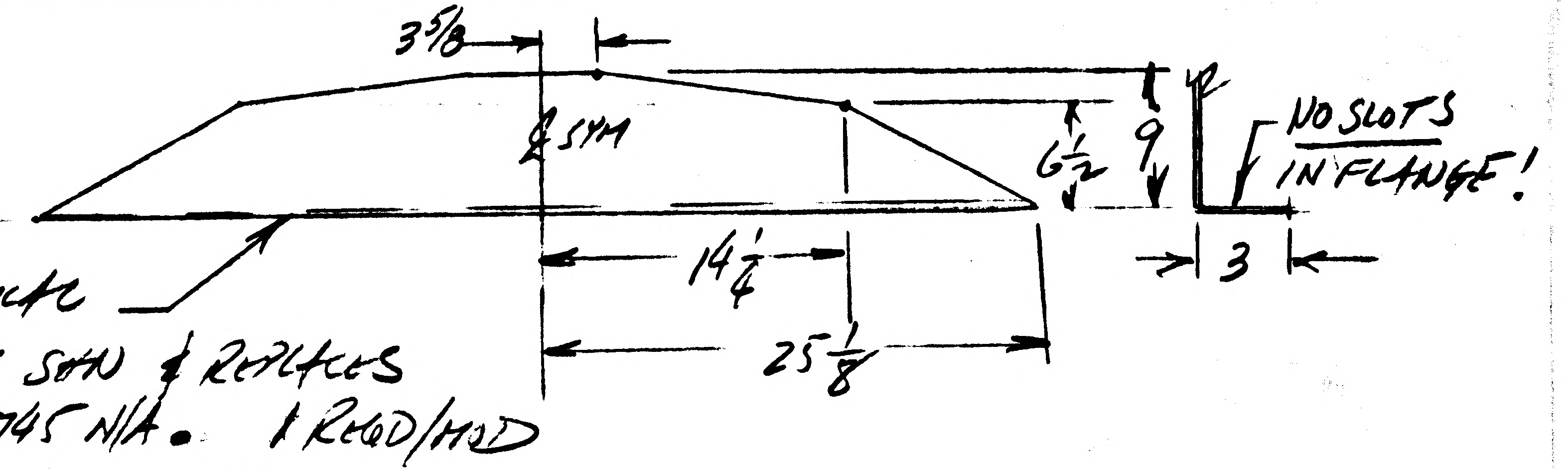
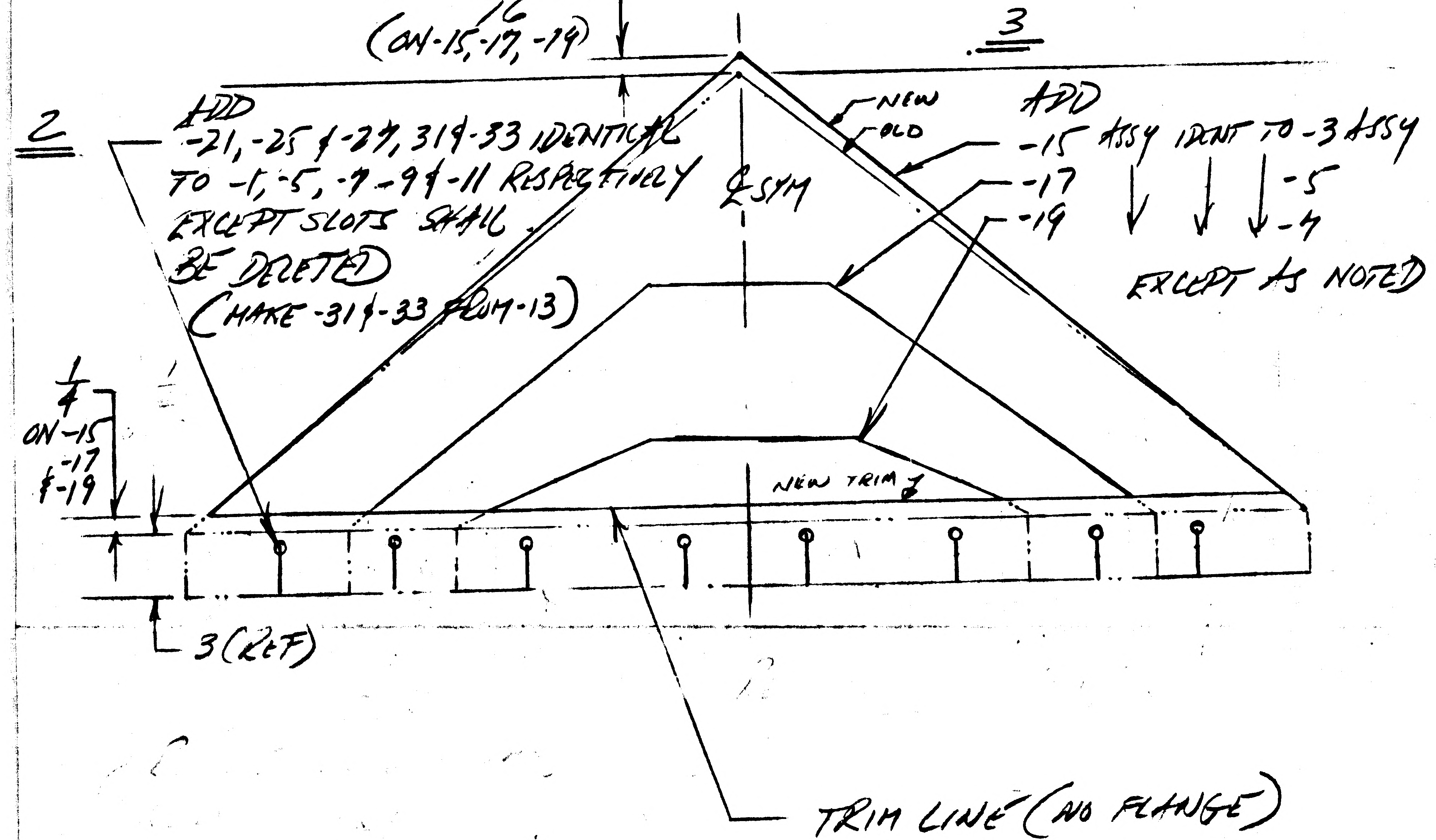
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28737 EO NO. A3
CONTROL INFO NO. LDW280 A-0322



1. ADD-29 (IDENTICAL TO -5 EXCEPT AS SHN & REPLACES -5 ON LDW280-28745 N/A. 1 REQD/MOD



2. ADD -21, -25 & -27, 31 & -33 IDENTICAL TO -1, -5, -7 -9 & -11 RESPECTIVELY EXCEPT SLOTS SHALL BE DELETED (MAKE -31 & -33 FROM -13)

3. ADD -15 ASSY IDENT TO -3 ASSY
-17 -5
-19 -7
EXCEPT AS NOTED

4\.

NEXT ASSY	DASH NO	EFFECTIVITY	REQD/MOD
LDW280-28736	-15, -17, -19	NOTED	1 EA
LDW280-28745	-27, -29		
LDW280-28754	-17, -19		
LDW280-28714	-21, -25, -27		

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
THERMAL REQMT	REMOVED -1, -3, -5 & -7, -9 & -11 – ADDED 15, -17, -19, -21, -25, -27 & -29, -31 & -33	2 UE 10.5

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8 (18)	
		LEM-1 (31) THRU	
		LEM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			✓

	APPROVED BY	DATE
VDI	JES	9/13/66
~~SUPPORT~~	W H	10-13-66
RELIAB. GROUP		
GROUP LEADER		
STRESS GROUP	WJH	9/19/66
LIAISON ENGRG		
PROJ ENGRG		10-3-66
~~GOVT~~		10/11/66

PRIORITY		DRAWING TITLE	DRAWING NO.	EO NO.
C	FOIL ASSY	DESCENT STAGE QUAD II - PLUME IMPINGEMENT SHIELD - UPR	LDW280-28737	A3

ISSUED BY R. VAN COTT X1153 SECTION VDI GROUP NO. 335 PL 35

01

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ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 316
CONTROL INFO NO. LDW280A0936

ON THE FOLLOWING DRAWINGS ADD NOTE *:
*) INCONEL KNITTED SLEEVNG TO BE OXIDIZED BY EXPOSURE TO 1650 ±50°F IN AIR FOR FOUR (4) HOURS. FOR LTA5 (15) AND LTA 8 (18) OXIDIZATION IS OPTIONAL

DRAWING:	EFF	CHANGE NO.	TITLE
LDW280-25708	QUAL TEST LM 1 THRU LM6 LTA5 & 8	B3	SEE DRAWING
LDW280-28735	LM 1 THRU LM6 LTA8	C1	
LDW280-28737	"	A4	
LDW280-28740	"	B1	
LDW280-28743	"	A4	
LDW280-28746	"	B1	
LDW280-28749	"	A6	
LDW280-28752	"	B1	
LDW280-28755	LTA-8 & LM-1	A5	
LDW280-28759	LTA-8 LM-1 THRU LM-6	B1	
LDW280-28764	"	B1	
LDW280-28768	" & LM-1	B1	
LDW280-28771	LTA-8, LM-1 THRU LM-6	B1	
LDW280-28774	"	A6	
LDW280-28803	"	A1	SEE DRAWING
LDW280-28819	"	A1	SEE DRAWING

* - USE NEXT AVAILABLE NUMBER

3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: THERMO REQUIREMENT

DESCRIPTION OF EO: ADDED NOTE *

GAEC C EO RELEASE: LE 10/18

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	
LM			
LM			

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

					MAT'LS	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JAS				RGM	WJH			
DATE	10/11/66				10/7/66	10/4/66		10/12/66	10/15/66
	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~					

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 316

ISSUED BY AMBROSIO / STRACOSCH X1153 SECTION V. D. 1 GROUP NO. 335 PL 35 EMF

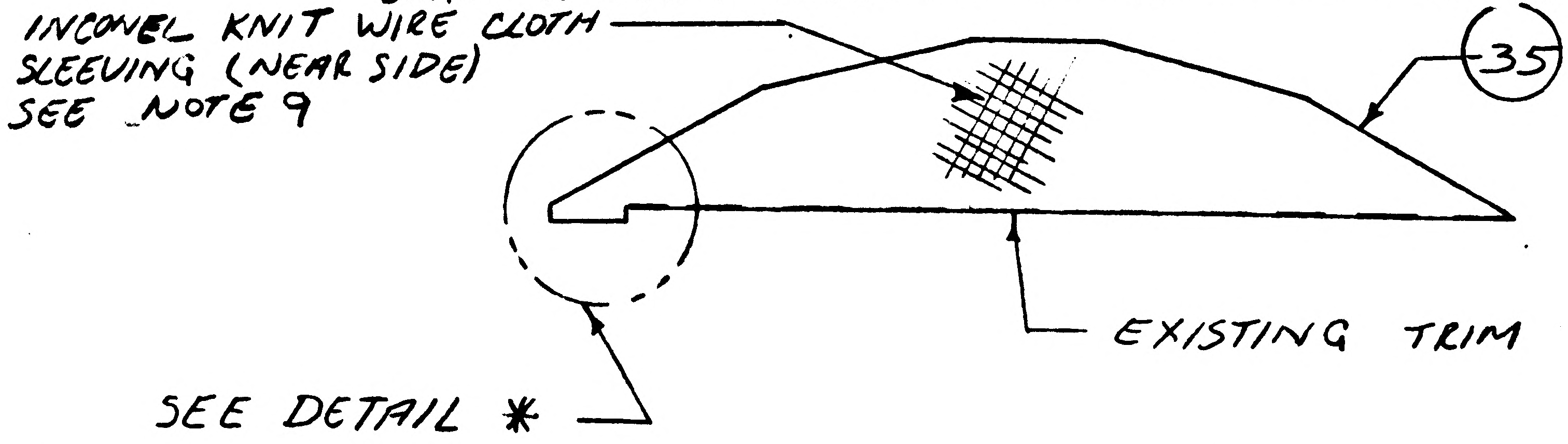
01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28737	EO NO. A5
CONTROL INFO NO. LDW 280A3792	

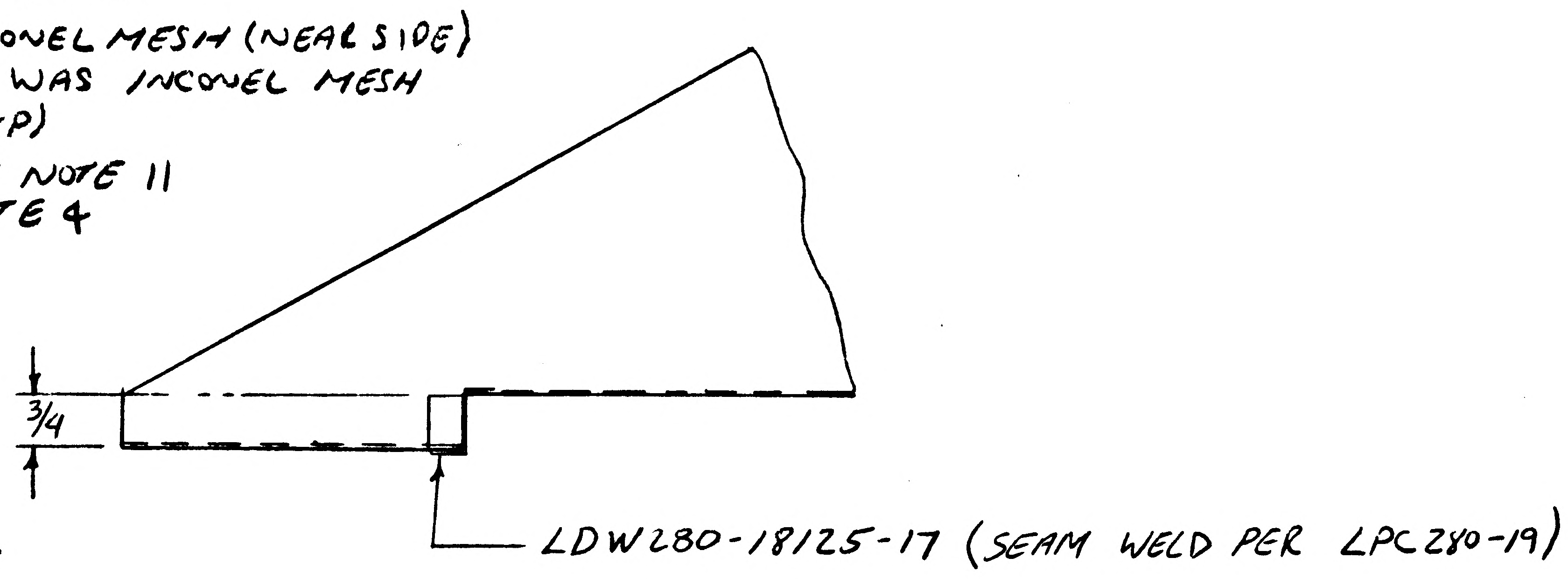
① ADD-35 IDENTICAL TO-29 EXCEPT AS SHOWN: N/A LDW280-28745
1 REQ'D/MOD. EFF LM1 THRU LM-15(95)
ADD LM-7(37) THRU LM-15(95) FOR -27; N/A LDW280-28745 1 REQ'D
FOR -29 REMOVE LM-1 THRU LM-6(36)
REMOVE NOTES 1 THRU 8 & -31 & -33 & -13
ADD NOTE 9: FABRICATE -15,-17,-19-21-25-27-29 & -35 PER LPC280-19
ADD NOTE 10: INCONEL KNITTED SLEEVING MAY BE PURCHASED FROM MONTGOMERY METAL FABRIC CO., 59 CANAL STREET, WINDSOR LOCKS, CONN. (CODE IDENT. 94725)
ADD NOTE 11: -15,-17,-19,-21,-25,-27,-29 & -35 TO BE MADE FROM .0005 THICK X 12" WIDE, BRIGHT ROLLED NICKEL FOIL COMMERCIALLY PURE (INCO 200 OR EQUIV.)



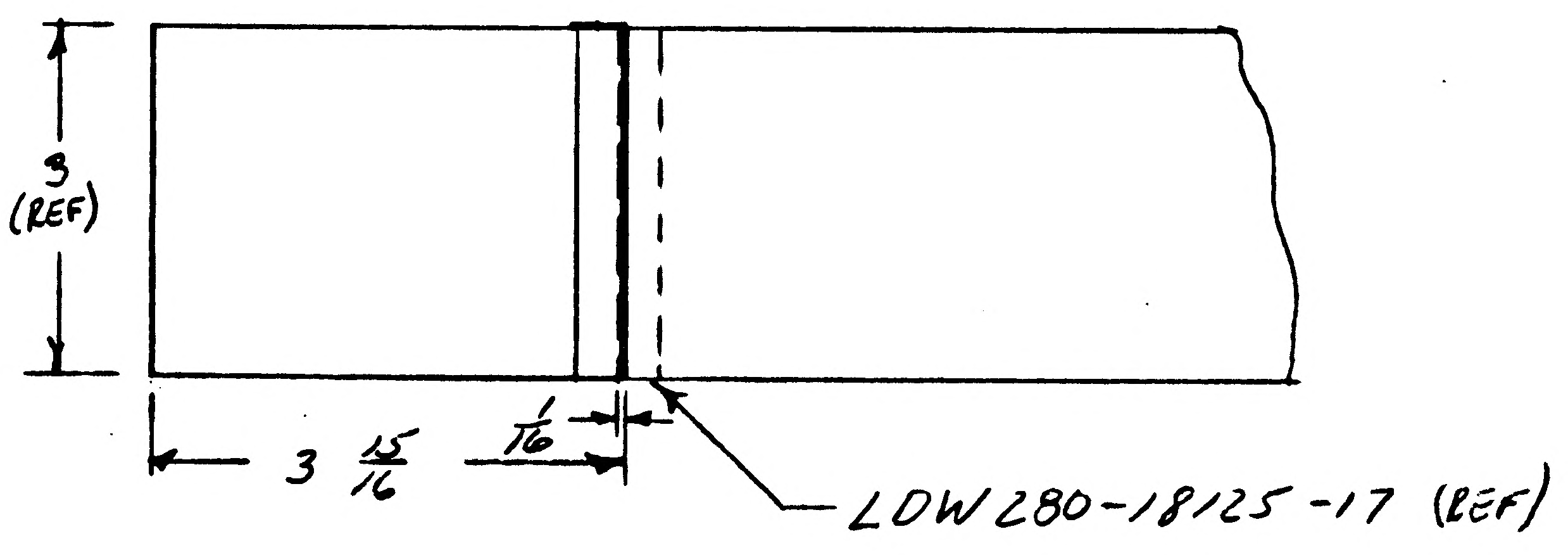
② IN FLD & BM REMOVE: LDW280-17950
-11,-21- -31-33-35, SECT B-B
& 3/8 ± 1/8 DEM (2 PLCS)

IN FLD - INCONEL MESH (NEAR SIDE)
SEE NOTE 9 WAS INCONEL MESH
NEAR SIDE (TYP)

IN B/M SEE NOTE 11
WAS SEE NOTE 4



DETAIL *



* - USE NEXT AVAILABLE DETAIL

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG										2
REASON FOR EO: TO PROVIDE ACCESS DOOR CLEARANCE				DESCRIPTION OF EO: ADDED: -35; LM7 THRU LM15(46) FOR -27; REMOVED NOTES 1 THRU 8, -13, -31, -33 ADDED NOTES 9, 10 & 11 IN FLD & B/M REMOVED: LDW280-17950-11, -21, -31, -33 & -35, SECT B-B & 3/8 ± 1/8 DEM (2 PLCS) IN FLD INCONEL MESH (NEAR SIDE) SEE NOTE 9 WAS INCONEL MESH NEAR SIDE (TYP) IN B/M SEE NOTE 11 WAS SEE NOTE 4										① GAEC EO RELEASE C4 FR 12/7/6
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY						
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓			✓	DATE				12/1/66	12/5/66	12-5-66	12/7/66
LM		LM1(31)		REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
LM		THRU		PRIORITY	DRAWING TITLE: FOIL ASSY DESCENT STAGE QUAD II - PLM IMPG SHIELD- UPR					DRAWING NO. LDW280-28737				EO NO. A5
LM		LM-15(45)		C										

ISSUED BY AMBROSIO/STRAKOVICH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01 NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG NO. LEO280 — EO NO. 705
CONTROL INFO NO. LDW280A 8997

IN M/B RESTRICT THE FOLLOWING PARTS FOR USE AS SHOWN.

DWG No	DASH No*	**REST. FOR USE ON	***WAS USED ON	CH. LTR	TITLE
✓ LDW280-18125	-15, -17 & -18	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	↑
✓ LDW280-18130	-11, -13 & -14	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	A8	
✓ LDW280-18168	-17	LM-1 & LM-2	LM-1 THRU LM-15	A2	
✓ LDW280-28730	-21	LM-2	LM-2 & LM-3	B8	
✓ LDW280-28737	-15, -17, -19 -21, -25 & -27	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	SEE DWG
	-35	LM-1 & LM-2	LM-1 THRU LM-15		
LDW280-28738	-9	LM-1 & LM-2	LM-1 THRU LM-15	A8	
LDW280-28746	-15 & -31	LM-1 & LM-2	LM-1 THRU LM-15	B4	
LDW280-28747	-13	LM-1 & LM-2	LM-1 THRU LM-15	B5	
LDW280-28755	-13	LM-2	LM-2 THRU LM-15	A8	
LDW280-28756	-13	LM-2	LM-2 THRU LM-15	C1	↓

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1244 ok — 5

REASON FOR EO: PROVISIONS FOR FITH SHIELD

DESCRIPTION OF EO: FOR NOTED DWGS RESTRICTED DASH NO * TO ** WAS ***.

Ⓡ GAEC EO RELEASE: JK 9/[illegible]

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	8/31/67			8/30/67	9/1/67		9/1/67	9/6/67

PRIORITY: C — DRAWING TITLE: NOTED — DRAWING NO.: LEO280 — EO NO.: 705

9/1 ISSUED BY G. ZEMAN/J. STRAKOSCH — SECTION VDI — GROUP NO. 335 — PL 25

01

NAS 9-1100

LDW280-28738 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28736	LM-2 (32)	1
LM	LDW280-28736	LM-1 (31)	1
PART NO. LDW280-28738-9		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28736	LTA-8(18)	1
PART NO. LDW280-28738-5		GAEC SCH NO. 52	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10
REV	A	A
SHEET	2.00	
REV	A	
SHEET	3.00	
REV	A	

LAST SECT LTR USED	C
LAST DASH NO. USED	-9

GRUMMAN REL INFO A

PRIM NO.	JK(001)
207	ME-1A- 3/8/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/16 ±.030 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	F. MADDEN
LAYOUT BY	F. MADDEN
CHECKED BY	
GRP. LDR	7/14/66
V.D.I.	7/16
STRUCT.	FD 7/16
STRUCT.	7/16
WEIGHT	7/22

THERMO
PROJ ENGR
REL GROUP Botts 8-18-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ASSEMBLY ~ DESCENT STAGE ~ QUAD 2 PLUME IMPINGEMENT SHIELD UPPER

SIZE	CODE IDENT NO.		
B	26512	LDW280-28738	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED SH.3.00 NO CHG - LAST REV. NO CHG - SH SIZE E WAS J - E. BAFFO 3-6-69						
A	1	3.00							INC. LEO 280-188 ADDED SH. 1.10	LTA-8 LM-1 THRU LM-6			E. BAFFO 3-6-69		
	2	3.00							INC. LEO 280-240						
	3	1,2,3							INC. EO A3						
	4	1,2,3							INC. EO A4	LTA-8, LM-1 THRU LM-15					
	5	3.00							INC. EO A5	LM-1 THRU LM-15					
	6	1.2.3							INC. EO A6						
	7	2.00 3.00							INC. LEO 280-559	LTA-8, LM-1 THRU LM-15					
	8	1.00						Ⓟ	INC. LEO 280-705 H.D.	LM-3 THRU LM-15					

CHG APPROVED	LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS	THERMO
	A						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28738	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

C						AR		GT15B-42	E	TAPE	GRUMMAN STD						
C								LDW280-28738-9	E	SKIN	SEE NOTE 1				NONE	NOTE 3	
C								LDW280-28738-5	E	SKIN ASSY	SEE NOTE 1				NONE	NONE	
▨						-5	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
CL	QTY PER ASSEMBLY																

CL = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

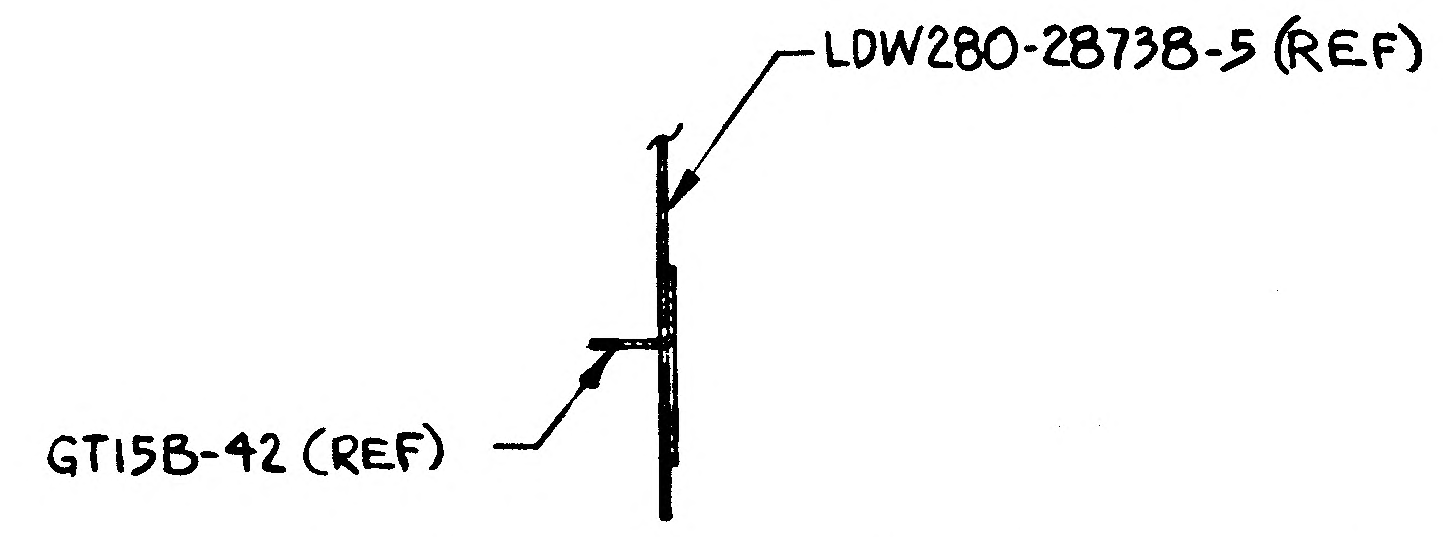
SIZE	CODE IDENT NO.		
B	26512	LDW280-28738	A
SCALE NONE		SHEET 2.00	

ENG 77.2 7-65

01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	


LDW280-28738-5 (REF)
GT15B-42 (REF)

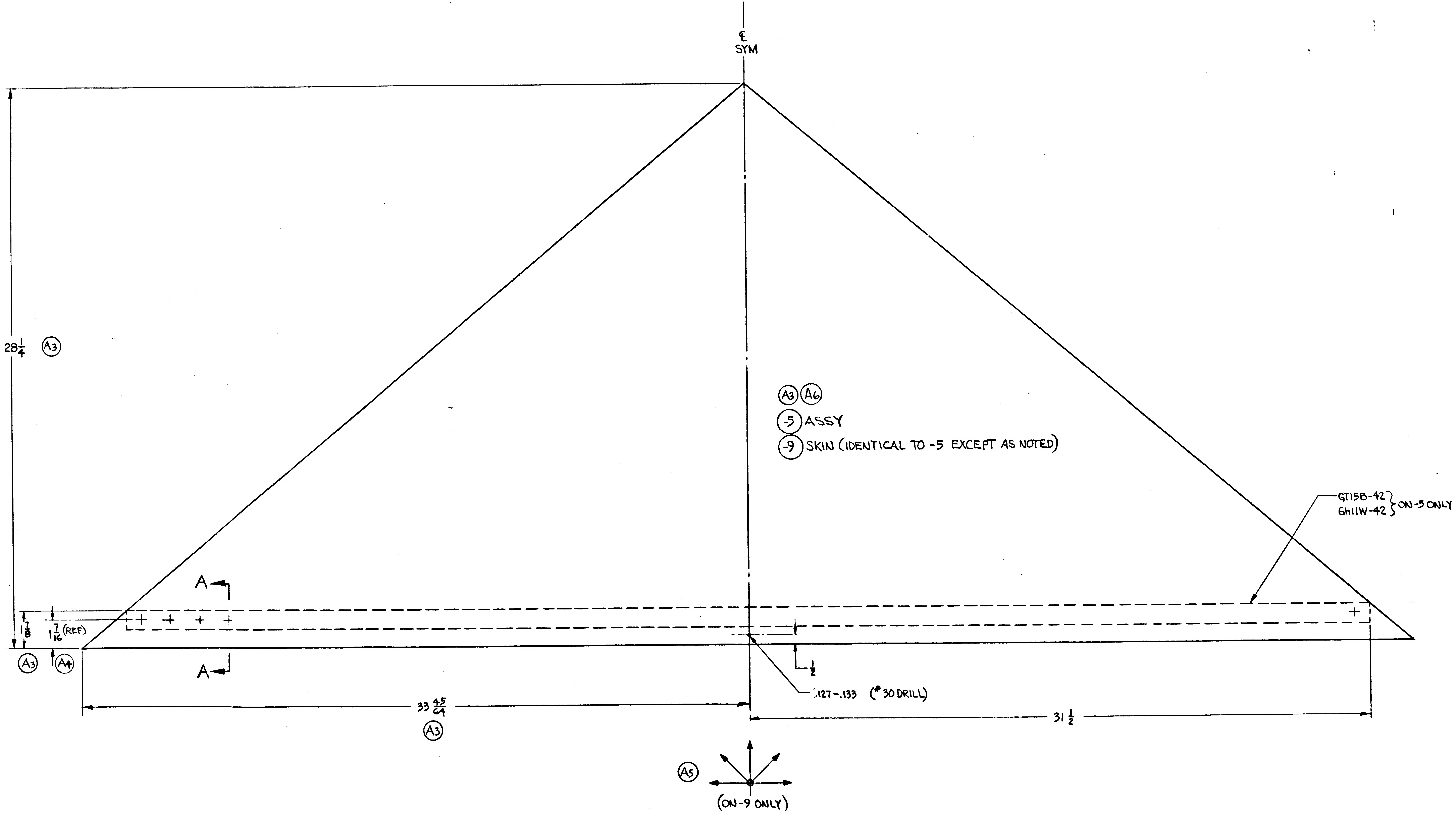
SECTION A-A (ON-5 ONLY)
NO SCALE

NOTES:

~~1. SEAMWELD PER LSP 14-6102~~

~~2. OXIDIZED SURFACES LDW280-17970-11, -13 & -15 NEAR SIDE~~

3. FOR -9 ONLY, FINISH NEAR SIDE IN ACCORDANCE WITH LPC280-5
4. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS5540E
5. FABRICATE -5 & -9 PER LPC280-19


℄
SYM
$28\frac{1}{4}$ (A3)
(A3) (A6)
(-5) ASSY
(-9) SKIN (IDENTICAL TO -5 EXCEPT AS NOTED)
GT15B-42
GH11W-42
ON-5 ONLY
A
A
$1\frac{7}{8}$
$1\frac{7}{16}$ (REF)
(A3)
(A4)
$\frac{1}{2}$
.127-.133 (#30 DRILL)
$33\frac{45}{64}$
(A3)
$31\frac{1}{2}$
(A5)
(ON-9 ONLY)

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
E	26512	LDW280-28738	A
SCALE HALF		SHEET 3.00	

SUPERSEDES 2 LDW280-28738 LC 8-18-66 1

HG

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280
EO NO. 240
CONTROL INFO NO. LEM-2-2643

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE *.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LDW 280-25703	A4	A5	*, **, ***
-25704	A3	A4	*, **, ***
-25705	B5	C2	*, **
-25706	A3	A5	*, **, ***
-25707	B1	B2	*, **, ***
-28730	A1	A5	*
-28734	A1	A4	*
-28735	A1	B1	*
-28737	A1	A2	*
-28733	A1	A2	*
-28740	A1	A2	*
-28741	A1	A2	*
-28743	A1	A2	*
-28744	A1	A2	*
-28746	A1	A2	*
-28747	A1	A2	*
-28749	A1	A2	*
-28750	A1	A2	*
-28755	A1	A3	Δ
-28756	A1	A3	Δ
-28759	A1	A3	*
-28760	A1	A2	*
-28764	A1	A2	*
-28765	A1	A2	*
-28771	A2	A3	*
-28772	A2	A3	*
-28774	A1	A2	*
LDW 280 -28775	A1	A2	*

EFFECTIVITY:
*** - QUAL TEST (72)
** - LTA-5 (15)
* - LEM-1 (31) THRU -6 (36) & LTA-8 (18)
Δ - LTA-8, LEM-1

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: TO FACILITATE MANUFACTURING

DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE *.

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		SEE ABOVE	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP
PRIORITY C₂

APPROVED BY	DATE	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
8-20-66	VDE				CAW 8/23/66	CAW 8/23/66	AMC 9-3	8/30/66

DRAWING TITLE —
DRAWING NO. LEO-280
EO NO. 240

ISSUED BY LIAISON G. MARTELL x3604 SECTION VDI (DESCENT STAGE) GROUP NO. 335 PL 35

01

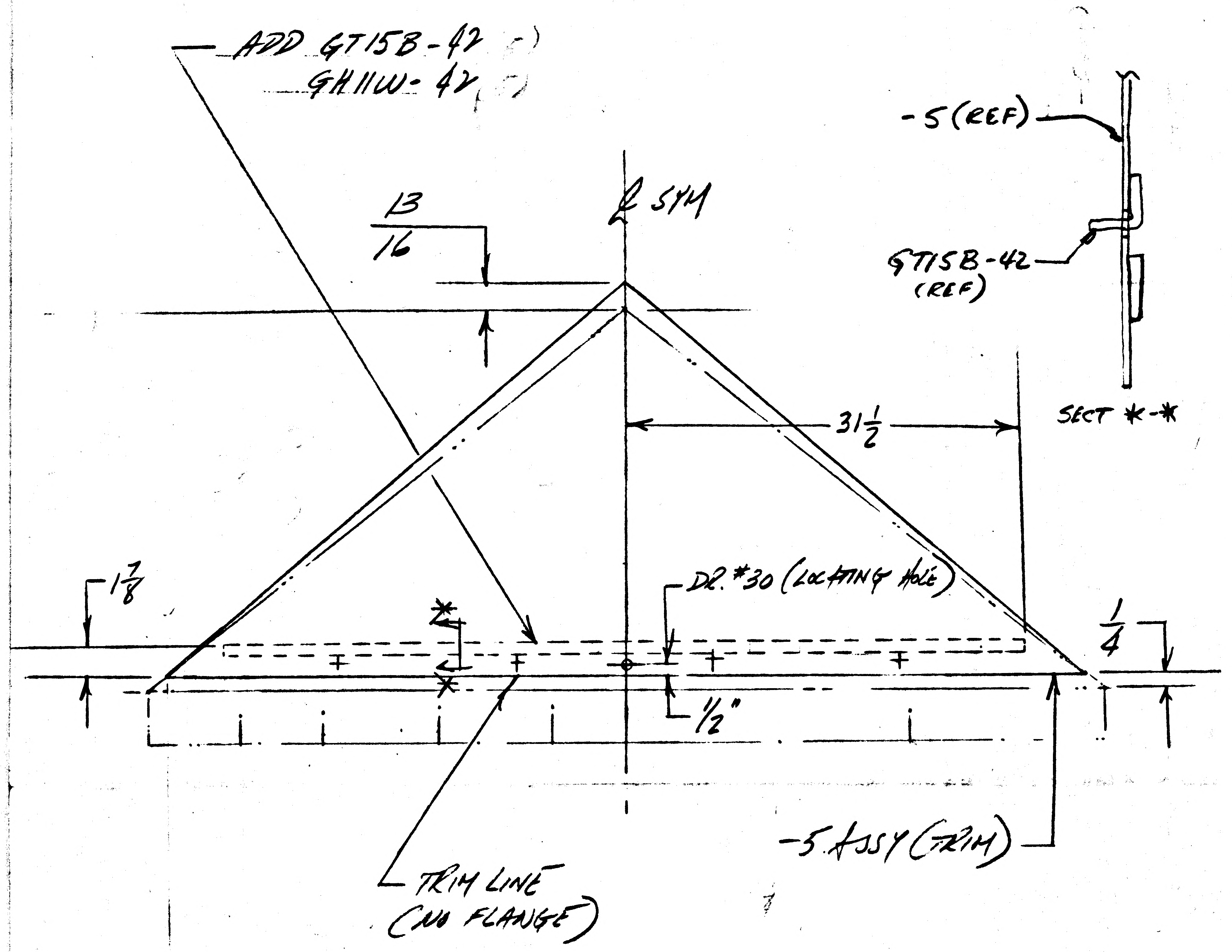
NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28738
EO NO. A3
CONTROL INFO NO. LDW280A-0323



1. ADD LDW280-28738-5 ASSY (EFF LTA-8) REPLACES LDW280-28738-1 (IDENTICAL TO -1 EXCEPT AS SHN)

2. ADD LDW280-28738-7 ASSY (EFF LM-1 THRU LM-6) IDENTICAL TO -5 EXCEPT FOR FINISH. DELETE FINISH NOTE #4 & ADD NOTE #Δ "FINISH -7, NEAR SIDE, IN ACCORDANCE WITH LPC280-5.

3. REMOVE -3 FROM MODEL BLOCK ONLY. (DWG CORRECTION)

Δ = USE NEXT AVAILABLE NOTE NO.
* = NEXT AVAILABLE SECT LTR.

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: THERMAL REQMT

DESCRIPTION OF EO: REMOVED -1 & NOTE 4. ADDED -5, -7 & NOTE Δ REMOVED -3 FROM MODEL BLOCK

GAEC EO RELEASE: FR 9/29/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
	(31)	LM-1 THRU	
		LM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	THERMO ~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONF~~
APPROVED BY	JAS		SAR		MJH		RMC	AC
DATE	9/13/66	11/7/66	10-3 WT		9/19/66		9-29	9-24-66

PRIORITY: C
DRAWING TITLE: SKIN ASSY DESCENT STAGE QUAD II - PLUME IMPINGEMENT SHIELD - UPR
DRAWING NO.: LDW280-28738
EO NO.: A3

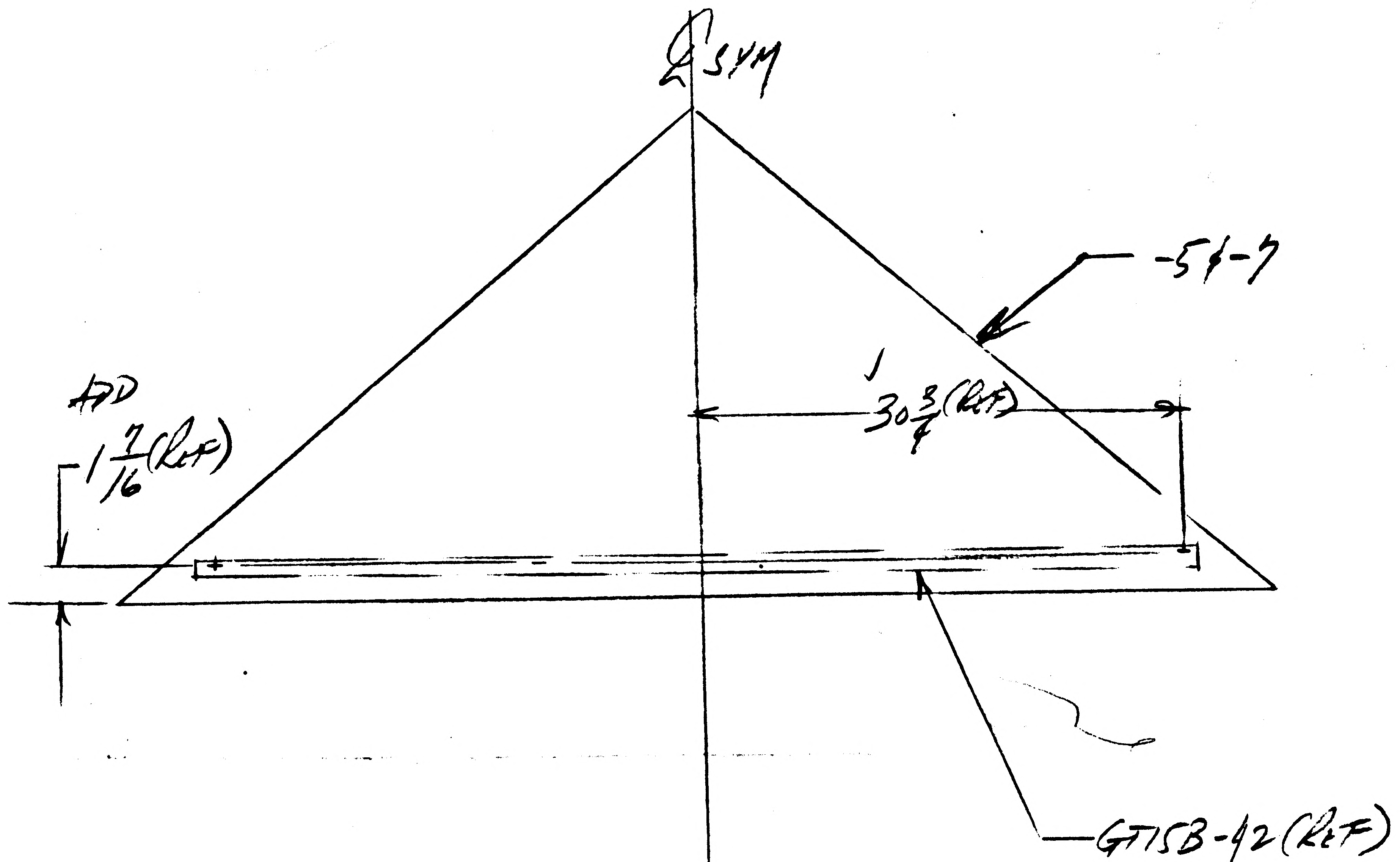
ISSUED BY R. VAN COTT X1153 SECTION VDI GROUP NO. 35 EMF PL 335

ENG 32.2 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28738
EO NO. A4
CONTROL INFO NO. LDW280A-3740



1. ADD 1 7/16 DIM LOCATING GT15B-42 TO -54-7

2. ADD NOTE * "MAKE 54-7 FROM .00125 INCONEL 600 FOIL PER AMS 5540E." ADD NOTE ** "FABRICATE -54-7 PER LC280-19

3. REMOVE LDW280-17970 (ALL DASH NUMBERS) & -3 FROM FD & B/M

4. REMOVE NOTE 2 & 4 :

5. THIS E.O. CANCELS A1 & A2 CHANGE

6. FOR -7 ADD LM-7 THRU LM-15 REQMTS SAME N/A & QUANTITIES AS LM-6

* NEXT AVAILABLE NOTE # ②

TJ Kelly 12/10 (TS)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADD LOCATING DIM. & FAB PROCEDURE

1. ADD 1 7/16 DIM. (REF) 4. REMOVED NOTE 2 & 4
2. ADD NOTE * & ** 6. FOR -7 ADD LM-7 THRU LM-15 REQMTS
3. REMOVED LDW280-17970 5. THIS E.O. CANCELS A1 A2 CHG

GAEC EO RELEASE: FR 12/12/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (31) THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

			RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JAP	MS		JAB	NM		Dam	JCY
DATE	12/2/66	12/2/66		12/2/66	12-2-66		12/2/66	12/10/66
	1	VDI	~~SUPPORT~~ THERMO					~~CSM~~

PRIORITY: C
DRAWING TITLE: SKIN ASSY DESCENT STAGE QUAD II - PLUME IMPINGEMENT - UPR
DRAWING NO.: LDW280-28738
EO NO.: A4

ED BY R. VAN COTT X1153 SECTION VDI GROUP NO. 335 PL. 35

01 NAS 9-1100

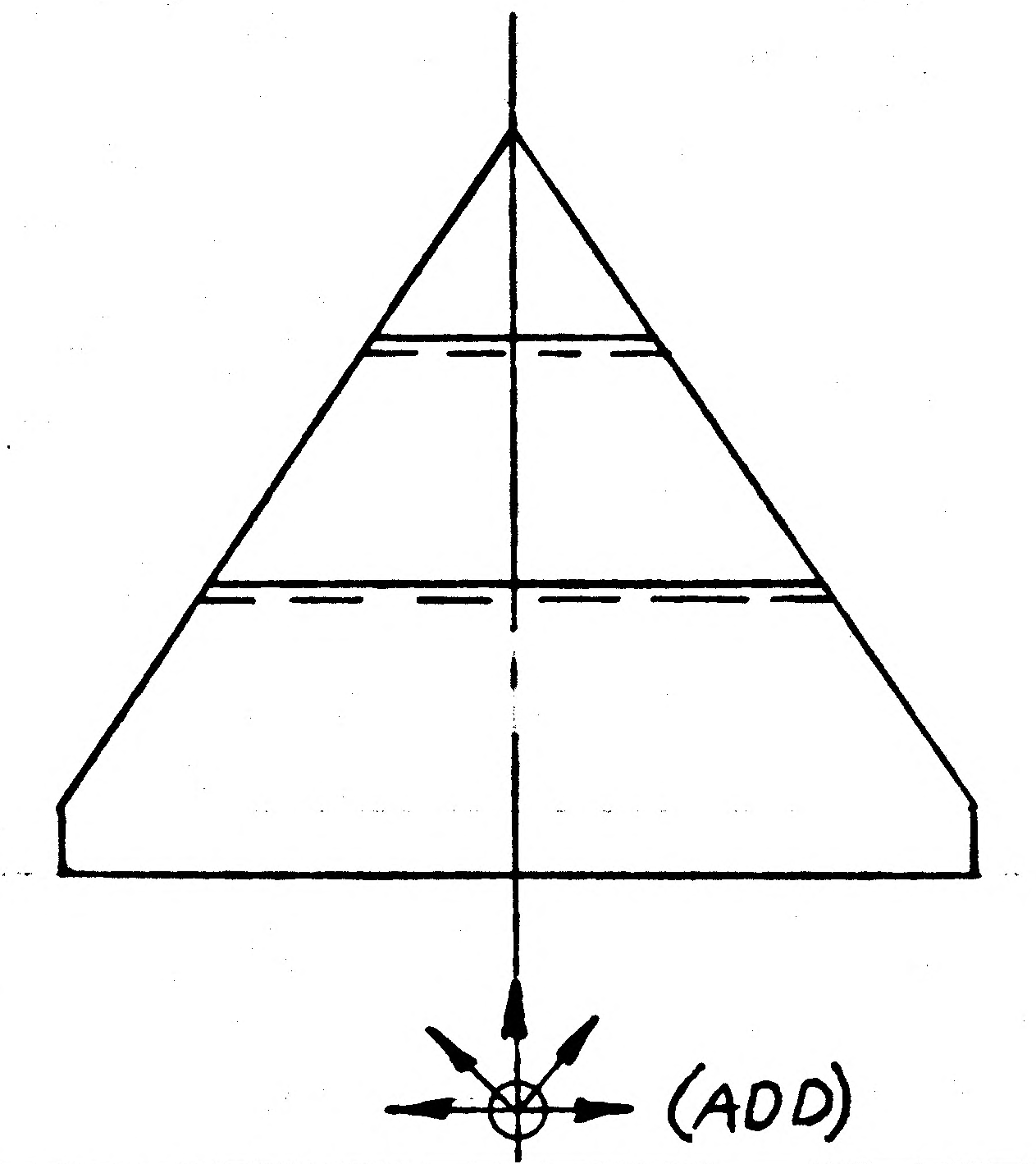
B *

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28738		EO NO. A5
CONTROL INFO NO. LDW280A4503		

ON-7 ADD SYMBOL INDICATING PERMISSABLE DIRECTION OF LAP JOINTS.



* THIS CHANGE HAS BEEN INCORPORATED ON LM-1

THERMAL SHLD
2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PROVIDE COMPLETE FABRICATION AND INSPECTION INFO	ADDED SYMBOL FOR LAP DIRECTIONS ON-7	1/6/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
↕		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY									
✓		NOT REQD		DATE	1/3/67	1/3/67		1/3/67	1/3/67		1-4-67	1/5/67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY - D/S ~ QUAD 2 PLUME INPINGEMENT SHIELD UPPER	LDW280-28738	A5

ISSUED BY Jos Ewan / JOHN STRAKOSCH X1441 SECTION V.D.I. GROUP NO. 335 PL 35

01 NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *1
ENGINEERING ORDER A

DWG. NO. LDW280-28738 EO NO. A6
CONTROL INFO NO. LDW280A-5479

INF/D & UM REMOVE -7 ADD -9 IDENT TO -7 EXCEPT REMOVE GT15B-42. & GH11W-42. -9 EFF LM-1(31) THRU LM-15(45) N/A LDW 280-28736 (1) REQD/MOD.
-9 I&T=E
ADD NOTE* FABRICATE PER LPC280-19 (USE NEXT AVAILABLE NOTE No)

(5)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

LCR-928

REASON FOR EO: LCR-928 INCREASED SKIN THICKNESS

DESCRIPTION OF EO: REMOVED -7 ADDED -9 ADDED NOTE: *

C/ GAEC EO RELEASE: C LE 3/14/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY	JaP			JMS	WJM		JWP		
DATE	3/7/67			7/7/67	3/8/67		3-14-67	3/14/67	
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY: C
DRAWING TITLE: SKIN ASSY D/S QUAD II - PLUME SHIELD-UPPER
DRAWING NO.: LDW280-28738
EO NO.: A6

ISSUED BY V. PADDEN X1392 SECTION STRUCT. SYS GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.2 REV 3-65

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 | EO NO. 559
CONTROL INFO NO. LDW 280 A 6306

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW · REMOVE LDW280-17970 · ALL DASH NUMBERS AND ADD "SEE NOTE *"

IN F/D REMOVE LDW280-17970-ALL DASH NUMBERS

REVISE NOTE *
(REF) "MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19."
(ADD) PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

DRAWING No.	CHANGE #	SYMBOL	EFFECTIVITY	TITLE
LDW280-18130	A7	⬡	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW280-18141	A3	⬡	LM-1 THRU LM-15	
LDW 280-28730	B7	□	LTA-8 LM-1 THRU LM-3	
LDW 280-28734	B2	□	LTA-8 LM-1 THRU LM-3	
LDW280-28738	A7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28740	B3	□	LTA-8 LM-1	
LDW 280-28741	A6	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28744	A7	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28747	B4	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28750	39	□	LTA-8 LM-1 THRU LM-15	
LDW280-28753	A5	□	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	□	LTA 8 LM-1 THRU LM-15	
LDW280-28760	B5	□	LTA-8 LM-1 THRU LM-3	
LDW280-28765	A7	⬡	LTA-8 LM-1 THRU LM-6	
LDW280-28769	B2	□	LM-1	
LDW 280-28772	B6	□	LM-1 THRU LM-15	
LDW 280-28775	B7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28805	A6	□	LM-1 THRU LM-15	
LDW 280-28806	A4	□	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW 280-51824	A3	□	LM-1 THRU LM-15	

NOTE △ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY WITH LPC 280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM □ REVISE NOTE *.
FOR SYM ⬡ ADD NOTE △ TO DWG

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☑	CL I ENGRG CHG ☐		GAEC EO RELEASE	5 C
REASON FOR EO	UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE	DESCRIPTION OF EO	REMOVED LDW280-17970 FROM B/M & F/D (ALL DASH NO'S) FOR DWG'S □ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ⬡ ADDED NOTE △	JS 4-19-7	

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LM		NOTED ABOVE		✓		NOT	REQ

APPROVED BY	DATE		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
	4/10/67				4/10/67	4/10/67		4/18	Both 4-18-67
6	VD1								

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 559

ED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

01
NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG NO. LE0280
EO NO. 705
CONTROL INFO NO. LDW280A 8997

IN M/B RESTRICT THE FOLLOWING PARTS FOR USE AS SHOWN.

DWG No	DASH No*	**REST. FOR USE ON	***WAS USED ON	CH. LTR	TITLE
✓LDW280-18125	-15,-17&-18	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	↑
✓LDW290-18130	-11,-13&-14	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	A8	
✓LDW280-18168	-17	LM-1 & LM-2	LM-1 THRU LM-15	A2	
✓LDW280-28730	-21	LM-2	LM-2 & LM-3	B8	
LDW280-28737 ✓	-15,-17,-19 -21,-25&-27	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	SEE DWG
	-35	LM-1 & LM-2	LM-1 THRU LM-15		
✓LDW280-28738	-9	LM-1 & LM-2	LM-1 THRU LM-15	A8	
LDW280-28746	-15&-31	LM-1 & LM-2	LM-1 THRU LM-15	B4	
LDW280-28747	-13	LM-1 & LM-2	LM-1 THRO LM-15	B5	
LDW280-28755	-13	LM-2	LM-2 THRU LM-15	A8	
LDW280-28756	-13	LM-2	LM-2 THRU LM-15	C1	↓

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 1244 ok	5

REASON FOR EO: PROVISIONS FOR FITH SHIELD

DESCRIPTION OF EO: FOR * NOTED DWGS RESTRICTED DASH No * TO ** WAS ***.

(R) GAEC EO RELEASE: JK 9/5/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE							
✓			✓	8/31/67			8/30/67	9/1/67		9/1/67	9/6/67
				VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO280	705

9/1 ISSUED BY G. ZEMAN/J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280 28739 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

LM	LDW280-28665	LM-1 (31)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28739-5		GAEC SCH NO. 52	

LM	LDW280-28665	LTA-8(18)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28739-3		GAEC SCH NO. 52	

WORK PKG FUNCTION NO. 110 (2)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	D	GRUMMAN REL INFO A		
		PRIM NO.	LE (001)	
LAST DASH NO. USED	- 5	207	MP-14	A-3/16/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/16 ±.030 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	R.VAN COTT	RELIABILITY	
LAYOUT BY		THERMO	
CHECKED BY			
GR.LEADER	J.STRAKOSCH 7-16-66		
YEH.DES.INT	W.BISCHOFF 7-16-66		
STRUCTURE	F.E.B. 7-16-66	PROJ ENGR	CARBEE 7-22-66
STRUCTURE	HILDERMAN 7-16-66	REL GROUP	BOTTI 7-25-66
WEIGHTS	D.ROBESCH 7-19-66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ASSY
DESCENT STAGE-QUAD II-
PLUME IMPINGEMENT SHIELD-SIDE-FIXED

SIZE B
CODE IDENT NO. 26512
LDW280 28739 A
SCALE 1/2 NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDES LDW280-28739 N.C. 7-25-66

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
				RETRACED NO CHANGE					LAST REVISION NO CHANGE ADDED SH 1.10 R.NISBET 2-21-67						
A	1	1.00, 1.10, 2.00 & 3.00	4A 6A					E.O. A1	REMOVED -1 ASSY, ADDED -3 & -5 ASSYS, NOTE 2 & IN DETAIL "B" ADDED NOTE: DIRECTION OF STAPLES OPTIONAL. LDW280-28720-1 SHOULD BE LDW280-23720-1 & LDW280-28932-11 SHOULD BE LDW280-17932-11	LTA-8 & LM-1 THRU LM-6		-1	R. NISBET 2-21-67		3/6/67
	2	1.10 & 3.00	6A					E.O. A2	REF. E.O. A1; IN DETAIL "B" REVERSED DIRECTION OF STAPLES, REMOVED NOTE: DIRECTION OF STAPLES OPTIONAL		✓				
	3	1.00, 1.10, 2.00 & 3.00	4B 3,4,5A 3B, 3C					E.O. A3	ADDED LDW280-28740-9 ASSY TO -5 ASSY, ADDED GH11W-6(3) ADDED GH11W-6(3), GH11W-13, GH11W-12 & GH11W-29 TO -3 & -5; FOR -5 REMOVED LM-2 THRU LM-6 REQUIREMENTS		✓	✓			
	4	1.10 & 3.00							STAPLES REDIMENSIONED TO AGREE WITH TEMPLATE	LTA-8 & LM-1	NOT	REQD	EG		

CHG APPROVED

LTR	~~GROUP LDR~~	VEH.DES.INT.	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO
A		3/6/67					M.S. 3/2/67

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28739	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY 5	QTY PER ASSEMBLY 3	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
21	21	LDW280-23720-1	E		STAPLE ASSY	SEE DWG						4D
21	21	LDW280-17932-11			WASHER							4D
1		LDW280-28741-7			SKIN ASSY							5B
	1	LDW280-28741-5			SKIN ASSY							5B
1		LDW280-28740-9			SKIN ASSY							4D
1	1	LDW280-28740-7			SKIN ASSY							5C
1	1	LDW280-28740-5			SKIN ASSY	SEE DWG						4A
		LDW280-28739-5			SKIN ASSY					NONE	NONE	4A
		LDW280-28739-3	E		SKIN ASSY					NONE	NONE	4A

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-28739 A

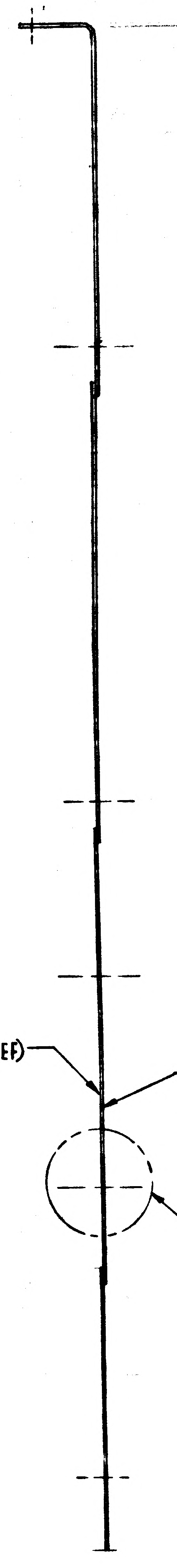
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

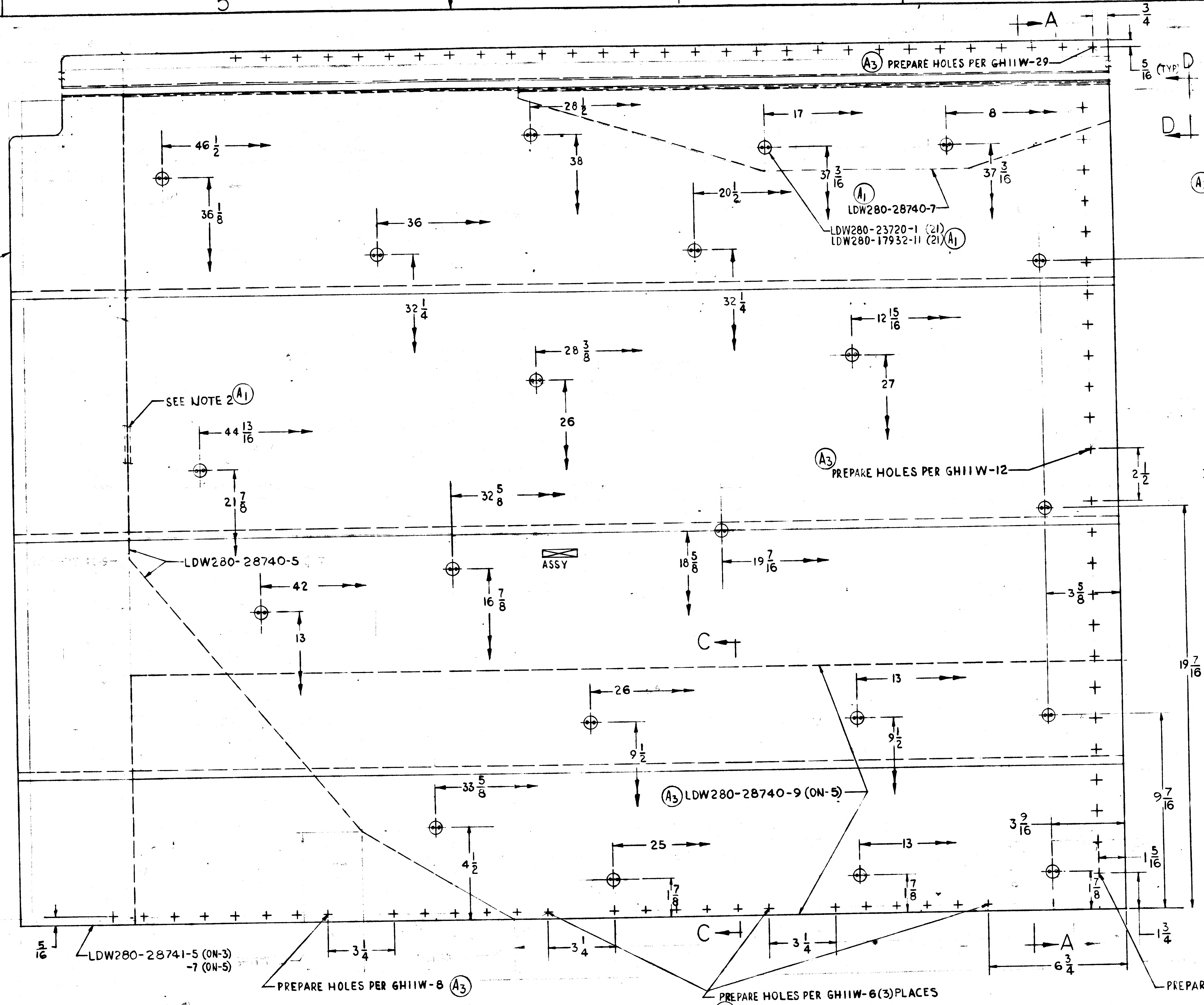
01

NAS 9-1100



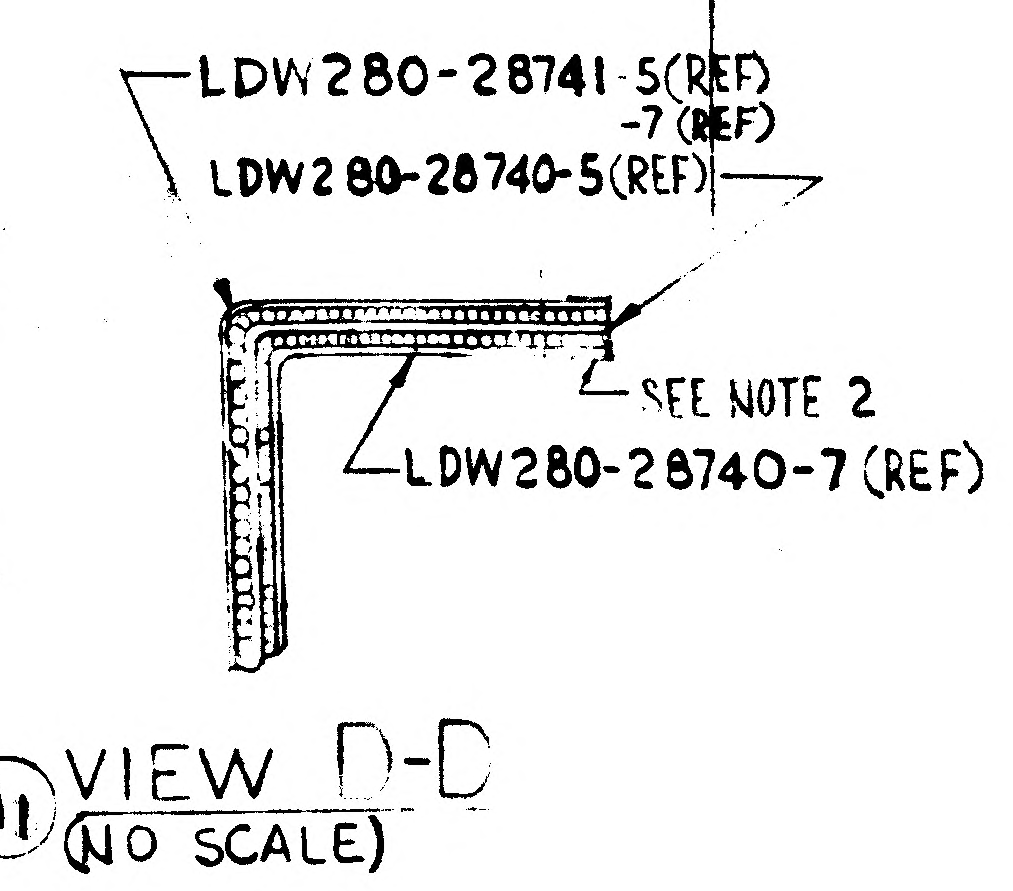
LDW280-28740-5(REF)
LDW280-28741-5(REF)
-7 (REF)
SEE DETAIL B

SECTION A-A



A
3/4
A3 PREPARE HOLES PER GH11W-29
5/16 (TYP)
D
D
28 1/2
17
8
46 1/2
38
37 3/16
37 3/16
A1 LDW280-28740-7
36 1/8
20 1/2
LDW280-23720-1 (21)
LDW280-17932-11 (21) A1
36
LDW280-28741-5
-7
32 1/4
32 1/4
12 15/16
28 3/8
27
SEE NOTE 2 A1
26
44 13/16
A3 PREPARE HOLES PER GH11W-12
2 1/2
31 1/2
21 7/8
32 5/8
LDW280-28740-5
ASSY
18 5/8
19 7/16
16 7/8
42
3 5/8
13
C
19 7/16
13
26
9 1/2
9 1/2
33 5/8
A3 LDW280-28740-9 (ON-5)
9 7/16
3 9/16
25
13
4 1/2
1 5/16
1 7/8
1 7/8
1 7/8
5/16
LDW280-28741-5 (ON-3)
-7 (ON-5)
3 1/4
3 1/4
3 1/4
C
A
6 3/4
1 3/4
PREPARE HOLES PER GH11W-8 A3
PREPARE HOLES PER GH11W-6 (3) PLACES A3
PREPARE HOLES PER GH11W-13 A3

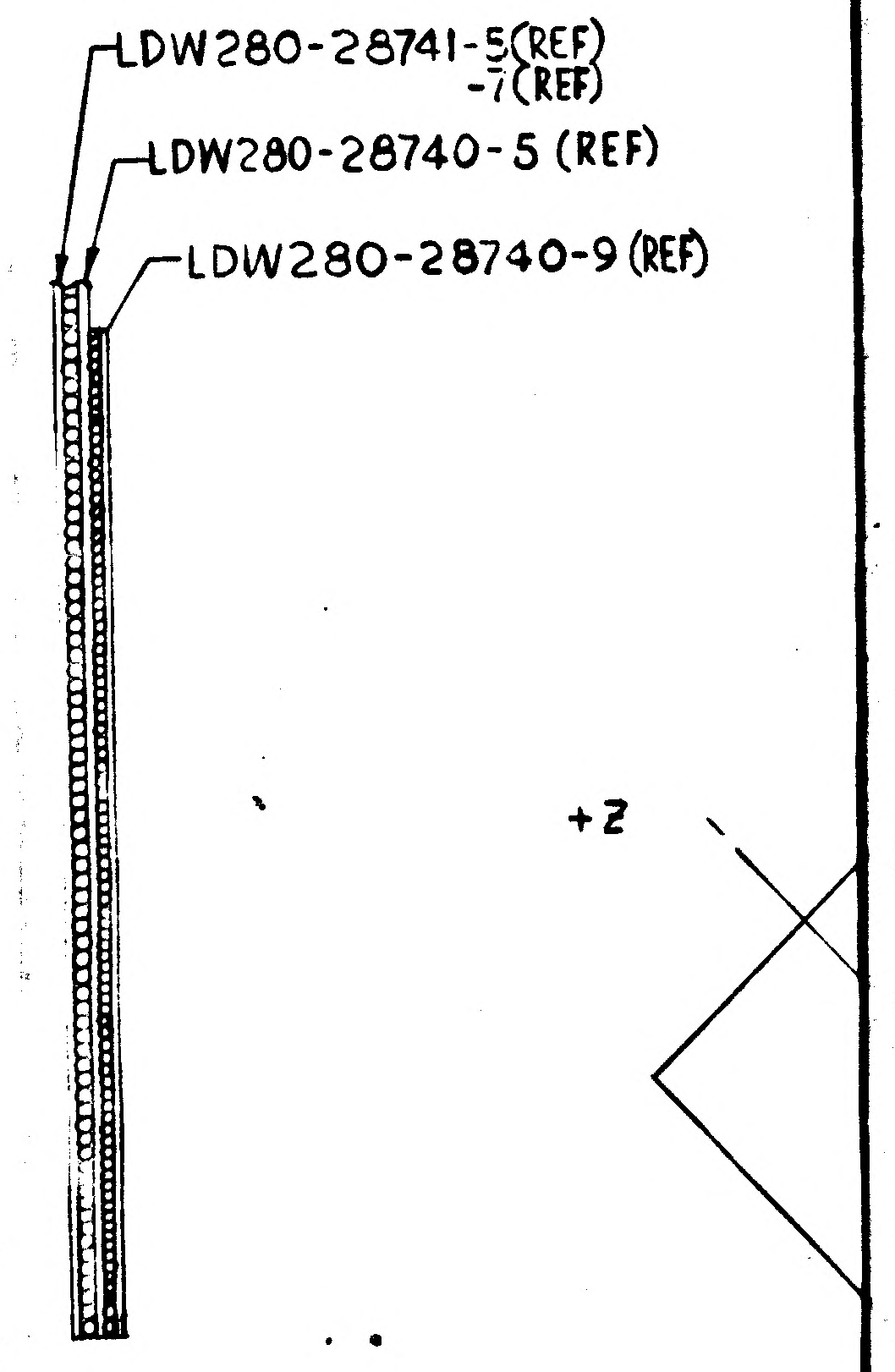
A3 LDW280-28739-3 ASSY
-5 ASSY



LDW280-28741-5(REF)
-7 (REF)
LDW280-28740-5(REF)
SEE NOTE 2
LDW280-28740-7 (REF)

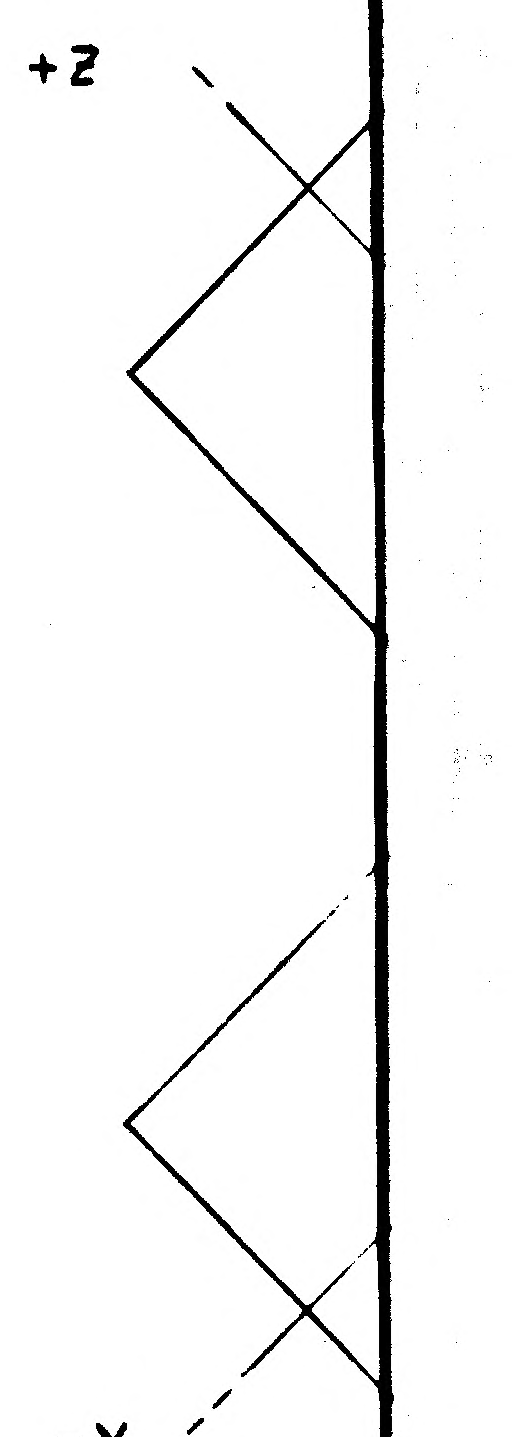
A1 VIEW D-D
(NO SCALE)

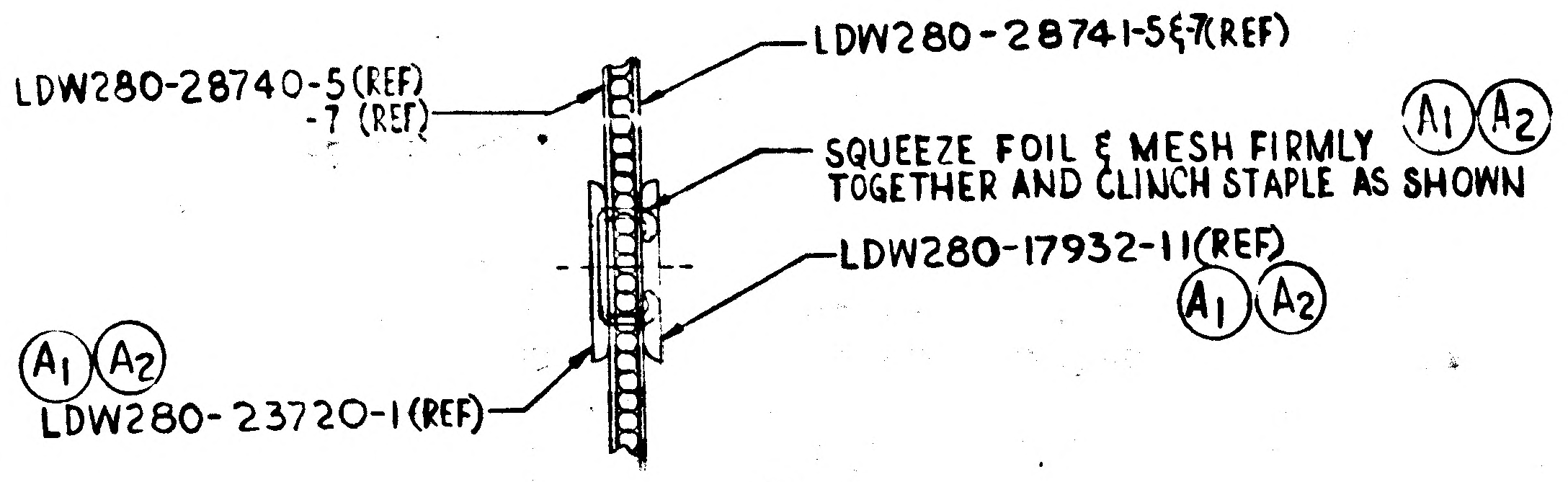
NOTES
1. FAE
COND
2 TAPE
3 NO



LDW280-28741-5(REF)
-7(REF)
LDW280-28740-5 (REF)
LDW280-28740-9 (REF)

A3 SECTION C-C
(NO SCALE)



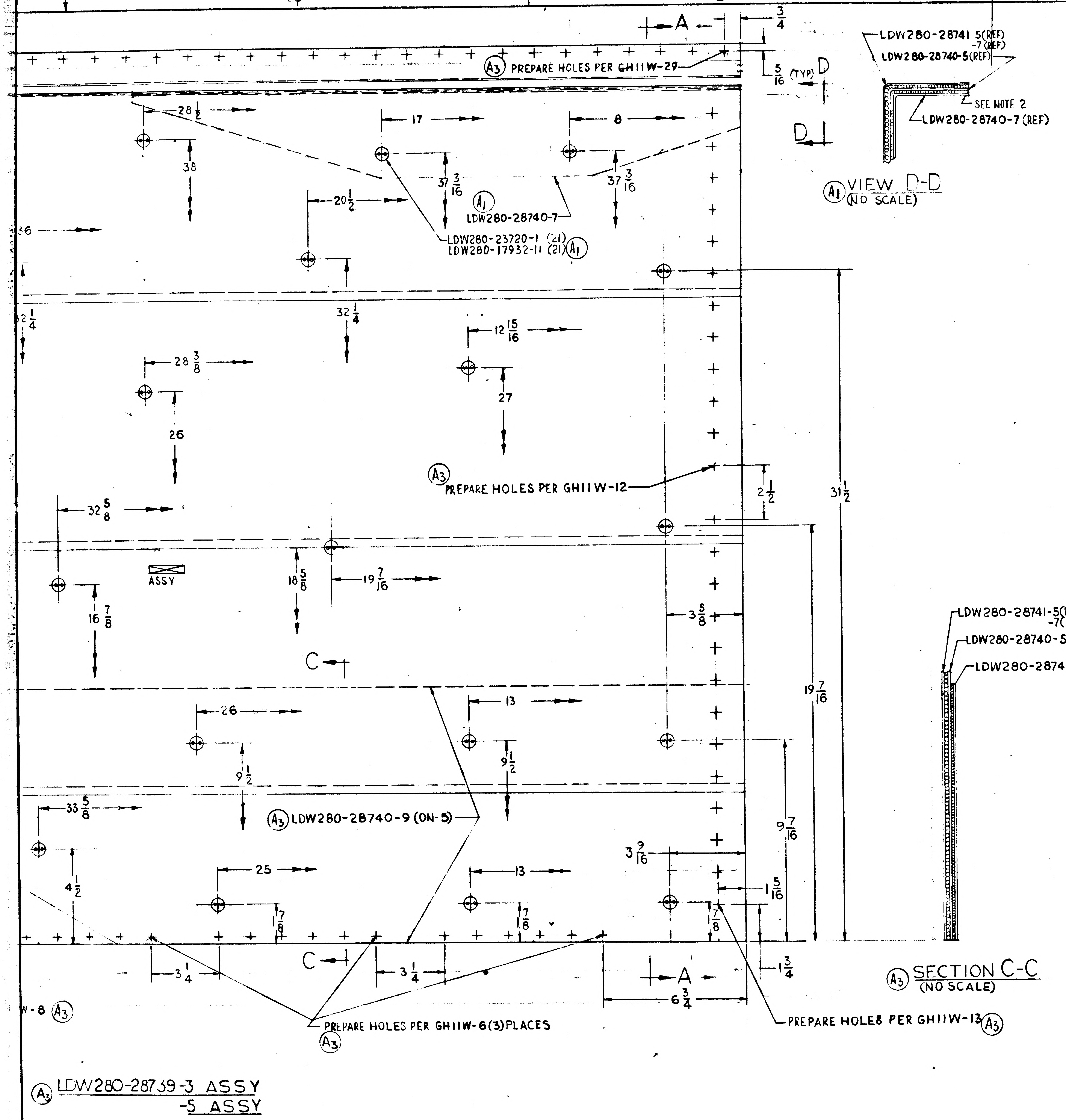


LDW280-28741-5&7(REF)
LDW280-28740-5(REF)
-7 (REF)
SQUEEZE FOIL & MESH FIRMLY TOGETHER AND CLINCH STAPLE AS SHOWN A1 A2
LDW280-17932-11(REF) A1 A2
A1 A2 LDW280-23720-1(REF)

DETAIL B
(NO SCALE - TYP 21 PLACES)

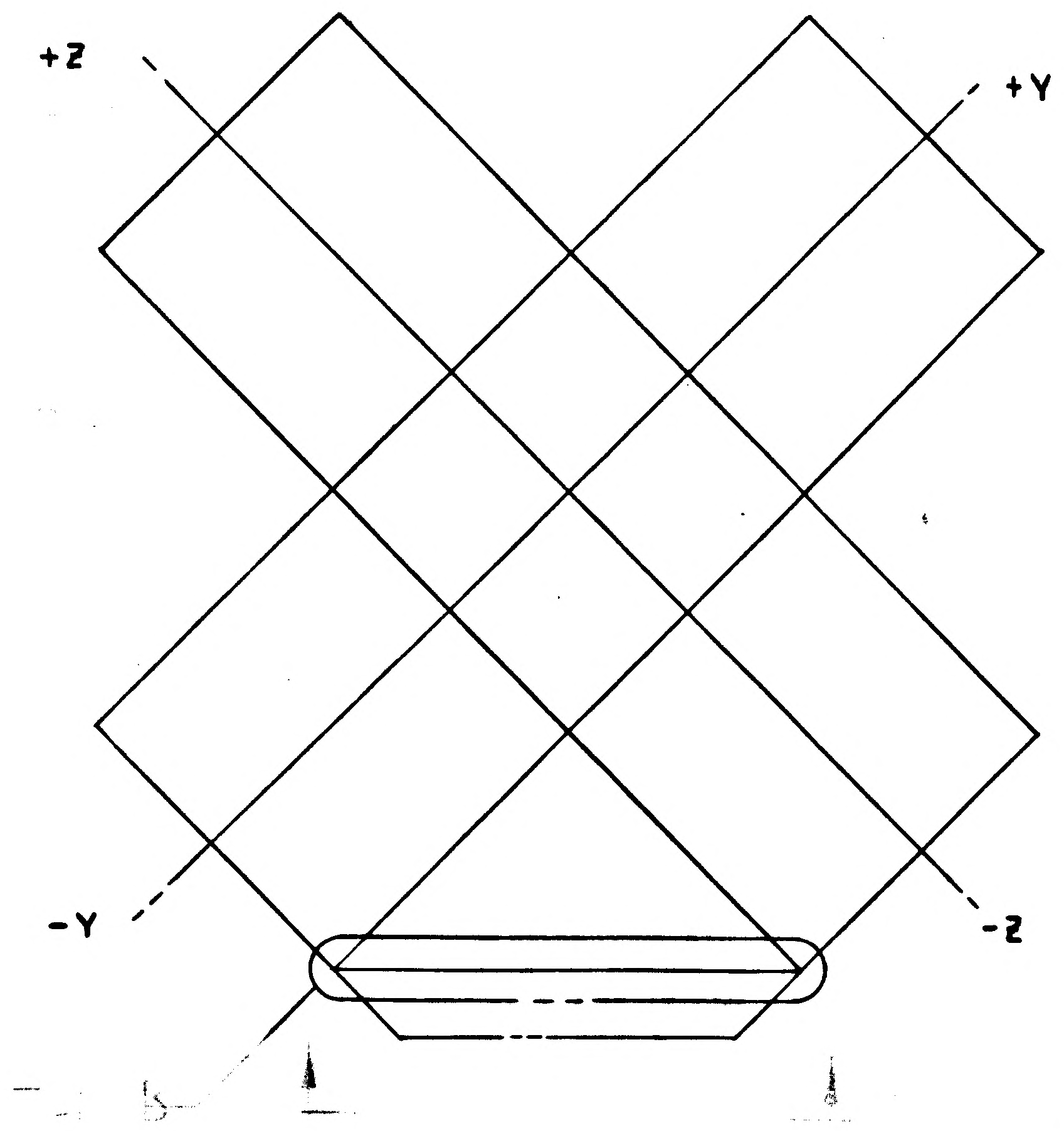
01/02 NAS 9-1100

CODE IDENT NO 26512
LDW280-28739
SH 3


A
3/4
(A3) PREPARE HOLES PER GH11W-29
5/16 (TYP)
D
D
LDW280-28741-5(REF) -7(REF)
LDW280-28740-5(REF)
SEE NOTE 2
LDW280-28740-7 (REF)
(A1) VIEW D-D (NO SCALE)
28 1/2
17
8
38
37 3/16
37 3/16
20 1/2
(A1) LDW280-28740-7
LDW280-23720-1 (21)
LDW280-17932-11 (21) (A1)
36
32 1/4
12 15/16
28 3/8
27
26
(A3) PREPARE HOLES PER GH11W-12
2 1/2
31 1/2
32 5/8
18 5/8
19 7/16
ASSY
16 7/8
3 5/8
LDW280-28741-5(REF) -7(REF)
LDW280-28740-5 (REF)
LDW280-28740-9 (REF)
C
19 7/16
26
13
9 1/2
9 1/2
33 5/8
(A3) LDW280-28740-9 (ON-5)
9 7/16
3 9/16
4 1/2
25
13
1 5/16
1 7/8
1 7/8
1 7/8
C
3 1/4
3 1/4
A
1 3/4
6 3/4
(A3) SECTION C-C (NO SCALE)
W-8 (A3)
PREPARE HOLES PER GH11W-6(3)PLACES (A3)
PREPARE HOLES PER GH11W-13 (A3)

(A2) LDW280-28739-3 ASSY
-5 ASSY

NOTES:
1. FABRICATION OF LDW280-28739-3 & -5 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011, LEVEL "C".
2 TAPE EDGE OF FOIL LAYERS ON ASSEMBLY PER LPC280-4
3 NO TOOLING HOLES PERMITTED IN PARTS.



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 66

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 68)- 7.00 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)-1.75 SQ. FT.

PRINT TRIM LINE

LDW280-28739 A

LDW280-28739 A

02/02

NAS 9-1100

CODE IDENT NO 26512
LDW280-28739 SH 3

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-28739	A
	SCALE 1/2 & NOTED		SHEET 3.00	

01

NAS 9-1100

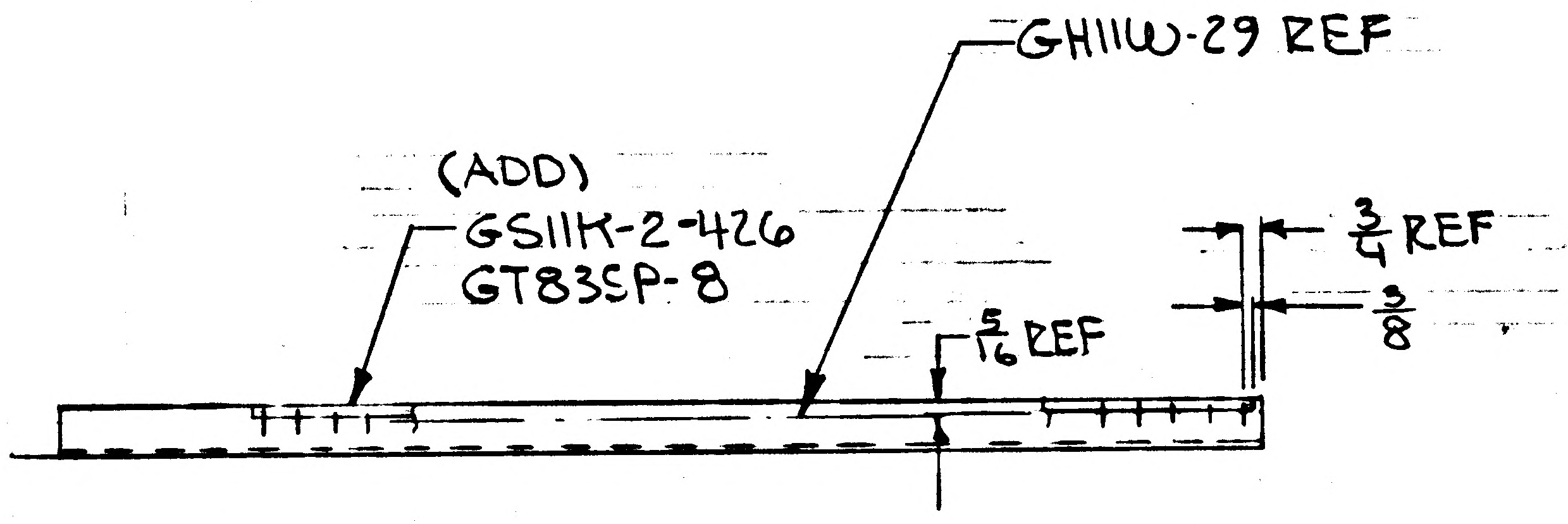
B

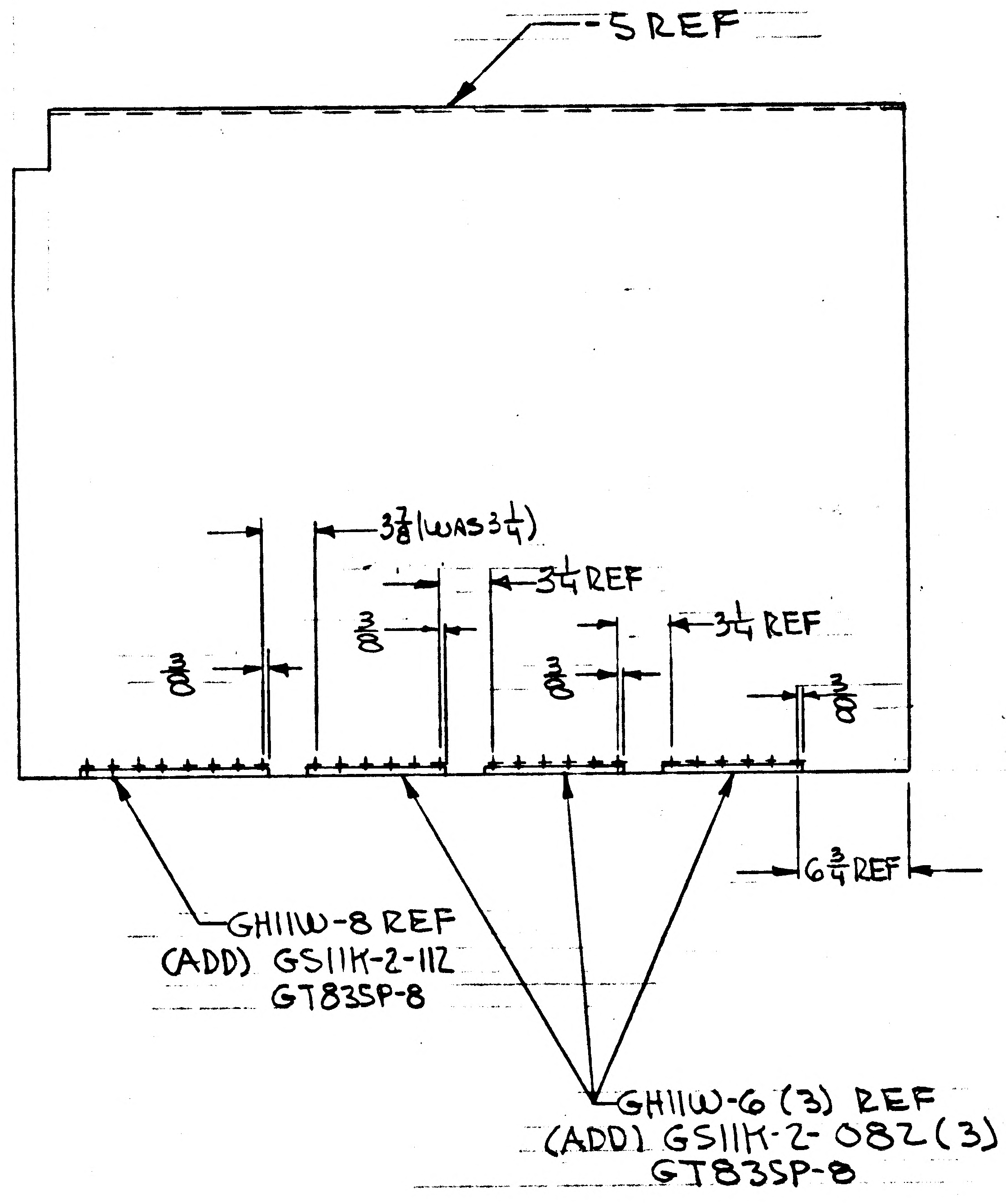
ENG 22.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LDW280-28739		EO NO. B1	
CONTROL INFO NO. LDW280A-5780			

IN F/D dim FOR-5 ADD GS11K-2-426, GS11K-2-112, GS11K-2-082(3)
& GT83SP-8 AS SHOWN.
ADD NOTE* FABRICATE PER LPC 280-25 (USE NEXT AVAILABLE NOTE No)


GH11W-29 REF
(ADD)
GS11K-2-426
GT83SP-8
$\frac{5}{16}$ REF
$\frac{3}{4}$ REF
$\frac{3}{8}$


-5 REF
$3\frac{7}{8}$ (WAS $3\frac{1}{4}$)
$3\frac{1}{4}$ REF
$3\frac{1}{4}$ REF
$\frac{3}{8}$
$\frac{3}{8}$
$\frac{3}{8}$
$\frac{3}{8}$
$6\frac{3}{4}$ REF
GH11W-8 REF
(ADD) GS11K-2-112
GT83SP-8
GH11W-6 (3) REF
(ADD) GS11K-2-082(3)
GT83SP-8

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐		2

REASON FOR EO	DESCRIPTION OF EO	(B) GAEC C EO RELEASE
LCR 928 IMPROVE PAINT ADHESION DIM CHANGE - TO AGREE WITH SHOP TEMPLATE	FOR-5 ADDED GS11K-2···· & GT83SP-8. ADDED NOTE * $3\frac{7}{8}$ (WAS $3\frac{1}{4}$)	JK 3/13/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY				JRS	WJM		JP		
DATE	3/7/67			3/7/67	3/8/67		3-11-67	3-13-67	
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY DES STAGE QUAD II SIDE FIXED	LDW280-28739	B1

ISSUED BY G. ZEMAN/J. STRAFOSCH SECTION VDI GROUP NO. 335 PL 35

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28739

EO NO. B2

CONTROL INFO NO. LM29-1104

ON -3 & -5 ASS'Y

LDW280-17932-11 S/B LDW280-17932-13

LDW280-23720-1 S/B LDW280-23720-3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

R (29)

REASON FOR EO: ADDITIONAL WASHER THKNESS REQD FOR THERMAL CONTROL

DESCRIPTION OF EO: ON -3 & -5 ASS'Y
LDW280-17932-13 WAS LDW280-17932-11
LDW280-23720-3 WAS LDW280-23720-1

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	NOT REQ'D		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP — NOT REQ'D

APPROVED BY	Jaf			—	~	W.F.	Jaf	
DATE	11/13/67			—	~	11/9/67	11/13/67	
9/5/67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC EO RELEASE JC

PRIORITY: E29

DRAWING TITLE: SKIN ASSY ~ D/S ~ QUAD II ~ PLUME IMPINGEMENT SHIELD ~ SIDE ~ FIXED

DRAWING NO. LDW280-28739

EO NO. B2

ISSUED BY LIAISON SECTION YD1 GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28740A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28739	LM-6(36)	1 EA
		LM-5(35)	1
		LM-4(34)	1
		LM-3(33)	1
		LM-2(32)	1
		LM-1(31)	1
LM	LDW280-28739	LTA-8(13)	1 EA
PART NO. LDW280-28740-5 & -7		GAEC SCH NO. 52	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -7

GRUMMAN REL INFO A

PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/16 ±.030 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM # 1

DOCUMENTATION TYPE II

DRAWN BY	R. VAN COTT	RELIABILITY	
LAYOUT BY	R. VAN COTT	THERMO	R. HASLETT
CHECKED BY			
GP LEADER	J. STRAKOSCH 7-15-66		
VEH DES INT	W. BISCHOFF 7-16		
STRUCTURE	F. BUNCE 7-16	PROJ ENGR	F. DI SENA 7-26-66
STRUCTURE	HILDERMANN 7-16	REL GROUP	C. BOTTI 8-3-66
WEIGHTS	D. ROBESCH 7-25		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL ASSEMBLY
DESCENT STAGE-QUAD II-PLUME
IMPINGEMENT SHIELD-FIXED

SIZE B

CODE IDENT NO. 26512

LDW280-28740 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDES LDW280-28740 N/C 8-3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE, LAST REVISION NC. ADDED SHEET 1.10 A. RIHA 10-25-66.					RMS 11-16-66	
A	1	1.00 1.10 2.00 3.00						LEO280-188	REWROTE SEAMWELD NOTE AND ADDED NOTES 1 AND 2.	LTA-8, LM-1 THRU LM-6	✓		A. RIHA 1 NOV 66		
	2							LEO280-240	IN FIELD, ADDED PART "C" TO NOTE 1.						
	3							EOA3	IN FIELD & BM REMOVED -1 ADDED -5 & -7			-1			

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO
A		JK 11/15/66	EP 11/16				

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28740	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY			CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AS REQD	AS REQD			SEE NOTE 5		INCONEL KNIT SLEEVE							
1		4		LDW280-17970-41	E	FOIL	SEE DWG						
				LDW280-28740-7		FOIL ASSY					NONE	NONE	
				LDW280-28740-5		FOIL ASSY			MAKE FROM	LDW280-28740-3	NONE	NONE	
				LDW280-28740-3	E	FOIL WELD ASSY					FLW	NONE	
-7	-5	-3											

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELDING	LSP14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

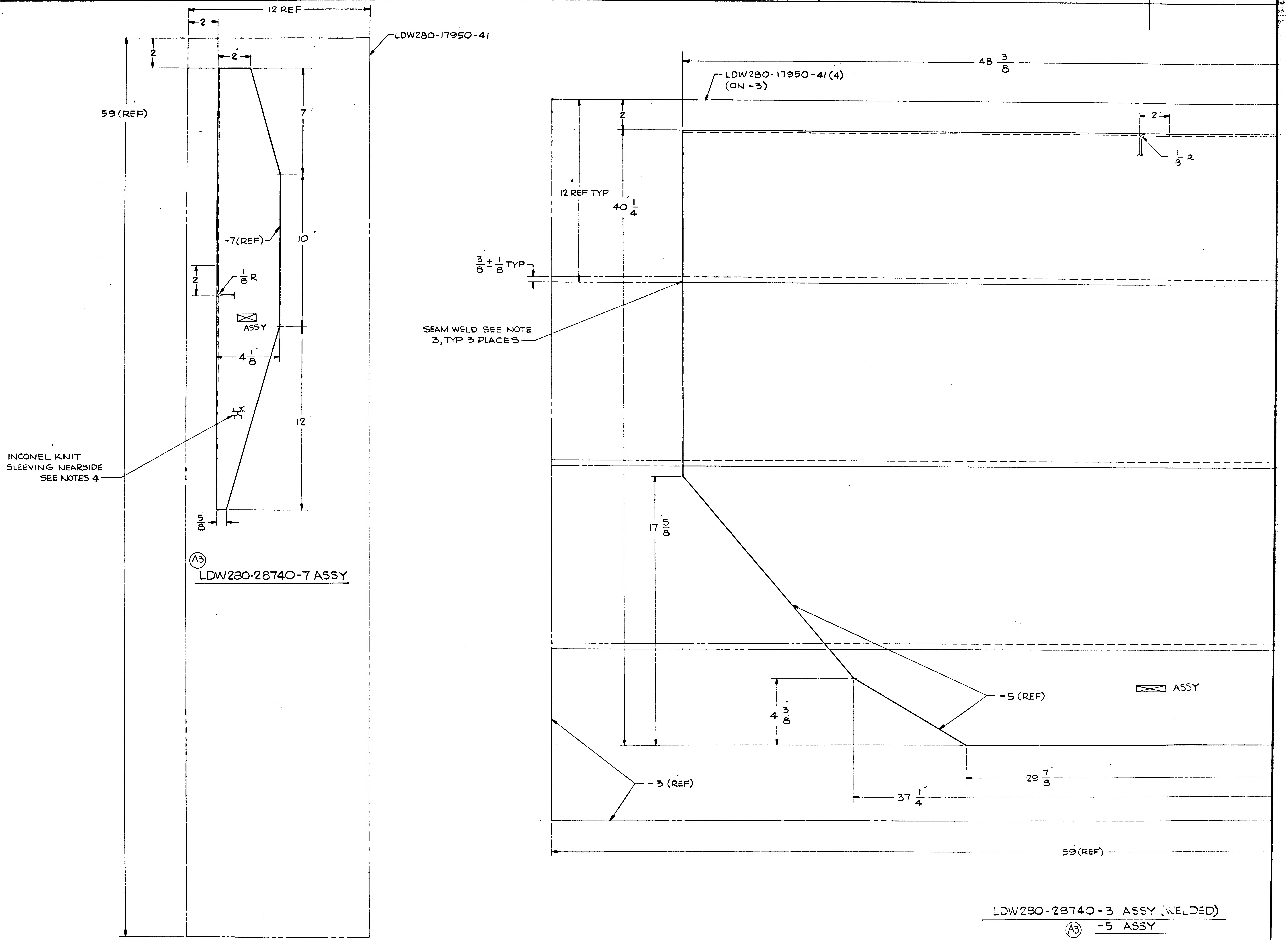
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28740	A
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

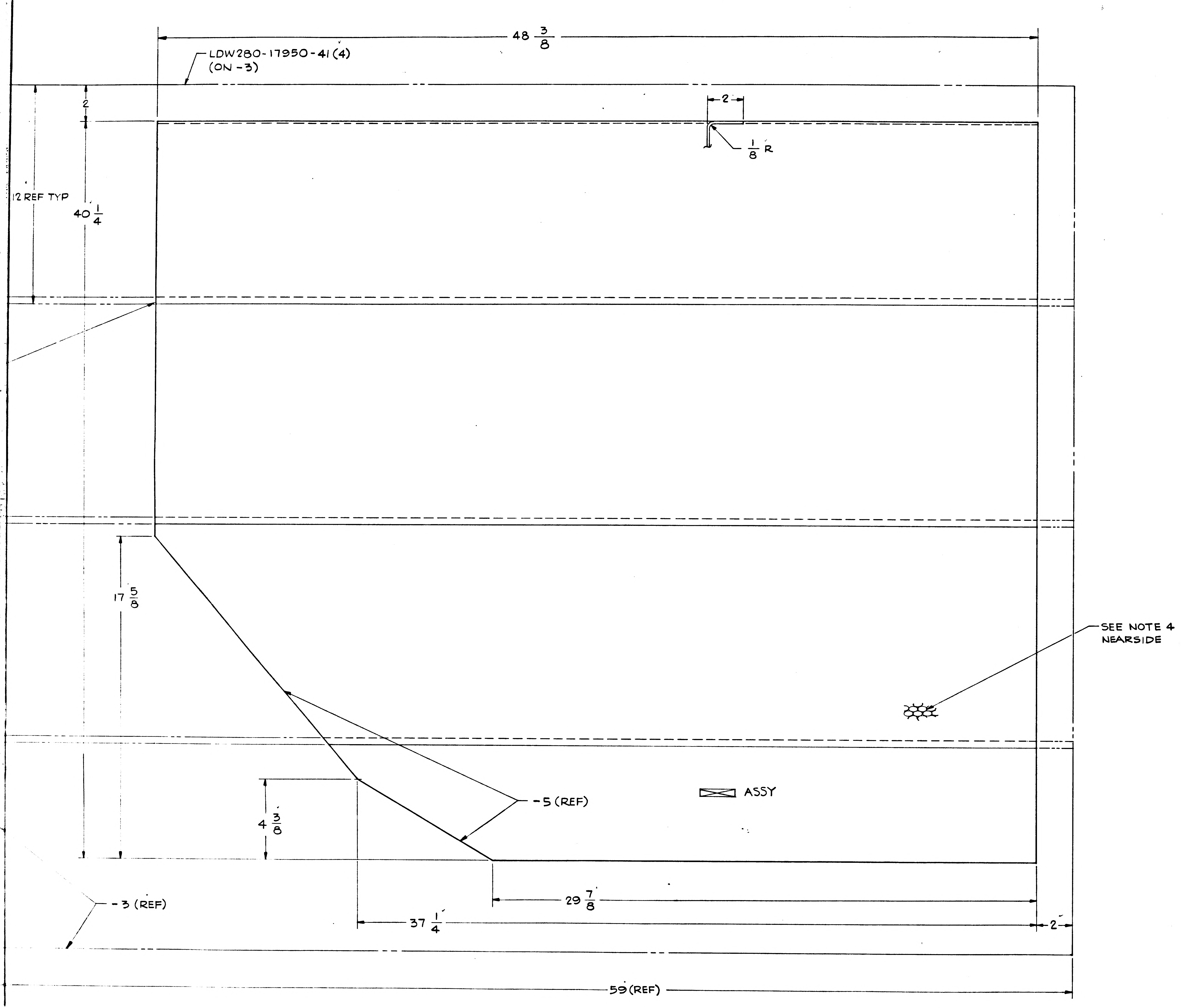

12 REF
2
LDW280-17950-41
2
2
59 (REF)
7
-7(REF)
10
2
1/8 R
ASSY
4 1/8
12
INCONEL KNIT
SLEEVING NEARSIDE
SEE NOTES 4
5/8
48 3/8
LDW280-17950-41 (4)
(ON -3)
2
2
1/8 R
12 REF TYP
40 1/4
3/8 ± 1/8 TYP
SEAM WELD SEE NOTE
3, TYP 3 PLACES
17 5/8
-5 (REF)
ASSY
4 3/8
-3 (REF)
29 7/8
37 1/4
59 (REF)

Ⓐ3 LDW280-28740-7 ASSY

LDW280-28740-3 ASSY (WELDED)
Ⓐ3 -5 ASSY

01/02 NAS 9-1100

LDW280-28740 SH 3



LDW280-28740-3 ASSY (WELDED)
(A3) -5 ASSY

NOTES;

1. PERMISSIBLE IRREGULARITIES IN WELDED ASSY'S ARE AS FOLLOWS:
   a) HOLES IN THE SEAMWELD ROWS UP TO 1/8 MAX AND AT LEAST ONE INCH APART.
   b) CRACKS IN THE FREE EDGE OF WELDED JOINTS NO CLOSER TOGETHER THAN 1/8 AND NOT EXTENDING PAST THE WELD LINE.
   c) IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) AND (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ. IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.
2. WELDED ASSY'S MAY HAVE RANDOM WRINKLED APPEARANCE.
3. SEAMWELD PER LSP14-6102 EXCEPT THAT SPOTS SHALL BE TANGENT +1/32-0.
4. WELD INCONEL KNITTED SLEEVING TO FOIL SHEET PER LDW280-17522.
5. INCONEL KNITTED SLEEVING TO BE 6 TO 8 INCH WHEN FLATTENED. WIRE TO BE .0035 TO .0040 INCH DIA ROUND INCONEL "600" ALLOY KNIT PATTERN SQUARE TYPE, 5 TO 7 SQUARES PER LINEAR INCH. MAY BE PURCHASED FROM MONTGOMERY METAL FABRIC CO., WINDSOR LOCKS CONN., 59 CANAL ST. (CODE IDENT 94725).
6. NO TOOLING HOLES PERMITTED IN PARTS
7. FABRICATION OF LDW280-28740 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP-14-0011, LEVEL "C".

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 70

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 72)= 18 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 4.50 SQ. FT.

PRINT TRIM LINE

LDW280-28740A

LDW280-28740A

Q2702

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28740	A
MODEL OR END ITEM	SCALE 1/2		SHEET 3.00	

LDW280-28740 SH 3

HG

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LEO-280	EO NO.	240
CONTROL INFO NO.	LEM-2-2642		

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE *.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LOW 280-25703	A4	A5	*, **, ***
-25704	A3	A4	*, **, ***
-25705	B5	C2	*, **
-25706	A3	A5	*, **, ***
-25707	B1	B2	*, **, ***
-28730	A1	A5	*
-28734	A1	A4	*
-28735	A1	B1	*
-28737	A1	A2	*
-28738	A1	A2	*
-28740	A1	A2	*
-28741	A1	A2	*
-28743	A1	A2	*
-28744	A1	A2	*
-28746	A1	A2	*
-28747	A1	A2	*
-28749	A1	A2	*
-28750	A1	A2	*
-28755	A1	A3	Δ
-28756	A1	A3	Δ
-28759	A1	A3	*
-28760	A1	A2	*
-28764	A1	A2	*
-28765	A1	A2	*
-28771	A2	A3	*
-28772	A2	A3	*
-28774	A1	A2	*
LOW 280 -28775	A1	A2	*

EFFECTIVITY:
*** - QUAL TEST (72)
** - LTA-5 (15)
* - LEM-1 (31) THRU -6 (36) & LTA-8 (18)
Δ - LTA-8, LEM-1

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG								GAEC C EO RELEASE	
REASON FOR EO: TO FACILITATE MANUFACTURING				DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE *.									
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG ✓	RECORD EO	DISPOSITION OF PARTS: REWORK ✓	SCRAP	APPROVED BY / DATE: 8-20-66 VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP: CAW 8/23/66	LIAISON ENGRG: CAW 8/23/66	PROJ ENGRG: RMC 9-3
LEM		SEE ABOVE		PRIORITY: C_2		DRAWING TITLE: —						DRAWING NO.: LEO-280	EO NO.: 240

ISSUED BY LIAISON G. MARTELL x3604 SECTION VDI (DESCENT STAGE) GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 316
CONTROL INFO NO. LDW280A0936

ON THE FOLLOWING DRAWINGS ADD NOTE*:
*)INCONEL KNITTED SLEEVING TO BE OXIDIZED BY EXPOSURE TO 1650 ±50°F IN AIR FOR FOUR(4) HOURS. FOR LTA5(15) AND LTA8(18) OXIDIZATION IS OPTIONAL

DRAWING:	EFF	CHANGE NO.	TITLE
LDW280-25708	QUAL TEST LM1 THRU LM6 LTA5 & 3	B3	SEE DRAWING
LDW280-28735	LM1 THRU LM6 LTA8	C1	
LDW280-28737	"	A4	
LDW280-28740	"	B1	
LDW280-28743	"	A4	
LDW280-28746	"	B1	
LDW280-28749	"	A6	
LDW280-28752	"	B1	
LDW280-28755	LTA-8 & LM-1	A5	
LDW280-28759	LTA-8 LM-1 THRU LM-6	B1	
LDW280-28764	"	B1	
LDW280-28768	& LM-1	B1	
LDW280-28771	LTA-8, LM-1 THRU LM-6	B1	
LDW280-28774	"	A6	
LDW280-28803	"	A1	SEE DRAWING
LDW280-28819	"	A1	SEE DRAWING

*-USE NEXT AVAILABLE NUMBER

3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: THERMO REQUIREMENT

DESCRIPTION OF EO: ADDED NOTE *

GAEC C EO RELEASE: 10/18

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	
LM			
LM			

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	MAT'LS	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
				RGM				
DATE				10/7/66			10/12/66	10/15/66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	316

ISSUED BY AMBROSIO/ STRAKOSCH X1153 SECTION V. D. 1 GROUP NO. 335 PL 35 EMF

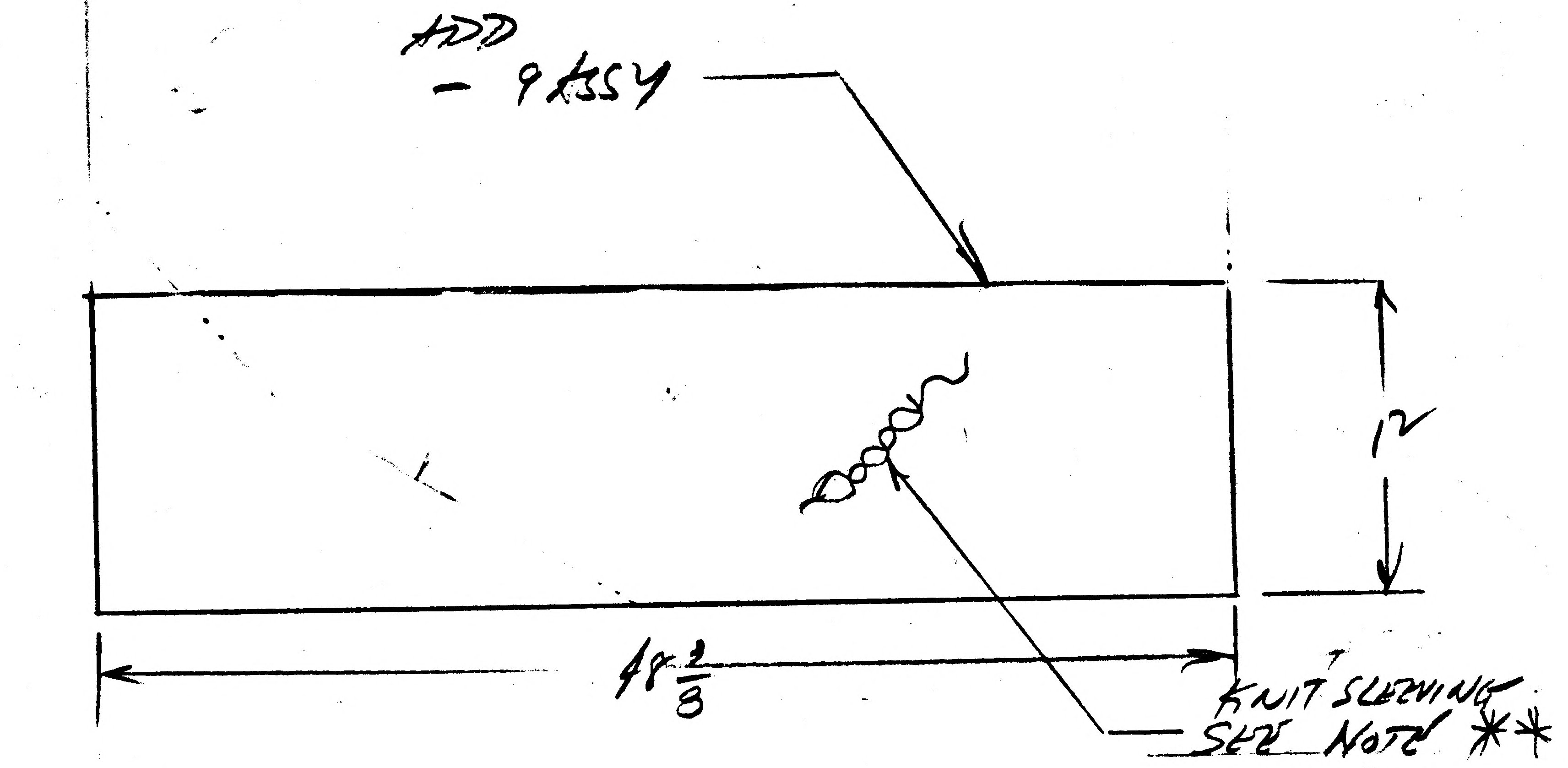
01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28740 | EO NO. B2
CONTROL INFO NO. LDW280A3742



1. ADD -9 ASSY SHOWN ABOVE.
N/A LDW280-28739, 1 REQD/MOD. EFF LM-1 ONLY.

2. FOR -5 & -7 REMOVE LM-2 THRU LM-6 REQMTS

3. REMOVE LDW280-17950 (ALL DASH NO'S) & -3 FROM FLD & B/M

4. ADD NOTE * "MAKE -5, -7, -9 FROM .0005 BRIGHT ROLLED NICKEL FOIL COMMERCIALLY PURE INCO 200 OR EQUIV. 12" WIDE." ADD ** FABRICATE -5, -7, & -9 PER LPC280-19.

5. REMOVE NOTE 3, 4.
6. THIS EO. CANCELS CHG. & B1

** & * USE NEXT AVAILABLE NOTES NO.

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☐	2

REASON FOR EO		GAEC EO RELEASE
ADD'L THERMAL REQMTS - RESTRICT PARTS	1. ADDED -9 ASSY 2. FOR -5 & -7 REMOVED LM-2 THRU LM-6 REQMTS. 3. REMOVED LDW280-17950 ALL DASH NO'S 4. ADDED NOTE * & ** 5 REMOVED NOTE 3, 4. 6. THIS EO. CANCELS CHG & B1	ER 12/5/66

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31) THRU	
		LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	✓

APPROVED BY								
DATE	12/2/66	12/2/66		12/2/66	12-2-66		12/2/66	12-3-66
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	FOIL ASSY DESCENT STAGE QUAD II, P.I. SHIELD, FIXED	LDW280-28740	B2

ISSUED BY R. VAN COTT SECTION VDI GROUP NO. 335 PL 31

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280
EO NO. 559
CONTROL INFO NO. LDW280A 6306

C

ENG 32.2 REV 3-65

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW. REMOVE LDW280-17970 ALL DASH NUMBERS AND ADD "SEE NOTE *"

IN F/D REMOVE LDW280-17970-ALL DASH NUMBERS

REVISE NOTE *

(REF) "MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19."

(ADD) PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

DRAWING No.	CHANGE#	SYMBOL	EFFECTIVITY	TITLE
LDW280-18130	A7	⬡	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW280-18141	A3	⬡	LM-1 THRU LM-15	
LDW280-28730	B7	□	LTA-8 LM-1 THRU LM-3	
LDW280-28734	B2	□	LTA-8 LM-1 THRU LM-3	
LDW280-28738	A7	□	LTA-8 LM-1 THRU LM-15	
LDW280-28740	B3	□	LTA-8 LM-1	
LDW280-28741	A6	□	LTA-8 LM-1 THRU LM-6	
LDW280-28744	A7	□	LTA-8 LM-1 THRU LM-6	
LDW280-28747	B4	□	LTA-8 LM-1 THRU LM-15	
LDW280-28750	B9	□	LTA-8 LM-1 THRU LM-15	
LDW280-28753	A5	□	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	□	LTA-8 LM-1 THRU LM-15	
LDW280-28760	B5	□	LTA-8 LM-1 THRU LM-3	
LDW280-28765	A7	⬡	LTA-8 LM-1 THRU LM-6	
LDW280-28769	B2	□	LM-1	
LDW280-28772	B6	□	LM-1 THRU LM-15	
LDW280-28775	B7	□	LTA-8 LM-1 THRU LM-15	
LDW280-28805	A6	□	LM-1 THRU LM-15	
LDW280-28806	A4	□	LTA-8 LM-1 THRU LM-15	
LDW280-51824	A3	□	LM-1 THRU LM-15	SEE DWG

NOTE △ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY WITH LPC 280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM □ REVISE NOTE *.
FOR SYM ⬡ ADD NOTE △ TO DWG

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☑	CL I ENGRG CHG ☐		GAEC EO RELEASE: 5 C R JS 4-19-7
REASON FOR EO: UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE		DESCRIPTION OF EO: REMOVED LDW280-17970 FROM B/M & F/D (ALL DASH NO'S) FOR DWG'S □ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ⬡ ADDED NOTE △		

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	REVISE DWG	RECORD EO	REWORK	SCRAP	APPROVED BY / DATE								
LM		NOTED ABOVE		✓		NOT	REQ	4/10/67	6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER 4/10/67	STRESS GROUP WJH 4/10/67	LIAISON ENGRG	PROJ ENGRG 4/13 · GOVT Bott 4-18-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 559

ED BY H. PALLMEYER / J. STRAKOSCH 7654 SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28741

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28739	LEM-6(36)	1 EA
↑	↑	LEM-5(35)	↑
		LEM-4(34)	
		LEM-3(33)	
		LEM-2(32)	
↓	↓	LEM-1(31)	↓
LEM	LDW280-28739	LTA-8([illegible])	1 EA
PART NO. LDW280-28741-1		GAEC SCH NO. 52	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED

GRUMMAN REL INFO

PRIM NO.	FR(001)		
207	MP 7/22/66		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/16 ±.030 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	R. VAN COTT		
LAYOUT BY		THERMO	for M. [illegible] 7/15/66
CHECKED BY			
GRP LDR	[illegible] 7/18/66		
VDI	[illegible] 7/21		
STRUCT	[illegible] 7/21	PROJ ENGR	[illegible]
STRUCT	[illegible] 7/21	REL GROUP	J Tagliavia 7/15/66
WEIGHT	[illegible] 7/29		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ASSY
DESCENT STAGE - QUAD I - PI SHIELD - [illegible]

SIZE B
CODE IDENT NO. 26512
LDW280-28741
SCALE 1/2 NONE
SHEET 1 OF 3

ENG 77.1 12-65

01

NAS 9-1100

					4			LDW280-17[illegible]-4	E	SKIN INT [illegible]	SEE DWG						
						1		LDW280-28741-3		SKIN WELD ASSY					FLW		
								LDW280-28741-1	E	SKIN [illegible]					NONE	NONE	
QTY PER ASSEMBLY					-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELD	LSP14-6102

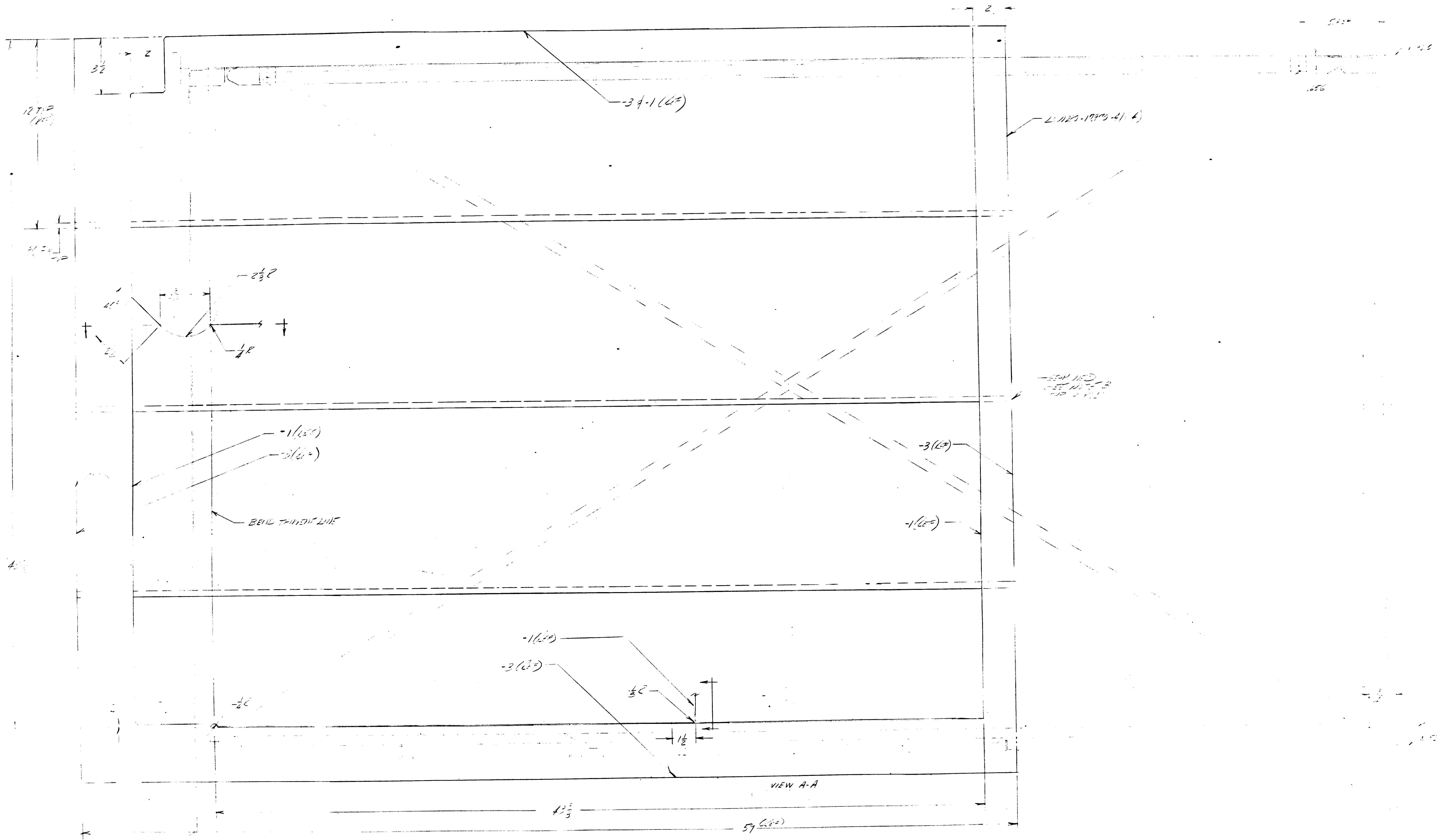
I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28741
SCALE 1/2 NONE
SHEET 2

ENG 77.2 7-65

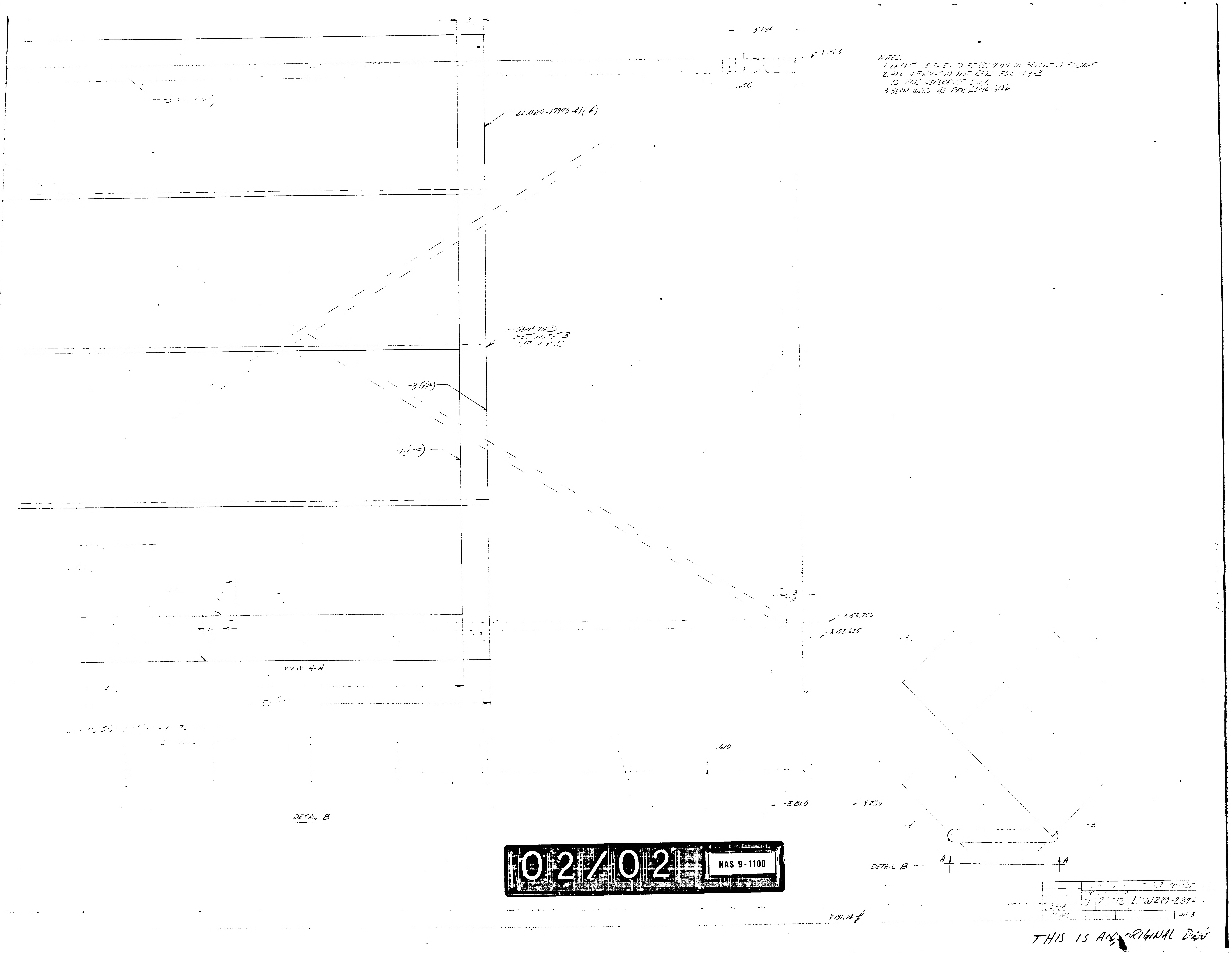
01 NAS 9-1100


2
2
$3\frac{1}{2}$
-3 & -1 (LF)
LDW230-17975-41 (L)
.656
$-2\frac{1}{2}R$
$-\frac{1}{4}R$
-1 (LF)
-3 (LF)
BEND TANGENT LINE
-3 (LF)
-1 (LF)
-1 (LF)
-3 (LF)
$\frac{1}{8}R$
$\frac{1}{8}R$
$1\frac{1}{2}$
VIEW A-A
$43\frac{3}{8}$
59 (REF)

LDW230-23741-1 TRIM ASSY
-3 WELDED ASSY

DETAIL B

01/02 NAS 9-1100


2
LDW280-19970-41(?)
SEAM WELD
SEE NOTE 3
TYP 3 PLS
-3(REF)
-1(REF)
VIEW A-A
DETAIL B
5.436
X196.0
.656
X153.750
X152.625
.610
Z81.0
Y27.0
DETAIL B
A
A
X131.16

NOTES:
1. LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT
2. ALL INFORMATION NOT REQD FOR -1 & -3
IS FOR REFERENCE ONLY.
3. SEAM WELD AS PER LSP16-3102

LEM MODEL	J	2-72	LDW280-237
		SHT 3

THIS IS AN ORIGINAL D

02/02 NAS 9-1100

HG

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280
EO NO. 240
CONTROL INFO NO. LEM-2-2642

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE ✱.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LOW 280-25703	A4	A5	*,**,***
-25704	A3	A4	*,**,***
-25705	B5	C2	*,**
-25706	A3	A5	*,**,***
-25707	B1	B2	*,**,***
-28730	A1	A5	*
-28734	A1	A4	*
-28735	A1	B1	*
-28737	A1	A2	*
-28738	A1	A2	*
-28740	A1	A2	*
-28741	A1	A2	*
-28743	A1	A2	*
-28744	A1	A2	*
-28746	A1	A2	*
-28747	A1	A2	*
-28749	A1	A2	*
-28750	A1	A2	*
-28755	A1	A3	Δ
-28756	A1	A3	Δ
-28759	A1	A3	*
-28760	A1	A2	*
-28764	A1	A2	*
-28765	A1	A2	*
-28771	A2	A3	*
-28772	A2	A3	*
-28774	A1	A2	*
LOW 280 -28775	A1	A2	*

EFFECTIVITY:
✱✱✱ - QUAL TEST (72)
✱✱ - LTA-5 (15)
✱ - LEM-1 (31) THRU -6 (36) & LTA-8 (18)
Δ - LTA-8, LEM-1

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☐	GAEC C EO RELEASE
REASON FOR EO: TO FACILITATE MANUFACTURING	DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE ✱.		

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		SEE ABOVE	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY	DATE
✓		✓		JHS	1/11/66

DATE	8-20-66
VDI	
SUPPORT	
RELIAB. GROUP	
GROUP LEADER	
STRESS GROUP	CAW 8/23/66
LIAISON ENGRG	CAW 8/23/66
PROJ ENGRG	RMC 9-3
	8/30/66

PRIORITY C₂
DRAWING TITLE —
DRAWING NO. LEO-280
EO NO. 240

ISSUED BY LIAISON G. MARTELL x3604 SECTION VDI (DESCENT STAGE) GROUP NO. 335 PL 35

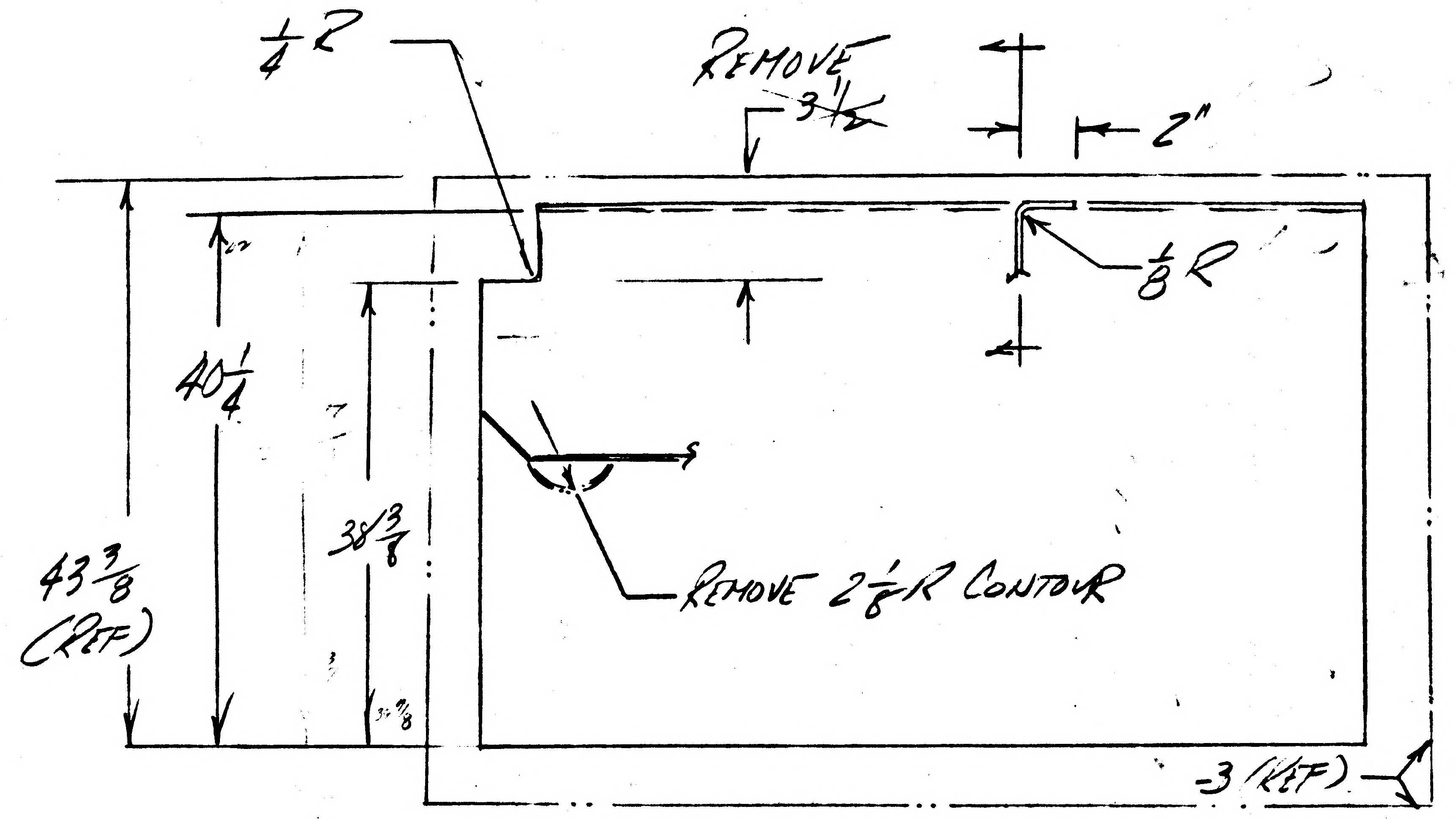
01
NAS 9-1100

ENG 32.2 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28741
EO NO. A3
CONTROL INFO NO. LDW280-9970



ADD: LDW280-28741-5 ASSY (EFF LTA-8)
REPLACES LDW280-28741-1 (IDENTICAL TO -1 EXCEPT ASSY)

ADD: LDW280-28741-7 ASSY (EFF LEM-1 THRU LEM-6)
IDENTICAL TO -5 EXCEPT FOR FINISH.
ADD FINISH NOTE *: "FINISH IN ACCORDANCE WITH LPC280-5"

* USE NEXT AVAILABLE NOTE NO.

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: PARTS REDESIGNED TO SATISFY THERMAL REQUIREMENTS.

DESCRIPTION OF EO: REMOVE -1 ASSY, ADD -5 & -7 ASSY & FINISH NOTE *

GAEC EO RELEASE: CE 9.24

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8 (18)	
		LEM-1 (31)	THRU
		LEM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO
DISPOSITION OF PARTS: REWORK / SCRAP ✓

APPROVED BY								
DATE	9/13/66	N 7/66			9/19/66		9-27-66	9/21/66
	VDI		RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: SKIN ASSY DESCENT STAGE QUAD II - P.I. SHIELD - SIDE - FIXED

DRAWING NO.: LDW280-28741

EO NO.: A3

ISSUED BY R. VAN COTT SECTION VDI GROUP NO. 335

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28741
EO NO. A4
CONTROL INFO NO. LDW280A3743

1. FOR -7

   REMOVE LM-2 THRU LM-6 REQMTS

2. REMOVE LDW280-17970 (ALL DASH NUMBERS) & -3 FROM FLD & B/M

3. REMOVE NOTE 3

4. ADD NOTE * "MAKE -3 FROM .00125 INCONNEL 600 FOIL PER AMS 5540E." ADD NOTE ** FABRICATE -5 & -7 PER LPC280-19

   * NEXT AVAILABLE NOTE NO.

5. THIS EO CANCELS A1 & A2 CHG

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐	DASH NO. 2

REASON FOR EO: RESTRICT PARTS & ADD FABRICATION PROCEDURE

DESCRIPTION OF EO: 1. FOR -7 REMOVED LM-2 THRU LM-6 REQMTS 2. REMOVED LDW280-17970 FROM FLD & B/M. 3. REMOVED NOTE 3 4. ADD NOTE * & ** 5. THIS EO CANCELS A1 & A2 CHG.

GAEC EO RELEASE: FR 12/5/66

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3(18)	
		LM-1(31) THRU	
		LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-7 ✓

APPROVED BY	Jef			JAS	NM		Dam	
DATE	12/2/66	9-1/66		12/2/66	12-2-66		12/2/66	12-2-66
1	VD1	~~SUPPORT~~ MATL	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SKIN ASSY DESCENT STAGE QUAD II - P.I SHIELD - SIDE - FIXED
DRAWING NO.: LDW280-28741
EO NO.: A4

ISSUED BY R. VAN COTT X1153 SECTION VDI GROUP NO. 35 PL 335

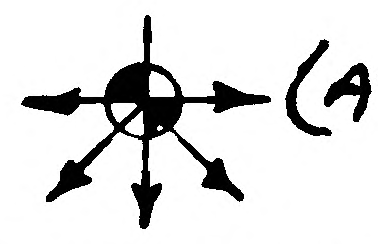
01 NAS 9-1100

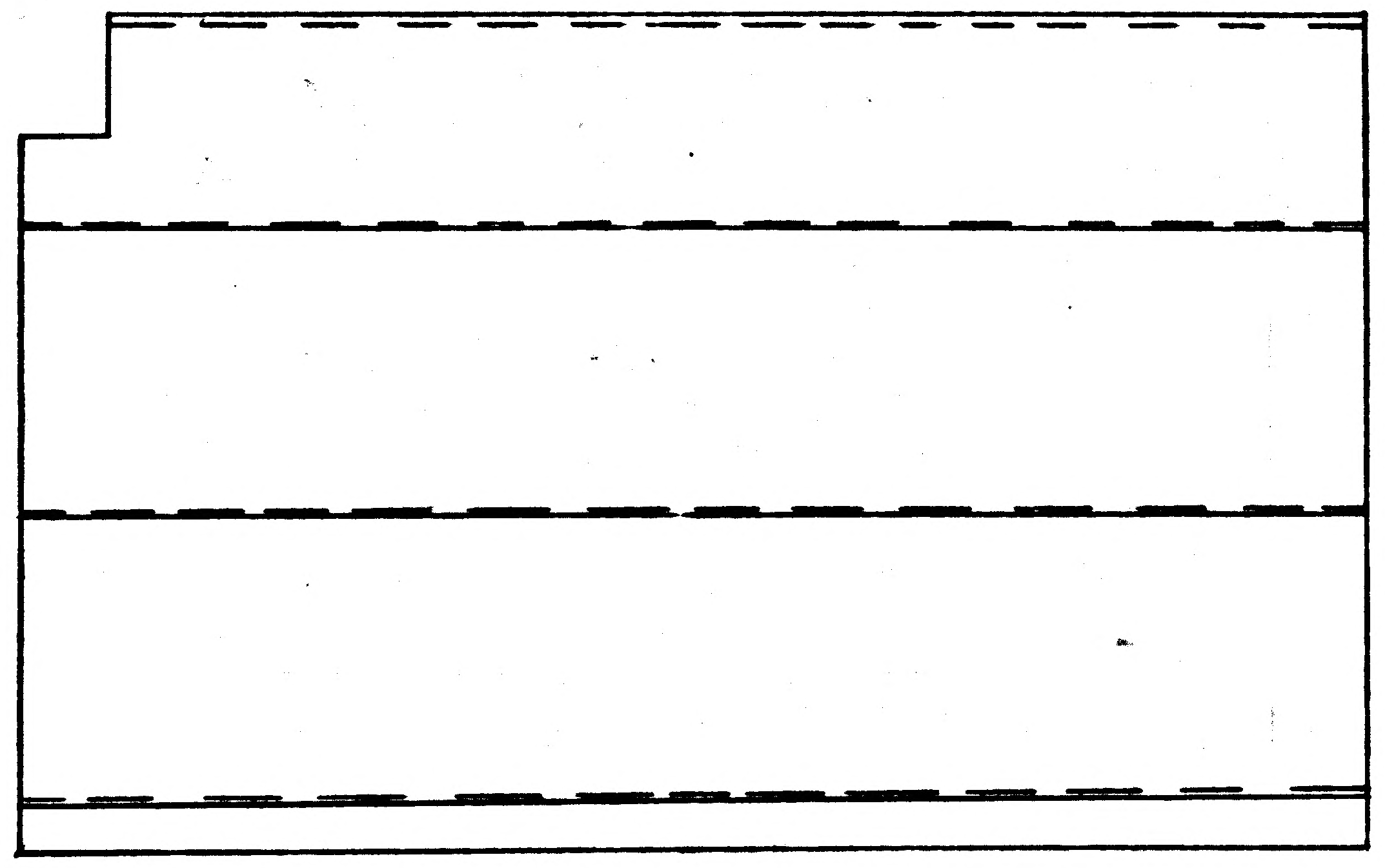
B *

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28741
EO NO. A5
CONTROL INFO NO. LDW280A-4570

ON-7 ADD SYMBOL INDICATING PERMISSIBLE DIRECTION OF LAP JOINTS  (ADD)



THERMAL SHLD (2)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: PROVIDE COMPLETE FABRICATION AND INSPECTION INFO

DESCRIPTION OF EO: ON-7 ADDED SYMBOL INDICATING PERMISSABLE DIRECTION OF LAP JOINTS

GAEC EO RELEASE: E 1/6/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-1(31	
LM		THRU	
LM		LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY									
DATE	1/3/67	1/2/67		1/3/67	1/3/67		1/4/67	1/5/67	
5	VD1	SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY D/S QUAD II PI SHIELD SIDE FIXED	LDW280-28741	A5

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION V D1 GROUP NO. 335 PL 35

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NAS 9-1100

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NAS 9-1100

ENG 32.2 REV 3-65

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280	EO NO. 559
CONTROL INFO NO. LDW 280A 6306	

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW. REMOVE LDW280-17970 ALL DASH NUMBERS AND ADD "SEE NOTE *"

IN F/D REMOVE LDW280-17970-ALL DASH NUMBERS

REVISE NOTE *
(REF) "MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19."
(ADD) PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

DRAWING NO.	CHANGE#	SYMBOL	EFFECTIVITY	TITLE
✓LDW280-18130	A7	⬡	LTA-8 LM-1 THRU LM-15	SEE DWG
✓LDW280-18141	A3	⬡	LM-1 THRU LM-15	
✓LDW 280-28730	B7	□	LTA-8 LM-1 THRU LM-3	
✓LDW 280-28734	B2	□	LTA-8 LM-1 THRU LM-3	
✓LDW280-28738	A7	□	LTA-8 LM-1 THRU LM-15	
✓LDW 280-28740	B3	□	LTA-8 LM-1	
✓LDW 280-28741	A6	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28744	A7	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28747	B4	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28750	39	□	LTA-8 LM-1 THRU LM-15	
LDW280-28753	A5	□	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	□	LTA-8 LM-1 THRU LM-15	
LDW280-28760	B5	□	LTA-8 LM-1 THRU LM-3	
LDW280-28765	A7	⬡	LTA-8 LM-1 THRU LM-6	
LDW280-28769	B2	□	LM-1	
LDW 280-28772	B6	□	LM-1 THRU LM-15	
LDW 280-28775	B7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28805	A6	□	LM-1 THRU LM-15	
LDW 280-28806	A4	□	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW 280-51824	A3	□	LM-1 THRU LM-15	

NOTE △ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY WITH LPC 280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM □ REVISE NOTE *.
FOR SYM ⬡ ADD NOTE △ TO DWG

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		GAEC EO RELEASE: JS 4-19-7
REASON FOR EO: UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE			DESCRIPTION OF EO: REMOVED LDW280-17970 FROM B/M & F/D (ALL DASH NO'S) FOR DWG'S □ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ⬡ ADDED NOTE △			5 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	
		ABOVE	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY								
✓		NOT	REQ	DATE 4/10/67				4/10/67	4/11/67		4/13	4-18-67
				6	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	559

ED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

7034

LDW280-28742

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-54665	LEM-6 (36)	1
	-54665	LEM-5 (35)	1
	-54665	LEM-4 (34)	1
	-52665	LEM-3 (33)	1
	-52665	LEM-2 (32)	1
	-51665	LEM-1 (31)	1
LEM	LDW280-28665	LTA-8 (18)	1
PART NO. LDW 280-28742-1		GAEC SCH NO. 52	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1 00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	A	GRUMMAN REL INFO		
		PRIM NO.	ER(001)	
LAST DASH NO. USED	1	207	11-9-66	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/16 ±.030 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100 LINE ITEM #1 DOCUMENTATION TYPE II

DRAWN BY	CITRANO		
LAYOUT BY	F. MADDEN	THERMO	14
CHECKED BY			
GRP LDR	7/21/66		
VDI	7/21		
STRUCTURE	W/H 7/22	PROJ ENGR	
STRUCTURE	Hilderman 7/22	REL GROUP	Bott. 12-13-66
WEIGHTS	Roberts 8-1		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSY ~ DESCENT STAGE ~ QUAD 2. S.E.Q. PLUME IMPINGEMENT THERMAL

SIZE B CODE IDENT NO. 26512 LDW280-28742

SCALE 1/2 NONE SHEET 1 OF 3

ENG 77.1 12-65

Q1 NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
13		LDW280-17932-11	E	WASHER	SEE DWG						
13		LDW280-23720-1	E	STAPLE ASSY	SEE DWG						
1		LDW280-28740-1	E	SKIN ASSY	SEE DWG						
1		LDW280-28743-5	E	FOIL ASSY (WELD)	SEE DWG						
1		LDW280-28743-3	E	FOIL ASSY (WELD)	SEE DWG						
1		LDW280-28743-1	E	FOIL ASSY (WELD)	SEE DWG						
		LDW280-28742-1	E	SKIN ASSY					NONE	[illegible]	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : [illegible]

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

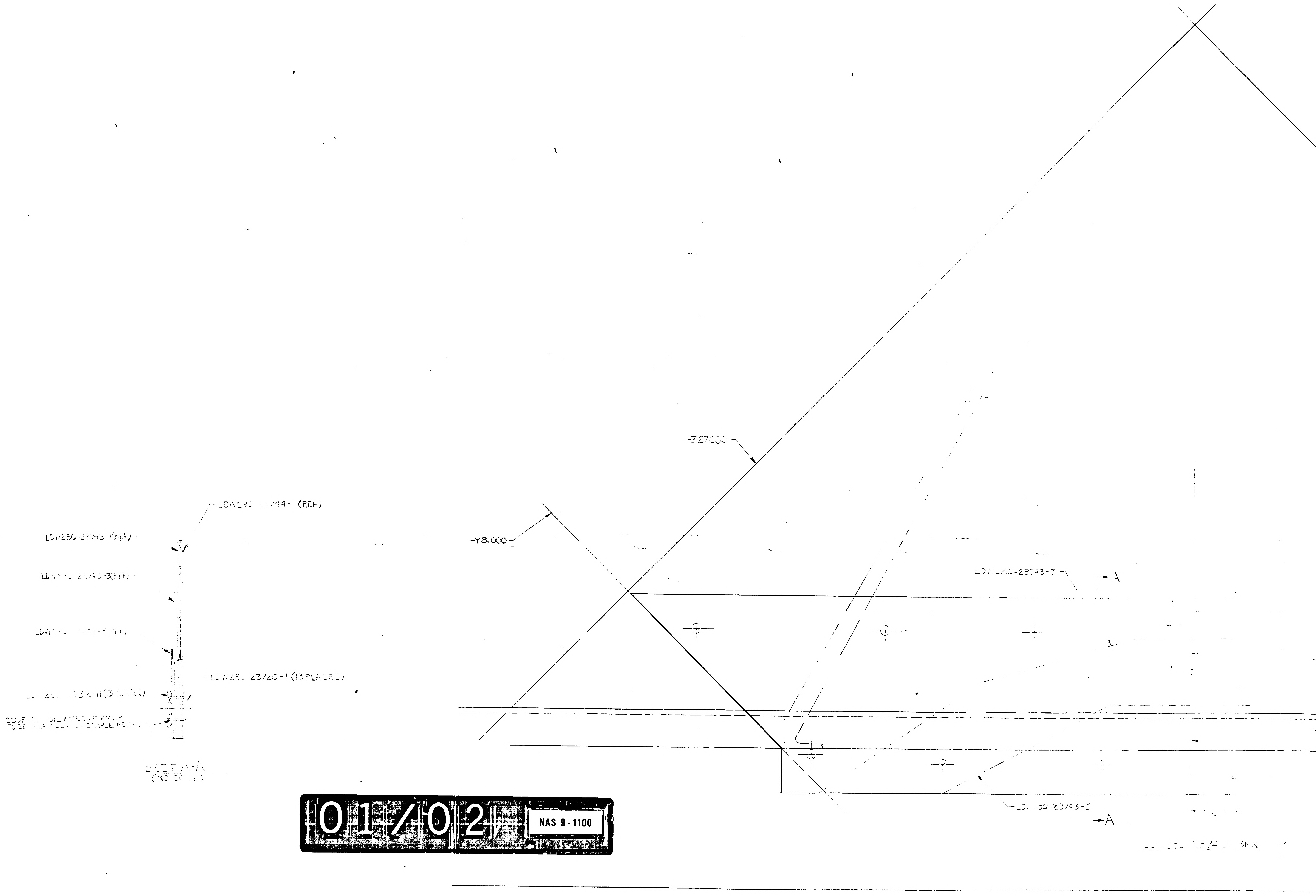
SIZE B | CODE IDENT NO. 26512 | LDW280-28742

SCALE 1/2 NONE | SHEET 2 OO

ENG 77.2 7-65

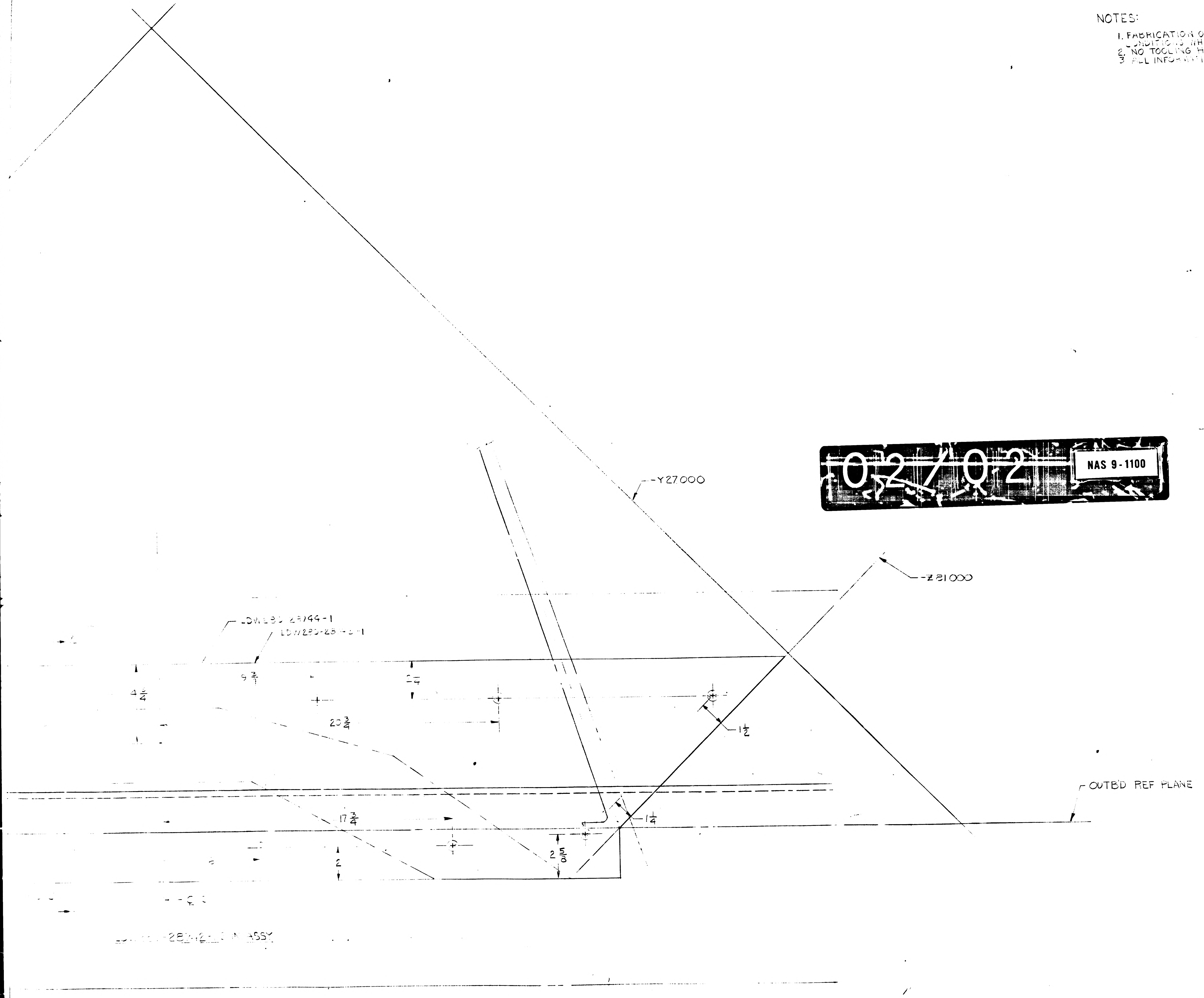
01

NAS 9-1100


Z27000
Y81000
LDW280-23799- (REF)
LDW280-23743-1(REF)
LDW280-23743-3(REF)
LDW280-23743-5(REF)
LDW280-23720-1 (13 PLACES)
LD 280-1032-11 (13 PLACES)
SECT A-A
(NO SCALE)
LDW280-23743-3
A
LDW280-23743-5
A
SKIN

01/02 NAS 9-1100

NOTES:
1. FABRICATION OF LDW280-28742-1 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP 14-001 LEVEL
2. NO TOOLING HOLES PERMITTED IN PARTS.
3. ALL INFORMATION NOT REQD FOR -1 IS FOR REFERENCE ONLY


-Y27000
-Z81000
LDW280-28744-1
LDW280-28743-1
9 3/4
4 3/4
2 1/4
20 3/4
1 1/2
OUTBD REF PLANE
17 3/4
1 1/4
2 5/8
2
-℄
LDW280-28742-1 ASSY

02/02

NAS 9-1100

LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT.

	GRUMMAN AIRCRAFT ENGRG CORP BETHPAGE, L. I., NEW YORK		
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-287
MODEL OR EQUIPMENT	SCALE 1/		SHEET

THIS IS ORIGINAL DRAWING

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28742		EO NO. A2	
CONTROL INFO NO. LDW280A-3744			

REMOVE -5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
RESTRICT PARTS	REMOVED -5	FR 12/5/66

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

APPROVED BY				NM			
DATE	12/2/66	12/2/66		11/28/66	12-2-66		12/2/66	12-2-66
5	VDI	[illegible]	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY DESCENT STAGE QUAD II-SEQ PLUME IMPINGEMENT - THERMAL	LDW280-28742	A2

ISSUED BY R. VAN COTT X1153 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28742		EO NO. A3
CONTROL INFO NO. LM 29-1100		

THIS IS A REVISION OF EO A1

ON -3 ASSY

LDW280-23720-13 REPLACES LDW280-23720-11

S/B

LDW280-23720-3 REPLACES LDW280-23720-1

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	29

REASON FOR EO: INCORRECT DASH NUMBER CALLED OUT (ADDITIONAL THERMAL REQMT) REF

DESCRIPTION OF EO: REF EO A1 ON -3 ASSY LDW280-23720-3 REPLACES LDW280-23720-1 WAS LDW280-23720-13 REPLACES LDW280-23720-11

Ⓡ GAEC EO RELEASE: JL

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	NOT REQ'D,		

DRAWING CHANGE REQD REVISE DWG	RECORD EO	DISPOSITION OF PARTS REWORK	SCRAP
✓		NOT REQ'D	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	Jap			—	—	W.F.	Jap	
DATE	11/13/67			—	~	11/13/67	11/13/67	
9/5/67	V22							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E29	SHIELD ASSY ~ D/S ~ QUAD II ~ SEA. PLUME IMPINGEMENT THERMAL	LDW280-28742	A3

ISSUED BY LIAISON W. FRANK (7930) SECTION YD1 GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28743

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28742	LEM-6 (36)	1
		LEM-5 (35)	1
		LEM 4 (34)	1
		LEM-3 (33)	1
		LEM-2 (32)	1
		LEM-1 (31)	1
LEM	LDW280-28742	LTA-8 (18)	1

PART NO. LDW 280-28743-1-3-5

GAEC SCH NO. 52

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH										
SHEET	1.00		2.00	3.00						
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	B	GRUMMAN REL INFO	
LAST DASH NO. USED	-13	PRIM NO. 207	J.K (001) mp 7/25/66

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
± 1/16 ±.030 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	CITRANO	RELIABILITY	
LAYOUT BY	F. MADDEN	THERMO	7/26/66
CHECKED BY			
GRP LDR	7/29/66		
UDI			
STRUCTURE	7/22	PROJ ENGR	8-8
STRUCTURE	7/22	REL GROUP	12-13-66
WEIGHTS	8-2		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL ASSY ~ DESCENT STAGE
QUAD 2, SEQ PLUME
IMPINGEMENT SHIELD UPPER

SIZE B
CODE IDENT NO. 26512
LDW280-28743
SCALE 1/2 NONE
SHEET 1 OF 3

ENG 77.1 12-65

01

NAS 9-1100

-13	-11	-9	-7	-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				AS REQ'D	AS REQ'D	AS REQ'D	99725	MESH	E	INCONEL KNITTED SLEEVING	SEE NOTE #5						
2								LDW280-17950-49		INCONEL - Ni	SEE DWG						
	1			1				LDW280-17950-35		INCONEL - Ni	SEE DWG						
		1						LDW280-17950-21		INCONEL - Ni	SEE DWG						
			1					LDW280-28743-13	E	FOIL SHEET ASSY					FLW		
				1				LDW280-28743-11	E	FOIL ASSY							
					1			LDW280-28793-9	E	FOIL ASSY							
						1		LDW280-28743-7	E	FOIL ASSY							
								LDW280-28743-5	E	FOIL ASSY (WELD)					FLW		
								LDW280-28743-3	E	FOIL ASSY (WELD)					FLW		
								LDW280-28743-1	E	FOIL ASSY (WELD)					FLW		

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELD	LSP14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

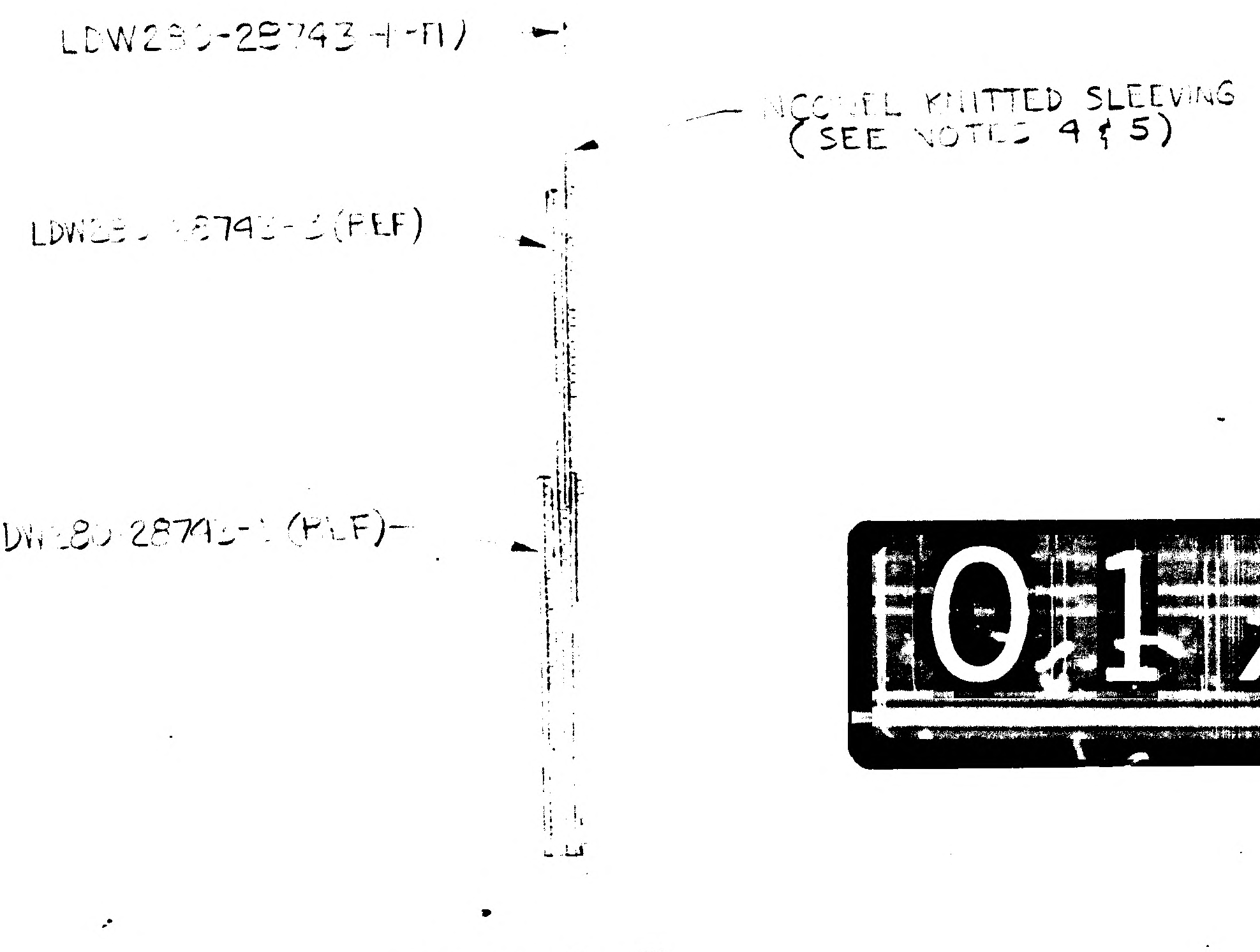
SIZE	CODE IDENT NO.	
B	26512	① LDW280-28743

SCALE 1/1 NONE

SHEET 200

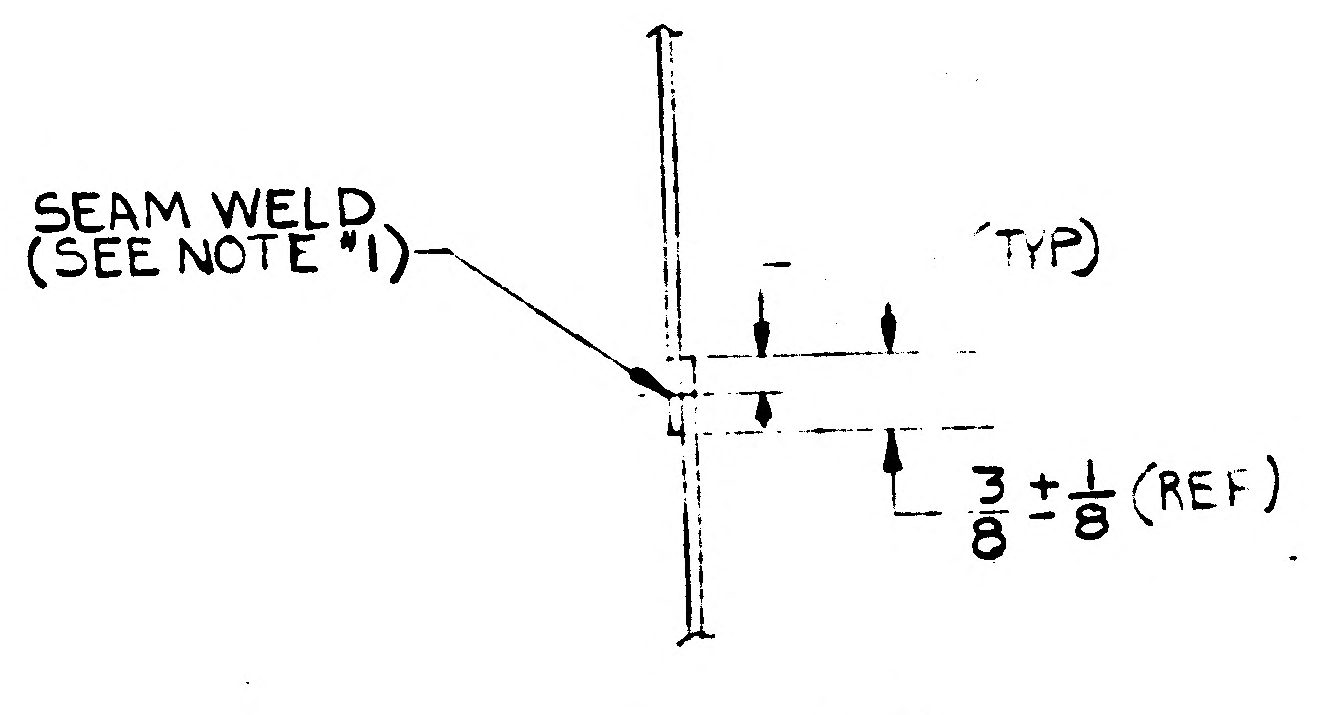
ENG 77.2 7-65

01 NAS 9-1100

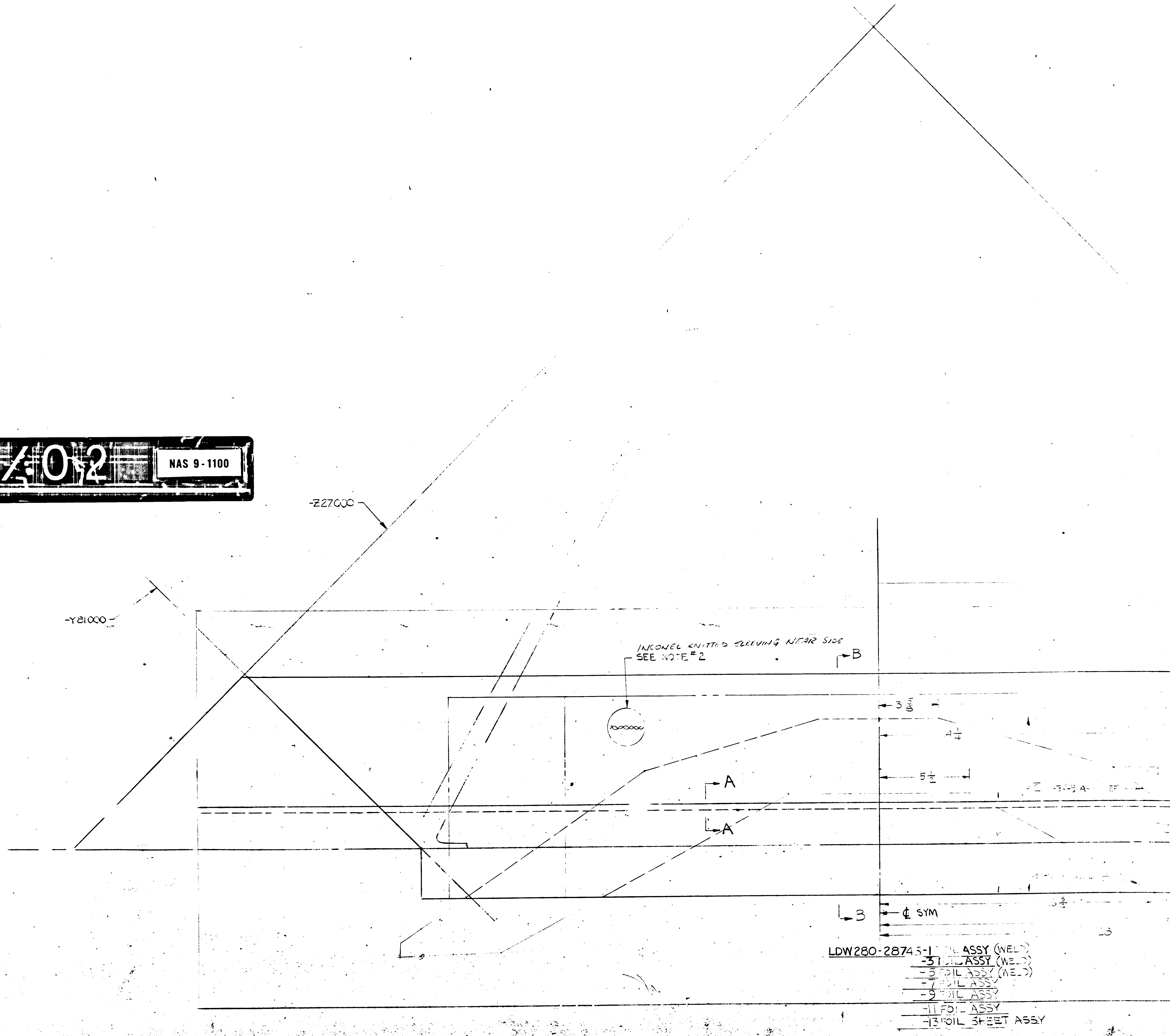

LDW280-28743-1 (-M)
INCONEL KNITTED SLEEVING (SEE NOTES 4 & 5)
LDW280-28743-3 (REF)
LDW280-28743-1 (REF)

SECT B-B
(NO SCALE)

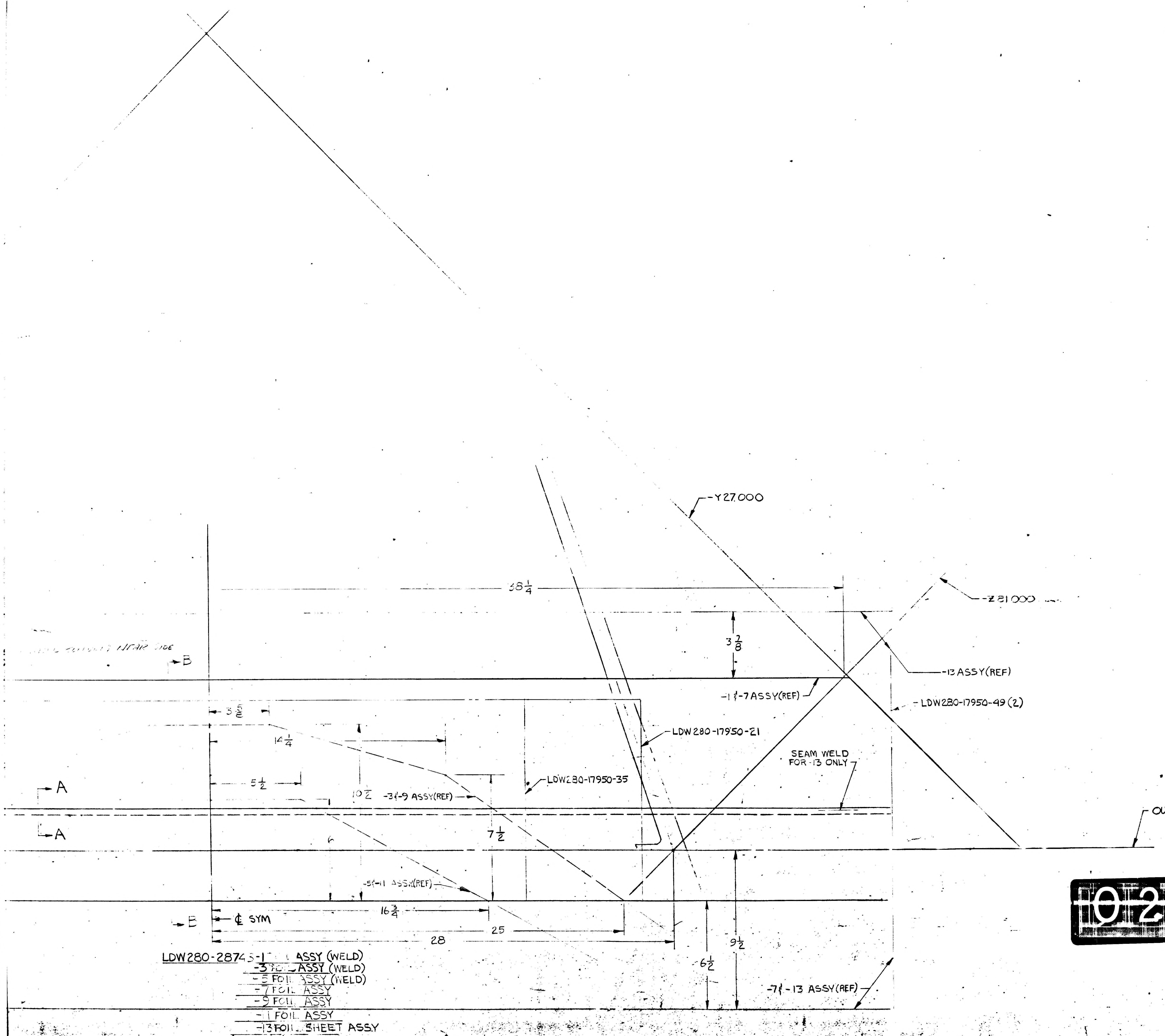
01/02 NAS 9-1100


SEAM WELD (SEE NOTE 1)
(TYP)
$\frac{3}{8} \pm \frac{1}{8}$ (REF)

SECT A-A


-Z27000
-Y81000
INCONEL KNITTED SLEEVING NEAR SIDE
SEE NOTE #2
B
A
A
B
3 5/8
4 1/4
5 1/2
6 3/4
℄ SYM
LDW280-28745-1 FOIL ASSY (WELD)
-3 FOIL ASSY (WELD)
-5 FOIL ASSY (WELD)
-7 FOIL ASSY
-9 FOIL ASSY
-11 FOIL ASSY
-13 FOIL SHEET ASSY

NOTES:
1. SEAM WELD AS PER LSP14-6102
2. FABRICATION OF LDW280-28743-1 [illegible] TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011 LEVEL "C".
3. NO TOOLING HOLES PERMITTED IN PARTS.
4. WELD INCONEL KNITTED SLEEVING TO FOIL SHEET PER LDW280-17522
5. INCONEL KNITTED SLEEVING TO BE 6 TO 8 INCH WHEN FLATTENED WIRE TO BE .0035 TO .0040 INCH DIA AND INCONEL "600" ALLOY KNIT PATTERN SQUARE [illegible] 5 TO 7 SQUARES PER LINEAR INCH MAY BE PURCHASED FROM MONTGOMERY METAL FABRIC CO. WINDSOR LOCKS CONN, 59 CANAL STREET (CODE IDENT 94725)


-Y27.000
38 1/4
-Z 81.000
3 7/8
-13 ASSY(REF)
-1 & -7 ASSY(REF)
LDW280-17950-49 (2)
→B
3 5/8
14 1/4
LDW280-17950-21
5 1/2
10 1/2
-3 & -9 ASSY(REF)
LDW280-17950-35
SEAM WELD FOR -13 ONLY
→A
└A
7 1/2
6
OUTB'D REF PLANE
-5 & -11 ASSY(REF)
→B
℄ SYM
16 3/4
25
28
6 1/2
9 1/2
-7 & -13 ASSY (REF)

LDW280-28743-1 FOIL ASSY (WELD)
-3 FOIL ASSY (WELD)
-5 FOIL ASSY (WELD)
-7 FOIL ASSY
-9 FOIL ASSY
-11 FOIL ASSY
-13 FOIL SHEET ASSY

02/02

NAS 9-1100

LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT.

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK		
	SIZE J	CODE IDENT NO. 26512	LDW280-28743
LEM			
MODEL OR END ITEM	SCALE 1/2		SHEET 3.00

THIS IS AN ORIGINAL DRAWING

HC

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280 | EO NO. 240
CONTROL INFO NO. LEM-2-2642

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE ✱.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LDW 280-25703	A4	A5	✱, ✱✱, ✱✱✱
-25704	A3	A4	✱, ✱✱, ✱✱✱
-25705	B5	C2	✱, ✱✱
-25706	A3	A5	✱, ✱✱, ✱✱✱
-25707	B1	B2	✱, ✱✱, ✱✱✱
-28730	A1	A5	✱
-28734	A1	A4	✱
-28735	A1	B1	✱
-28737	A1	A2	✱
-28738	A1	A2	✱
-28740	A1	A2	✱
-28741	A1	A2	✱
-28743	A1	A2	✱
-28744	A1	A2	✱
-28746	A1	A2	✱
-28747	A1	A2	✱
-28749	AL	A2	✱
-28750	A1	A2	✱
-28755	A1	A3	Δ
-28756	A1	A3	Δ
-28759	A1	A3	✱
-28760	A1	A2	✱
-28764	A1	A2	✱
-28765	A1	A2	✱
-28771	A2	A3	✱
-28772	A2	A3	✱
-28774	A1	A2	✱
LDW 280 -28775	A1	A2	✱

EFFECTIVITY:

✱✱✱ - QUAL TEST (72)

✱✱ - LTA-5 (15)

✱ - LEM-1 (31) THRU-6 (36) & LTA-8 (18)

Δ - LTA-8, LEM-1

2

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	GAEC C EO RELEASE
REASON FOR EO: TO FACILITATE MANUFACTURING	DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE ✱.		

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LEM		SEE ABOVE		✓		✓	

APPROVED BY	JHB				CAW	CAW	PMC	BOH
DATE 8-20-66	8/26/66 VDI				8/23/66	8/23/66	9-3	8-30-66
		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY C₂ | DRAWING TITLE — | DRAWING NO. LEO-280 | EO NO. 240

ISSUED BY LIAISON G. MARTELL x3604 SECTION VDI (DESCENT STAGE) GROUP NO. 335 PL 35

01

NAS 9-1100

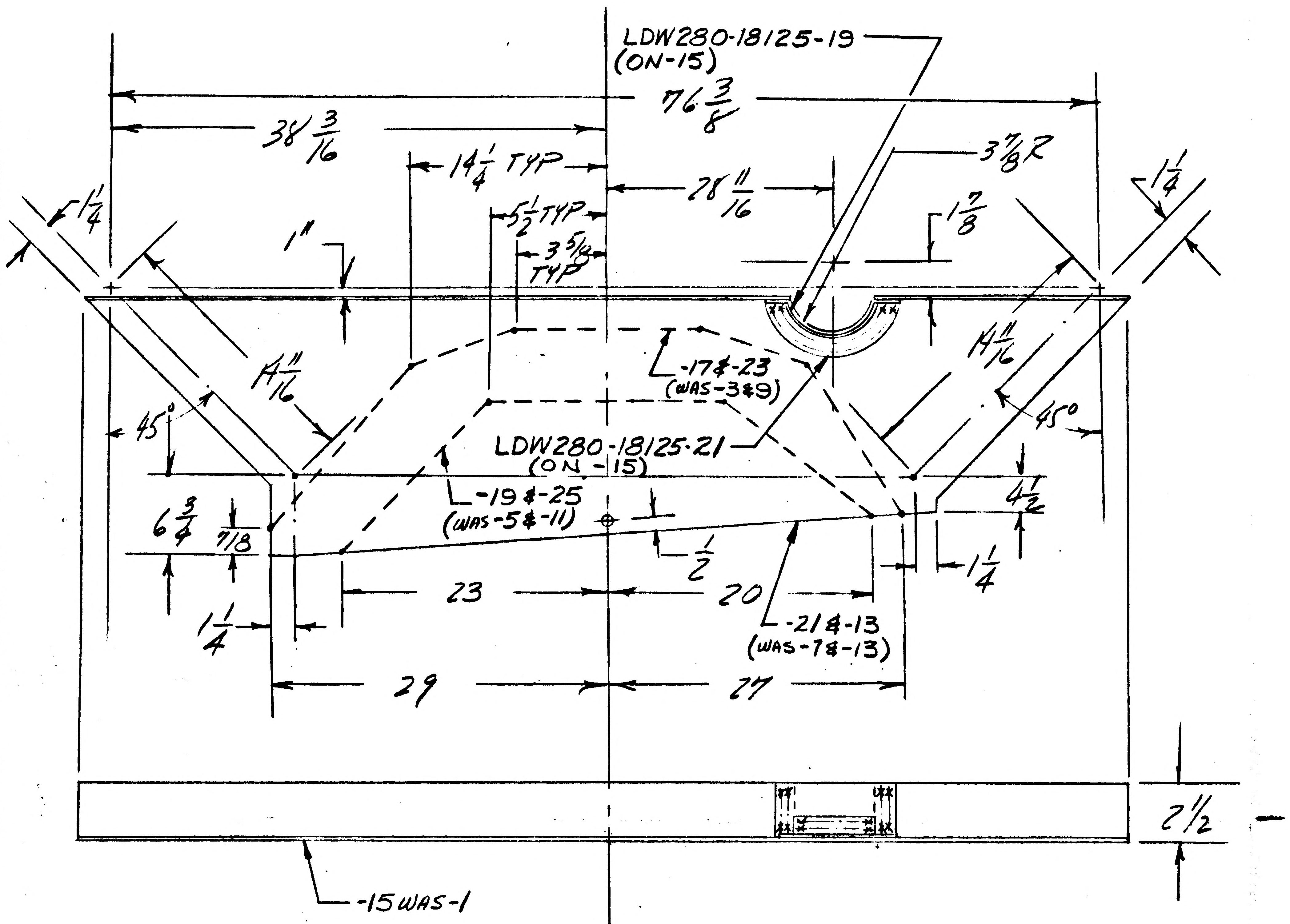
01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28743
EO NO. A3
CONTROL INFO NO. LDW280A-0511


LDW280-18125-19
(ON-15)
76 3/8
38 3/16
14 1/4 TYP
5 1/2 TYP
3 5/8 TYP
28 11/16
3 7/8 R
1 7/8
1 1/4
1 1/4
1"
1 11/16
1 11/16
45°
45°
-17 & -23
(WAS-3 & 9)
LDW280-18125-21
(ON -15)
-19 & -25
(WAS-5 & -11)
6 3/4
7/8
4 1/2
1/2
1 1/4
1 1/4
23
20
-21 & -13
(WAS-7 & -13)
29
27
2 1/2
-15 WAS-1

EXPLANATION

REMOVE -1, -3, -5, -7, -9 & -11
ADD -15 IDENT. TO -1 EXCEPT AS NOTED ABOVE
-17 " " -3 " " " "
-19 " " -5 " " " "
-21 " " -7 " " " "
-23 " " -9 " " " "
-25 " " -11 " " " "
-15, -17 & -19 EFF. LTA-8 & LM-1

-23 WAS -9, LDW280-17950-19 WAS -21
-25 WAS -11, LDW280-17950-15 WAS -35

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ 2

REASON FOR EO: THERMAL REQMT.

DESCRIPTION OF EO: REMOVED -1, -3, -5, -7, -9 & -11
ADDED -15, -17, -19, -21, -23 & -25

Ⓟ GAEC EO RELEASE 4 UE 10/4

MODEL: LM
EFFECTIVITY — PROCURING ACTIVITY NO.:
GAEC UNIT NO.: LTA-8(18), LM-1(4) THRU LM-6(36)
SUB CONTR UNIT NO.:

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK — SCRAP -1, -3, -5, -7, -9 & -11 ✓

APPROVED BY	DJH				WJR		RMC (E)	Gud
DATE	9/17/66				9/19/66		9-30	9/29/66
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: FOIL ASSY D.S. QUAD 2, SEQ PLUME IMPINGEMENT SHIELD UPPER
DRAWING NO.: LDW280-28743
EO NO.: A3

ISSUED BY R. CLARK R VAN COTT X1153 SECTION VDI GROUP NO. 335 PL 35 EMF

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 316
CONTROL INFO NO. LDW280A0936

ON THE FOLLOWING DRAWINGS ADD NOTE*:
*)INCONEL KNITTED SLEEVING TO BE OXIDIZED BY EXPOSURE TO 1650 ±50°F IN AIR FOR FOUR(4) HOURS. FOR LTA5(15) AND LTA8(18) OXIDIZATION IS OPTIONAL

DRAWING:	EFF	CHANGE NO.	TITLE
LDW280-25708	QUAL TEST LM1 THRU LM6 LTA5 & 8	B3	SEE DRAWING
LDW280-28735	LM1 THRU LM6 LTA8	C1	
LDW280-28737	"	A4	
LDW280-28740	"	B1	
LDW280-28743	"	A4	
LDW280-28746	"	B1	
LDW280-28749	"	A6	
LDW280-28752	"	B1	
LDW280-28755	LTA-8 & LM-1	A5	
LDW280-28759	LTA-8 LM-1 THRU LM-6	B1	
LDW280-28764	"	B1	
LDW280-28768	LM-1 &	B1	
LDW280-28771	LTA-8, LM-1 THRU LM-6	B1	
LDW280-28774	"	A6	
LDW280-28803	"	A1	SEE DRAWING
LDW280-28819	"	A1	SEE DRAWING

*-USE NEXT AVAILABLE NUMBER

3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: THERMO REQUIREMENT

DESCRIPTION OF EO: ADDED NOTE *

GAEC C EO RELEASE: LE 10/18

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	
LM			
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY	JLB			RGM	WJH		[illegible]	[illegible]
DATE	10/7/66			MAY'LS 10/7/66	10/7/66		10/12/66	10/15/66
	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C | DRAWING TITLE: NOTED | DRAWING NO.: LEO 280 | EO NO.: 316

ISSUED BY AMBROSIO/STRAKOSCH X1153 SECTION V.D.1 GROUP NO. 335 PL 35 EMF

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

ENG 32.1 REV 3-66

DWG. NO. LDW280-28743
EO NO. A5
CONTROL INFO NO. LDW280A-3745

1. FOR -15, -17 & -19
REMOVE LM-1 THRU LM-6 REQMTS.

2. REMOVE LDW280-17950 (ALL DASH NUMBERS) & -13, -21, -23 & -25
FROM FLD & B/M. REMOVE NOTES 1 & 4

3. ADD NOTE # * "MAKE -15, -17 & -19 FROM .0005 BRIGHT ROLLED
NICKEL FOIL COMMERCIALLY PURE INCO 200 OR EQUIV. 12" WIDE.
ADD NOTE # ** "FABRICATE -15, -17 & -19 PER LPC280-19"

4. THIS E.O. CANCELS E.O. A1, A2 & A4

** * NEXT AVAILABLE NOTE NO.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐	2

REASON FOR EO: RESTRICT PARTS & ADD FAB PROCEDURE

DESCRIPTION OF EO: 1. FOR -15, -17 & -19 REMOVED LM-1 THRU LM-6 REQMTS 2. REMOVED LDW280-17950 ALL DASH NO'S. FROM FLD & B/M., -13, -21, -23, -25. & NOTES 1 & 4. 3. ADDED NOTE * & ** 4. THIS EO CANCELS E.O. A1, A2 & A4

GAEC EO RELEASE: FR 12/5/66 1/4

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (31) THRU LM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		•	-15 -17 -19

APPROVED BY								
					NM			
DATE	12/2/66	12/2/66		12/2/66	12-2-66		12/2/66	12/2/66
1	VD1	THERMO ~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: FOIL ASSY DESCENT STAGE QUAD II-SEQ PLUME IMPINGEMENT SHIELD-UPR
DRAWING NO.: LDW280-28743
EO NO.: A5

ISSUED BY K. VAN COTT X1153 SECTION VDI GROUP NO. 235 PL. 35

01

NAS 9-1100

LDW28-28744 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW 280-28742	LTA-8 (13)	1
PART NO. LDW 280- 28744 -5		GAEC SCH NO. 52	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.0C						
REV	A	A	A	A						
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	A	GRUMMAN REL INFO A	
		PRIM NO. ~~JK(001)~~	
LAST DASH NO. USED	-7	207	ME-16A 6/9

ENG 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/16 ±.030 ± 1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100		LINE ITEM #1	DOCUMENTATION TYPE II
DRAWN BY	CITRANO	RELIABILITY	
LAYOUT BY	F. MADDEN	THERMO	2/12/66
CHECKED BY	Ⓐ CD R		
GRP LDR	Strahcool 7/20/66		
UDI	7/21		
STRUT.	7/22	PROJ ENGR	
STRUT.	Silderman 7/22	REL GROUP	Tagliaica 12/15/66
WEIGHTS	Ralucci 8-2		

Ⓐ

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ASSY ~ DESCENT STAGE
QUAD 2, S.E.Q. PLUME
IMPINGEMENT SHIELD UPPER

SIZE	CODE IDENT NO.		
B	26512	LDW280-28744	A
SCALE 1/2 NONE		SHEET 1 OF 4	

Ⓐ

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED SH 3.00 N.C LAST REV. N.C. 2-13-69 J. LONG						
A	1	1.10 3.00							INC LEO 280-188. ADDED SH 1.10	LTA-8, LM-1 THRU LM-6			J. LONG 4-15-69		
	2	3.00							INC LEO 280-240	LTA-8, LM-1 THRU LM-6			J. LONG 4-15-69		
	3	1.00, 2.00 3.00, 4.00							INC EO A3	LTA-8, LM-1 THRU LM-6					
	4	1.00, 2.00 3.00, 4.00							INC EO A4	LTA-8, LM-1 THRU LM-6					
	5	1.00							INC EO A5	LM-1 THRU LM-6					
	6	1.00							INC EO A6	LM-1 THRU LM-6					
	7	2.00, 3.00 4.00							INC LEO 280-559	LTA-8, LM-1 THRU LM-6			E.C.G.		
	8						✓	Ⓡ	REF LEO 280-559 (A7) EFF LTA-8, LM-1 THRU LM-6 SHOULD BE LTA-8 ONLY. REV NOTE 7. PREV. INCORP PER EO A4	LTA-8		N.D.	F. Zukas 4-18-69		

CHG APPROVED							
LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS	THERMO.	
A	5-23-69	5/26/69		5/26		MR 5/28/69	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28744	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY -5	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1		GT15B-8	E	TAPE	GRUMMAN STD						
4		GT15B-6	E	TAPE	↕						
1		GT15B-3	E	TAPE							
2		GT15B-2	E	TAPE	GRUMMAN STD						
1		LDW280-18130-17	E	COLLAR	SEE DWG						
1		LDW280-18130-15	E	STRAP	SEE DWG						
		LDW280-28744-5	E	WELD ASSY	SEE NOTE 6				FLW		

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
FLW	RESISTANCE WELD	LSP14-6102
	HOLE PREPARATION	GH11W

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28744
A
SCALE NONE
SHEET 2.00

Ⓐ

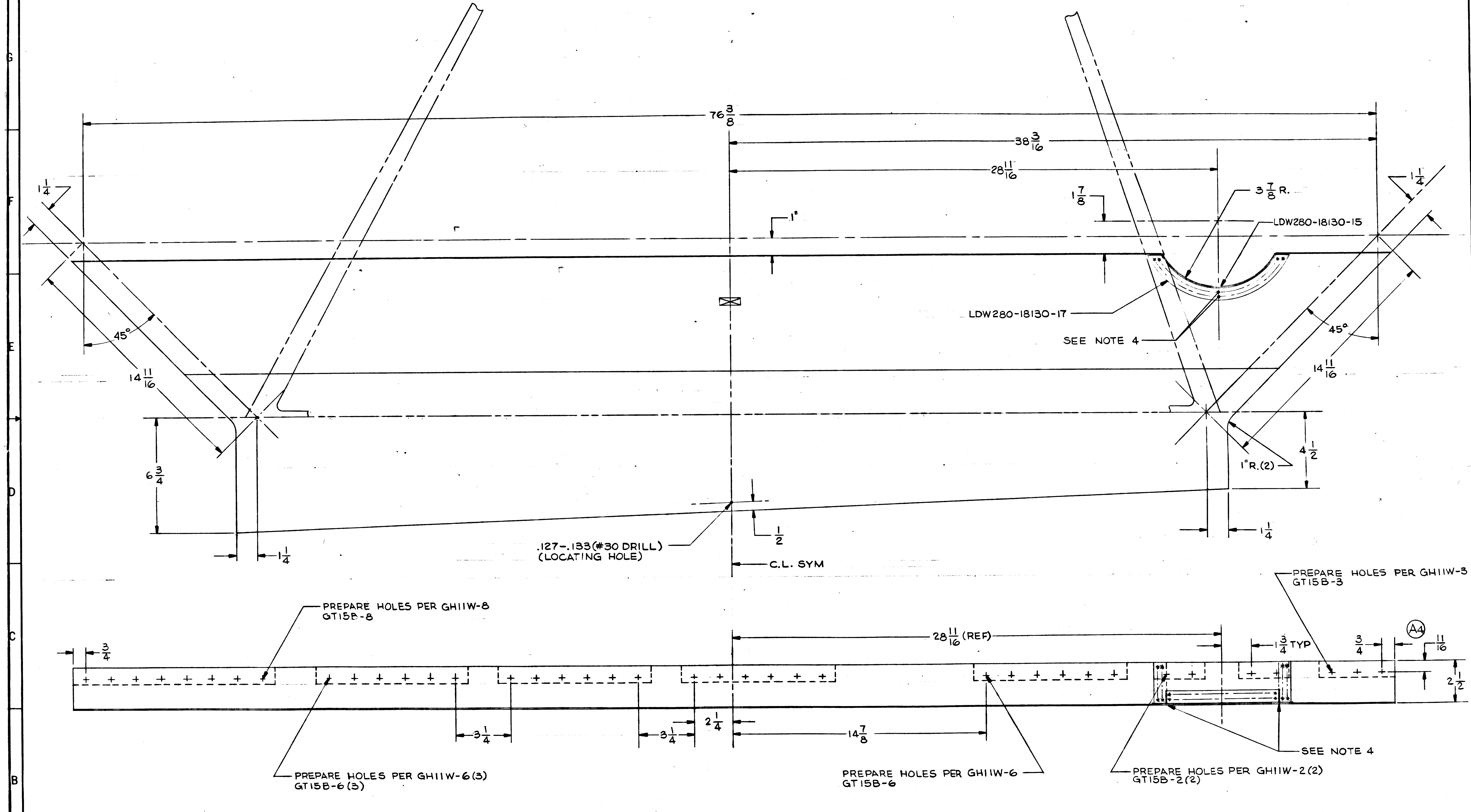
ENG 77.2 7-65

0 1

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES:
~~1. SEAM WELD AS PER LSP14-6102~~
~~2. FABRICATION OF LDW280-28744-1 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP 14-0011, LEVEL C.~~
3.-NO TOOLING HOLES PERMITTED IN PARTS.
4.-SEAMWELD AS PER LSP-14-6102. 1/4" EDGE DISTANCE, PITCH AND SPACING OFF ADJACENT STRUCTURE.
~~5. FINISH -7 NEARSIDE IN ACCORDANCE WITH LPC 280-5.~~
6.-MAKE -5 FROM .00125 INCONEL 600 FOIL PER AMS 5540E.
7.-FABRICATE -5 PER LPC 280-19.



$76\frac{3}{8}$
$38\frac{3}{16}$
$28\frac{11}{16}$
$1\frac{7}{8}$
$3\frac{7}{8}$ R.
LDW280-18130-15
$1\frac{1}{4}$
1"
LDW280-18130-17
SEE NOTE 4
45°
$14\frac{11}{16}$
$6\frac{3}{4}$
$4\frac{1}{2}$
1"R.(2)
$\frac{1}{2}$
.127-.133 (#30 DRILL) (LOCATING HOLE)
C.L. SYM
PREPARE HOLES PER GH11W-8 GT15B-8
PREPARE HOLES PER GH11W-3 GT15B-3
$\frac{3}{4}$
$28\frac{11}{16}$ (REF)
$1\frac{3}{4}$ TYP
$\frac{11}{16}$
A4
$2\frac{1}{2}$
$3\frac{1}{4}$
$2\frac{1}{4}$
$14\frac{7}{8}$
SEE NOTE 4
PREPARE HOLES PER GH11W-6(3) GT15B-6(3)
PREPARE HOLES PER GH11W-6 GT15B-6
PREPARE HOLES PER GH11W-2(2) GT15B-2(2)

LDW280-28744-5 ASSY (A3) (A4)

01 NAS 9-1100

	GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714			
LM	SIZE E	CODE IDENT NO. 26512	LDW280-28744	A
MODEL OR END ITEM	SCALE 1/2		SHEET 3.00	

SUPERCEDES 2LDW280-28744 NC 7-20-66 1

LDW280-28744 A

HG

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280
EO NO. 240
CONTROL INFO NO. LEM-2-2642

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE ✱.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LOW 280-25703	A4	A5	✱, ✱✱, ✱✱✱
-25704	A3	A4	✱, ✱✱, ✱✱✱
-25705	B5	C2	✱, ✱✱
-25706	A3	A5	✱, ✱✱, ✱✱✱
-25707	B1	B2	✱, ✱✱, ✱✱✱
-28730	A1	A5	✱
-28734	A1	A4	✱
-28735	A1	B1	✱
-28737	A1	A2	✱
-28738	A1	A2	✱
-28740	A1	A2	✱
-28741	A1	A2	✱
-28743	A1	A2	✱
-28744	A1	A2	✱
-28746	A1	A2	✱
-28747	A1	A2	✱
-28749	A1	A2	✱
-28750	A1	A2	✱
-28755	A1	A3	△
-28756	A1	A3	△
-28759	A1	A3	✱
-28760	A1	A2	✱
-28764	A1	A2	✱
-28765	A1	A2	✱
-28771	A2	A3	✱
-28772	A2	A3	✱
-28774	A1	A2	✱
LOW 280 -28775	A1	A2	✱

EFFECTIVITY:
✱✱✱ - QUAL TEST (72)
✱✱ - LTA-5 (15)
✱ - LEM-1 (31) THRU -6 (36) & LTA-8 (18)
△ - LTA-8, LEM-1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		GAEC EO RELEASE 2

REASON FOR EO: TO FACILITATE MANUFACTURING

DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE ✱.

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LEM		SEE ABOVE		✓		✓	

PRIORITY: C_2

DRAWING TITLE: —

	APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
		JJS				CAW	CAW	RMC	[illegible]
DATE	8-20-66	1/18/66				8/23/66	8/23/66	9-3	8/30/66

DRAWING NO. LEO-280
EO NO. 240

ISSUED BY LIAISON G. MARTELL x3604 SECTION VD1 (DESCENT STAGE) GROUP NO. 335 PL 35

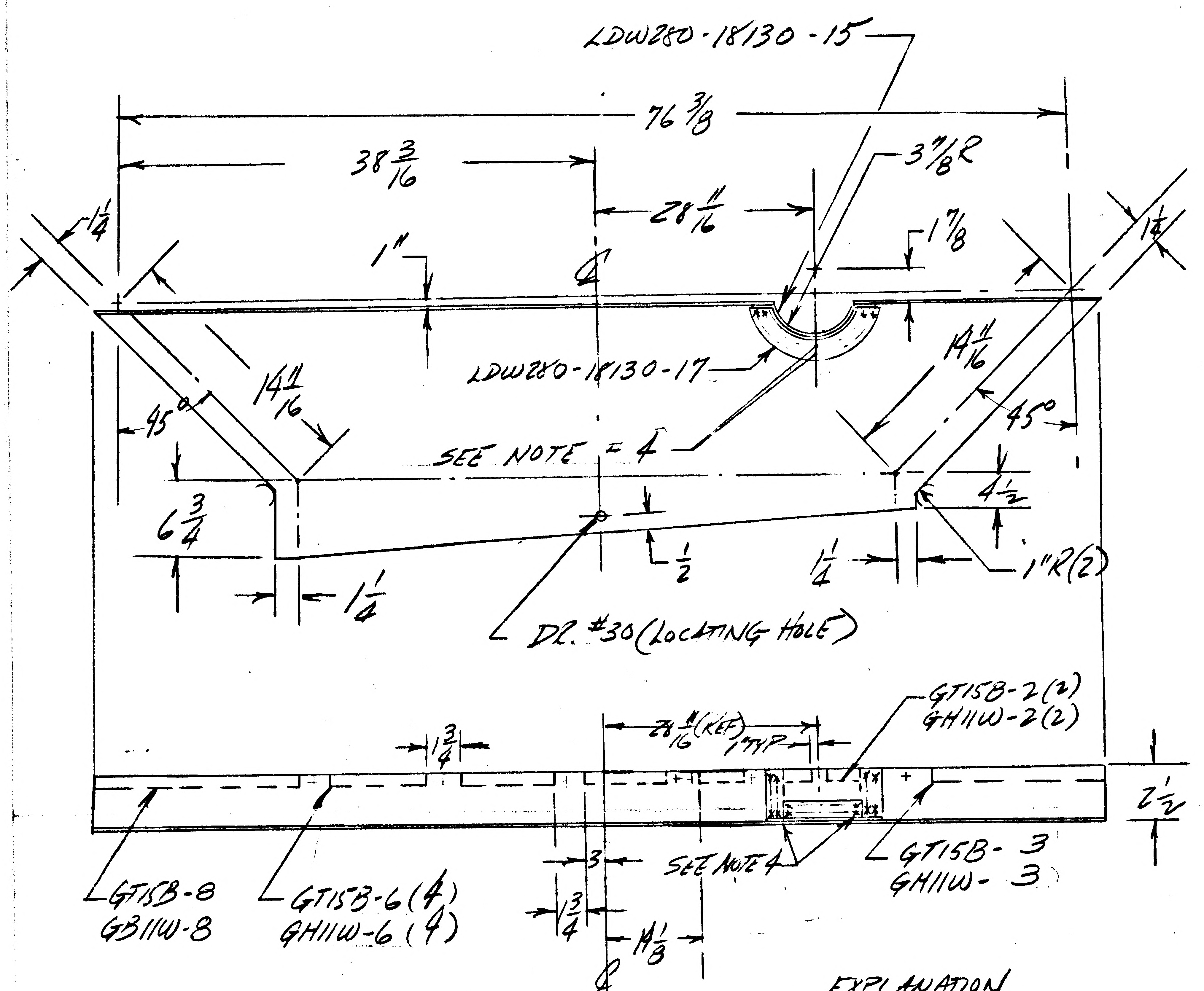
01
NAS 9-1100

ENG 33.2 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28744 | EO NO. A3
CONTROL INFO NO. LDW280A-0486


LDW280-18130-15
76 3/8
38 3/16
28 11/16
3 7/8 R
1 7/8
1 1/4
1"
1 1/4
14 11/16
14 11/16
LDW280-18130-17
45°
45°
SEE NOTE # 4
6 3/4
4 1/2
1/2
1 1/4
1 1/4
1"R(2)
DR. #30 (LOCATING HOLE)
1 3/4
28 11/16 (REF) TYP
GT15B-2(2)
GH11W-2(2)
2 1/2
GT15B-8
GB11W-8
GT15B-6(4)
GH11W-6(4)
3
SEE NOTE 4
GT15B-3
GH11W-3
1 3/4
14 1/8
℄

EXPLANATION

REMOVE -1
ADD -5 (SHN) LTA-8 ONLY (MAKE FROM -3)
ADD -7 IDENTICAL TO -5 EXCEPT FOR FINISH (SEE NOTE 5) EFF LEM-1 THRU -6
N/A OF -5 & -7 LDW280-28742 = 1 REQD/VEH

ON -3
IN FLD & B/M LDW280-17970-49 WAS -11

ADD NOTE #5
"FINISH -7, NEAR SIDE, IN ACCORDANCE WITH LPC280-5."

ADD NOTE #4
"SEAM WELD AS PER LSP-14-6102. 1/4" EDGE DISTANCE, PITCH & SPACING OFF ADJACENT STRUCTURE."

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐				2 Ⓡ
REASON FOR EO: THERMAL REQMT				DESCRIPTION OF EO: REMOVED -1 EFF LTA-8, LEM-1 THRU LEM-6. ADDED -5, -7, NOTE #4 & NOTE #5. ON -3 IN FLD & B/M LDW280-17970-49 WAS -11					GAEC EO RELEASE: 10 5
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY	DATE		
LEM		LTA-8 (18) LEM-1 (31) LEM-6 (36)		REVISE DWG ✓	RECORD EO	REWORK	SCRAP -1	✓	
APPROVED BY	JMS				W.H		PMC	
DATE	9/7/66	10-13-66			9/17/66		10-4-66	10/3/66
	NDI	SUPPORT ENGRG	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
PRIORITY C	DRAWING TITLE: SKIN ASSY QUAD II - SEQ DESCENT STAGE PLUME IMPINGEMENT SHIELD - UPPER				DRAWING NO. LDW280-28744			EO NO. A3

ISSUED BY R. VAN COTT X1153 SECTION VDI GROUP NO. 335 PL 35 E

NAS 9-1100

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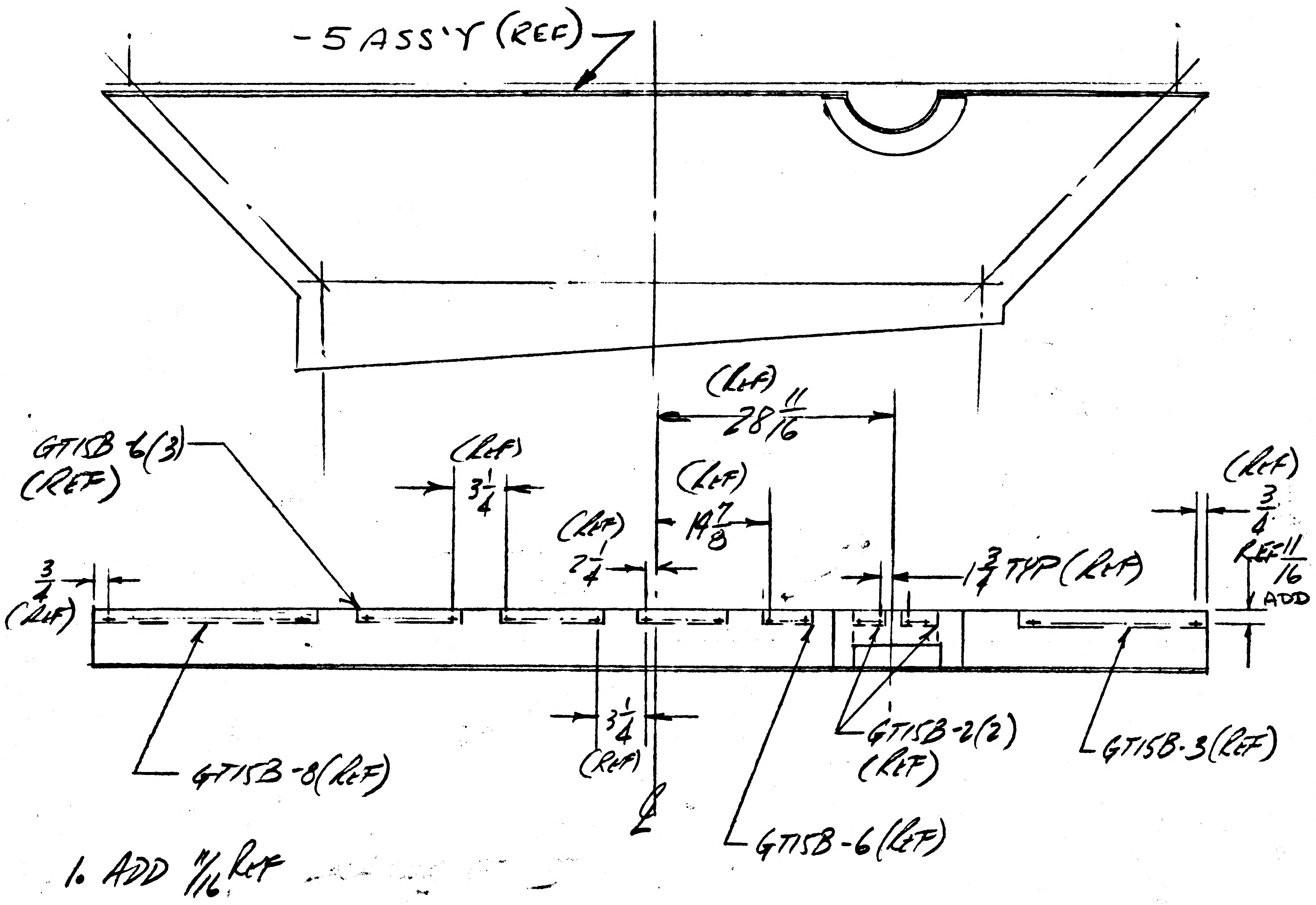
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28744 | LO NO. A4
CONTROL INFO NO. LDW280A-3746



-5 ASS'Y (REF)
(REF) 28 11/16
(REF) 14 7/8
(REF) 2 1/4
(REF) 3 1/4
GT15B-6(3) (REF)
3/4 (REF)
1 3/4 TYP (REF)
(REF) 3/4
REF 11/16 ADD
3 1/4 (REF)
GT15B-8(REF)
℄
GT15B-6(REF)
GT15B-2(2) (REF)
GT15B-3(REF)

1. ADD 11/16 REF
2. REMOVE -7 ASSY
3. REMOVE LDW280-17970 (ALL DASH NO'S) & -3 FROM FLD & B/M
4. REMOVE NOTE #1
5. ADD NOTE NO * "MAKE -5 FROM .00125 INCONEL 600 FOIL PER AMS 5540E."
   ADD NOTE NO ** "FABRICATE -5 PER LPC280-19"
6. THIS E.O. CANCELS E.O. A1 & A2

*** NEXT AVAILABLE NOTE NO.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO: RESTRICT PARTS & ADD FAB PROCEDURE

1. ADD 11/16 DIM (REF) 2. REMOVED -7 ASSY 3. REMOVED -3 & LDW280-17970 FROM FLD & B/M. 4. REMOVED NOTE 1 5. ADDED NOTE * & ** 6. THIS E.O. CANCELS E.O. A1 & A2

GAEC EO RELEASE: FR 12/5/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(16)	
		LM-1(31) THRU	
		LM-6(36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY									
✓			-7	DATE	12/2/66	12/2/66		12/2/66	12/2/66		12/2/66	12-3-66
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VD1	~~SUPPORT~~ THERMAL	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: SKIN ASSY DESCENT STAGE QUAD II -SEQ PLUME IMPINGEMENT SHIELD - UPR
DRAWING NO.: LDW280-28744
EO NO.: A4

ISSUED BY R. VAN COTT X1153 SECTION VDI GROUP NO 335 PL 35

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NAS 9-1100

C A G
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMI-A

DWG. NO. LDW280-28744		EO NO. 15
CONTROL INFO NO. LM-24-1020		

IN MODEL BLOCK RESTRICT -5 EFFECTIVITY
TO LTA-8 (13) ONLY. (N/A LDW280-28665: REF)
(REMOVE LEM 1 (31) THRU 6 (33) FOR -5 EFF)

✓

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO
DRAWING REPLACED ON LATER MODELS

DESCRIPTION OF EO
RESTRICTED -5 TO LTA-8 ONLY.

GAEC EO RELEASE: R C

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 Thru LM 6	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

APPROVED BY								
	[illegible]				~	W.F.	[illegible]	[illegible]
DATE	1/25				~	1-6-67	1-16-7	1-[illegible]-67
6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C29	SKIN ASSY - DESCENT STAGE QUAD II ~ SEQ ~ PLUME IMPINGEMENT UPPER THERMAL SHIELD	LDW280-28744	15

ISSUED BY **LIAISON** J. [illegible] X7930 1-5-67 H. PALMEREN[illegible] SECTION VEH DES [illegible] GROUP NO. 335 PL 29

01 NAS 9-1100

C

4.C.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER EMF A

DWG NO. LDW280-28744
EO NO. A6
CONTROL INFO NO. LM 29-1039

THIS EO CANCELS EO # A5 ON LDW 280-28744

✓

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO
INFORMATION PREVIOUSLY RELEASED ON EO A3 (LDW280-28744)

DESCRIPTION OF EO
THIS E.O. CANCELS EO A5 ON LDW 280-28744

GAEC EO RELEASE C
K

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM 10 THRU LM 6 (36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
REVISE DWG	RECORD EO	REWORK	SCRAP									
✓		NOT REQD										
			APPROVED BY					~	WF			
			DATE	1/15				~	1-18-67	1-19-67	1-17-67
			6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY C29

DRAWING TITLE SKIN ASSY DESCENT STAGE QUAD II - SEQ. PLUME IMPINGEMENT

DRAWING NO. LDW280-28744

EO NO. A6

ISSUED BY LIAISON ZEMAN W. FRANK (4353) SECTION VDI GROUP NO. 335 PL 29

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NAS 9-1100

ENG 22.2 REV 3-65

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LEO 280	EO NO. 559
CONTROL INFO NO. LDW 280A 6306	

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW: REMOVE LDW280-17970- ALL DASH NUMBERS AND ADD "SEE NOTE *"

IN F/D REMOVE LDW280-17970- ALL DASH NUMBERS

REVISE NOTE *
(REF) "MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19."
(ADD) PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

DRAWING No.	CHANGE#	SYMBOL	EFFECTIVITY	TITLE
LDW280-18130	A7	⬡	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW280-18141	A3	⬡	LM-1 THRU LM-15	
LDW 280-28730	B7	☐	LTA-8 LM-1 THRU LM-3	
LDW 280-28734	B2	☐	LTA-8 LM-1 THRU LM-3	
LDW 280-28738	A7	☐	LTA-8 LM-1 THRU LM-15	
LDW 280-28740	B3	☐	LTA-8 LM-1	
LDW 280-28741	A6	☐	LTA-8 LM-1 THRU LM-6	
LDW 280-28744	A7	☐	LTA-8 LM-1 THRU LM-6	
LDW 280-28747	B4	☐	LTA-8 LM-1 THRU LM-15	
LDW 280-28750	39	☐	LTA-8 LM-1 THRU LM-15	
LDW280-28753	A5	☐	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	☐	LTA-8 LM-1 THRU LM-15	
LDW280-28760	B5	☐	LTA-8 LM-1 THRU LM-3	
LDW280-28765	A7	⬡	LTA-8 LM-1 THRU LM-6	
LDW280-28769	B2	☐	LM-1	
LDW280-28772	B6	☐	LM-1 THRU LM-15	
LDW280-28775	B7	☐	LTA-8 LM-1 THRU LM-15	
LDW 280-28805	A6	☐	LM-1 THRU LM-15	
LDW 280-28806	A4	☐	LTA-8 LM-1 THRU LM-15	
LDW 280-51824	A3	☐	LM-1 THRU LM-15	SEE DWG

NOTE △ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY WITH LPC280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM ☐ REVISE NOTE *.
FOR SYM ⬡ ADD NOTE △ TO DWG

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	DESCRIPTION OF EO: REMOVED LDW280-17970 FROM B/M & F/D (ALL DASH NO'S) FOR DWG'S ☐ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ⬡ ADDED NOTE △								GAEC EO RELEASE: JS 4-19-7
REASON FOR EO: UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE														
EFFECTIVITY				DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY						
MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	REVISE DWG	RECORD EO	REWORK	SCRAP	DATE						
				✓		NOT	REQ	4/10/67			4/10/67	4/10/67		4-18-67
								6	V21	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
LM		NOTED		PRIORITY		DRAWING TITLE				DRAWING NO.				EO NO.
		ABOVE		C		NOTED				LEO 280				559

5 C

ISSUED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

Q1
NAS 9-1100

LDW28028745 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28666	LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5 (35)	1
		LM-4 (34)	1
		LM-3 (33)	1
		LM-2 (32)	1
LM	LDW280-28666	LM-1 (31)	1
PART NO. LDW280-28745-5		GAEC SCH NO. 52-	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28666	LTA-8 (18)	1
PART NO. LDW280-28745-3		GAEC SCH NO. 52-	

WORK PACKAGE FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00		3.00			
REV	B	B		B		B			
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED D
LAST DASH NO. USED -5

GRUMMAN REL INFO B
PRIM NO. 207 JK(001) MP-14B 6/26/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/16 ±.030 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM —
DOCUMENTATION TYPE II

DRAWN BY		WEIGHTS	D. ROBESCH 7/25/66
LAYOUT BY	AMBROSIO	RELIABILITY	
CHECKED BY		THERMO	C HERTELL
GR LEADER	J. STRAKOSCH 7/16/66		
VEH DES INT	W. BISCHOFF 7/16/66		
STRUCTURE	F. BUNCH 7/16/66	PROJ ENGR	T. DALNE 7/26/66
STRUCTURE	R. HILDERMAN 7/16/66	REL GROUP	C. BOTTI 8-2-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSY -
DESCENT STAGE ~ QUAD III
UPPER PLUME IMPINGEMENT~THERMAL

SIZE B
CODE IDENT NO. 26512
LDW280-28745 B
SCALE NONE
SHEET 1.00 OF 4

G 77.1 12-65

THIS DWG SUPERSEDES LDW280-28745-'A' CHG 5-17-'67

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
									RETRACED-NO CHANGE, LAST REVISION -'A' CHG. ADDED SH 1.10 E. WICK 5-17-67						
B	1	1.00 1.10 2.00 3.00						EOB1	ON-5 ASSY ADDED LDW280-51833-1, IN SECTION B-B REMOVED NOTE "DIRECTION - OPTIONAL"	LM-1(31) THRU LM-15(45)	✓		E. WICK 5-17-67		6-26-67
	2						✓	EOB2	IN F/D; REVISED TRIM OF -5 ASSY; ADDED 1 1/4, 7 1/2 & 2" DIMENSIONS.		✓				
	3							EOB3	ON-5 ASSY, ADDED LDW280-28746-31 & EFF LM-7(17) THRU LM-15(45) AND IN SECT D-D ADDED 1" DEM. REMOVED: LDW280-23720-3(2) & LDW280-17932-13(2), REVISED N/A LDW280-28666 WAS LDW280-51666 FOR LM-1, WAS LDW280-52666 FOR LM-2 & LM-3, WAS LDW280-54666 FOR LM-4, -5 & -6.		✓				
	4							EOB4	ON-5, LDW280-28737-35 WAS LDW280-28737-29		✓				
	5							EOB5	IN F/D & L/M FOR-5 ADDED GS11K-2-106, -112, -140 & -142 & GT835P-8, REMOVED LDW280-51833-1 & ADDED LDW280-51833-5, ADDED NOTE 6, "FABRICATE PER LPC280-25."		✓				
	6						✓	EOB6	REF. EOB2 & EOB3 CHANGED CALLOUT OF LDW280-28747-25 TO LDW280-28747-13.		NOT	REQD			
	7								REF EOB1 & EOB2, EFF SHOULD BE LM-1 THRU LM-6	NOT REQD	NOT	REQD			
	8								REF EOB3, "EFF LM-7(17) THRU LM-15(45)" SHOULD BE "EFF LM-7(37) THRU LM-15(45) & "ADDED 1" DEM SHOULD BE "ADDED 1" DIM.				JDC		

CHG APPROVED LTR	~~GR. LEADER~~	VEH. DES. INT.	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO	PROJ ENGR	REL GROUP		
B		6/19/67	6/20/67					6/23/67			

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28745	B
SCALE NONE			SHEET 1.10

77.3 5-65

01

NAS 9-1100

QTY PER ASSEMBLY -5	QTY PER ASSEMBLY -3	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
SEE NOTE 6			GT835P-8	E	TAPE	GRUMMAN STD	SEE NOTE 6					
1			GS11K-2-142		STRIP							
1			GS11K-2-140									
1			GS11K-2-112									
1			GS11K-2-106		STRIP	GRUMMAN STD						
1			LDW280-51833-5		SHIELD ASSY	SEE DWG						6B
20	20		LDW280-23720-3		STAPLE ASSY	SEE DWG						9C
20	20		LDW280-17932-13		WASHER							9C
1			LDW280-28747-13		SKIN ASSY							4D
	1		LDW280-28747-11		SKIN ASSY							4D
1			LDW280-28746-31		FOIL ASSY							5B
1			LDW280-28746-15									4D
	1		LDW280-28746-13									4D
1			LDW280-28737-35									5C
	1		LDW280-28737-29									5C
1	1		LDW280-28737-27		FOIL ASSY	SEE DWG						5C
			LDW280-28745-5		SHIELD ASSY					NONE	NONE	5A
			LDW280-28745-3	E	SHIELD ASSY					NONE	NONE	5A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

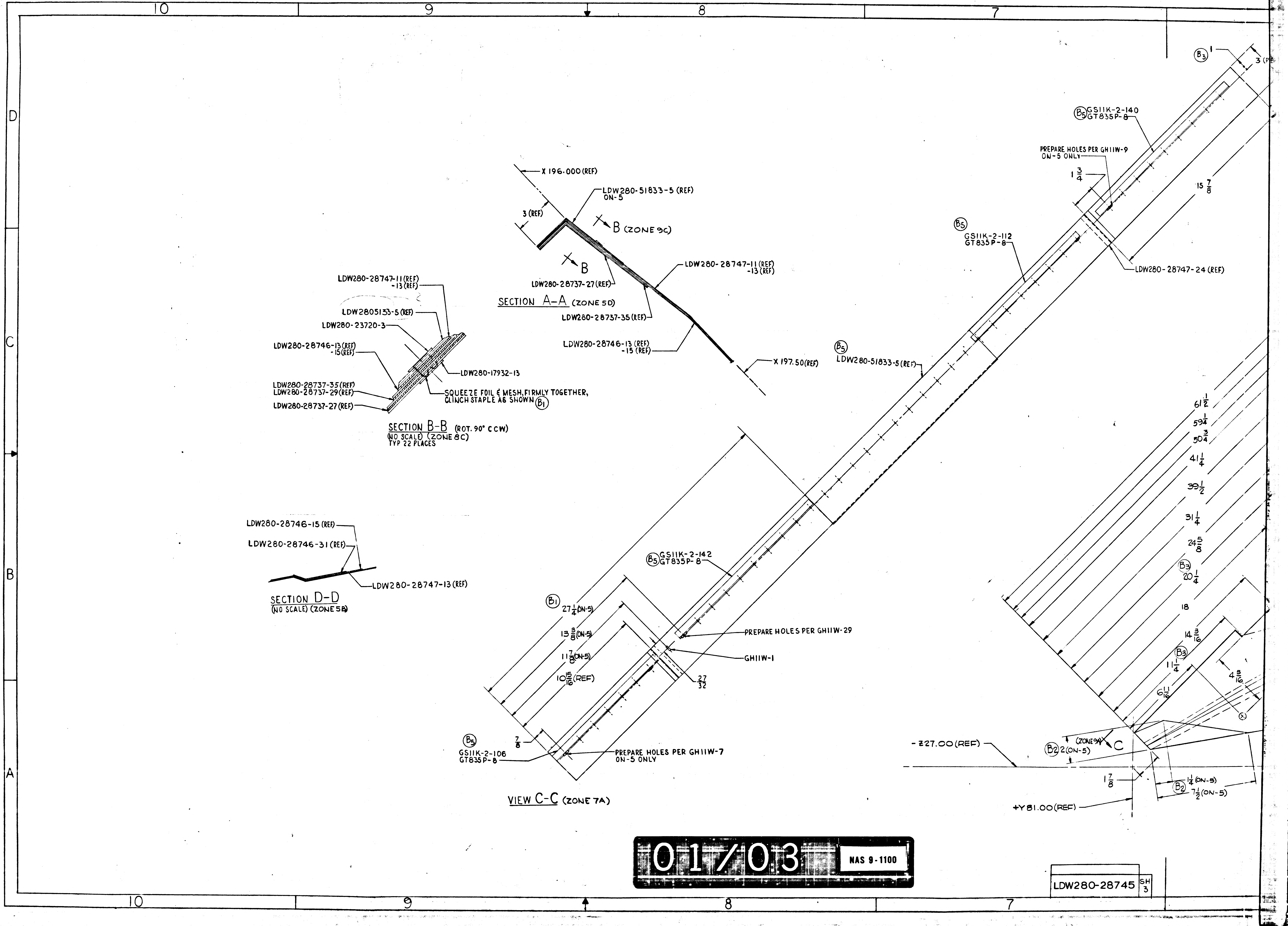
SIZE B | CODE IDENT NO. 26512 | LDW280-28745 | B

SCALE NONE | SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


10
9
8
7
D
C
B
A
X 196.000 (REF)
LDW280-51833-5 (REF)
ON-5
3 (REF)
B (ZONE 9C)
B
LDW280-28737-27 (REF)
LDW280-28747-11 (REF)
-13 (REF)
LDW280-28737-35 (REF)
LDW280-28746-13 (REF)
-15 (REF)
X 197.50 (REF)
LDW280-28747-11 (REF)
-13 (REF)
LDW2805133-5 (REF)
LDW280-23720-3
LDW280-28746-13 (REF)
-15 (REF)
LDW280-17932-13
LDW280-28737-35 (REF)
LDW280-28737-29 (REF)
LDW280-28737-27 (REF)
SQUEEZE FOIL & MESH FIRMLY TOGETHER, CLINCH STAPLE AS SHOWN (B1)
LDW280-28746-15 (REF)
LDW280-28746-31 (REF)
LDW280-28747-13 (REF)
(B3) 1
3 (REF)
(B5) GS11K-2-140
GT835P-8
PREPARE HOLES PER GH11W-9
ON-5 ONLY
1 3/4
15 7/8
(B5)
GS11K-2-112
GT835P-8
LDW280-28747-24 (REF)
(B5)
LDW280-51833-5 (REF)
61 1/2
59 1/4
50 3/4
41 1/4
39 1/2
31 1/4
24 5/8
(B3)
20 1/4
18
14 3/16
(B3)
11 1/4
4 5/16
6 11/16
(B5) GS11K-2-142
GT835P-8
(B1)
27 1/4 (ON-5)
13 3/8 (ON-5)
11 7/8 (ON-5)
10 15/16 (REF)
PREPARE HOLES PER GH11W-29
GH11W-1
27/32
7/8
(B5)
GS11K-2-106
GT835P-8
PREPARE HOLES PER GH11W-7
ON-5 ONLY
-Z27.00 (REF)
(ZONE 9A)
C
(B2) 2 (ON-5)
1 7/8
(B2) 1 1/4 (ON-5)
7 1/2 (ON-5)
+Y81.00 (REF)
10
9
8
7

SECTION A-A (ZONE 5D)

SECTION B-B (ROT. 90° CCW)
(NO SCALE) (ZONE 8C)
TYP 22 PLACES

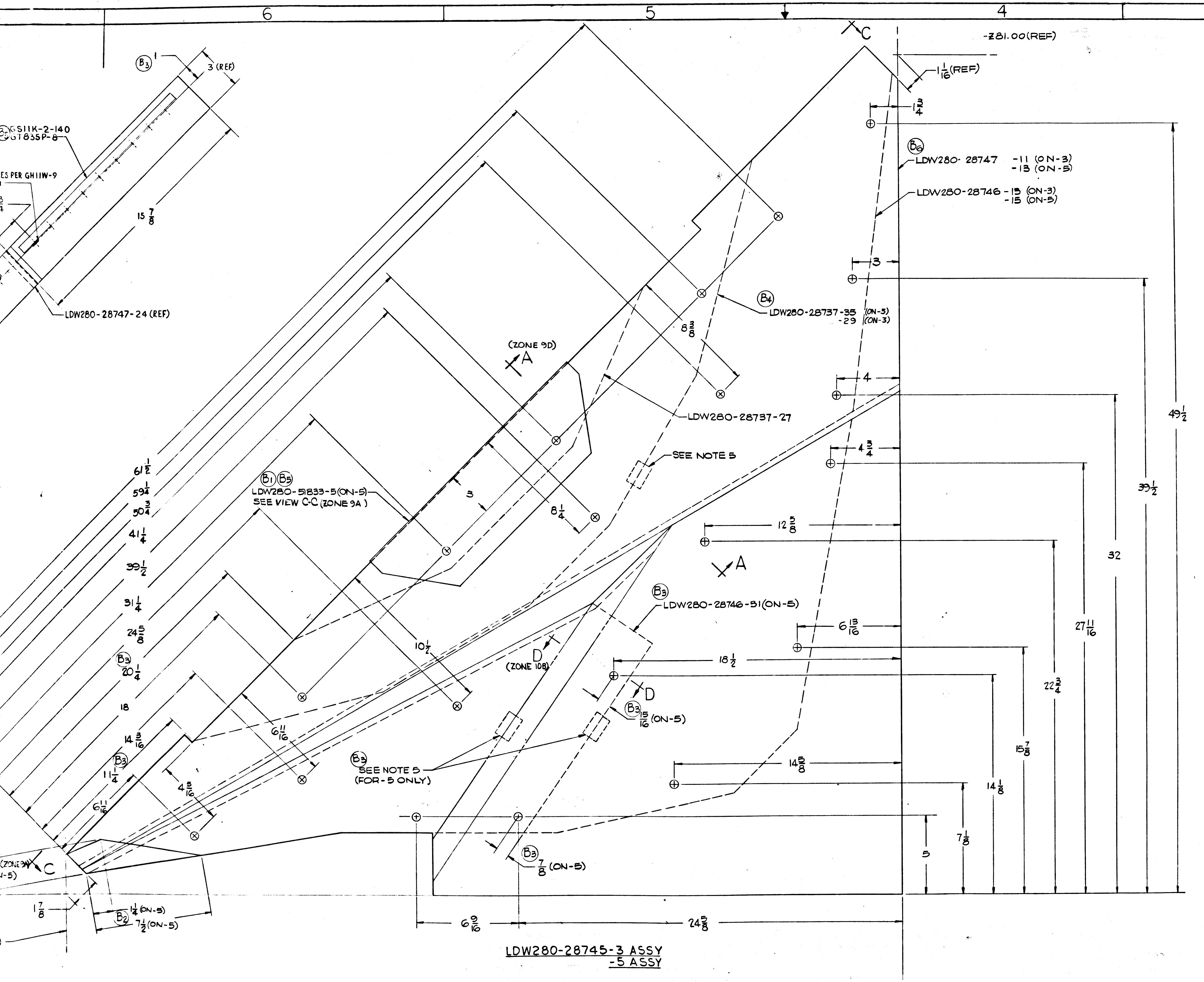
SECTION D-D
(NO SCALE) (ZONE 5B)

VIEW C-C (ZONE 7A)

01/03 NAS 9-1100

LDW280-28745 SH 3

NOTES:
1. NO TOOLING HOLES P
2. FABRICATION OF LDW2
CONDITIONS WHICH C
3. ALL DIMENSIONS LO
5. TAPE PER LPC 280-4-
6. FABRICATE PER LPC 28


6
5
4
3
C
-Z81.00(REF)
$1\frac{1}{16}$(REF)
$1\frac{3}{4}$
B3 1
3 (REF)
GS11K-2-140
GT835P-8
ES PER GH11W-9
$15\frac{7}{8}$
LDW280-28747-24 (REF)
B6
LDW280-28747 -11 (ON-3) -13 (ON-5)
LDW280-28746 -13 (ON-3) -15 (ON-5)
3
B4
LDW280-28737-35 (ON-5) -29 (ON-3)
$8\frac{3}{8}$
(ZONE 9D)
A
4
LDW280-28737-27
$49\frac{1}{2}$
$4\frac{3}{4}$
SEE NOTE 5
$61\frac{1}{2}$
$59\frac{1}{4}$
$50\frac{3}{4}$
$41\frac{1}{4}$
$39\frac{1}{2}$
$31\frac{1}{4}$
$24\frac{5}{8}$
$20\frac{1}{4}$
18
$14\frac{3}{16}$
$11\frac{1}{4}$
$6\frac{11}{16}$
B1 B5
LDW280-51833-5(ON-5)
SEE VIEW C-C (ZONE 9A)
3
$8\frac{1}{4}$
$12\frac{5}{8}$
A
$39\frac{1}{2}$
32
B3
LDW280-28746-51(ON-5)
$6\frac{13}{16}$
$27\frac{11}{16}$
$10\frac{1}{2}$
D
(ZONE 10B)
$18\frac{1}{2}$
$22\frac{3}{4}$
D
B3 $\frac{15}{16}$ (ON-5)
$15\frac{7}{8}$
$6\frac{11}{16}$
$4\frac{5}{16}$
B3 SEE NOTE 5 (FOR-5 ONLY)
$14\frac{5}{8}$
$14\frac{1}{8}$
$7\frac{1}{8}$
5
B3 $\frac{7}{8}$ (ON-5)
(ZONE 9A) C
-5)
$1\frac{7}{8}$
$1\frac{1}{4}$(ON-5)
B2 $7\frac{1}{2}$(ON-5)
$6\frac{9}{16}$
$24\frac{5}{8}$

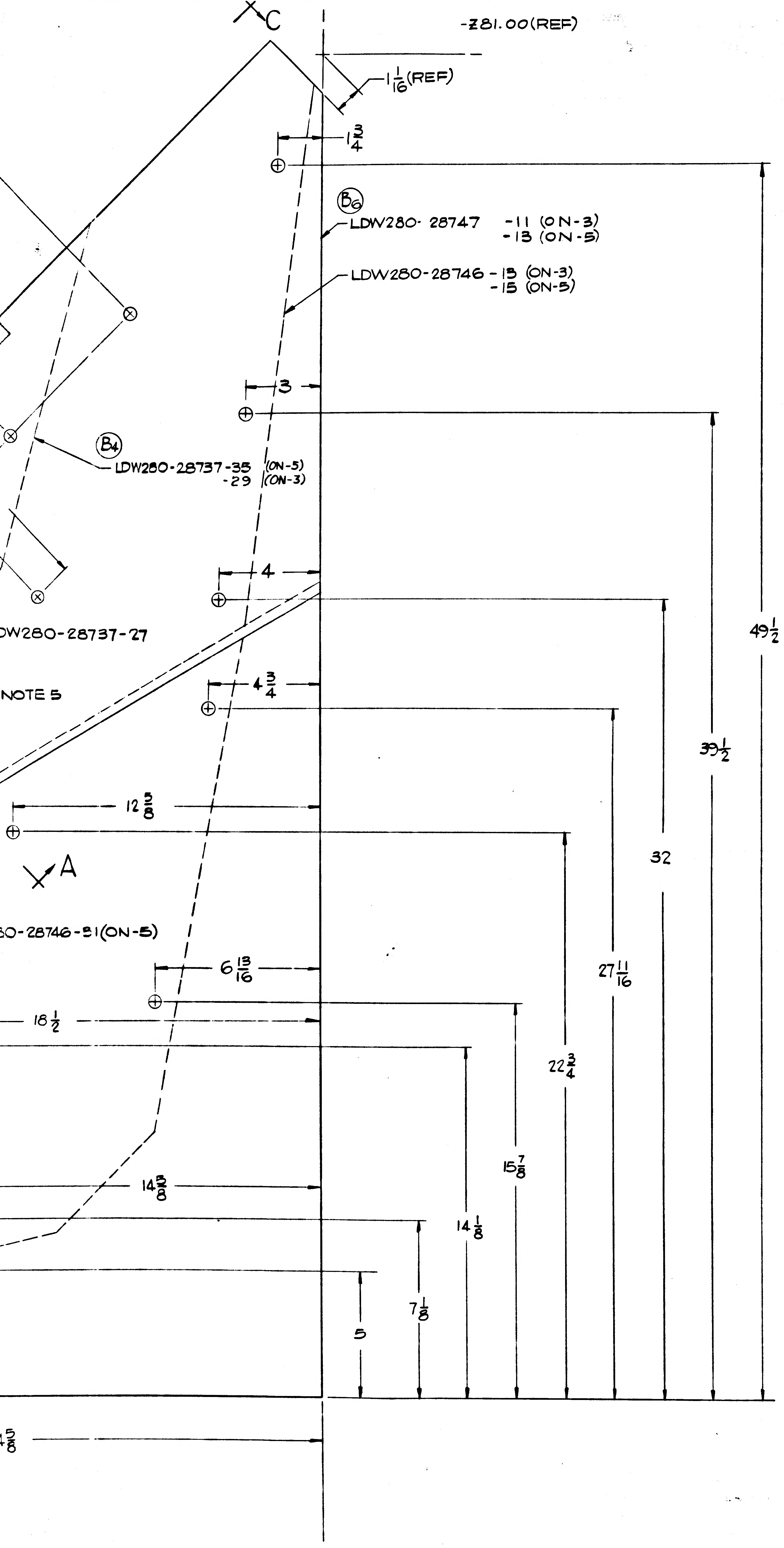
LDW280-28745-3 ASSY
-5 ASSY

02/03 NAS 9-1100

280-28745	SH 3

LDW280-28745	SH 3

6
5
4
3



C
-281.00(REF)
1 1/16(REF)
1 3/4
B6
LDW280- 28747 -11 (ON-3)
-13 (ON-5)
LDW280-28746 -13 (ON-3)
-15 (ON-5)
3
B4
LDW280-28737-35 (ON-5)
-29 (ON-3)
4
DW280-28737-27
49 1/2
NOTE 5
4 3/4
39 1/2
12 5/8
32
A
0-28746-31(ON-5)
6 13/16
27 11/16
16 1/2
22 3/4
15 7/8
14 5/8
14 1/8
7 1/8
5
5/8

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. FABRICATION OF LDW280-28745 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP 14-0011.
3. ALL DIMENSIONS LOCATED ON SURFACE PLANES.
5. TAPE PER LPC 280-4.
6. FABRICATE PER LPC 280-25.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 ∇ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 ∇ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 110

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 112)- 28 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)- 7 SQ. FT.

PRINT TRIM LINE

LDW280-28745 B

LDW280-28745 B

03/03 NAS 9-1100

LDW280-28745 SH 3

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
SIZE J	CODE IDENT NO. 26512	LDW280-28745	B
SCALE 1/2 & NOTED		SHEET 3.00	

LM
MODEL OR END ITEM

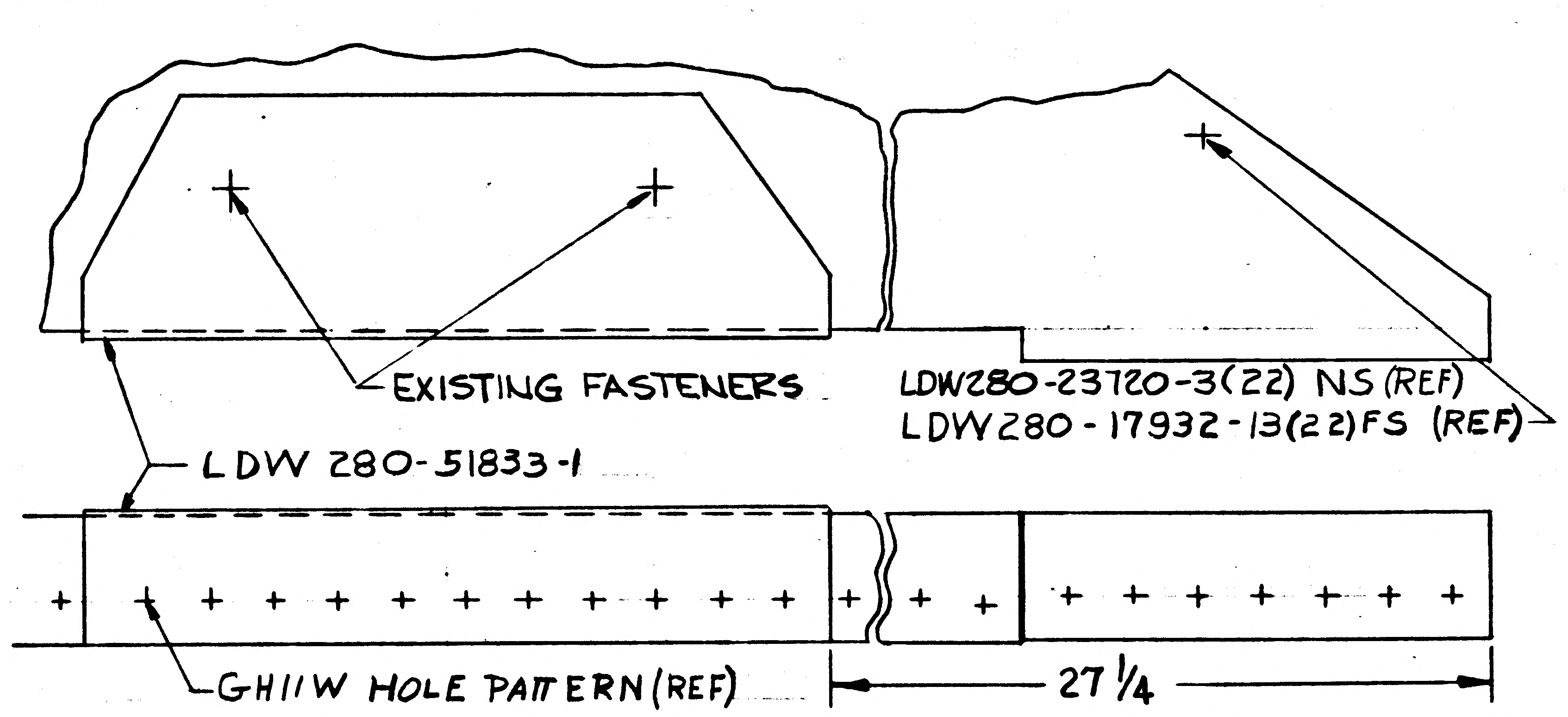
(B)

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28745		EO NO. B1	
CONTROL INFO NO. LDW280-A-2876			

ON -5 ASSY ADD LDW 280-51833-1
IN SECT B-B REMOVE NOTE "DIRECTION OPTIONAL"


EXISTING FASTENERS
LDW280-23720-3(22) NS (REF)
LDW280-17932-13(22) FS (REF)
LDW 280-51833-1
GHIIW HOLE PATTERN (REF)
27 1/4

3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO PREVENT EXCESSIVE THERMAL LEAKAGE THRU FASTENERS

DESCRIPTION OF EO: ON -5 ASSY ADDED LDW280-51833-1 IN SECT B-B REMOVED NOTE "DIRECTION OPTIONAL"

Ⓡ GAEC EO RELEASE 11/4

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	
LM		THRU	
LM		LM-1 (31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY							RmC (EJ)	
DATE	11/1/66			11/1/66	11/1/66		11-2	11-3-66
5								

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY, QUAD III UPPER PLUME IMPINGEMENT THERMAL	LDW 280-28745	B1

ISSUED BY M. RANKEL - X 1392 SECTION VEH. DES. INT. GROUP NO. 335 PL 35
EMP

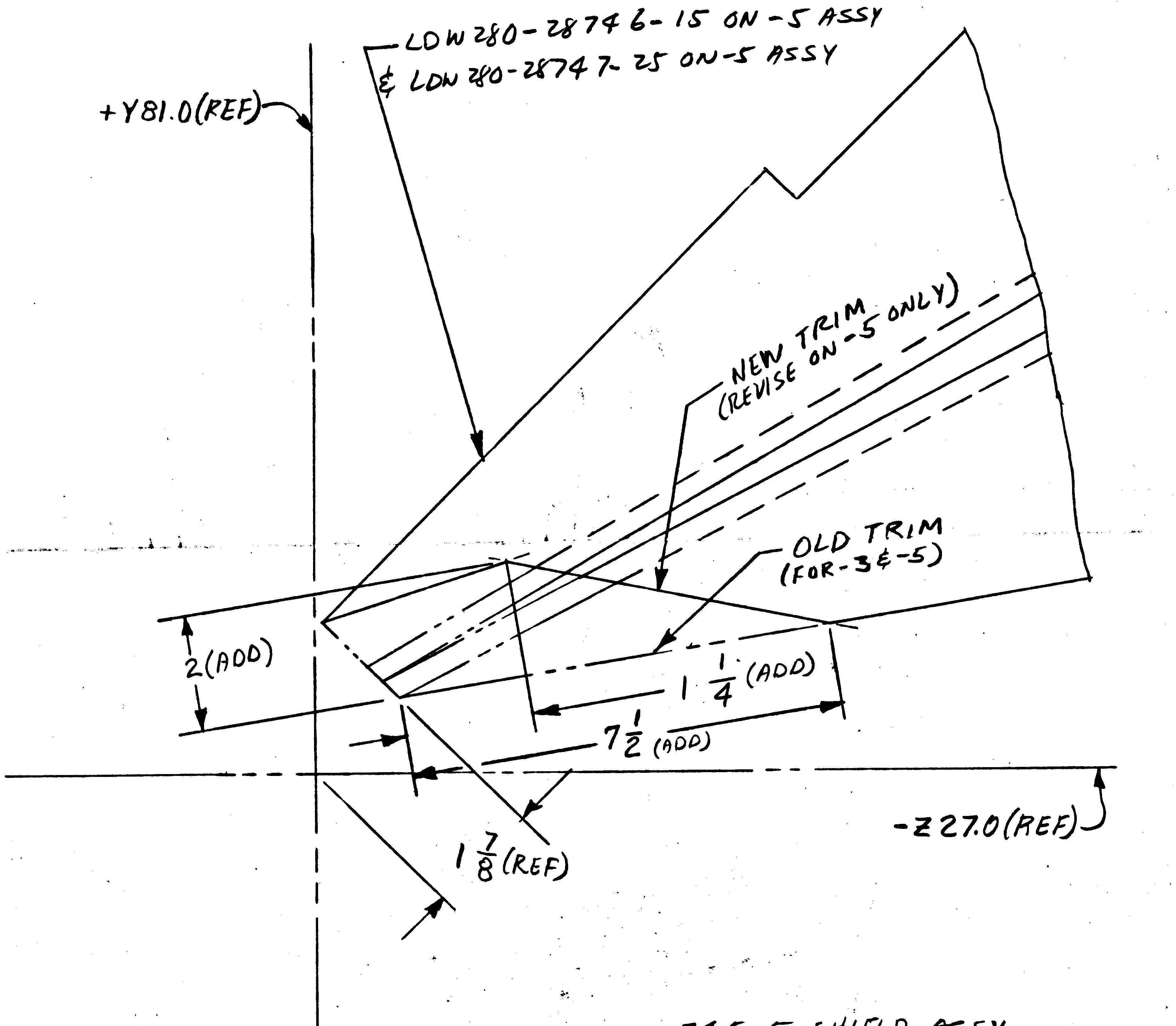
01 NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28745
EO NO. B2
CONTROL INFO NO. LDW280A3199


LDW 280-28746-15 ON-5 ASSY
& LDW 280-28747-25 ON-5 ASSY
+Y81.0(REF)
NEW TRIM
(REVISE ON-5 ONLY)
OLD TRIM
(FOR-3 & -5)
2(ADD)
1 1/4 (ADD)
7 1/2 (ADD)
1 7/8 (REF)
-Z27.0(REF)

LDW 280-28745-5 SHIELD ASSY

3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADD PROVISIONS FOR OXIDIZER DUMP RELIEF LINE	IN F/D: REVISED TRIM OF -5 ASSY; ADDED 1¼, 7½ & 2 DIMENSIONS.	C 16 11/22

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-1 (31)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
✓		✓	

APPROVED BY								
DATE	11/14/66	11/14/66		11/12/66	11/16/66		11-18-66	11/18/66
5	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY ~ QUAD III ~ UPPER PLUME IMPINGEMENT ~ THERMAL	LDW280-28745	B2

ISSUED BY J. ROGERS / J. STRAKOSCH X1392 SECTION VEH. DES. INT. GROUP NO. 335 PL 35

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28745
EO NO. B4
CONTROL INFO NO. LDW280A 3811

IN FLD & B.M ON-5

LDW280-28737-35 WAS LDW280-28737-29

Pro Therm Shld 2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO PROVIDE ACCESS DOOR CLEARANCE

DESCRIPTION OF EO: LDW280-28737-35 WAS LDW280-28737-29 ON-5

GAEC EO RELEASE: FR 12/6/6

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31	
LM		THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE				11/30/66	12/6/66		12/6/66	12/6/66
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SHIELD ASS'Y QUAD III UPR. PLM IMPG THERMAL
DRAWING NO. LDW280-28745
EO NO. B4

ISSUED BY AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01 NAS 9-1100

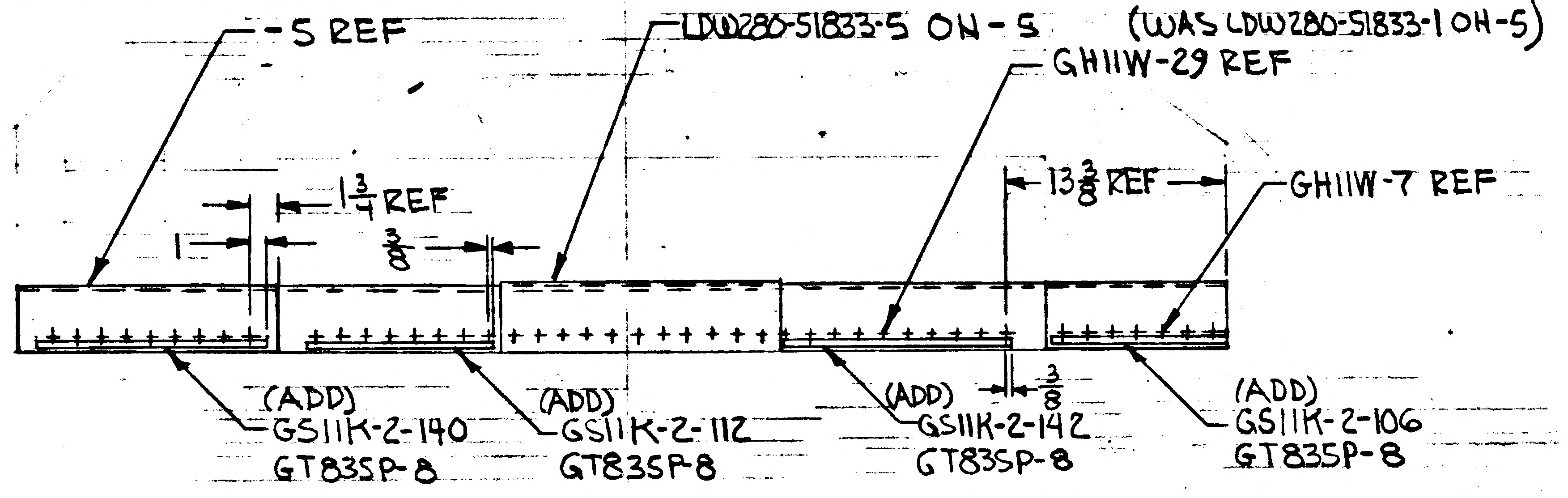
B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-28745		EO NO. B5
CONTROL INFO NO. LDW280A-5505		

IN F/D & L/M FOR-5 ADD GS11K-2-106, GS11K-2-140, GS11K-2-142, GS11K-2-112 & GT835P-8 AS SHOWN
ADD NOTE # FABRICATE PER LPC 280-25. REMOVE LDW280-51833-1 & ADD
LDW280-51833-5



-5 REF
LDW280-51833-5 ON-5
(WAS LDW280-51833-1 ON-5)
GH11W-29 REF
1¾ REF
1
⅜
13⅜ REF
GH11W-7 REF
(ADD)
GS11K-2-140
GT835P-8
(ADD)
GS11K-2-112
GT835P-8
(ADD)
GS11K-2-142
⅜
GT835P-8
(ADD)
GS11K-2-106
GT835P-8

(2)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: CCR-928 IMPROVE PAINT ADHESION

DESCRIPTION OF EO: IN F/D & L/M FOR-5 ADDED GS11K-2-·· & GT835P-8
REMOVED LDW280-51833-1 & ADDED LDW280-51833-5
ADDED NOTE: FABRICATE PER LPC280-25

GAEC EO RELEASE: K 3/1/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	LM-15(45)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	Jap			—	WJH			
DATE	2/24/67			—	2/14/67	-	2/29/67	3-1-67
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY DES STAGE QUAD III UPPER FIXED	LDW280-28745	B5

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
*
ENGINEERING ORDER

DWG. NO. LDW280-28745
EO NO. B6
CONTROL INFO NO. LDW280A6289

THIS E.O. REVISES E.O. B2 & B3

ON E.O. B2 & B3 LDW280-28747-25 SHOULD BE LDW280-28747-13

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐

2
C

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO REVISE E.O. B2 & B3	ON E.O. B2 & B3 CHANGED CALLOUT OF LDW280-28747-25 TO LDW280-28747-13	JK 4/20/7

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS	
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	REVISE DWG	RECORD EO	REWORK	SCRAP
LM		LM-1(31)		✓		NOT	REQD
		THRU					
		LM-15(95)					

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	4/8/67			4/8/67	4/11/67		Dam 4/18/67	4/19/67
5	VOI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY - QUAD III - UPPER PLUME IMPINGEMENT - THERMAL	LDW280-28745	B6

ISSUED BY STEA/STRAKOSCH 1156 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 704
CONTROL INFO NO. LDW 280 A 7882

FOR THE NOTED DWGS, REVISE EFFECTIVITY AS SHOWN:

DWG NO.	DASH NO. ▲	DWG TITLE	EFF (NOW) ‡	EFF (WAS) *	CHANGE NO.
LDW 280-28714 ✓	-7	SHIELD ASSY DESCENT STAGE PLUME IMPINGEMENT	LM-2 (32)	LM-2(32) & LM-3(33)	C2
-28736 ✓	-7	SHIELD ASSY, D/S QUAD II PLUME IMPINGEMENT	LM-2 (32)	LM-2(32) THRU LM-15(45)	A6
-28745 ✓	-5	SHIELD ASSY, D/S QUAD III PLUME IMPINGEMENT	LM-1(31) & LM-2(32)	LM-1(31) THRU LM-15(45)	C1
LDW280-28754	-9	SHIELD ASSY, D/S QUAD IV PLUME IMPINGEMENT	LM-2 (32)	LM-2(32) THRU LM-15(45)	A10

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1244 OK

5

REASON FOR EO
TO PROVIDE FOR FITH SHIELD

DESCRIPTION OF EO
FOR THE DWGS NOTED, RESTRICTED DASH No.(▲) TO (‡) WAS (*)

Ⓡ GAEC EO RELEASE
JK 9/7/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-3 (33) THRU	
LM		LM-15 (45	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	[illegible]			[illegible]	[illegible]		[illegible]	[illegible]
DATE	8/30/67			8/30/67	8/31/67		8/31/67	9/4/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED ABOVE	LEO 280-	704

9/1
ISSUED BY A. RICHER X1302 / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

A

LDW280-28746

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28745-5	LM6(36)	1
		LM 5(35)	1
		LM 4(34)	1
		LM 3(33)	1
		LM 2(32)	1
LM	LDW280-28745-5	LM 1(31)	1
PART NO. LDW280-28746-15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28745-3	LTA8(18)	1
PART NO. LDW280-28746-13		GAEC SCH NO. 52	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	100	1.10	2.00		3.00			
REV	A	A	A		A			
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED	U	GRUMMAN REL INFO	
		PRIM NO.	FR1001
LAST DASH NO. USED	-29	207	MP9-20-6A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/16 ±.030 ± 1/2
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM I
DOCUMENTATION TYPE II

DRAWN BY		RELIABILITY	
LAYOUT BY	A. AMBROSIO	THERMO	
CHECKED BY			
GR LEADER	J. STRAKOSCH		
V.D.I	W. BISCHOFF		
STRUCTURE	WJH	PROJ ENGR	R.M. CARBEE
STRUCTURE	HILDERMAN	REL GROUP	
WEIGHTS	D ROBESCH		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL ASS'Y QUAD III
PLM IMP UPPER

SIZE B
CODE IDENT NO. 26512
LDW280-28746 A
SCALE NONE
SHEET 1 OF 4

ENG 77.1 12-65

▲ THIS DWG. SUPERSEDES LDW280-28746 N/C 7/23/66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE LAST REV NO CHANGE	LTA8, LM1 THRU LM6			AMBROSIO		
A	1	1.00 3.00						LEO 280 # 188	SH 1 OF 4 WAS 1 OF 3 ADDED SH 1.10 REVISED NOTE # 2 ADDED NOTE 7a & 7b & NOTE 8	LTA8 LM1 THRU LM6	NOT	REQ'D			
	2	3.00						LEO 280 # 240	ADDED NOTE 7(c)	LTA8 LM1 THRU LM6	NOT	REQ'D			
	3	1.00 2.00 3.00							IN FLD & BM, REMOVED LDW280-28746 -1, -3, -5, -7, -9, & -11	LTA8; LM1 THRU LM6	✓				
	4	1.00 2.00 3.00							IN FLD & BM ADDED LDW 280-28746-13, -17, -23, -25, -27 & -29	LTA8	NOT	REQ'D			
	5	1.00 2.00 3.00						Ⓡ	IN FLD & BM ADDED LDW280-28746-15, -19 -21, -25, -27 & -29 :	LM1 THRU LM6	NOT	REQ'D			
														RMcE Ⓦ	J Taglia[illegible] '9-21-66

CHG APPROVED	LTR	~~GROUP LDR~~	VDI	STRUCTURE	STRUCTURE	WEIGHTS	RELIABILITY	THERMO	PROJ ENGR			
	A		JHS	WJd 66								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW 280-28746	A
SCALE	NONE		SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

-29	-27	-25	-23	-21	-19	-17	-15	-13	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					1	1				LDW280-18125-19	E	ZEE	SEE DWG						
					1	1				LDW280-18125-17	E	ZEE	SEE DWG						
					1	1				LDW280-18125-15	E	ZEE	SEE DWG						
							AS REQ'D	AS REQ'D	92725	MESH	E	INCONEL KNITTED SLEEVING		SEE NOTE 5					
		1								LDW280-17950-47	E		SEE DWG						
1										41	E								
		1								-31	E								
1										LDW280-17950-19	E		SEE DWG						
	1									LDW280-28746-29	E	FOIL ASSY (WELD)					FLW	NONE	
					1	1				27	E	FOIL ASSY (TRIM)							
			1	1						25	E	FOIL ASSY (WELD)					FLW		
						1				-23	E	FOIL ASSY (TRIM)							
					1					-21	E	FOIL ASSY (TRIM)							
							1			-19	E	FOIL ASSY (WELD)					FLW		
								1		LDW280-28746-17	E	FOIL ASSY (WELD)					FLW		
										LDW280-28746-15	E	FOIL ASSY (WELD)					FLW		
										LDW 280-28746-13	E	FOIL ASSY (WELD)					FLW	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELD	LSP14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28746	A

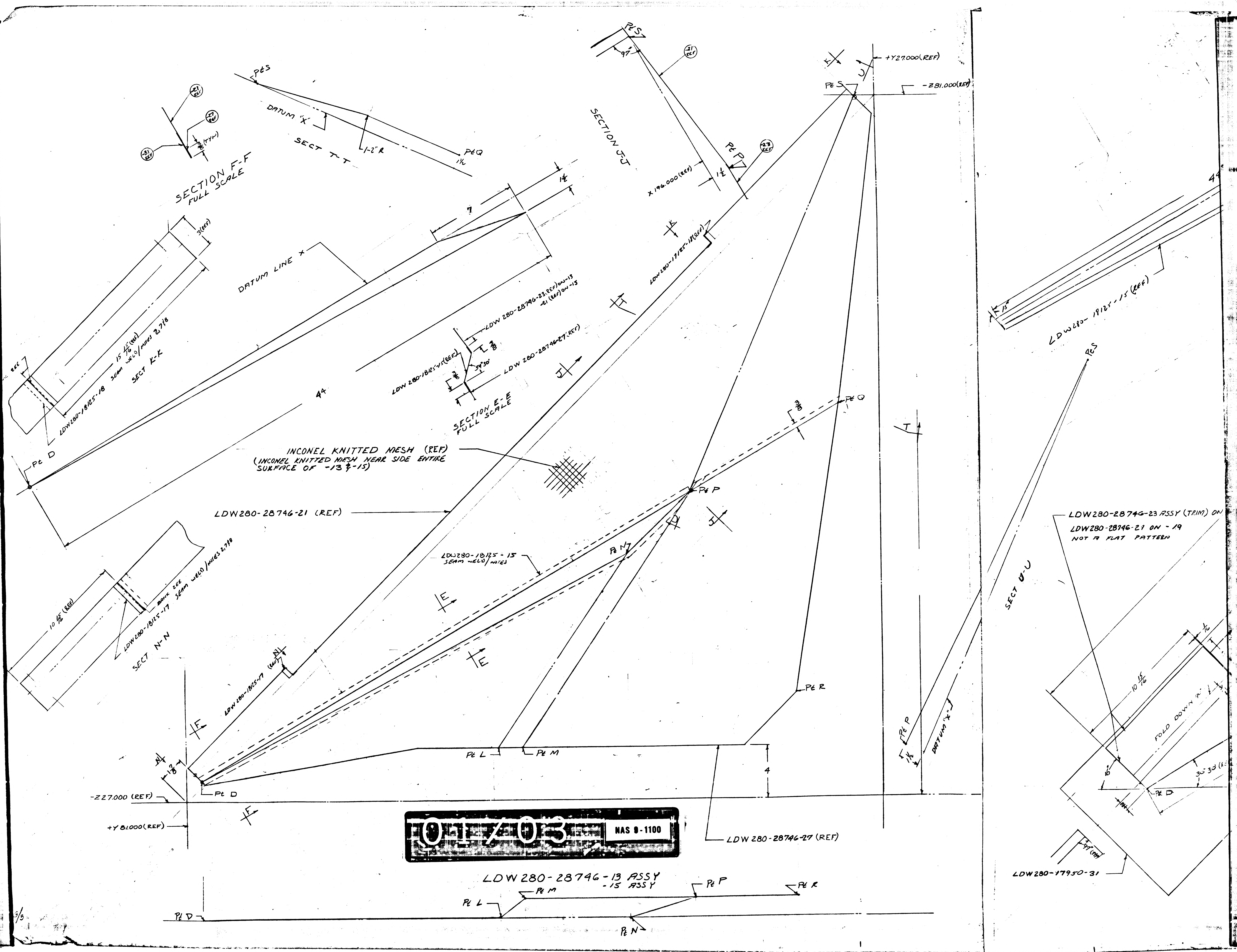
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


SECTION F-F
FULL SCALE
SECT T-T
DATUM "X"
1-2" R
Pt S
Pt Q
SECTION J-J
97°
Pt S
Pt P
X 196.000 (REF)
+Y 27.000 (REF)
-Z 81.000 (REF)
DATUM LINE X
7
1¼
3 (REF)
15 13/16 (REF)
SEAM WELD / NOTES 2, 7 & 8
SECT K-K
LDW280-18125-18
LDW280-18125-18 (REF)
44
Pt D
LDW 280-28746-23 (REF) ON -13
-21 (REF) ON -15
LDW 280-28746-27 (REF)
LDW 280-18125-15
59°30'
SECTION E-E
FULL SCALE
INCONEL KNITTED MESH (REF)
(INCONEL KNITTED MESH NEAR SIDE ENTIRE SURFACE OF -13 & -15)
LDW280-28746-21 (REF)
LDW280-18125-15
SEAM WELD / NOTES
Pt P
Pt Q
Pt N
10 15/16 (REF)
SEAM WELD / NOTES 2, 7 & 8
LDW280-18125-17
SECT N-N
LDW280-18125-17 (REF)
Pt R
Pt L
Pt M
4
-Z 27.000 (REF)
+Y 81.000 (REF)
Pt D
LDW 280-28746-27 (REF)
Pt P
DATUM "X"
1¼
SECT U-U
LDW280-18125-15 (REF)
Pt S
LDW280-28746-23 ASSY (TRIM) ON
LDW280-28746-21 ON -19
NOT A FLAT PATTERN
10 15/16
FOLD DOWN
85°
30°30'
Pt D
LDW280-17950-31
01/03
NAS 9-1100
LDW 280-28746-13 ASSY
-15 ASSY
Pt D
Pt L
Pt M
Pt N
Pt P
Pt R

3/8 (TYP)
2 5/32
1 1/2
BEND UP OP 5°
7
1/8 (TYP)
11°20'
BEND DN 47° 30' OP
BEND UP 59° 30' OP
44"
15°
LDW280-19125-15 (REF)
CUT OUT -23 ONLY
MAKE LDW280-28796-21
IDENTICAL TO LDW280-28796-23
EXCEPT AS NOTED.
15 15/16
5 15/16
5 5/8
PtS
PtT
(DATUM LINE @ 0)
3 5/8 (REF)
3
3
3
3/16
FOLD DOWN 90°
1/16
3/16
3/4
73 7/16
TRIM LINE
FOLD DOWN
12 1/8
PtP
DATUM LINE 'X'
1 1/2
PtS
SECT U-U
LDW280-28746-23 ASSY (TRIM) ON -17
LDW280-28746-29 ON -19
NOT A FLAT PATTERN
C
C
1/16
3
3
1/16
10 15/16
FOLD DOWN 90°
3/16
45°
30°30' (REF)
PtD
1/16
57 3/8
LDW280-17950-47
LDW 280-28746-25 ASSY (WELDED)
LDW280-17950-31
3
1/32
SECTION C-C
12 15/16
30°30' (REF)
7
13/16
7/8
1 3/4
1/8 R (TYP)
A
A
B
B
37
FOLD LINE
LDW280-28747-27 ASSY (TRIM)
NOT A FLAT PATTERN
59°30' (REF)
5 3/4
45°
2 1/2
2 3/4
3/16
16 5/8
13 3/4
11 1/2
LDW280-17950-19
LDW280-17950-41

02/03

NAS 9-1100

NOTES

1) NO TOOLING HOLES PERMITTED IN PARTS

2) SEAM WELD PER LSP14-6102 EXCEPT THAT SPOTS SHALL BE TANGENT +1/32 -0

3) FABRICATION OF LDW280-28746-13 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011 LEVEL "C"

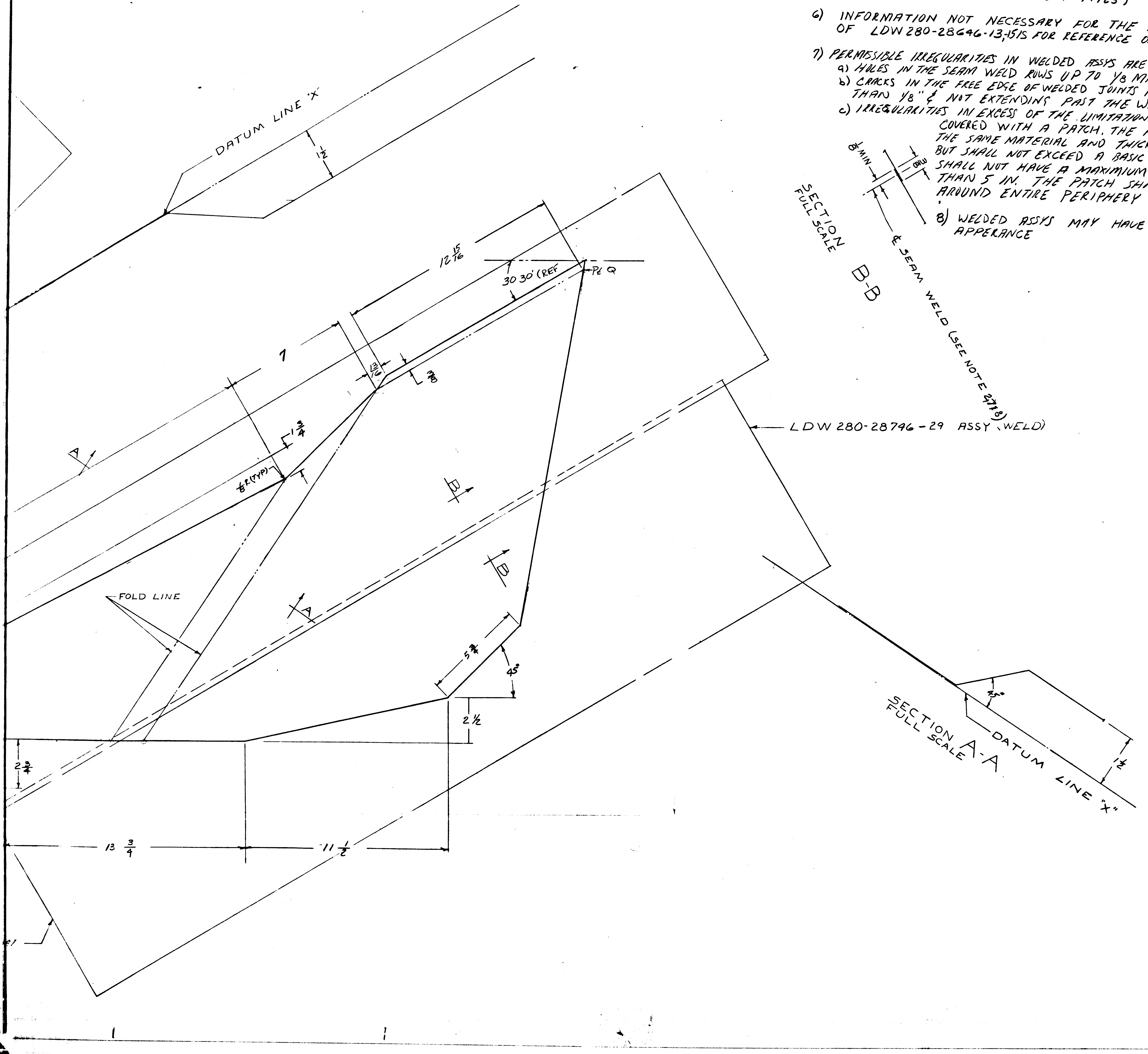
4) WELD INCONEL KNITTED SLEEVING TO FOIL SHEET PER LSP14-17522

5) INCONEL KNITTING SLEEVING TO BE 6 TO 8 INCHES WHEN FLATTENED WIRE TO BE .0035 TO .0040 DIA. ROUND INCONEL "600" ALLOY KNIT PATTERN SQUARE. TYPE, 5 TO 7 SQUARES PER LINEAR INCH. MAY BE PURCHASED FROM MONTGOMERY METAL FABRIC CO. 59 CANAL ST., WINDSOR LOCKS, CONN. (CODE IDENT 94725)

6) INFORMATION NOT NECESSARY FOR THE MANUFACTURE OF LDW280-28646-13,-15 IS FOR REFERENCE ONLY

7) PERMISSIBLE IRREGULARITIES IN WELDED ASSYS ARE AS FOLLOWS:
   a) HOLES IN THE SEAM WELD ROWS UP TO 1/8 MAX & AT LEAST 1" APART
   b) CRACKS IN THE FREE EDGE OF WELDED JOINTS NO CLOSER TOGETHER THAN 1/8" & NOT EXTENDING PAST THE WELD LINE
   c) IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) & (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED A BASIC AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 IN. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY

8) WELDED ASSYS MAY HAVE RANDOM WRINKLED APPERANCE



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X) = SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = SQ. FT.

PRINT TRIM LINE

LDW280-28746

LDW280-28746

03/03

NAS 9-1100

LAYOUT RELEASE TO BE REDRAWN ON A PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-28746	A
LEM MODEL OR END ITEM	SCALE NOTED		SHEET 3	

THIS IS AN ORIGINIAL DRAWING
SUPERSEDES LDW280-28746 N/C

HG

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LEO-280	EO NO.	240
CONTROL INFO NO.	LEM-2-2642		

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE ✱.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LOW 280-25703	A4	A5	✱, ✱✱, ✱✱✱
-25704	A3	A4	✱, ✱✱, ✱✱✱
-25705	B5	C2	✱, ✱✱
-25706	A3	A5	✱, ✱✱, ✱✱✱
-25707	B1	B2	✱, ✱✱, ✱✱✱
-28730	A1	A5	✱
-28734	A1	A4	✱
-28735	A1	B1	✱
-28737	A1	A2	✱
-28738	A1	A2	✱
28740	A1	A2	✱
-28741	A1	A2	✱
-28743	A1	A2	✱
-28744	A1	A2	✱
-28746	A1	A2	✱
-28747	A1	A2	✱
-28749	A1	A2	✱
-28750	A1	A2	✱
-28755	A1	A3	△
-28756	A1	A3	△
-28759	A1	A3	✱
-28760	A1	A2	✱
-28764	A1	A2	✱
-28765	A1	A2	✱
-28771	A2	A3	✱
-28772	A2	A3	✱
-28774	A1	A2	✱
LOW 280 -28775	A1	A2	✱

EFFECTIVITY:
✱✱✱ - QUAL TEST (72)
✱✱ - LTA-5 (15)
✱ - LEM-1 (31) THRU -6 (36) & LTA-8 (18)
△ - LTA-8, LEM-1

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐										GAEC C EO RELEASE
REASON FOR EO: TO FACILITATE MANUFACTURING				DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE ✱.											
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG ✓	RECORD EO	DISPOSITION OF PARTS: REWORK ✓	SCRAP	APPROVED BY / DATE: 8-20-66	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP: CAW 8/23/66	LIAISON ENGRG: CAW 8/23/66	PROJ ENGRG: RHC 9-3
LEM		SEE ABOVE		PRIORITY C2		DRAWING TITLE —						DRAWING NO. LEO-280			EO NO. 240

ISSUED BY LIAISON G. MARTELL x3604 SECTION VDI (DESCENT STAGE) GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 316	
CONTROL INFO NO. LDW280A0936			

ON THE FOLLOWING DRAWINGS ADD NOTE *:
*) INCONEL KNITTED SLEEVNG TO BE OXIDIZED BY EXPOSURE TO 1650 ±50°F IN AIR FOR FOUR (4) HOURS. FOR LTA5 (15) AND LTA 8 (18) OXIDIZATION IS OPTIONAL

DRAWING:	EFF	CHANGE NO.	TITLE
LDW280-25708	QUAL TEST LM 1 THRU LM6 LTA5 & 8	B3	SEE DRAWING
LDW280-28735	LM 1 THRU LM6 LTA8	C1	
LDW280-28737	"	A4	
LDW280-28740	"	B1	
LDW280-28743	"	A4	
LDW280-28746	"	B1	
LDW280-28749	"	A6	
LDW280-28752	"	B1	
LDW280-28755	LTA-8 & LM-1	A5	
LDW280-28759	LTA-8 LM-1 THRU LM-6	B1	
LDW280-28764	"	B1	
LDW280-28768	LM-1 &	B1	
LDW280-28771	LTA-8, LM-1 THRU LM-6	B1	
LDW280-28774	"	A6	
LDW280-28803	"	A1	SEE DRAWING
LDW280-28819	"	A1	SEE DRAWING

* - USE NEXT AVAILABLE NUMBER

3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO THERMO REQUIREMENT				DESCRIPTION OF EO ADDED NOTE *											GAEC C EO RELEASE LE 10/18	
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY				RGM	WJH			
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		✓		DATE	10/3/66			MAT'LS 10/7/66			10/12/66	10/15/66
LM		NOTED ABOVE		REVISE DWG	RECORD EO	REWORK	SCRAP		VD1	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
LM				PRIORITY C	DRAWING TITLE NOTED							DRAWING NO. LEO 280				EO NO. 316
LM																

ISSUED BY AMBROSIO / STRAKOSCH X1153 SECTION V. D. 1 GROUP NO. 335 PL 35 EMF

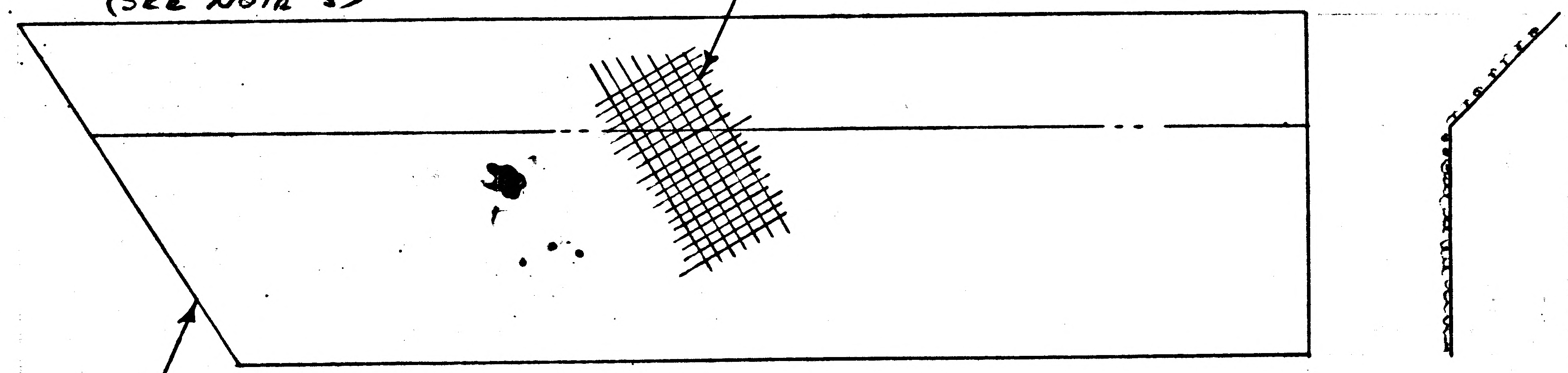
01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-28746
EO NO. B2
CONTROL INFO NO. LDW 280A - 3126

ADD:
INCONEL KNITTED SLEEVING, NEAR SIDE ENTIRE SURFACE
(SEE NOTE 5)



(ADD) LDW 280-28746-31 ASSY (MAKE FROM LDW 280-18168-17)
N/A LDW 280-28795; 1 REQ'D / MODULE; EFF: LM1 THRU LM15

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐	2

REASON FOR EO: ADDITIONAL THERMAL PROTECTION

DESCRIPTION OF EO: ADDED -31 ASS'Y

GAEC EO RELEASE: FR 11/22/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM15 (45)	
LM		THRU	
LM		LM1 (31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT	REQ'D	DATE	11/4/66	11/16/66		11/8/66	11/10/66		11-10-66	11-21-66
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	FOIL ASSY QUAD III PLM IMP UPPER	LDW 280-28746	B2

ISSUED BY AMBROSIO/ STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01

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8

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EM-A

DWG. NO. LEO 280
EO NO. 421
CONTROL INFO NO. LDW280A-4411

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM6	B 2	
LDW280-28734	"	A 8	
LDW280-28735	"	C 3	
LDW280-28746	LTA8(18) LM-1 (31) THRU LM-15(45)	B 3	
LDW280-28747	LTA8 (18) LM-1 (31) THRU LM-6(36)	B 1	
LDW280-28749	"	A 7	
LDW280-28750	"	B 3	
LDW280-28752	"	B 2	
LDW280-28753	"	A 3	
LDW280-28755	LTA 8 (18) LM-1 (31)	A 7	
LDW280-28756	LTA8(18) LM-1(31) THRU LM-15(45)	A 6	
LDW280-28759	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28760	"	B 1	
LDW280-28768	LM-1(31)	B 2	
LDW280-28769	LM-1(31)	B 1	
LDW280-28771	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28772	"	B 1	
LDW280-28774	"	A 7	
LDW280-28775	"	B 2	
LDW280-28803	"	A 2	
LDW280-28805	"	A 1	
LDW280-51824	LM-1(31) THRU LM-15(45)	A 1	
LDW280-51825	"	A 2	
LDW280-51829	"	A 1	
LDW280-51830	"	A 1	
LDW280-51834	"	A 1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC280-19

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: K 12/20

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO

DISPOSITION OF PARTS: NOT REWORK; REQ'D SCRAP

APPROVED BY		AB						
DATE	12/16/66	12/16/66		12/19/66	12/16/66		12/20	12-20-66
	/ VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 421

ISSUED BY T. AMBROSIO / STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01
NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG NO. LE0280
EO NO. 705
CONTROL INFO NO. LDW280A 8997

IN M/B RESTRICT THE FOLLOWING PARTS FOR USE AS SHOWN.

DWG No	DASH No*	**REST. FOR USE ON	***WAS USED ON	CH. LTR	TITLE
✓LDW280-18125	-15,-17&-18	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	↑
✓LDW280-18130	-11,-13&-14	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	A8	
✓LDW280-18168	-17	LM-1 & LM-2	LM-1 THRU LM-15	A2	
✓LDW280-28730	-21	LM-2	LM-2 & LM-3	B8	
✓LDW280-28737	-15,-17,-19 -21,-25&-27	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	SEE DWG
	-35	LM-1 & LM-2	LM-1 THRU LM-15		
✓LDW280-28738	-9	LM-1 & LM-2	LM-1 THRU LM-15	A8	
✓LDW280-28746	-15&-31	LM-1 & LM-2	LM-1 THRU LM-15	B4	
LDW280-28747	-13	LM-1 & LM-2	LM-1 THRU LM-15	B5	
LDW280-28755	-13	LM-2	LM-2 THRU LM-15	A8	
LDW280-28756	-13	LM-2	LM-2 THRU LM-15	C1	↓

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 1244 ok	5

REASON FOR EO: PROVISIONS FOR FITH SHIELD

DESCRIPTION OF EO: FOR * NOTED DWGS RESTRICTED DASH No * TO ** WAS ***.

Ⓡ GAEC EO RELEASE: JK 9/5/7

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓			✓	DATE	8/31/67			9/30/67	9/1/67	9/1/67	9/1/67
LM		LM-3(33) THRU	LM-15(45)	REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 705

9/1 ISSUED BY G. ZEMAN/J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-28747 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28745-3	LTA8(18)	1
PART NO. LDW 280-28747-11		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28745	LM-2 (32)	1
LM	LDW280-28745-3	LM-1(31)	1
PART NO. LDW 280-28747-13		GAEC SCH NO. 52	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00
REV	B	B	B
SHEET	1.10		
REV	B		
SHEET	1.11		
REV	B		

LAST SECT LTR USED Y

LAST DASH NO. USED -23

GRUMMAN REL INFO B

PRIM NO. 207 JK(001) MP-1B 9/9/8 EMF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/16 ± .030 ± 1/2

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM #1

DOCUMENTATION TYPE II

DRAWN BY E SULSENTI

LAYOUT BY T. AMBROSIO

CHECKED BY

GR LEADER J. STRAKOSCH

VDI W BISCHOFF

STRUCTURE WJH

STRUCTURE HILDERMAN

WEIGHTS D ROBESCH

RELIABILITY —

THERMO

PROJ ENGR R M CARBEE

REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ASS'Y
QUAD III UPPER PLM
IMP SHIELD

SIZE	CODE IDENT NO.		
B	26512	LDW280-28747	B
SCALE NONE		SHEET 1.00 OF 5	

G 77.1 12-66

SUPERSEDES LDW 280-28747 N/C 7/23/66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
									RETRACED NO CHANGE	LTA-8 LM1 THRU LM6			AMBROSIO 9-10-66		
A	1	1.00 3.00						LEO 280 # 188	SH 1 OF 4 WAS 1 OF 3, ADDED SH 1.10 REVISE NOTE #2, ADDED NOTE 5a & 5b	LTA8 LM1 THRU LM6	NOT	REQ'D			
	2	3.00						LEO 280 # 240	ADDED NOTE 7(c)	LTA8 LM 1 THRU LM6	NOT	REQ'D			
	3	1.00 2.00 3.00							IN FLD, DWG & BM REMOVED LDW280-28747-1, -3, -5, -7 & -9	LTA8 LM1 THRU LM6		✓			
	4	1.00 2.00 3.00							IN FLD & BM ADDED LDW280-28747-11, -15, -17, -21 & -23; ADDED ADDED NOTE #40	LTA8	NOT	REQD			1/29/66
	5	1.00 2.00 3.00							IN FLD & BM ADDED LDW280-28747-13, -15, -17, -19 & -23	LM1 THRU LM6	NOT	REQD	FMC		
									RETRACED SH 3.00 NC-LAST REV "A"- DAVELLA 9-4-68						
B	1	1.10, 3.00						LEO 280-421	ADDED NOTE 7	LTA-8, LM-1 THRU LM-6	NOT	REQD	D'AVELLA (LEVINE) 9-4-68 E.C.G.		
	2	3.00						EOB 2	ON-15 & -19: ADDED SYMBOL FOR LAP DIRECTION. ON-13: ADDED EFF LM-7(37) THRU LM-15(45)	LM-1 THRU LM-15					
	3	2.00, 3.00					✓	EOB 3 LCD 1135	IN F/D & B/M FOR -13: REMOVED -15 & -19, LDW280-18130-11, -13 & -14. IN F/D REDIMENSIONED -13 TO BE GEOMETRICALLY IDENTICAL TO LDW280-28746-15. ADDED NOTE 8			-15 -19			

CHG APPROVED

LTR	~~GROUP LDR~~	VDI	STRUCTURE	STRUCTURE	WEIGHTS	RELIABILITY	THERMAL
A		9/10/66	WJH 9/14				
B							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28747	B
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
B	4	1.11, 3.00					✓	LE0280-559	FROM B/M & F/D: REMOVED LDW280-17970 (ALL DASH NOS.) FOR DWG LDW280-28747 REVISED EXISTING NOTE 7 BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E". (ADDED SH 1.11)	LTA-8, LM-1 THRU LM-15	NOT	REQD	D'AVELLA (LEVINE) 9-4-68 E.C.G.		
	5	1.00				✓		LE0280-705 LCD 1244	FOR -13: RESTRICTED EFF TO LM-1 & LM-2 WAS LM-1 THRU LM-15	LM-3 THRU LM-15		-13			

LTR	GROUP LDR	VEH DIS INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY	THERMO				
B											

FOR CONTINUATION OF REVISIONS SEE SHEET ______

ENG 77.3 5-65

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28747	B
SCALE NONE			SHEET 1.11

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			-21	-15		-11											
						1		LDW280-18130-14	E	ZEE	SEE DWG						8C
						1		LDW280-18130-13	E	ZEE	SEE DWG						9B
						1		LDW280-18130-11	E	ZEE	SEE DWG						9A
			1					LDW280-28747-23	E	WELD ASSY	SEE NOTE 6				FLW	NONE	8B
						1		-21		TRIM ASSY					NONE	NONE	9B
				1				-17		WELD ASSY	SEE NOTE 6				FLW	NONE	8A
						1		-15		TRIM ASSY					NONE	NONE	8A
								-13		SKIN ASSY (WELD)	SEE NOTE 7				FLW	NOTE 4	5A
								LDW280-28747-11	E	SKIN ASSY (WELD)					FLW	NONE	9A

CL-CLEANESS PER LSP-14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELD	LSP-146102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

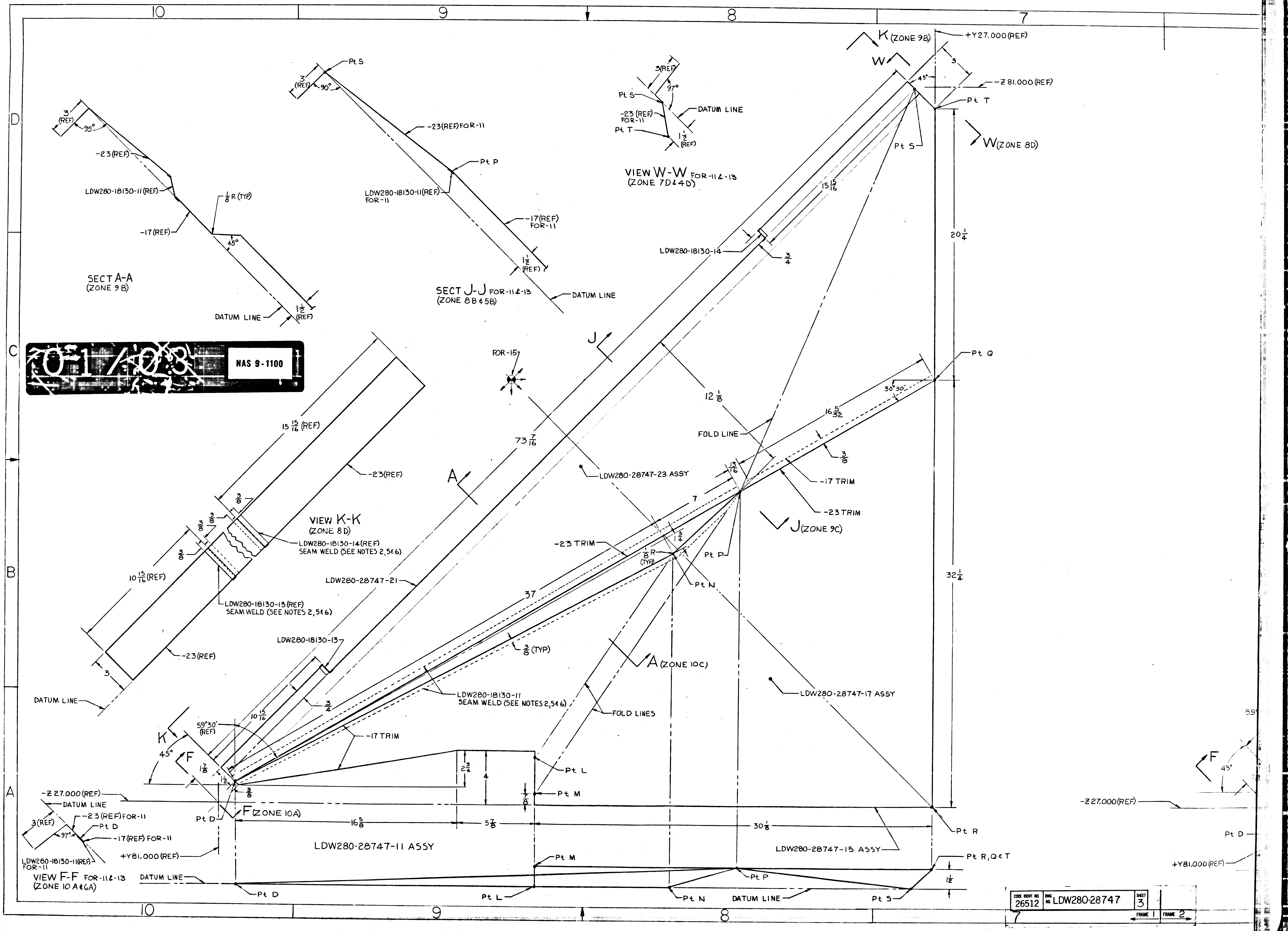
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28747	B
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01

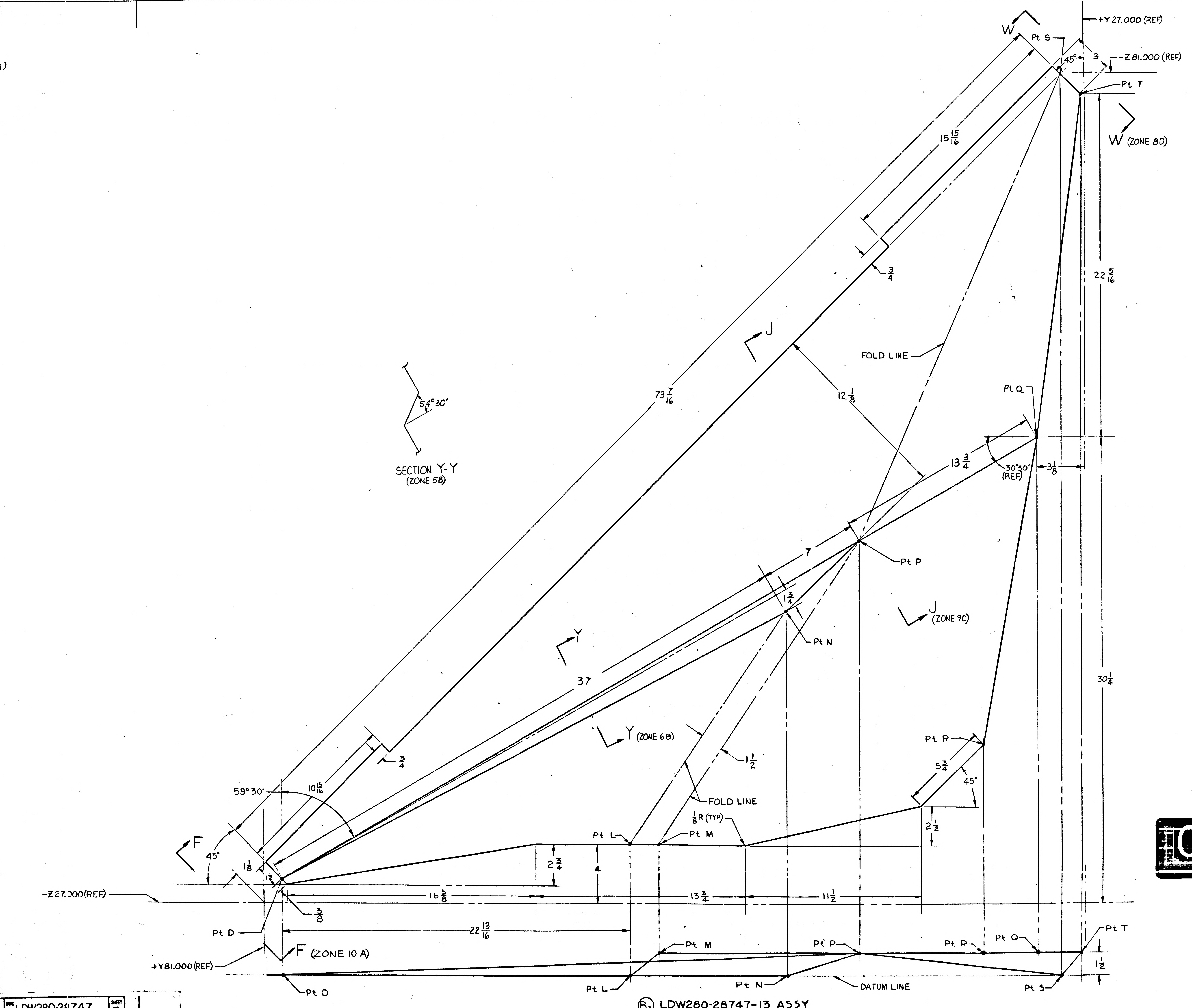
NAS 9-1100



LDW280-28747
10
9
8
7
D
C
B
A
3 (REF)
95°
-23 (REF)
LDW280-18130-11 (REF)
1/8 R (TYP)
-17 (REF)
45°
SECT A-A
(ZONE 9B)
DATUM LINE
1 1/2 (REF)
Pt S
3 (REF)
90°
-23 (REF) FOR-11
Pt P
LDW280-18130-11 (REF) FOR-11
-17 (REF) FOR-11
1 1/2 (REF)
SECT J-J FOR-11 & -13
(ZONE 8B & 5B)
DATUM LINE
3 (REF)
97°
Pt S
-23 (REF) FOR-11
Pt T
DATUM LINE
1 1/2 (REF)
VIEW W-W FOR-11 & -13
(ZONE 7D & 4D)
K (ZONE 9B)
W
+Y27.000 (REF)
3
45°
-Z81.000 (REF)
Pt T
W (ZONE 8D)
Pt S
15 15/16
20 1/4
LDW280-18130-14
3/4
01/03
NAS 9-1100
FOR-15
J
12 1/8
Pt Q
30°30'
16 5/32
FOLD LINE
3/8
15 15/16 (REF)
-23 (REF)
73 7/16
A
LDW280-28747-23 ASSY
13/16
-17 TRIM
-23 TRIM
7
J (ZONE 9C)
3/8
3/8
3/8
3/8
VIEW K-K
(ZONE 8D)
LDW280-18130-14 (REF)
SEAM WELD (SEE NOTES 2, 5 & 6)
10 15/16 (REF)
LDW280-18130-13 (REF)
SEAM WELD (SEE NOTES 2, 5 & 6)
-23 TRIM
1 3/4
1/8 R (TYP)
Pt P
Pt N
LDW280-28747-21
37
32 1/4
LDW280-18130-13
3/8 (TYP)
-23 (REF)
3
A (ZONE 10C)
DATUM LINE
3/4
LDW280-18130-11
SEAM WELD (SEE NOTES 2, 5 & 6)
LDW280-28747-17 ASSY
10 15/16
59°30' (REF)
FOLD LINES
-17 TRIM
K
45°
F
1 7/8
2 3/4
4
Pt L
1 1/2
3/8
-Z27.000 (REF)
DATUM LINE
7/8
Pt M
Pt D
F (ZONE 10A)
16 5/8
5 7/8
30 1/8
Pt R
3 (REF)
-23 (REF) FOR-11
97°
Pt D
-17 (REF) FOR-11
LDW280-18130-11 (REF) FOR-11
+Y81.000 (REF)
VIEW F-F FOR-11 & -13
(ZONE 10A & 6A)
LDW280-28747-11 ASSY
LDW280-28747-15 ASSY
Pt M
Pt R, Q & T
DATUM LINE
Pt P
1 1/2
Pt D
Pt L
Pt N
DATUM LINE
Pt S
F
45°
-Z27.000 (REF)
Pt D
+Y81.000 (REF)
59

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-28747	3

FRAME 1 FRAME 2



F)
W
Pt S
+Y 27.000 (REF)
45°
3
-Z 81.000 (REF)
Pt T
W (ZONE 8D)
15 15/16
3/4
22 5/16
J
FOLD LINE
Pt Q
12 1/8
73 7/16
SECTION Y-Y
(ZONE 5B)
54°30'
13 3/4
30°30' (REF)
3 1/8
7
Pt P
1 3/4
J (ZONE 9C)
Pt N
Y
37
30 1/4
Y (ZONE 6B)
1 1/2
Pt R
5 3/4
45°
3/4
59°30'
10 15/16
FOLD LINE
1/8 R (TYP)
2 1/2
Pt L
Pt M
F
45°
1 7/8
1 1/2
2 3/4
4
-Z 27.000 (REF)
16 5/8
13 3/4
11 1/2
3/8
Pt D
22 13/16
F (ZONE 10 A)
+Y 81.000 (REF)
Pt M
Pt P
Pt R
Pt Q
Pt T
1 1/2
Pt D
Pt L
Pt N
DATUM LINE
Pt S

B3 LDW280-28747-13 ASSY

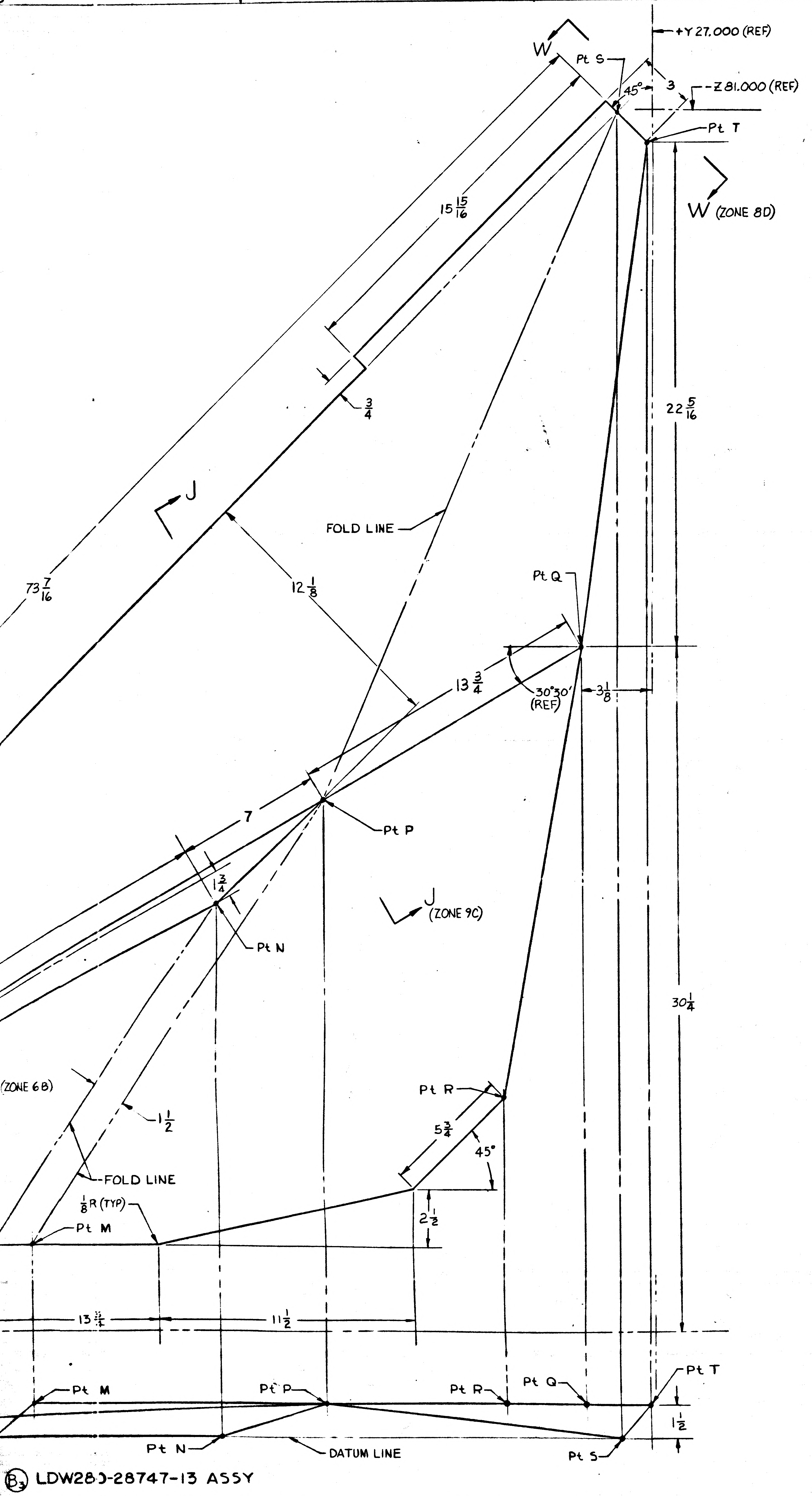
02/03 NAS 9-1100

DWG NO LDW280-28747 SHEET 3

FRAME 1 FRAME 2

CODE IDENT NO. 26512 DWG NO LDW280-28747 SHEET 3

FRAME 2 FRAME 3


W
Pt S
+Y 27.000 (REF)
45°
3
-Z 81.000 (REF)
Pt T
W (ZONE 8D)
15 15/16
3/4
22 5/16
J
FOLD LINE
73 7/16
12 1/8
Pt Q
13 3/4
30°30' (REF)
3 1/8
7
Pt P
1 3/4
J (ZONE 9C)
Pt N
30 1/4
(ZONE 6B)
1 1/2
Pt R
5 3/4
45°
FOLD LINE
1/8 R (TYP)
Pt M
2 1/2
13 3/4
11 1/2
Pt M
Pt P
Pt R
Pt Q
Pt T
1 1/2
Pt N
DATUM LINE
Pt S

B3 LDW280-28747-13 ASSY

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. SEAM WELD PER LSP-14-6102 EXCEPT THAT SPOTS SHALL BE TANGENT + 1/32 -0.
3. INFORMATION NOT NECESSARY TO MANUFACTURE LDW280-28747 IS FOR REFERENCE ONLY.
4. FINISH IN ACCORDANCE WITH LPC 280-5.
5. PERMISSIBLE IRREGULARITIES IN WELDED ASSYS ARE AS FOLLOWS:
   a) HOLES IN THE SEAM WELD ROWS UP TO 1/8 MAX. & AT LEAST 1" APART.
   b) CRACKS IN THE FREE EDGE OF WELDED JOINTS NO CLOSER TOGETHER THAN 1/8" & NOT EXTENDING PAST THE WELD LINE.
   c) IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) & (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL & THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ. INCHES & SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PITCH SHALL BE WELDED (SEAM) AROUND THE ENTIRE PERIPHERY.
6. WELDED ASSYS MAY HAVE RANDOM WRINKLED APPEARANCES.
7. MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.
8. REWORK -13 BY TRIMMING SKIN TO EXISTING LDW280-28746-15 TEMPLATE AND/OR FULL SIZE MOCK-UP PER LPC-280-19.

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

DWG SIZE 34 X 110
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 118) — 29.5 SQ FT
1/4 SIZE SHEET AREA (1/4 OF FULL) — 7.4 SQ FT
PRINT TRIM LINE

LDW280-28747 B

LDW280-28747 B

03/03
NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
J	26512	LDW280-28747	B
SCALE NOTED		SHEET 3.00	

CODE IDENT NO. 26512 | DWG NO. LDW280-28747 | SHEET 3

FRAME 2 | FRAME 3

SUPERSEDES LDW280-28747 REV A 10-24-66

HG

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280 | EO NO. 240
CONTROL INFO NO. LEM-2-2642

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE ✱.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN. BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LOW 280-25703	A4	A5	✱, ✱✱, ✱✱✱
-25704	A3	A4	✱, ✱✱, ✱✱✱
-25705	B5	C2	✱, ✱✱
-25706	A3	A5	✱, ✱✱, ✱✱✱
-25707	B1	B2	✱, ✱✱, ✱✱✱
-28730	A1	A5	✱
-28734	A1	A4	✱
-28735	A1	B1	✱
-28737	A1	A2	✱
-28738	A1	A2	✱
-28740	A1	A2	✱
-28741	A1	A2	✱
-28743	A1	A2	✱
-28744	A1	A2	✱
-28746	A1	A2	✱
-28747	A1	A2	✱
-28749	A1	A2	✱
-28750	A1	A2	✱
-28755	A1	A3	△
-28756	A1	A3	△
-28759	A1	A3	✱
-28760	A1	A2	✱
-28764	A1	A2	✱
-28765	A1	A2	✱
-28771	A2	A3	✱
-28772	A2	A3	✱
-28774	A1	A2	✱
LOW 280 -28775	A1	A2	✱

EFFECTIVITY:
✱✱✱ - QUAL TEST (72)
✱✱ - LTA-5 (15)
✱ - LEM-1 (31) THRU -6 (36) & LTA-8 (18)
△ - LTA-8, LEM-1

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☐

REASON FOR EO: TO FACILITATE MANUFACTURING

DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE ✱.

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		SEE ABOVE	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP
APPROVED BY: JJS
DATE: 8-20-66 | 8/18/66
VDE

SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
			CAW 8/23/66	CAW 8/23/66	RMC 9-3	8-30-66

PRIORITY: C_2
DRAWING TITLE: —
DRAWING NO.: LEO-280
EO NO.: 240

ISSUED BY: LIAISON G. MARTELL x3604 SECTION: VDI (DESCENT STAGE) GROUP NO. 335 PL 35

01
NAS 9-1100

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EM-A

DWG. NO. LEO 280 | EO NO. 421
CONTROL INFO NO. LDW280A-4411

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM6	B2	
LDW280-28734	"	A8	
LDW280-28735	"	C3	
LDW280-28746	LTA8(18) LM-1 (31) THRU LM-15(45)	B3	
LDW280-28747	LTA8 (18) LM-1 (31) THRU LM-6(36)	B1	
LDW280-28749	"	A7	
LDW280-28750	"	B3	
LDW280-28752	"	B2	
LDW280-28753	"	A3	
LDW280-28755	LTA8(18) LM-1 (31)	A7	
LDW280-28756	LTA8(18) LM-1(31) THRU LM-15(45)	A6	
LDW280-28759	LTA8(18) LM-1(31) THRU LM-6(36)	B2	
LDW280-28760	"	B1	
LDW280-28768	LM-1(31)	B2	
LDW280-28769	LM-1(31)	B1	
LDW280-28771	LTA8(18) LM-1(31) THRU LM-6(36)	B2	
LDW280-28772	"	B1	
LDW280-28774	"	A7	
LDW280-28775	"	B2	
LDW280-28803	"	A2	
LDW280-28805	"	A1	
LDW280-51824	LM-1(31) THRU LM-15(45)	A1	
LDW280-51825	"	A2	
LDW280-51829	"	A1	
LDW280-51830	"	A1	
LDW280-51834	"	A1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: 12/20

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REWORK | REQ'D SCRAP

APPROVED BY		AB						
DATE	12/16/66	12/16/66		12/19/66	12/19/66		12/20	12 20 66
	/	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 421

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01
NAS 9-1100

B ✳

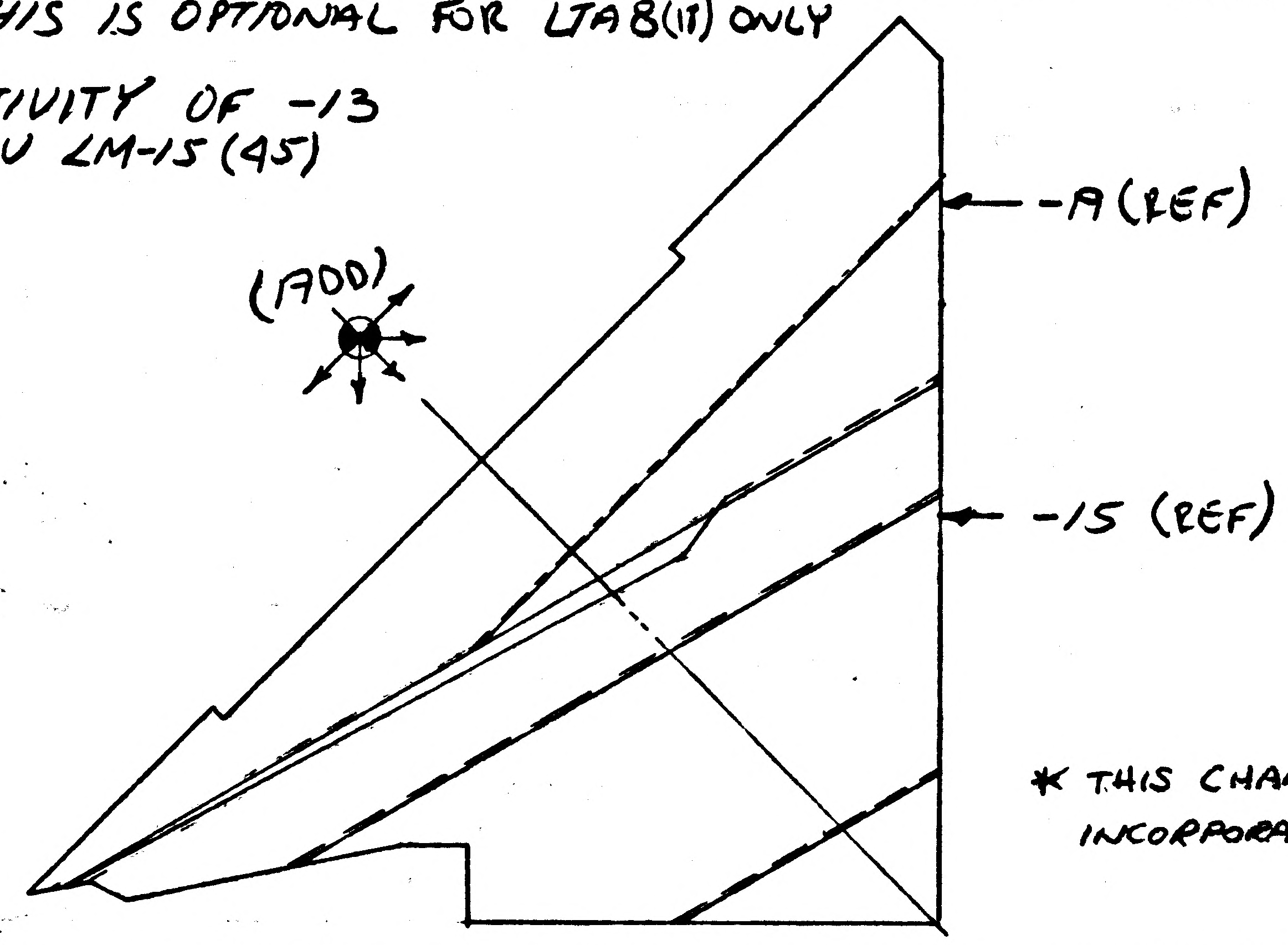
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28747	EO NO. B2
CONTROL INFO NO. LDW280A 4502	/

A. ON -15 & -19 ADD SYMBOL INDICATING PERMISSIBLE DIRECTION OF LAP JOINTS. THIS IS OPTIONAL FOR LTA8(11) ONLY

B. EXTEND EFFECTIVITY OF -13 TO LM-7(37) THRU LM-15 (45)



* THIS CHANGE HAS BEEN INCORPORATED ON LM-1

THERMAL SHLD (2)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PROVIDE COMPLETE FABRICATION AND INSPECTION INFO	ON -15 & -19 ADDED SYMBOL FOR LAP DIRECTION ON-13 ADDED EFF LM-7(37) THRU LM-15(95)	K 1/4/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM			
LM		LM-1(31) THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		NOT	REQ'D

APPROVED BY								
DATE	1/3/67	1/3/67		1/4/66	1/3/67		1-4-67	1/5/67
5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN O/S QUAD III PLM IMPG. UPPER	LDW280-28747	B2

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION V. D. I. GROUP NO. 335 PL 35

01

NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-28747
EO NO. B3
CONTROL INFO NO. LDW280A 6176

IN F/D & B/M FOR -13 REMOVE -15 & -19 TRIM ASSY
LDW280-18130-11, -13 & -14 ZEES

IN F/D REDIMENSION -13 TO BE GEOMETRICALLY
IDENTICAL TO LDW 280-28746-15

* REWORK -13 BY TRIMMING SKIN TO EXISTING LDW280-28746-15
TEMPLATE AND OR FULL SIZE MOCKUP

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCO 19-1135 2

REASON FOR EO: ADDITIONAL THERMAL PROTECTION LCD 19-1135

DESCRIPTION OF EO: IN F/D & B/M FOR -13 REMOVED -15 & -19 LDW280-18130-11, -13 & -14 IN F/D REDIMENSIONED -13 TO BE GEOMETRICALLY IDENTICAL TO LDW280-28746-15

Ⓡ GAEC EO RELEASE: C JK 4/6/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK * SCRAP -15 -19

APPROVED BY				JAS	W/[illegible]		Dam		
DATE	4/3/67			4/1/67	4/3/6[illegible]		4/3/67	4 5 6 7	
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY: C

DRAWING TITLE: SKIN ASSY QUAD III UPPER PLUME IMPINGEMENT SHIELD

DRAWING NO.: LDW280-28747

EO NO: B3

ISSUED BY H. PALLMEYER/J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

01

NAS 9-1100

ENG 32.2 REV 3-65

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280
EO NO. 559
CONTROL INFO NO. LDW 280A 6306

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW·
REMOVE LDW280-17970 · ALL DASH NUMBERS AND ADD
"SEE NOTE *"
IN F/D REMOVE LDW280-17970 - ALL DASH NUMBERS

REVISE NOTE *
(REF) "MANUFACTURED PARTS TO COMPLY WITH
REQUIREMENTS OF LPC 280-19."
(ADD) PARTS TO BE MADE FROM .00125 INCONEL
600 PER AMS 5540 E.

DRAWING NO.	CHANGE #	SYMBOL	EFFECTIVITY	TITLE
LDW280-18130	A7	⬡	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW280-18141	A3	⬡	LM-1 THRU LM-15	
LDW 280-28730	B7	☐	LTA-8 LM-1 THRU LM-3	
LDW 280-28734	B2	☐	LTA-8 LM-1 THRU LM-3	
LDW280-28738	A7	☐	LTA-8 LM-1 THRU LM-15	
LDW 280-28740	B3	☐	LTA-8 LM-1	
LDW 280-28741	A6	☐	LTA-8 LM-1 THRU LM-6	
LDW 280-28744	A7	☐	LTA-8 LM-1 THRU LM-6	
LDW 280-28747	B4	☐	LTA-8 LM-1 THRU LM-15	
LDW 280-28750	39	☐	LTA-8 LM-1 THRU LM-15	
LDW280-28753	A5	☐	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	☐	LTA-8 LM-1 THRU LM-15	
LDW280-28760	B5	☐	LTA-8 LM-1 THRU LM-3	
LDW280-28765	A7	⬡	LTA-8 LM-1 THRU LM-6	
LDW280-28769	B2	☐	LM-1	
LDW 280-28772	B6	☐	LM-1 THRU LM-15	
LDW280-28775	B7	☐	LTA-8 LM-1 THRU LM-15	
LDW 280-28805	A6	☐	LM-1 THRU LM-15	
LDW 280-28806	A4	☐	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW 280-51824	A3	☐	LM-1 THRU LM-15	

NOTE △ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY WITH LPC 280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM ☐ REVISE NOTE *.
FOR SYM ⬡ ADD NOTE △ TO DWG

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☑	CL I ENGRG CHG ☐			
REASON FOR EO: UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE	DESCRIPTION OF EO: REMOVED LDW280-17970 FROM B/M & F/D (ALL DASH NO'S) FOR DWG'S ☐ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ⬡ ADDED NOTE △				GAEC EO RELEASE: JS 4-14 7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY							
✓		NOT	REQ	DATE 4/10/67				4/10/67	4/11/67	4/13	4-18-67
				6	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 559

ISSUED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

5
C

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
*

DWG NO. LE0280
EO NO. 705
CONTROL INFO NO. LDW280A 8997

IN M/B RESTRICT THE FOLLOWING PARTS FOR USE AS SHOWN.

	DWG No	DASH No*	**REST. FOR USE ON	***WAS USED ON	CH. LTR	TITLE
✓	LDW280-18125	-15,-17&-18	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	↑
✓	LDW280-18130	-11,-13&-14	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	A8	
✓	LDW280-18168	-17	LM-1 & LM-2	LM-1 THRU LM-15	A2	
✓	LDW280-28730	-21	LM-2	LM-2 & LM-3	B8	
✓	LDW280-28737	-15,-17,-19 -21,-25&-27	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	SEE DWG
		-35	LM-1 & LM-2	LM-1 THRU LM-15		
✓	LDW280-28738	-9	LM-1 & LM-2	LM-1 THRU LM-15	A8	
✓	LDW280-28746	-15&-31	LM-1 & LM-2	LM-1 THRU LM-15	B4	
✓	LDW280-28747	-13	LM-1 & LM-2	LM-1 THRU LM-15	B5	
	LDW280-28755	-13	LM-2	LM-2 THRU LM-15	A8	
	LDW280-28756	-13	LM-2	LM-2 THRU LM-15	C1	↓

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1244 ok

5

REASON FOR EO: PROVISIONS FOR FITH SHIELD

DESCRIPTION OF EO: FOR * NOTED DWGS RESTRICTED DASH No * TO ** WAS ***.

GAEC EO RELEASE: K 9/7/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY				JAS			WRB	
DATE	8/31/67			8/30/67	9/1/67		9/1/67	9/1/67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 705

9/1 ISSUED BY G. ZEMAN/J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED SH 3.00 NO CHG, LAST REV "NO CHG." ADDED SH. 1.10 F. LEGIDO 10-23-67						
A	1	1.00, 1.10 2.00, 3.00						EOA1	ADDED -3, EFF LM-4 -5 & -6. REMOVED LM-4, -5 & -6 FROM -1 N/A LDW280-51666 WAS LDW280-52666 FOR LM2 & 3.	LM-2 THRU LM-6		✓	F. LEGIDO 10-23-67		
	2	1.00, 1.10 2.00 3.00	9B					EOA2	IN F/D & B/M ADDED -3 & -5. REMOVED LTA-8, LM-1, -2, -3 FROM -1, ADDED LDW360-28297-3 (ON-3). REMOVED LSC360-603-209 ON-1.	LT-8, LM-1 LM-2, LM-3	✓				
	3	1.00, 2.00 1.10, 3.00						EOA3	REF EOA1: -3 SHOULD BE -7						
	4	1.00, 1.10 2.00 3.00	9C 10A					EOA4	REMOVED -3, -5 & -7 & NOTE 2. ADDED -9, -11, -13 & -15.	LTA-8 LM-1 THRU LM-6		✓			
	5	3.00 1.10	9C					EOA5	REF EOA4: REMOVED NOTE, ADD TO DETAIL "B" DIRECTION OF STAPLES OPTIONAL.		✓				
	6	1.00 1.10						EOA6	ON -15 ADDED EFF LM-7(37) THRU LM-15(45) N/A LDW280-28666 WAS LDW280-51666 FOR LM-1(31) THRU LM-6(36)	LM-1 THRU LM-15	NOT	REQD			
	7	2.00 3.00 1.10	10B					EOA7	ON -11 LDW280-28750-15 REPLACED LDW280-28750-9. ON-13 & -15 LDW280-28750-21 REPLACED LDW280-28750-15. ON-11, -13 & 15 ADDED GS11K-1--, GS11K-2--, GS11K-3--GS577A-1, & GT835P-8 ADDED NOTE 3. ADDED SH 2.01		-11 -13 -15				
	8	2.00 3.00 1.10	10B 7B 4D 5D				✓	EOA8 LCD-928	REF EOA7 - LDW280-28750-9 WAS LDW280-28750-15. ON-11 ADDED LDW280-28750-21(1) REPLACING LDW280-28750-15 (1) & 11/16 DIM. (2 PLACES). ON-13 & -15 ADDED 1/2 DIM. (2 PLACES). ON-11, -13 & -15 ADDED 1 5/8 & 1 23/32 DIM.		✓				
	9	2.00 3.00 1.10	8B 4D				✓	EOA9 LCD928	REF EOA8 - ADDED ON-11 GS11K-1-29, GS11K-3-426 GS577A-1. 1/2 (REF) ON-11 WAS 11/16 (2 PLACES) ON-1. ON-11, -13 & -15 1 25/32 WAS 1 23/32.						

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY				
A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28748	A

Ⓐ

SCALE NONE SHEET 1.10

NG 77.16 3-66

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NAS 9-1100

LDW280-28748 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28666	LTA-8(18)	1
PART NO. LDW280-28748-9			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28666	LM-2(32)	1
PART NO. LDW280-28748-13			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28666	LM-1(31)	1
PART NO. LDW280-28748-11			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28666	LM-3(33)	1
PART NO. LDW280-28748-17		52	

WORK PKG FUNCTION #110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	B	A	B	B
SHEET		1.11	2.01	
REV		B	B	
SHEET				
REV				

LAST SECT LTR USED	D
LAST DASH NO. USED	-17

GRUMMAN REL INFO B

PRIM NO.	JK(001)	
207	ME-16	B 3/3/6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/8 ±.030 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	E. HERCZEG 7-14-66	RELIABILITY	
LAYOUT BY	R. CLARK		
CHECKED BY			
GR LEADER	7/		
VEH DES INT	7/1		
STRUCTURES	7/16	PROJ ENGR	7-26
STRUCTURES	7/16	REL GROUP	Botti 7-26-66
WEIGHTS	7-25		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSY
DESCENT STAGE QUAD-III-SIDE
PLUME IMPINGEMENT THERMAL

SIZE	CODE IDENT NO.		
B	26512	LDW280-28748	B
SCALE	NONE	SHEET 1.00 OF 6	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	10	1.10, 2.00 3.00					✓	LE0280-589 LCD928	ON-11-13 & -15: REPLACED GS577A-1 WITH GS577A-4 ADDED SH. 1.11	LM-1 THRU LM-15	✓		F. LEGIDO 10-23-67		
	11	1.10							REF EOA2: -1 COMPLETELY REMOVED FROM DWG.	LTA-8, LM-1 LM-2, LM-3	✓			T. SCHWARTZ 10-30-67	11/16/67
	12	1.10							REF EOA3: REF EOA1 SHOULD BE REF EOA2		✓				
	13	1.10						A	REF EOA7 IN DESCRP. - ON-11, -13 & -15 "ADDED GS11K-1--- --- & GT835P-8" SHOULD BE "ON-11 -13 & -15 ADDED GS11K-1----- GT835P-8 GT15B-3 & GH11W---."	LM-1 THRU LM-15	✓				
B	1	1.00, 1.11, 2.00 2.01, 3.00	5A 4D 7D	P					INC. EO-B1	LM-3 THRU LM-15			R. LAMBERT 3-10-69	L.D.	
	2	1.11, 2.00 3.00	3B 10B	P					INC. EO-B2	LM-3 THRU LM-15					
	3	1.00, 1.11		P					INC. EO-B3	NOT REQD.					
	4	1.11, 2.01, 3.00	5D	P					INC. EO-B4	LM-3					
	5	1.11, 3.00							INC. EO-B5	LM-3					
	6	3.00					✓		REF EO B5: ADDED NOTE 5. D. Zaru	LM-3	✓		H.D.	F. Zuk 3-10	

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO
	B	Bhoyian 3-24-69	3/26/69		3/27/69			MR 3/27/69

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28748	B

SCALE NONE SHEET 1.11

ENG 77.16 3-66

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NAS 9-1100

-17	-13	-11	-9	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		1			LDW360-51297-3	E	TRANSDUCER INSTL	SEE DWG.						9B
1	1		1		LDW360-28297-3		SUPPORT INSTL							9B
1					LDW280-28750-25		SKIN ASSY							5A
	1				-21									5A
		1			-15									5A
			1		LDW280-28750-7		SKIN ASSY.							5A
1	1	1	1		LDW280-28752-5		FOIL ASSY							10B
	1	1	1		LDW280-28774-5									10D
1					LDW280-28749-13									10B
	1	1	1		LDW280-28749-1		FOIL ASSY.							10B
	26	26	26		LDW280-23720-3		STAPLE ASSY.							9B
	26	26	26		LDW280-17932-13		WASHER	SEE DWG						9B
					LDW280-28748-17		SHIELD ASSY.					NONE	NONE	6A
					-13									
					-11									
					LDW280-28748-9	E	SHIELD ASSY.					NONE	NONE	6A

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28748	B
SCALE NONE			SHEET 2.00

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ENG 77.2 7-65

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NAS 9-1100

QTY PER ASSEMBLY				CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
-17	-13	-11	-9											
9	9	9			GT835P-8	E	TAPE	GRUMMAN STD.						7C
		1			GT15B-29									6D
		1			-9									7C
		1			-7									4C
		2			GT15B-3		TAPE							8D
5	5	5			GS577A-4		STAPLE							4C
1	1				GS11K-3-426		STRIP							4D
1		1			-3-126									7C
1	1	1			-3-096									4C
2	2	2			-3-036									3D
1	1	1			-3-01									7C
1	1	1			-2-114									7B
1	1	1			-2-082									8C
1	1	1			-2-066									7B
1	1	1			-2-052									8B
2	2	2			-2-024									7C
1	1	1			-2-022									7D
1					-2-006									7D
1	1	1			-1-29									4D
1	1	1			-1-9									7C
1	1	1			-1-7									4C
2	2	2			GS11K-1-3		STRIP							3D
	1	1			GS11K-2-036		STRIP							7D
40					GF13B-11		WASHER							9B
40					GF13B-1	E	STAPLE ASSY	GRUMMAN STD						9B

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28748	B

SCALE NONE SHEET 2:01 ②

ENG 77.2 7-65

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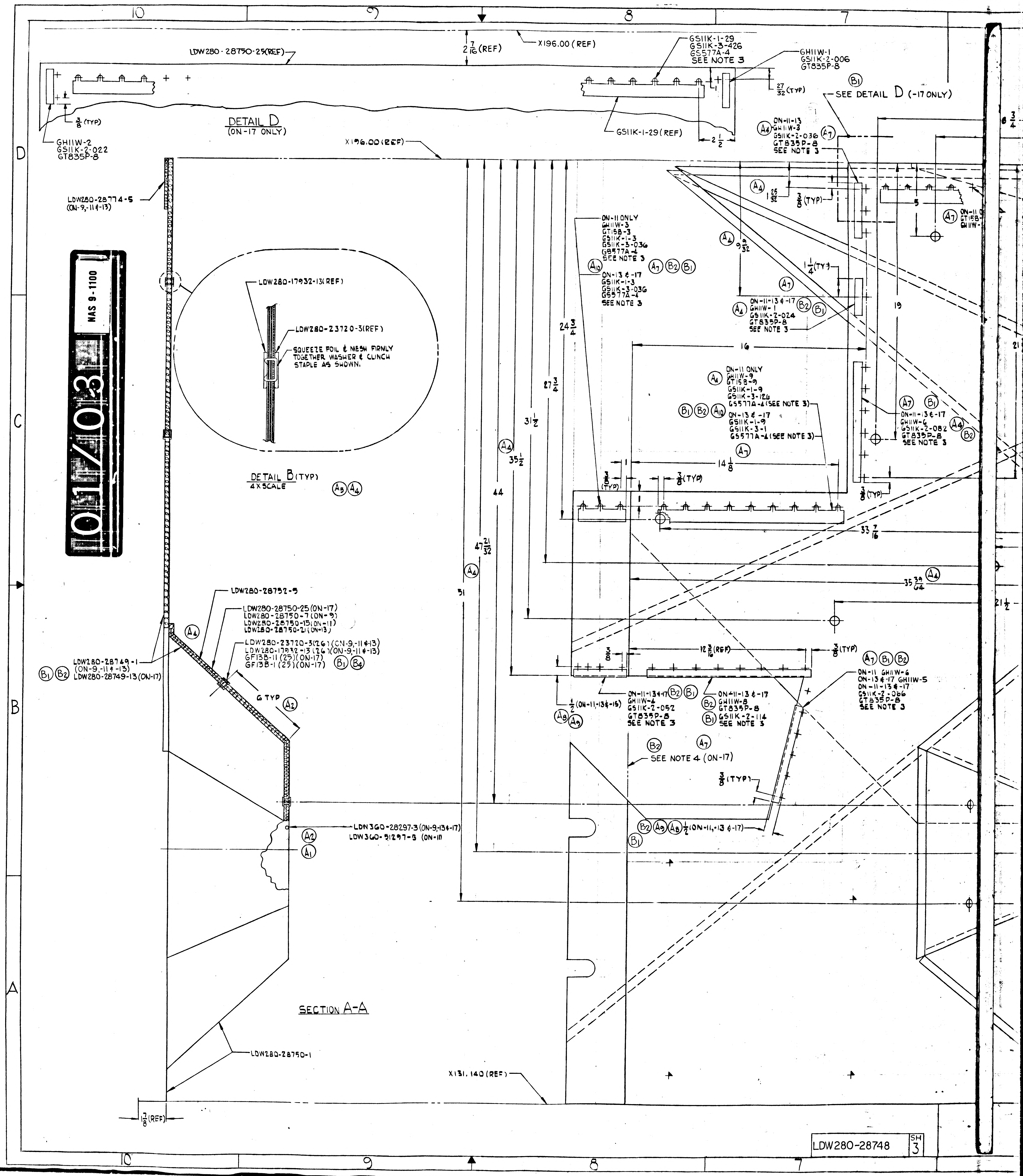
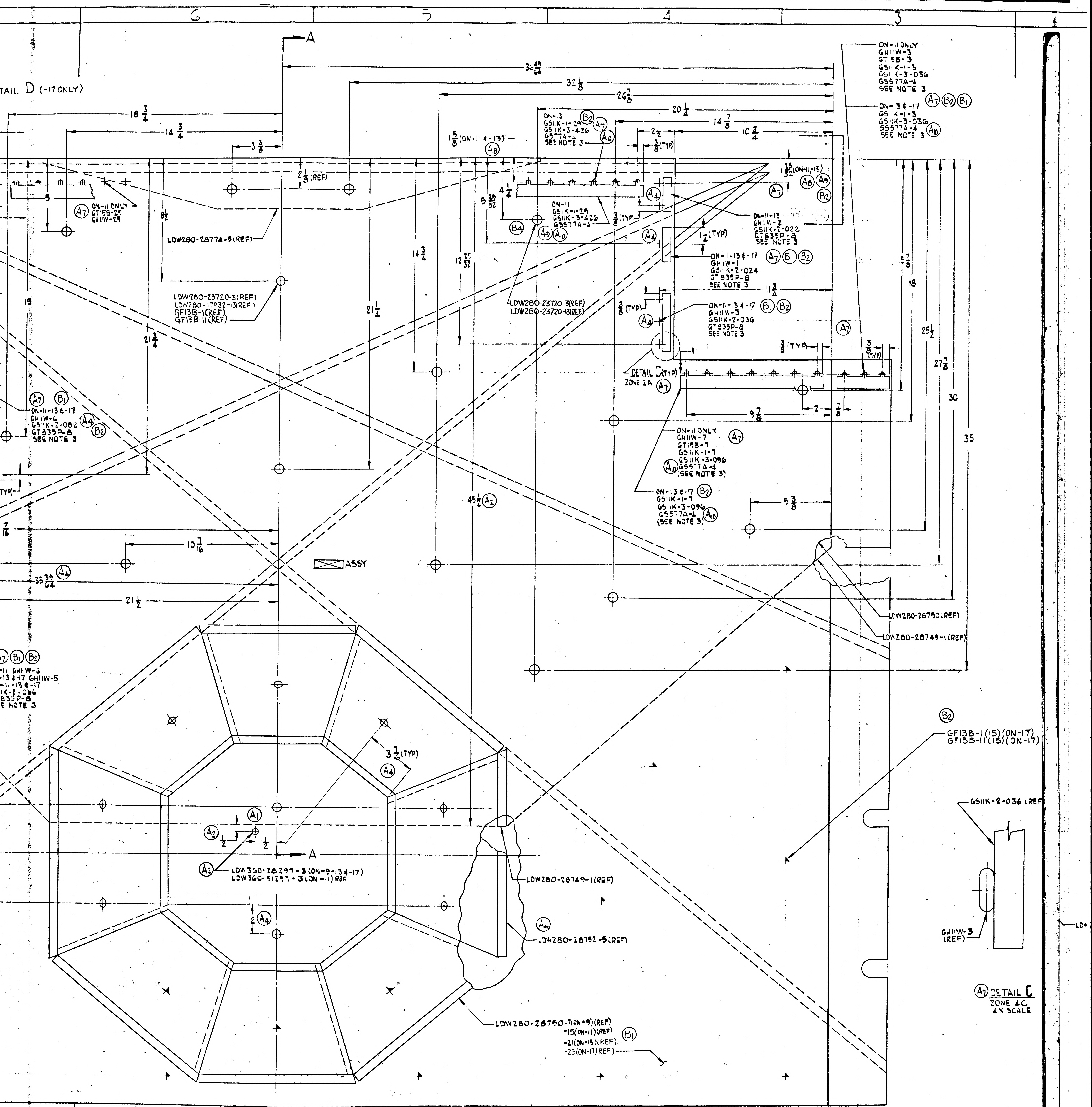
NAS 9-1100

01/03 NAS 9-1100


10
9
8
7
D
C
B
A
LDW280-28750-25(REF)
2 7/16 (REF)
X196.00 (REF)
GS11K-1-29
GS11K-3-426
GS577A-4
SEE NOTE 3
GH11W-1
GS11K-2-006
GT835P-8
27/32 (TYP)
B1
SEE DETAIL D (-17 ONLY)
3/8 (TYP)
GH11W-2
GS11K-2-022
GT835P-8
DETAIL D
(ON-17 ONLY)
GS11K-1-29 (REF)
2 1/2
X196.00 (REF)
ON-11-13
A4 GH11W-3
GS11K-2-036 A7
GT835P-8
SEE NOTE 3
LDW280-28774-5
(ON-9,-11 & -13)
A4
1 25/32
3/8 (TYP)
5
A7 ON-11
GT15B-
GH11W-
ON-11 ONLY
GH11W-3
GT15B-3
GS11K-1-3
GS11K-3-036
GS577A-4
SEE NOTE 3
A10
A7 B2 B1
ON-13 & -17
GS11K-1-3
GS11K-3-036
GS577A-4
SEE NOTE 3
A4 9 9/32
1 1/4 (TYP)
A7
ON-11-13 & -17 B2 B1
A4 GH11W-1
GS11K-2-024
GT835P-8
SEE NOTE 3
19
24 3/4
LDW280-17932-13(REF)
LDW280-23720-3(REF)
SQUEEZE FOIL & MESH FIRMLY TOGETHER WASHER & CLINCH STAPLE AS SHOWN.
16
ON-11 ONLY
A4 GH11W-9
GT15B-9
GS11K-1-9
GS11K-3-126
GS577A-4 (SEE NOTE 3)
B1 B2 A10
ON-13 & -17
GS11K-1-9
GS11K-3-1
GS577A-4 (SEE NOTE 3)
A7 B1
ON-11-13 & -17
GH11W-6
GS11K-2-082 A4
GT835P-8 B2
SEE NOTE 3
27 3/4
31 1/2
A4
35 1/2
A7
14 1/8
1
3/8 (TYP)
3/8 (TYP)
1
3/8 (TYP)
DETAIL B (TYP)
4X SCALE
A5 A4
44
33 7/16
47 21/32
A4
51
35 39/64 A4
21 1/2
LDW280-28752-5
LDW280-28750-25 (ON-17)
LDW280-28750-7 (ON-9)
LDW280-28750-15 (ON-11)
LDW280-28750-21 (ON-13)
LDW280-23720-3(26) (ON-9,-11 & -13)
LDW280-17932-13(26) (ON-9,-11 & -13)
GF13B-11 (25) (ON-17)
GF13B-1 (25) (ON-17) B1 B4
LDW280-28749-1
(ON-9,-11 & -13)
B1 B2 LDW280-28749-13 (ON-17)
A4
6 TYP A2
3/8
12 3/16 (REF)
3/8 (TYP)
A7 B1 B2
ON-11 GH11W-6
ON-13 & -17 GH11W-5
ON-11-13 & -17
GS11K-2-066
GT835P-8
SEE NOTE 3
1/2 (ON-11,-13 & -15)
A8 A9
ON-11-13 & -17 B2 B1
GH11W-4
GS11K-2-052
GT835P-8
SEE NOTE 3
ON-11-13 & -17
B2 GH11W-8
GT835P-8
B1 GS11K-2-114
SEE NOTE 3
B2
A7
SEE NOTE 4 (ON-17)
3/8 (TYP)
B2 A9 A8 1/2 (ON-11,-13 & -17)
B1
LDN360-28297-3 (ON-9,-13 & -17)
LDW360-51297-3 (ON-11)
A2
A1
SECTION A-A
LDW280-28750-1
X131.140 (REF)
1 7/8 (REF)
LDW280-28748
SH 3


6
5
4
3
A
TAIL. D (-17 ONLY)
36 49/64
32 1/8
26 7/8
20 1/4
14 7/8
10 3/4
18 3/4
14 3/4
3 3/8
2 1/8 (REF)
8 1/2
5
A7 ON-11 ONLY GT15B-29 GH11W-29
LDW280-28774-5(REF)
LDW280-23720-3(REF)
LDW280-17932-13(REF)
GF13B-1(REF)
GF13B-11(REF)
21 3/4
21 1/4
19
A7 B1 ON-11-13 & -17 GH11W-6 GS11K-2-082 A4 GT835P-8 B2 SEE NOTE 3
1 5/8 (ON-11 & -13) A8
4 1/4
5 29/32
B4
A9 A10
14 3/4
12 25/32
ON-13 B2 GS11K-1-29 A7 GS11K-3-426 GS577A-4 A10 SEE NOTE 3
2 1/2
3/8 (TYP)
ON-11 GS11K-1-29 GS11K-3-426 GS577A-4
3/8 (TYP)
A4
1 25/32 (ON-11,-13) A8 A9 A7 B2
ON-11-13 GH11W-2 GS11K-2-022 GT835P-8 SEE NOTE 3
1 1/4 (TYP)
ON-11-13 & -17 A7 B1 B2 GH11W-1 GS11K-2-024 GT835P-8 SEE NOTE 3
LDW280-23720-3(REF)
LDW280-23720-13(REF)
11 3/4
3/8 (TYP)
ON-11-13 & -17 B1 B2 GH11W-3 GS11K-2-036 GT835P-8 SEE NOTE 3
A7
3/8 (TYP)
3/8 (TYP)
1
DETAIL C (TYP) ZONE 2A A7
9 7/8
2
7/8
15 7/8
18
25 1/2
27 7/8
30
35
ON-11 ONLY GH11W-3 GT15B-3 GS11K-1-3 GS11K-3-036 GS577A-4 SEE NOTE 3
ON-3 & -17 GS11K-1-3 GS11K-3-036 GS577A-4 SEE NOTE 3 A7 B2 B1 A10
ON-11 ONLY A7 GH11W-7 GT15B-7 GS11K-1-7 GS11K-3-096 A10 GS577A-4 (SEE NOTE 3)
ON-13 & -17 B2 GS11K-1-7 GS11K-3-096 GS577A-4 A10 (SEE NOTE 3)
45 1/2 A2
5 3/8
7/16
10 7/16
ASSY
35 39/64 A4
21 1/2
LDW280-28750(REF)
LDW280-28749-1(REF)
A7 B1 B2 ON-11 GH11W-6 ON-13 & -17 GH11W-5 ON-11-13 & -17 GS11K-2-066 GT835P-8 SEE NOTE 3
3 7/16 (TYP) A4
A1
A2 1/2
1 1/2
A
A2 LDW360-28297-3 (ON-9-13 & -17) LDW360-51297-3 (ON-11) REF
2 A4
LDW280-28749-1(REF)
LDW280-28752-5(REF)
LDW280-28750-7(ON-9)(REF) -15(ON-11)(REF) -21(ON-13)(REF) -25(ON-17)(REF) B1
B2 GF13B-1(15)(ON-17) GF13B-11(15)(ON-17)
GS11K-2-036 (REF)
GH11W-3 (REF)
A7 DETAIL C ZONE 4C 4X SCALE

LDW280-28748-9 ASSY
-11 ASSY (IDENT TO -9 EXCEPT AS NOTED) Ⓐ1 Ⓐ2 Ⓐ4 Ⓑ1 Ⓑ2
-13 ASSY (IDENT TO -9 EXCEPT AS NOTED)
-17 ASSY (IDENT TO -13 EXCEPT AS NOTED)(SEE NOTE 3)

28748 SH 3

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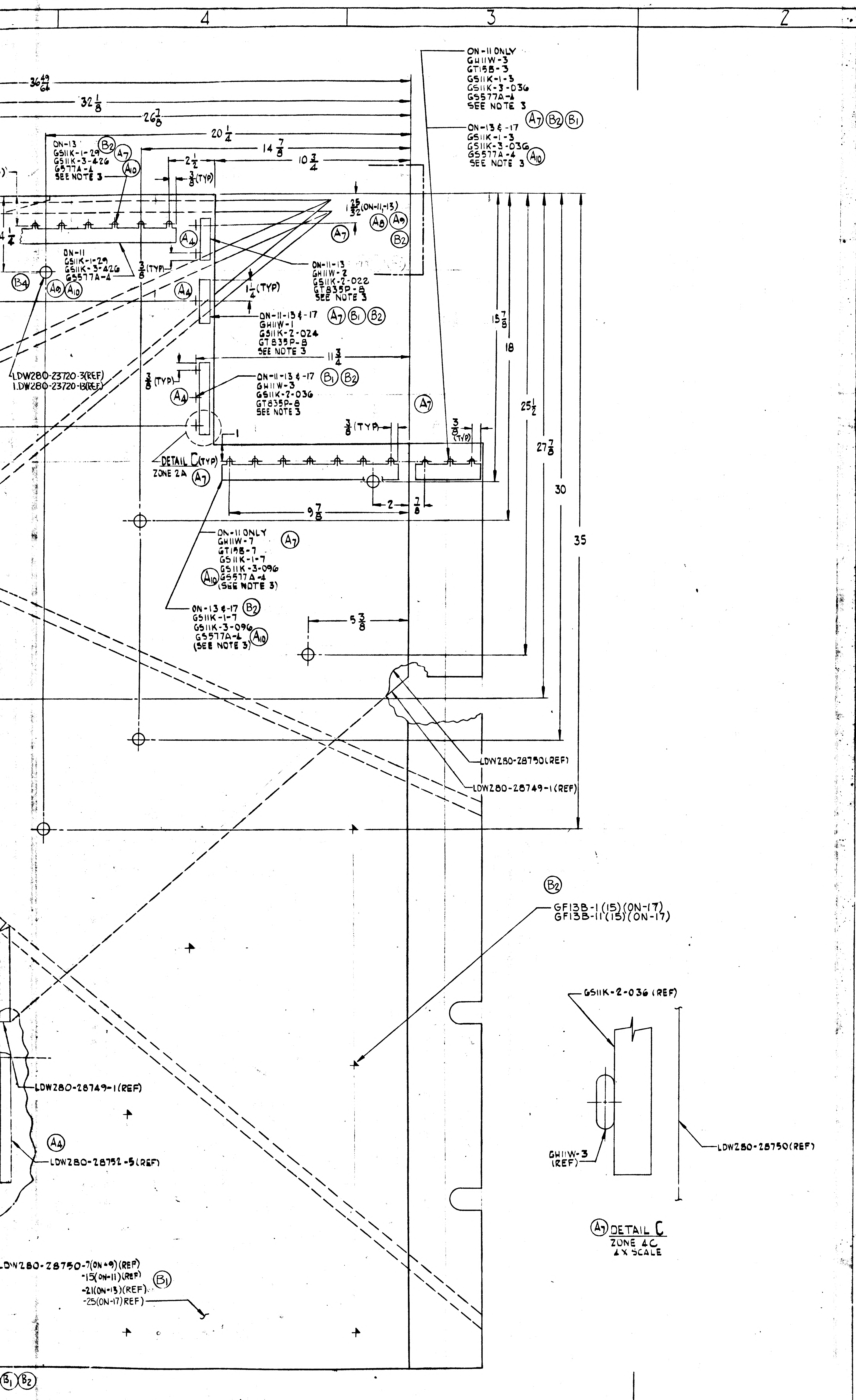
LDW280-28748 SH 3


36 49/64
32 1/8
26 7/8
20 1/4
14 7/8
10 3/4
2 1/2
3/8 (TYP)
ON-13
GS11K-1-29
GS11K-3-426
G577A-4
SEE NOTE 3
(B2) (A7) (A10)
4 1/4
ON-11
GS11K-1-29
GS11K-3-426
GS577A-4
3/8 (TYP)
(B4) (A9) (A10)
LDW280-23720-3(REF)
LDW280-23720-13(REF)
(A4)
1 25/32 (ON-11,-13)
(A7) (A8) (A9) (B2)
ON-11-13
GH11W-2
GS11K-2-022
GT835P-8
SEE NOTE 3
1 1/4 (TYP)
ON-11-13 & -17
GH11W-1
GS11K-2-024
GT835P-8
SEE NOTE 3
(A7) (B1) (B2)
11 3/4
3/8 (TYP)
ON-11-13 & -17
GH11W-3
GS11K-2-036
GT835P-8
SEE NOTE 3
(B1) (B2)
ON-11 ONLY
GH11W-3
GT15B-3
GS11K-1-3
GS11K-3-036
GS577A-4
SEE NOTE 3
(A7) (B2) (B1)
ON-13 & -17
GS11K-1-3
GS11K-3-036
GS577A-4
SEE NOTE 3
(A10)
15 7/8
18
25 1/2
27 7/8
30
35
3/8 (TYP)
3/8 (TYP)
1
DETAIL C (TYP)
ZONE 2A
2
7/8
9 7/8
ON-11 ONLY
GH11W-7
GT15B-7
GS11K-1-7
GS11K-3-096
GS577A-4
(SEE NOTE 3)
ON-13 & -17
GS11K-1-7
GS11K-3-096
GS577A-4
(SEE NOTE 3)
5 3/8
LDW280-28750(REF)
LDW280-28749-1(REF)
GF13B-1(15)(ON-17)
GF13B-11(15)(ON-17)
LDW280-28749-1(REF)
LDW280-28752-5(REF)
LDW280-28750-7(ON-9)(REF)
-15(ON-11)(REF)
-21(ON-13)(REF)
-25(ON-17)REF)
GS11K-2-036 (REF)
GH11W-3 (REF)
LDW280-28750(REF)
DETAIL C
ZONE 4C
4X SCALE
4
3
2

LDW280-28748 SH 3

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MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 ∇ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 ∇ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 40 X 80

PRINTING INFO ONLY

FULL SIZE SHEET AREA (42 X 92)= 26.8 SQ. FT.

1/2 SIZE SHEET AREA (1/4 OF FULL)= 6.7 SQ. FT.

PRINT TRIM LINE

NOTES

1. FABRICATION OF LDW280-28748-1 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-C011 LEVEL "C".

~~2. ALL INFORMATION NOT REQUIRED FOR THE MANUFACTURE OF LDW280-28748-1 IS FOR REF ONLY.~~

3. FABRICATE SHIELD IN ACCORDANCE WITH LPC280-25.

4. TRIM LDW280-28749-13 TO AGREE WITH LDW280-28750-25

5. ALL DIMENSIONS SHOWN ARE FOR -9,-11 & -13. FOR -17 LOCATING DIMENSIONS SEE NOTE 3.

SYMBOL CODE

+ } FOR QTY & LOCATION ONLY

D

C

B

A

LDW280-28748 B

LDW280-28748 B

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE K	CODE IDENT NO. 26512	LDW280-28748	B
LM				
MODEL OR END ITEM	SCALE HALF		SHEET 3.00	

SUPERSEDES LDW280-28748 SH3 NC 7-26-66

ENG 32.1 REV 3-65

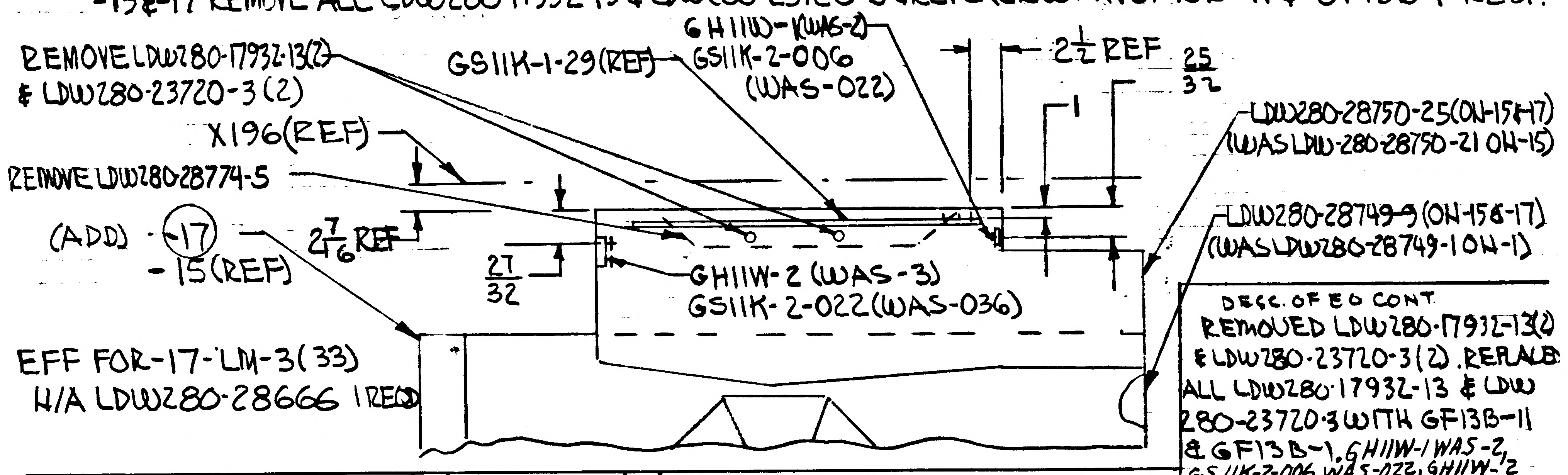
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG NO. LDW280-28748 EO NO. B1

CONTROL INFO NO. LDW280A9700

IN M/B RESTRICT -13 FOR USE ON LM-2(32) ONLY
IN F/D & M/B ADD -17 SHIELD ASSY IDENTICAL TO -13 & REVISE -15 AS SHOWN
IN F/D & LM ON -15 & -17 REMOVE LDW280-28774-5 FOIL, LDW280-28749-9 REPLACES LDW280-28749-1 & LDW280-28750-25 REPLACES LDW280-28750-21. REDUCE ALL VERTICAL DIMS FROM X196.00 REF BY $2\frac{7}{16}$ EXCEPT AS SHOWN. IN F/D & LM ON -15 & -17 REMOVE ALL LDW280-17932-13 & LDW280-23720-3 & REPLACE WITH GF13B-11 & GF13B-1 RESP.


REMOVE LDW280-17932-13(2) & LDW280-23720-3 (2)
GS11K-1-29 (REF)
GH11W-1 (WAS-2)
GS11K-2-006 (WAS-022)
$2\frac{1}{2}$ REF
$\frac{25}{32}$
1
LDW280-28750-25 (ON-15 & 17) (WAS LDW-280-28750-21 ON-15)
X196 (REF)
REMOVE LDW280-28774-5
(ADD) -17
-15 (REF)
$2\frac{7}{16}$ REF
$\frac{27}{32}$
GH11W-2 (WAS-3)
GS11K-2-022 (WAS-036)
LDW280-28749-9 (ON-15 & -17) (WAS LDW280-28749-1 ON-1)
EFF FOR -17 - LM-3(33)
N/A LDW280-28666 1 REQD

DESC. OF EO CONT.
REMOVED LDW280-17932-13(2) & LDW280-23720-3(2). REPLACE ALL LDW280-17932-13 & LDW280-23720-3 WITH GF13B-11 & GF13B-1, GH11W-1 WAS -2, GS11K-2-006 WAS -022, GH11W-2 WAS -3 & GS11K-2-022 WAS -036

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1244

REASON FOR EO: PROVISION FOR FITH SHIELD

DESCRIPTION OF EO: RESTRICTED -13 WAS USED ON LM-2 & LM-3. ADDED -17 ON-15 LDW280-28750-25 REPLACES LDW280-28750-21, LDW280-28749-9 REPLACES LDW280-28749-1, REMOVED LDW280-28774-5 SEE CONTINUATION

GAEC EO RELEASE: JK 11/6/67

MODEL	EI EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
	~~PROCURING ACTIVITY~~ NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		✓		DATE	11/3/67	11/3/67		11-3-67	11/3/67		11/3/67	11-4-67
				REVISE DWG	RECORD EO	REWORK	SCRAP	P	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONF~~
LM		LM-3(33) THRU	LM-15(45)	PRIORITY C												

DRAWING TITLE: SHIELD ASSY D/S QD III SIDE PLUME IMPINGEMENT

DRAWING NO. LDW280-28748

EO NO. B1

11-3-67
ISSUED BY G. ZEMAN/ P. THORJUSEN SECTION VD1 GROUP NO. 335 PL25

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01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28748		EO NO. B2	
CONTROL INFO NO. LDW280B0864			

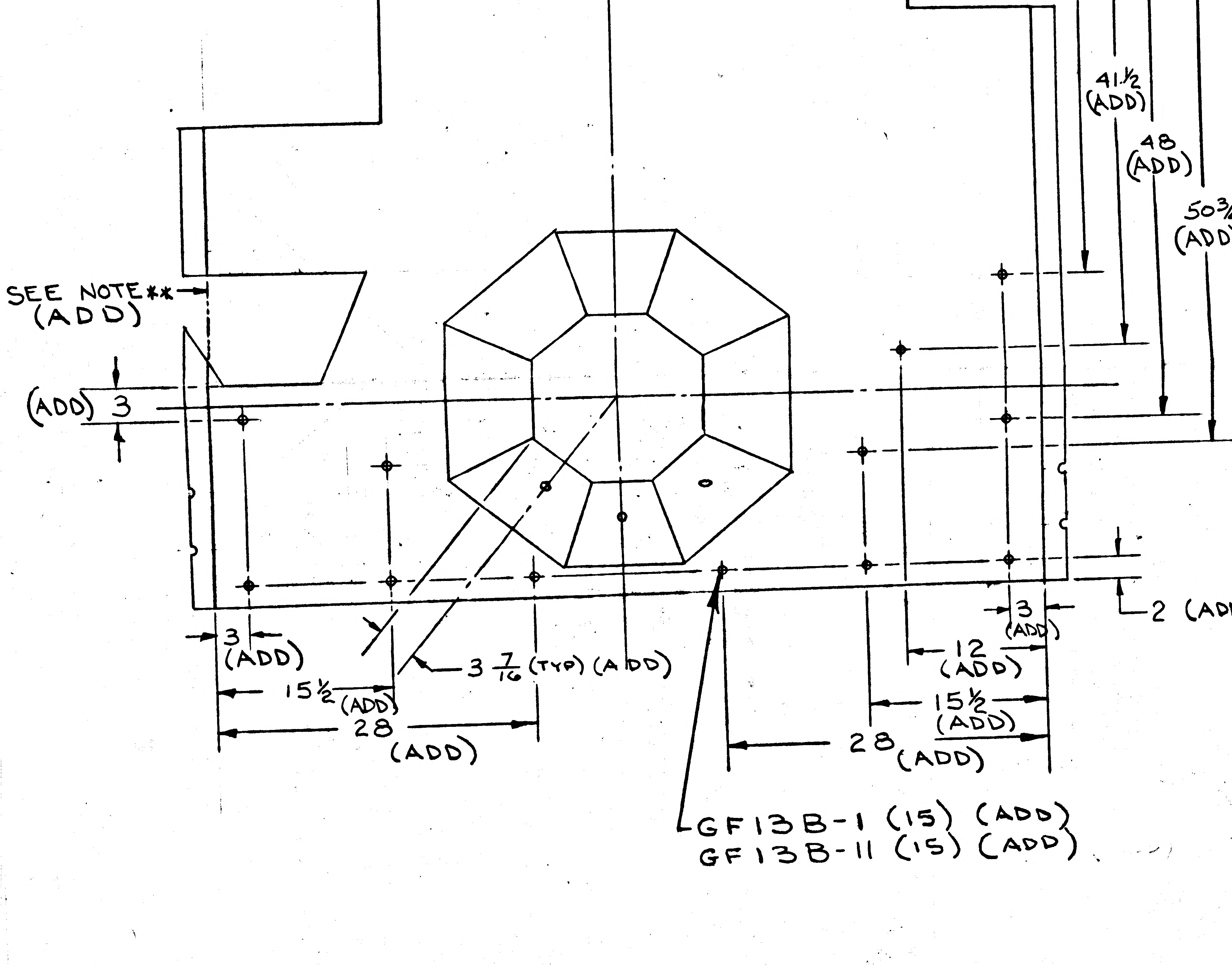
ENG 32.2 REV 3-65

FOR -17 ASS'Y, (1) LDW280-28749-13 FOIL ASS'Y
REPLACES (1) LDW280-28749-9 FOIL ASS'Y,
AND REVISE AS SHOWN.

REMOVE -15.

ADD NOTE **.

** (ON -17) TRIM LDW280-28749-13 TO AGREE WITH LDW280-28750-25.


35 (ADD)
41½ (ADD)
48 (ADD)
50¾ (ADD)
SEE NOTE** (ADD)
(ADD) 3
3 (ADD)
2 (ADD)
3 (ADD)
15½ (ADD)
28 (ADD)
3 7/16 (TYP) (ADD)
12 (ADD)
15½ (ADD)
28 (ADD)
GF13B-1 (15) (ADD)
GF13B-11 (15) (ADD)

** USE NEXT AVAILABLE NOTE NUMBER.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2360							(R)	(5) GAEC EO RELEASE
REASON FOR EO					DESCRIPTION OF EO	REMOVED -15. ADDED NOTE **. FOR -17, (1) LDW280-28749-13 REPLACED (1) LDW280-28749-9. ADDED GF13B-1 (15) & GF13B-11 (15) AND LOCATING DIMS.							JC	1/4/8
PLUME HEATING PROTECTION														
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY						
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓ REVISE DWG	RECORD EO	-17 REWORK	-15 SCRAP	DATE 12/19/67			12/27/67		12/29/67	1-3-68
								P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
LM		LM-3(33)		PRIORITY	DRAWING TITLE					DRAWING NO.				EO NO.
		THRU		C	SHIELD ASS'Y-D/S-QUAD III SIDE-PLM. IMP. THERMAL					LDW280-28748				B2
		LM-15(45)												

6 JAN'68
ISSUED BY J. BACKOFEN X1153 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28748
EO NO. B3
CONTROL INFO NO. LDW28080927

FOR -11 ASS'Y N/A LDW280-28666, EFF. LM-1(31), 1 REQ'D/MOD WAS N/A LDW280-51666, EFF. LM-1(31), 1 REQ'D/MOD.

FOR -13 ASS'Y N/A LDW280-28666, EFF. LM-2(32) 1 REQ'D/MOD. WAS N/A LDW280-51666 EFF. LM-2(32), 1 REQ'D/MOD.

DETAIL SPEC REQ	✓	CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: CORRECT N/A [CDR LIST]

DESCRIPTION OF EO: FOR -11 N/A LDW280-28666, EFF. LM-1, 1 REQ'D/MOD WAS N/A LDW280-51666, EFF. LM-1, 1 REQ'D/MOD. FOR -13 N/A LDW280-28666 EFF LM-2, 1 REQ'D/MOD WAS N/A LDW280-51666, EFF. LM-2 1 REQ'D/MOD

(5)

GAEC EO RELEASE: JK 1/8/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	
LM			

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	
✓		NOT REQD		

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JGS			PGH	WJH		JaP	Botti
DATE	1/3/68			1/2/68	1/4/68		1/3/68	
	P							

PRIORITY: E

DRAWING TITLE: SHIELD ASS'Y - D/S - QUAD III - SIDE - PLUME IMPINGEMENT - THERMAL

DRAWING NO. LDW280-28748

EO NO. B3

7 JAN 68

ISSUED BY J. BACKOFEN X1153 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

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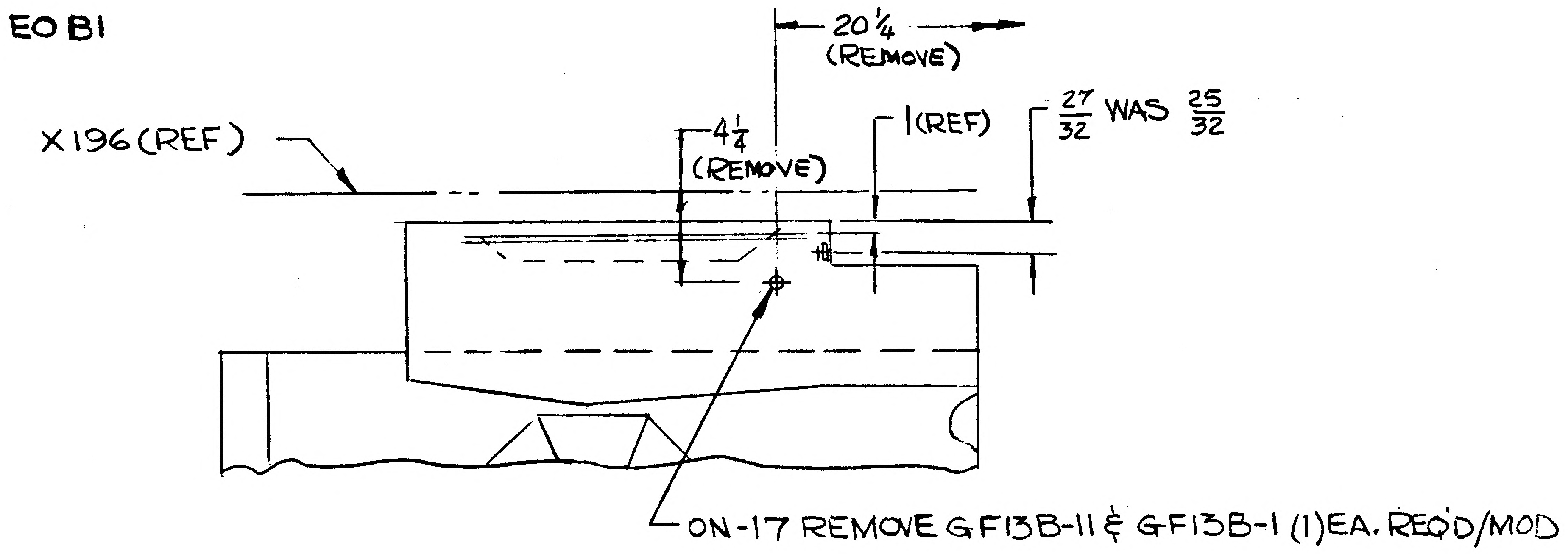
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-28748	EO NO.	B4
CONTROL INFO NO.	LDW280B1585		

REF EO B1



HOLES TO BE LEFT OPEN

(E)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 1244	PEG 46

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PROVISION FOR FITH SHIELD TO AGREE WITH LM-3(33) TOOLING	ON-17 REMOVED GF13B-11 & GF13B-1 (1)EA. REQ'D/MOD & $\frac{27}{32}$ WAS $\frac{25}{32}$	JK [illegible]

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	[illegible]			[illegible]	[illegible]		[illegible]	[illegible]
DATE	1/25/68			1-24-68	1-26-68		1/25/68	1-24-68
P	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASS'Y - D.S. - QUAD III - SIDE PLUME IMPINGEMENT THERMAL	LDW 280-28748	B4

CDR 2-2-68
ISSUED BY R. STOBE/P. THORJUSEN (EXT 1153) SECTION V.D.I. GROUP NO. 335 PL 25

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ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28748		EO NO. B5
CONTROL INFO NO. LM29-1226		

IN FIELD FOR -17

REMOVE ALL DIMENSION'S
FOR LOCATING DIMENSIONS SEE NOTE #3

(29)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: TO AGREE WITH LATEST ENGRG, LPC 280-25

DESCRIPTION OF EO: FOR -17 REMOVED ALL DIMENSIONS

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	DEPT
APPROVED BY				Z		W.F.		
DATE	4/20				4/12/68	4/12/68	4/20	4-15-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY DJS QUAD III SIDE PLUME IMP THERMAL	LDW280-28748	B5

ISSUED BY LIAISON W. FRANK (7930) V. CHRISTINA SECTION VDI X1153 GROUP NO. 335 PL 25

01

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LDW280-28749 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28748	LM-3(33)	1
PART NO. LDW280-28749-13		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28748	LM-2(32)	1
LM	LDW280-28748	LM-1(31)	1
LM	LDW280-28748	LTA 8(18)	1
PART NO. LDW280-28749-1		GAEC SCH NO. 52	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED E

LAST DASH NO. USED -15

GRUMMAN REL INFO A

PRIM NO. (301) 207 MP-SPEC 1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

TOLERANCE UNLESS SPECIFIED

FRACTIONS - DECIMALS - ANGLES

±1/16 ±.030 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO NAS 9-1100

LINE ITEM I

DOCUMENTATION TYPE II

DRAWN BY R. CLARK THERMO

LAYOUT BY

CHECKED BY

ENGR [illegible]

VENDOR INT [illegible]

STRUCTURES [illegible] 1/16

STRUCTURES [illegible] 1/10

WEIGHTS [illegible]

PROJ ENGR [illegible] 7-26

REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE L. I. NEW YORK

FOIL ASSY
DS QUAD III SIDE PLM IMP
THERMAL SHEILD

SIZE B

CODE IDENT NO. 26512

LDW280-28749 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77 1 12-65

01

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REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
									RETRACED SHEETS 2.00 & 3.00, NO CHG, LAST REVISION NO CHG M. MARKARIAN, 12-27-67, ADDED SHEET 1.10						
A	1	1.00, 1.10 & 3.00						LEO280-188	REWROTE SEAMWELD NOTE & ADDED NOTES 6 & 7	LTA-8, LM-1 THRU LM-6	NOT	REQD	M. MARKARIAN 27, DEC, 1967		
	2	1.10 & 3.00						LEO280-240	REF LEO280-118: ADDED PART "C" TO NOTE 6		✓				
	3	1.00, 1.10 2.00 & 3.00						EO A3	ON -1 REPLACED -3 FOIL SHEET ASSY WITH -7 FOIL SHEET ASSY			-3			
	4	1.10 & 3.00						EO A4	REF EO A3: ADDED DIM. 26 1/4 TO -7 FOIL SHEET ASSY		✓				
	5	1.00, 1.10 2.00 & 3.00						EO A5	ON -1 LDW280-28752-7 WAS LDW280-28752-1, IN FLD ADDED SECT. D-D & E-E, & ON -7, 15 3/32 DIM. REMOVED SECT. B-B, & C-C, DIM. 12 5/8 (TYP) ON -7.						
	6	1.10 & 3.00						LEO280-316	ADDED NOTE 8						
	7	1.10 & 3.00						LEO280-421	ADDED NOTE 9		NOT	REQD			
	8	1.00, 1.10					✓	EO A8	IN M/B FOR -1 ADDED EFF LM-7(37) THRU LM-15(45) ON N/A LDW280-28748	LM-7 THRU LM-15					
	9	1.00, 1.10 2.00 & 3.00		P		✓		EO A9 LCD 1244	CREATED -9 ASSY, RESTRICTED -1 WAS USED ON LTA-8 & LM-1 THRU LM-15	LM-3 THRU LM-15	-1				
	10	1.00, 2.00 & 3.00		P		✓		EO A10 LCD 2360	ADDED -13 & -15. REMOVED -9 & -11.	LM-3 THRU LM-15		-9 & -11	D'AVELLA 1-4-68	WC	—
	11	1.10, 2.00 & 3.00			✓				REMOVED -5 LDW280-17950-21 & -31 (REPLACED BY LPC 280-19; REF NOTE 10). ADDED NOTE 10. REMOVED SECTION A-A. EXISTING PARTS MAY BE USED ALL ONLY	LTA-8(18) LM-1(31) THRU LM-3(33)	NO	TED	T. MACAULAY 1-24-68		

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	THERMO				
A	Thorjussen 1-26-68	JGS 1/26/68	WJH 1/27/68							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28749	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01 NAS 9-1100

QTY PER ASSEMBLY -13	QTY PER ASSEMBLY -1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
A/R	A/R	SEE NOTE 3	E	94725	INCONEL KNIT SLEEVING							
1		LDW280-28752-9			FOIL ASSY	SEE DWG						5[illegible]
	1	LDW280-28752-7			FOIL ASSY	SEE DWG						[illegible]
1		LDW280-28749-15			FOIL SHEET ASSY	SEE NOTE 9 & 10				NONE	NONE	6E
		LDW280-28749-13			FOIL ASSY					NONE	NONE	6B
	1	LDW280-28749-7			FOIL SHEET ASSY	SEE NOTE 9 & 10				NONE	NONE	6E
		LDW280-28749-1	E		FOIL ASSY					NONE	NONE	6B

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELD	LSP-14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28749	A

(A)

SCALE NONE

SHEET 2.00

EME 77.2 5-64

SUPERSEDES LDW280-28749 NO CHG 12-27-67

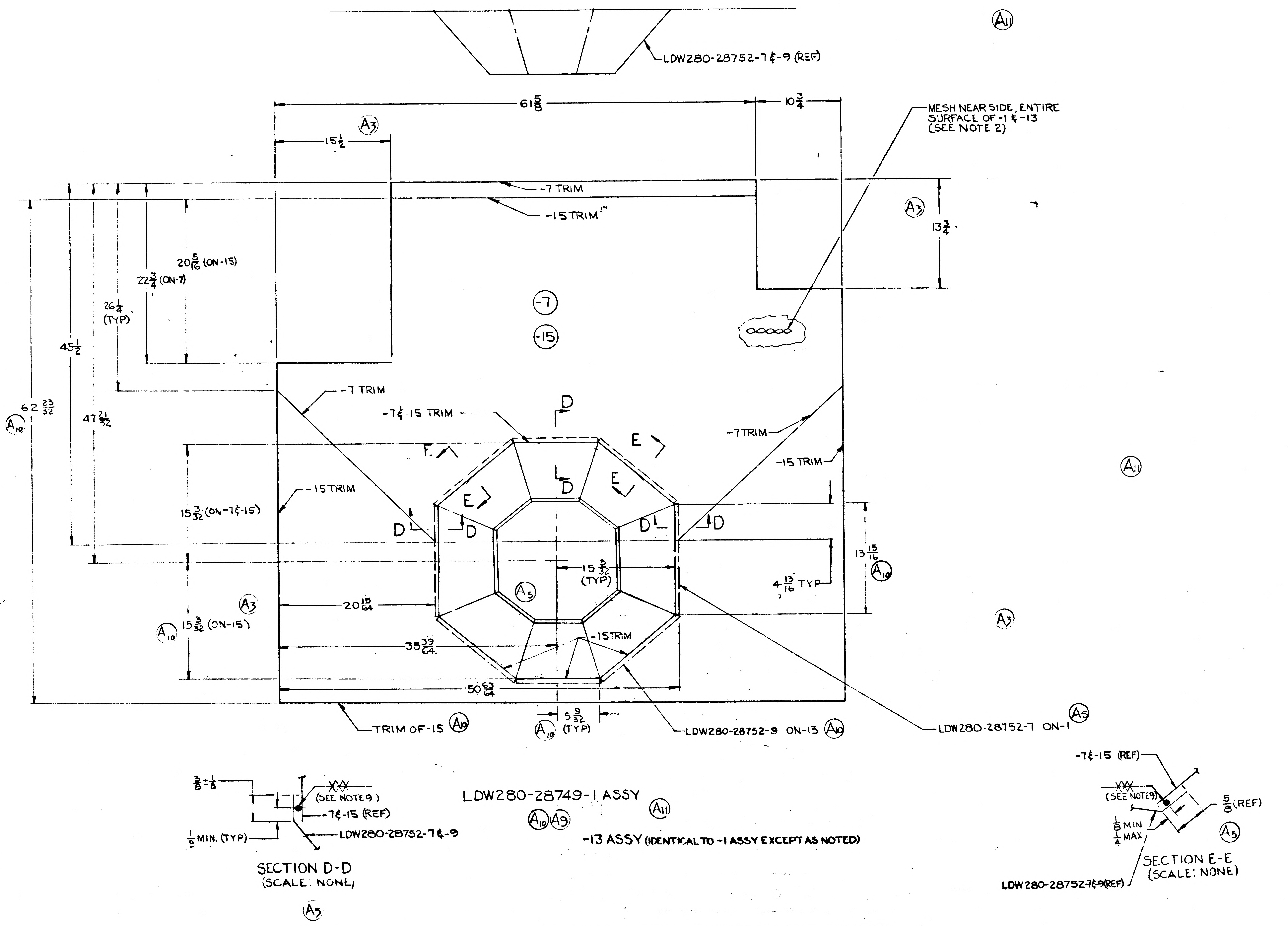
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES:

1. FABRICATION OF FOIL ASSEMBLY TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011 LEVEL "C".
2. WELD INCONEL KNITTED SLEEVING TO FOIL SHEET PER LDW280-17522.
3. INCONEL KNITTED SLEEVING TO BE 6 TO 8 INCHES WHEN FLATTENED. WIRE TO BE .0035 TO .0040 INCHES DIA. ROUND INCONEL 600 ALY KNIT PATTERN SQUARE TYPE 5 TO 7 SQUARES PER LINEAR INCH. MAY BE PURCHASED FROM MONTGOMERY METAL FABRIC CO. WINSOR LOCKS CONN. 59 CANAL ST
4. OXIDIZED SURFACE OF LDW280-28749 -1, -7, -13 & -15 NEAR SIDE.
5. SEAM WELD PER LSP14-6102 EXCEPT THAT SPOTS SHALL BE TANGENT +1/32 -0.
6. PERMISSABLE IRREGULARITIES IN WELDED ASSY'S ARE AS FOLLOWS:
   - a. HOLES IN THE SEAM WELD ROWS UP TO 1/8 MAX. & AT LEAST 1" APART.
   - b. CRACKS IN THE FREE EDGE OF WELDED JOINTS NO CLOSER TOGETHER 1/8" & NOT EXTENDING PAST THE WELD LINE.
   - c. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) & (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.
7. WELDED ASSY'S MAY HAVE RANDOM WRINKLED APPEARANCE.
8. INCONEL KNITTED SLEEVING TO BE OXIDIZED BY EXPOSURE TO 1650 ± 50°F IN AIR FOR FOUR (4) HOURS. FOR LTA-8 (18) OXIDATION IS OPTIONAL.
9. MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19.
10. PARTS TO BE MADE FROM .0005 BRIGHT ROLLED NICKEL FOIL COMMERCIALLY PURE (INCO 200 OR EQUIV.)


LDW280-28752-7 & -9 (REF)
61 5/8
10 3/4
15 1/2
MESH NEAR SIDE, ENTIRE SURFACE OF -1 & -13 (SEE NOTE 2)
-7 TRIM
-15 TRIM
13 3/4
20 5/16 (ON-15)
22 3/4 (ON-7)
26 1/4 (TYP)
45 1/2
62 23/32
47 21/32
-7
-15
-7 TRIM
-7 & -15 TRIM
-7 TRIM
-15 TRIM
-15 TRIM
D
E
F
15 3/32 (ON-7 & -15)
15 3/32 (TYP)
13 15/16
4 13/16 TYP
20 15/64
15 3/32 (ON-15)
35 39/64
-15 TRIM
50 63/64
5 3/32 (TYP)
TRIM OF -15
LDW280-28752-9 ON-13
LDW280-28752-7 ON-1
A3
A5
A9
A10
A11
A19
3/8 ± 1/8
(SEE NOTE 9)
-7 & -15 (REF)
LDW280-28752-7 & -9
1/8 MIN. (TYP)
SECTION D-D
(SCALE: NONE)
LDW280-28749-1 ASSY
-13 ASSY (IDENTICAL TO -1 ASSY EXCEPT AS NOTED)
-7 & -15 (REF)
(SEE NOTE 9)
5/8 (REF)
1/8 MIN
1/4 MAX
SECTION E-E
(SCALE: NONE)
LDW280-28752-7 & -9 (REF)

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
E	26512	LDW280-28749	△
SCALE NONE		SHEET 3	

2 SUPERSEDES LDW280-28749 NO CHG 1 7-2[illegible]

LDW280-28749

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28749		EO NO. B1
CONTROL INFO NO. LDW280B2843		

ADD NOTE *

*. DIMENSIONAL INFORMATION IS FOR REFERENCE PURPOSES ONLY APPROVED MASTER TEMPLATES SHALL BE UTILIZED TO VERIFY BLANKET OUTLINES.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2360 PKG 18 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PLUME IMPINGEMENT PROTECTION	ADDED NOTE *	JK 4/10/8

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-3 (33)	

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
✓		NOT REQ'D	D

APPROVED BY									
DATE	4/1/68			4-1-68	4/2/68		4/2/68	4-4-68
P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	FOIL ASSY D/S - QUAD III SIDE PLM IMP - THERMAL SHIELD	LDW280-28749	B1

ISSUED BY D. SHAPIRO/P. THORJUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25
040568

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS: REWORK	DISPOSITION OF EXISTING PARTS: SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
		3							RETRACED SHEET 3 N/C (LAST REVISION N/C) ROLL SIZE WAS "D" SIZE SHEET				CMR		
A	1	3						LEO 280 #188	ADDED SHEET 1.01. REMOVED NOTES 3, 4, & 5. ADDED NOTES 6 a, & b AND NOTE 7. ADDED TO NOTE 2 "EXCEPT THAT SPOTS SHALL BE TANGENT +1/32-0."	LTA-8 (18) LEM-1 (31) THRU LEM-6 (36)			CMR 9/15/66		
A	2	3						LEO 280 #240	ADDED NOTE 6 (c)	LTA-8(18) LEM-1(31) THRU LEM-6(36)			CMR 9/15/66		
A	3	3							ADDED NOTES 8, 9, 10 & 11. ADDED -7, -9, -11 & -13 ASSYS. REMOVED -1, -3 & -5 ASSY. REMOVED SECT. A-A. REVISED SECT C-C & SECT. D-D TO AGREE WITH -7 & -9 ASSYS.	LTA 8(18) LEM-1(31) THRU LEM-6(36)		✓	CMR 9/15/66	RMC	

CHG APPROVED

LTR	~~GROUP LDR~~	VDI	STRUCT	STRUCT	WEIGHTS	THERMO	RELIAB	PROJ	REL GRP		
A		9/13/	9/17								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW 280-28750	A

SCALE NONE SHEET 1.01

ENG 77.16 3-66

01 NAS 9-1100

LDW280-28750B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28748	LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5 (35)	1
		LM-4 (34)	1
		LM-3 (33)	1
		LM-2 (32)	1
LM	LDW280-28748	LM-1 (31)	1
PART NO. LDW280-28750-21		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28748	LTA-8 (18)	1
PART NO. LDW280-28750-7		GAEC SCH NO. 52	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00		3.00			
REV	B	B		B		B			
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED H

LAST DASH NO. USED -21

GRUMMAN REL INFO B

PRIM NO. 207 JK(001) MP-5 B-5-44

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM # 1

DOCUMENTATION TYPE II

DRAWN BY	R. CLARK	WEIGHTS	ROBESCH 7-25
LAYOUT BY		RELIABILITY	-
CHECKED BY		THERMO	M. Bolon 10-17-66
GR LEADER	J. Strakosch 7/14/66		
VEH DES INT	J. Bischoff 7/15		
STRUCTURE	F.E. Bunce 7/16	PROJ ENGR	F. DESEANA-RMC 7-26
STRUCTURE	Hilderman 7/16	REL GROUP	Botti 7-26-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ASSY -
DECENT STAGE ~ QUAD III
SIDE PLM IMP THERMAL

SIZE B

CODE IDENT NO. 26512

LDW280-28750 B

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

THIS DRAWING SUPERSEDES LDW280-28750-A 9-15-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED - NO CHANGE, LAST REVISION 'A' E.WICK 5-22-67						
B	1	3.00	3C 4C					EOB1	ON-9 ADDED DIM 1" (2 PLACES), ON-11 REMOVED DIM 12 5/8 & NOTE #11. ADDED SH 1.10	LTA-8 LM-1 THRU LM-6	✓		E. WICK 5-22-67		
	2	3.00	7A					EOB2	ADDED -15-17-19 & NOTE #7, REMOVED -9	LM-1 THRU LM-15		-9			
	3	3.00	2C					LEO280-421	ADDED NOTE #8.	LTA-8, LM-1 THRU LM-6	NOT	REQD			
	4	3.00	7D				✓	EOB4	ADDED SYMBOL FOR LAP DIRECTION ON -15	LM-1 THRU LM-15	NOT	REQD			
	5	3.00						EOB5	ON-15 FOR EFF LM-4(34) THRU LM-6(36) N/A LDW280-28750 WAS LDW280-54750.	LM-4 THRU LM-6	✓				
	6	3.00						EOB6	REF EOB5, IN DESCRIPTION OF EO: N/A LDW280-28750 WAS LDW280-54750 SHOULD BE N/A LDW280-28748 WAS LDW280-54748.	NOT REQD	NOT REQD				
	7	3.00	7D					EOB7	FOR -15, REMOVED LM-2(32) THRU LM-15(45) EFF ADDED -21.	LM-2 THRU LM-15		-15			
	8	3.00	7D				✓	EOB8 LCD-928	FOR-21 ADDED LM-1(31) REQMTS. REMOVED -15	LM-1		-15			
	9	3.00					✓	LEO280-559	IN FLD & B/M REMOVED LDW280-17970-49, REVISED NOTE #8 BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E".	LTA-8 LM-1 THRU LM-15	NOT	REQD			
	10	3.00	3C 4C						REFERENCE EOB1, REMOVE NOTE #11 SHOULD BE REMOVE NOTE # 6.	LTA-8 LM-1 THRU LM-6	✓				
	11	3.00	2C						REFERENCE LEO280-421 (EOB3), NOTE #8 SHOULD READ; "-13 & -19 WELDED ASSY'S TO COMPLY WITH REQUIREMENTS OF LPC280-19."		NOT	REQD	EB		

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28750	B
SCALE NONE			SHEET 1.10

ENG 77.3 5-65

01

NAS 9-1100

-21	-19	-17	-13	-11	-7	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					1		GT15B-29	E	TAPE	GRUMMAN STD						
1					1		LDW280-28753-1	E	COVER ASSY	SEE DWG						
							LDW280-28750-21	E	SKIN ASSY					NONE	SEE NOTE 6	
		1					-19	E	SKIN WELDED ASSY		SEE NOTE 8			FLW	NONE	
1							-17	E	SKIN TRIM ASSY					NONE		
				1			-13	E	SKIN WELDED ASSY		SEE NOTE 8			FLW		
					1		-11	E	SKIN TRIM ASSY					NONE		
							LDW280-28750-7	E	SKIN ASSY					NONE	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
—	SEE NOTE 6	LPC280-5
—	SEE NOTE 8	LPC280-19
FLW	RESISTANCE WELD	LSP-14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

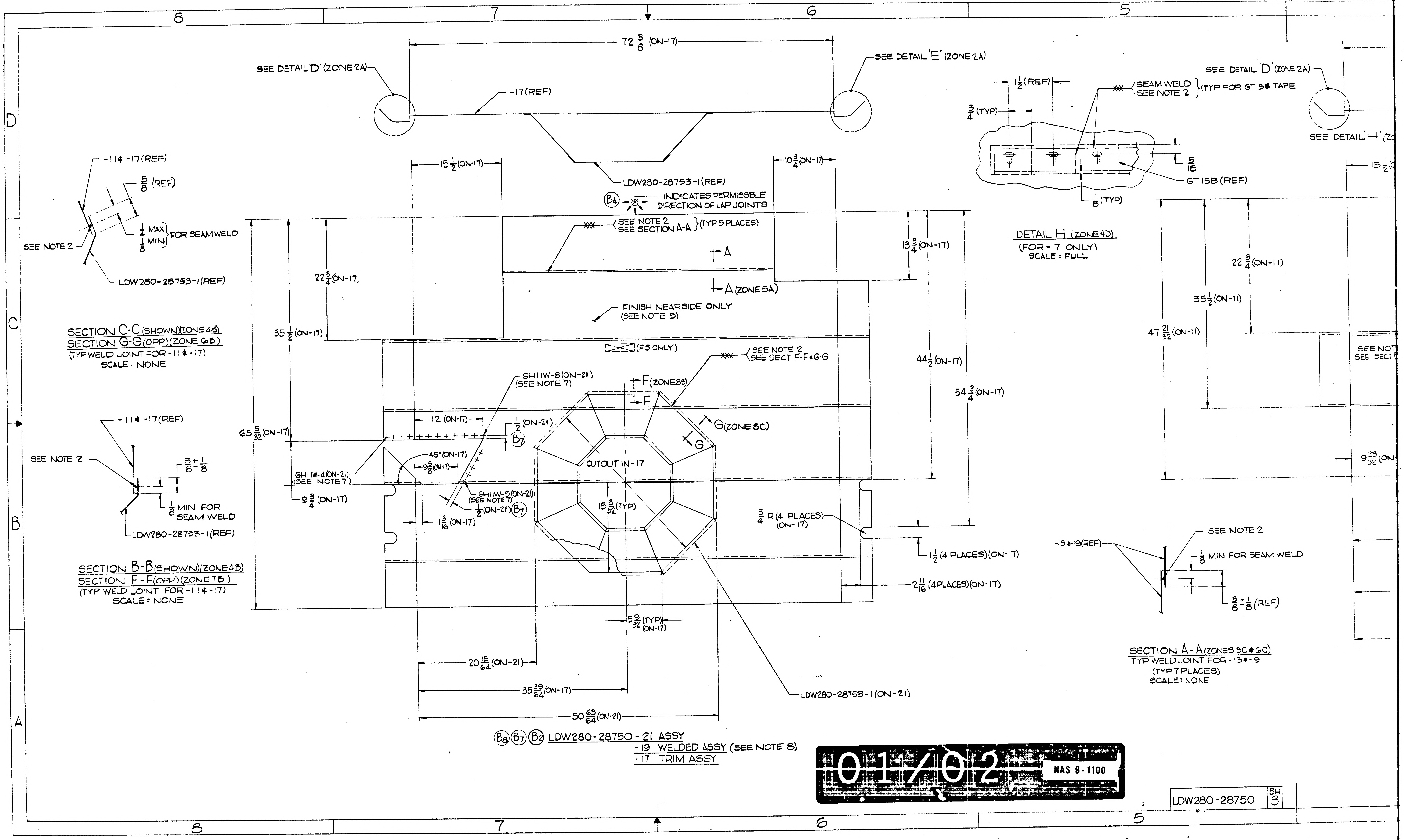
SIZE	CODE IDENT NO.		
B	26512	LDW280-28750	B

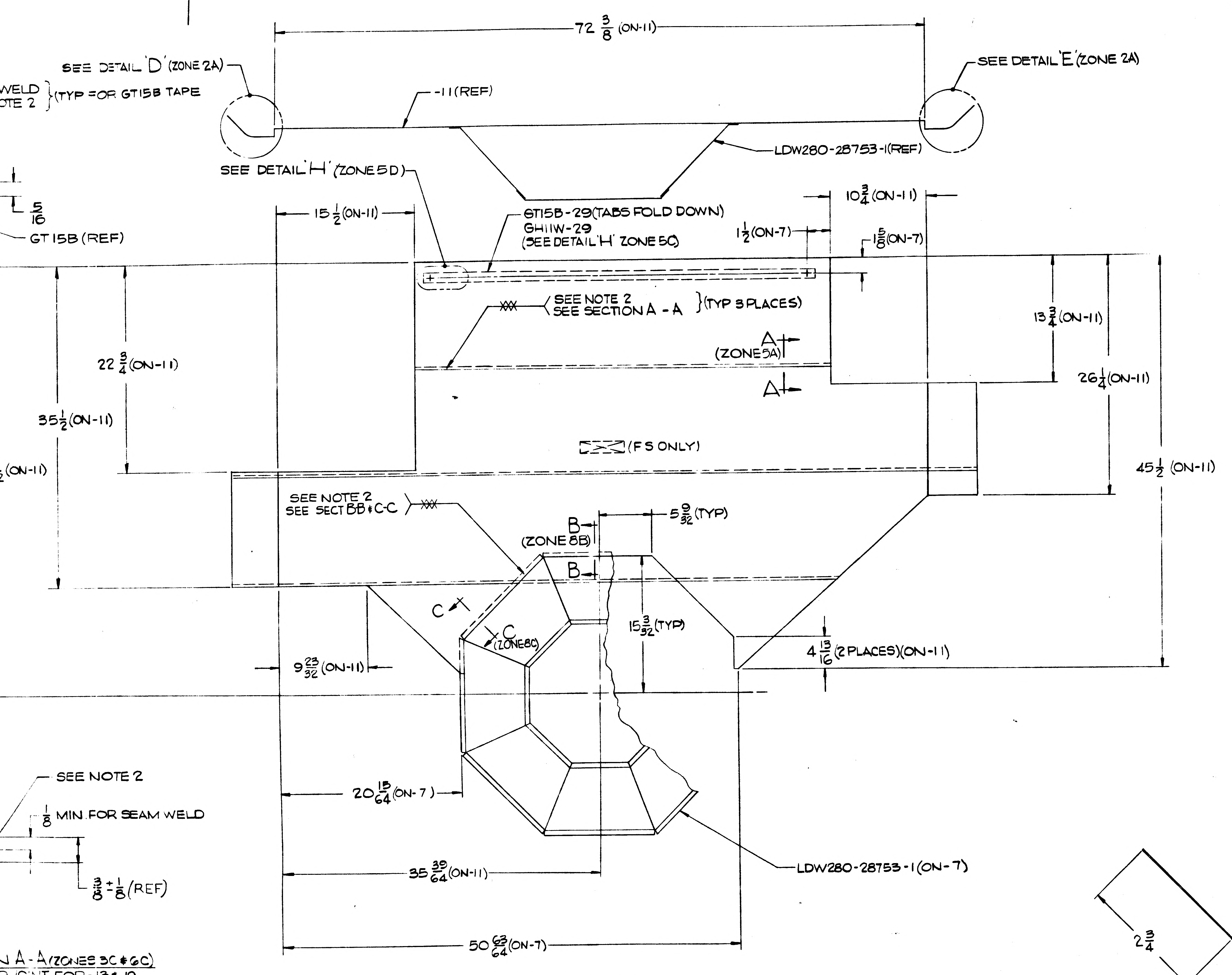
SCALE NONE

SHEET 200

01

NAS 9-1100


8
7
6
5
D
C
B
A
72 3/8 (ON-17)
SEE DETAIL 'D' (ZONE 2A)
SEE DETAIL 'E' (ZONE 2A)
-17 (REF)
LDW280-28753-1 (REF)
B4 INDICATES PERMISSIBLE DIRECTION OF LAP JOINTS
15 1/2 (ON-17)
10 3/4 (ON-17)
-11 & -17 (REF)
5/8 (REF)
1/4 MAX
1/8 MIN } FOR SEAMWELD
SEE NOTE 2
LDW280-28753-1 (REF)
SEE NOTE 2
SEE SECTION A-A } (TYP 5 PLACES)
A
A (ZONE 5A)
22 3/4 (ON-17)
35 1/2 (ON-17)
13 3/4 (ON-17)
FINISH NEARSIDE ONLY (SEE NOTE 5)
SECTION C-C (SHOWN) (ZONE 4B)
SECTION G-G (OPP) (ZONE 6B)
(TYP WELD JOINT FOR -11 & -17)
SCALE: NONE
(FS ONLY)
SEE NOTE 2
SEE SECT F-F & G-G
GH11W-8 (ON-21) (SEE NOTE 7)
F (ZONE 8B)
F
G (ZONE 8C)
G
44 1/2 (ON-17)
54 3/4 (ON-17)
-11 & -17 (REF)
65 5/32 (ON-17)
12 (ON-17)
1/2 (ON-21) B7
SEE NOTE 2
3/8 + 1/8
45° (ON-17)
9 5/8 (ON-17)
CUTOUT IN -17
GH11W-4 (ON-21) (SEE NOTE 7)
9 3/4 (ON-17)
GH11W-5 (ON-21) (SEE NOTE 7)
1/2 (ON-21) B7
1 3/16 (ON-17)
15 3/32 (TYP)
3/4 R (4 PLACES) (ON-17)
1/8 MIN FOR SEAM WELD
LDW280-28753-1 (REF)
1 1/2 (4 PLACES) (ON-17)
2 11/16 (4 PLACES) (ON-17)
SECTION B-B (SHOWN) (ZONE 4B)
SECTION F-F (OPP) (ZONE 7B)
(TYP WELD JOINT FOR -11 & -17)
SCALE: NONE
5 9/32 (TYP) (ON-17)
20 15/64 (ON-21)
35 39/64 (ON-17)
50 63/64 (ON-21)
LDW280-28753-1 (ON-21)
B8 B7 B2 LDW280-28750-21 ASSY
-19 WELDED ASSY (SEE NOTE 8)
-17 TRIM ASSY
1 1/2 (REF)
3/4 (TYP)
SEAM WELD
SEE NOTE 2 } (TYP FOR GT15B TAPE
5/16
GT15B (REF)
1/8 (TYP)
DETAIL H (ZONE 4D)
(FOR -7 ONLY)
SCALE: FULL
SEE DETAIL 'D' (ZONE 2A)
SEE DETAIL 'H' (ZO
15 1/2 (O
22 3/4 (ON-11)
35 1/2 (ON-11)
47 21/32 (ON-11)
SEE NOT
SEE SECT
9 23/32 (ON
SEE NOTE 2
-13 & -19 (REF)
1/8 MIN FOR SEAM WELD
3/8 + 1/8 (REF)
SECTION A-A (ZONES 3C & 6C)
TYP WELD JOINT FOR -13 & -19
(TYP 7 PLACES)
SCALE: NONE
01/02
NAS 9-1100
LDW280-28750
SH 3

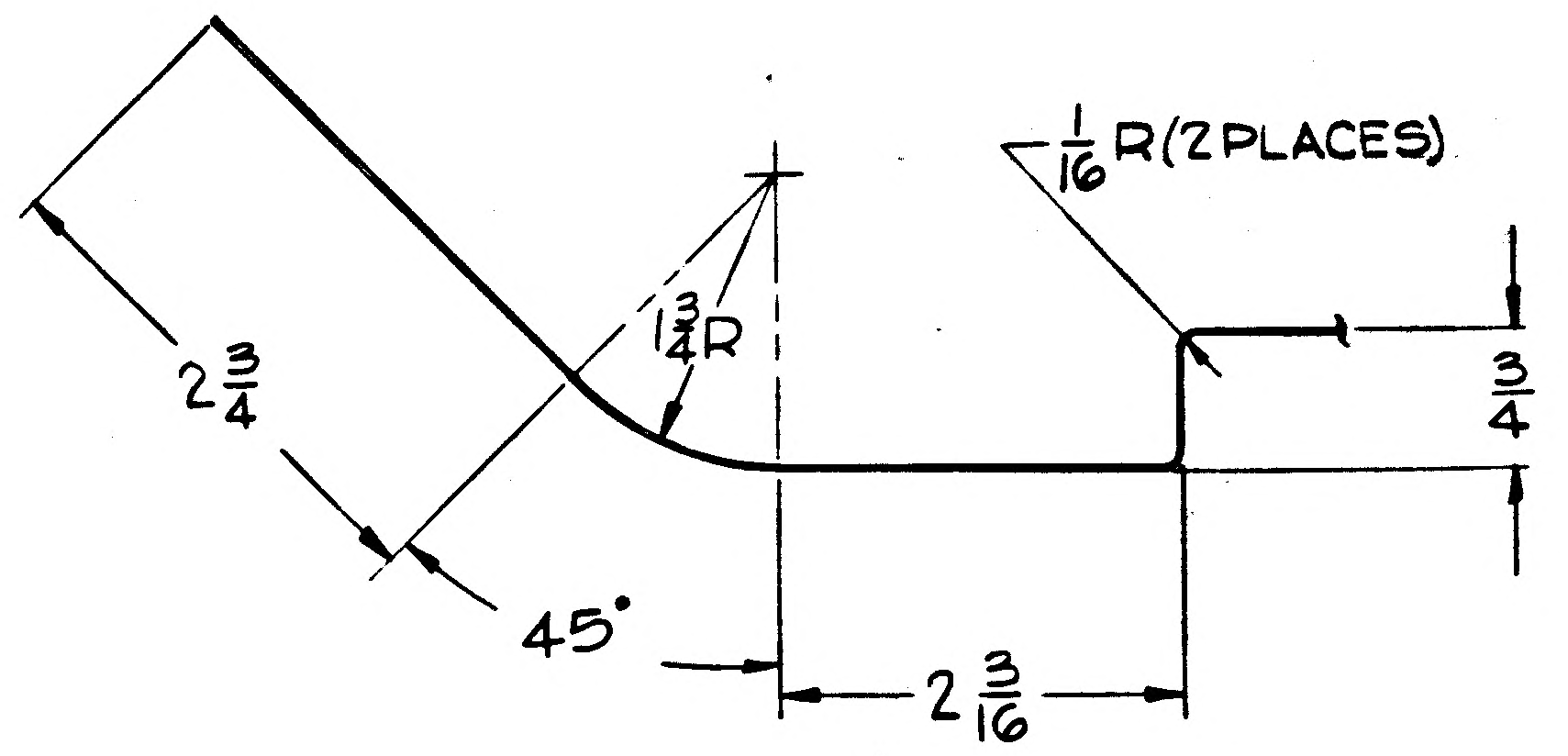

72 3/8 (ON-11)
SEE DETAIL 'D' (ZONE 2A)
SEE DETAIL 'E' (ZONE 2A)
WELD
OTE 2
(TYP FOR GT15B TAPE
-11 (REF)
LDW280-28753-1 (REF)
SEE DETAIL 'H' (ZONE 5D)
5/16
GT 15B (REF)
15 1/2 (ON-11)
GT15B-29 (TABS FOLD DOWN)
GH11W-29
(SEE DETAIL 'H' ZONE 5C)
10 3/4 (ON-11)
1 1/2 (ON-7)
1 5/8 (ON-7)
SEE NOTE 2
SEE SECTION A-A
(TYP 3 PLACES)
13 3/4 (ON-11)
A
(ZONE 5A)
A
26 1/4 (ON-11)
22 3/4 (ON-11)
35 1/2 (ON-11)
(ON-11)
(FS ONLY)
45 1/2 (ON-11)
SEE NOTE 2
SEE SECT B-B & C-C
B
(ZONE 8B)
B
5 9/32 (TYP)
C
C
(ZONE 8C)
15 3/32 (TYP)
4 13/16 (2 PLACES)(ON-11)
9 23/32 (ON-11)
SEE NOTE 2
1/8 MIN. FOR SEAM WELD
3/8 ± 1/8 (REF)
20 15/64 (ON-7)
35 39/64 (ON-11)
LDW280-28753-1 (ON-7)
50 63/64 (ON-7)

N A-A (ZONES 3C & 6C)
D JOINT FOR -13 & -19
7 PLACES)
LE: NONE

LDW280-28750-7 ASSY
-13 WELDED ASSY (SEE NOTE 8)
-11 TRIM ASSY

NOTES:

1. FABRICATION OF SKIN ASSY TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP-14-0011, LEVEL 'C'.
2. SEAM WELD PER LSP-14-6102 EXCEPT THAT SPOTS SHALL BE TANGENT +1/32 -0.
3. PERMISSIBLE IRREGULARITIES IN WELDED ASSY'S ARE AS FOLLOWS:
   a) HOLES IN THE SEAM WELD ROWS UP TO 1/8 MAX AND AT LEAST 1" APART.
   b) CRACKS IN THE FREE EDGE OF WELDED JOINT NOT TO BE CLOSER TOGETHER THAN 1/8 & NOT EXTENDING PAST THE WELD LINE.
   c) IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) & (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT, SHALL NOT EXCEED AN AREA OF 9 SQ. INCHES AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE SEAM WELDED AROUND THE ENTIRE PERIPHERY.
4. WELD ASSEMBLIES MAY HAVE RANDOM WRINKLED APPEARANCE.
5. FINISH IN ACCORDANCE WITH LPC280-5.
6. ~~GT15B TAPE & GH11W HOLE PATTERN USED ONLY ON -9 SKIN ASSY.~~
7. LOCATE TO MATCH LDW280-28806 TAB PATTERN.
8. -13 & -19 WELDED ASSY'S TO COMPLY WITH REQUIREMENTS OF LPC280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.


1/16 R (2 PLACES)
1 3/4 R
2 3/4
3/4
45°
2 3/16

DETAIL 'D' (SHOWN) (ZONES 4D & 7D)
DETAIL 'E' (OPP) (ZONES 6D & 3D)
(TYP FOR -11 & -17)
SCALE: FULL

02/02 NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▨ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 28 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (30 X 96) = 20.0 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 5.0 SQ. FT.

PRINT TRIM LINE

LDW280-28750 B

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE H	CODE IDENT NO. 26512	LDW280-28750	B
LM				
MODEL OR END ITEM	SCALE 1/5 & AS NOTED		SHEET 300	

2FR

01 NAS 9-1100

HC

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280
EO NO. 240
CONTROL INFO NO. LEM-2-2642

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE ✱.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LDW 280-25703	A4	A5	✱,✱✱,✱✱✱
-25704	A3	A4	✱,✱✱,✱✱✱
-25705	B5	C2	✱, ✱✱
-25706	A3	A5	✱,✱✱,✱✱✱
-25707	B1	B2	✱,✱✱,✱✱✱
-28730	A1	A5	✱
-28734	A1	A4	✱
-28735	A1	B1	✱
-28737	A1	A2	✱
-28738	A1	A2	✱
-28740	A1	A2	✱
-28741	A1	A2	✱
-28743	A1	A2	✱
-28744	A1	A2	✱
-28746	A1	A2	✱
-28747	A1	A2	✱
-28749	A1	A2	✱
-28750	A1	A2	✱
-28755	A1	A3	△
-28756	A1	A3	△
-28759	A1	A3	✱
-28760	A1	A2	✱
-28764	A1	A2	✱
-28765	A1	A2	✱
-28771	A2	A3	✱
-28772	A2	A3	✱
-28774	A1	A2	✱
LDW 280 -28775	A1	A2	✱

EFFECTIVITY:
✱✱✱ - QUAL TEST (72)
✱✱ - LTA-5 (15)
✱ - LEM-1 (31) THRU -6 (36) & LTA-8 (18)
△ - LTA-8, LEM-1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: TO FACILITATE MANUFACTURING

DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE ✱.

GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		SEE ABOVE	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP
PRIORITY: C_2

APPROVED BY						ccw	ccw	RMC	Bo H.
DATE						8/23/66	8/23/66	9-3	8-30-66
8-20-66	VDL	SUPPORT	RELIAB. GROUP	GROUP LEADER		STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

DRAWING TITLE: —
DRAWING NO. LEO-280
EO NO. 240

ISSUED BY LIAISON G. MARTELL x3604 SECTION VD1 (DESCENT STAGE) GROUP NO. 335 PL 35

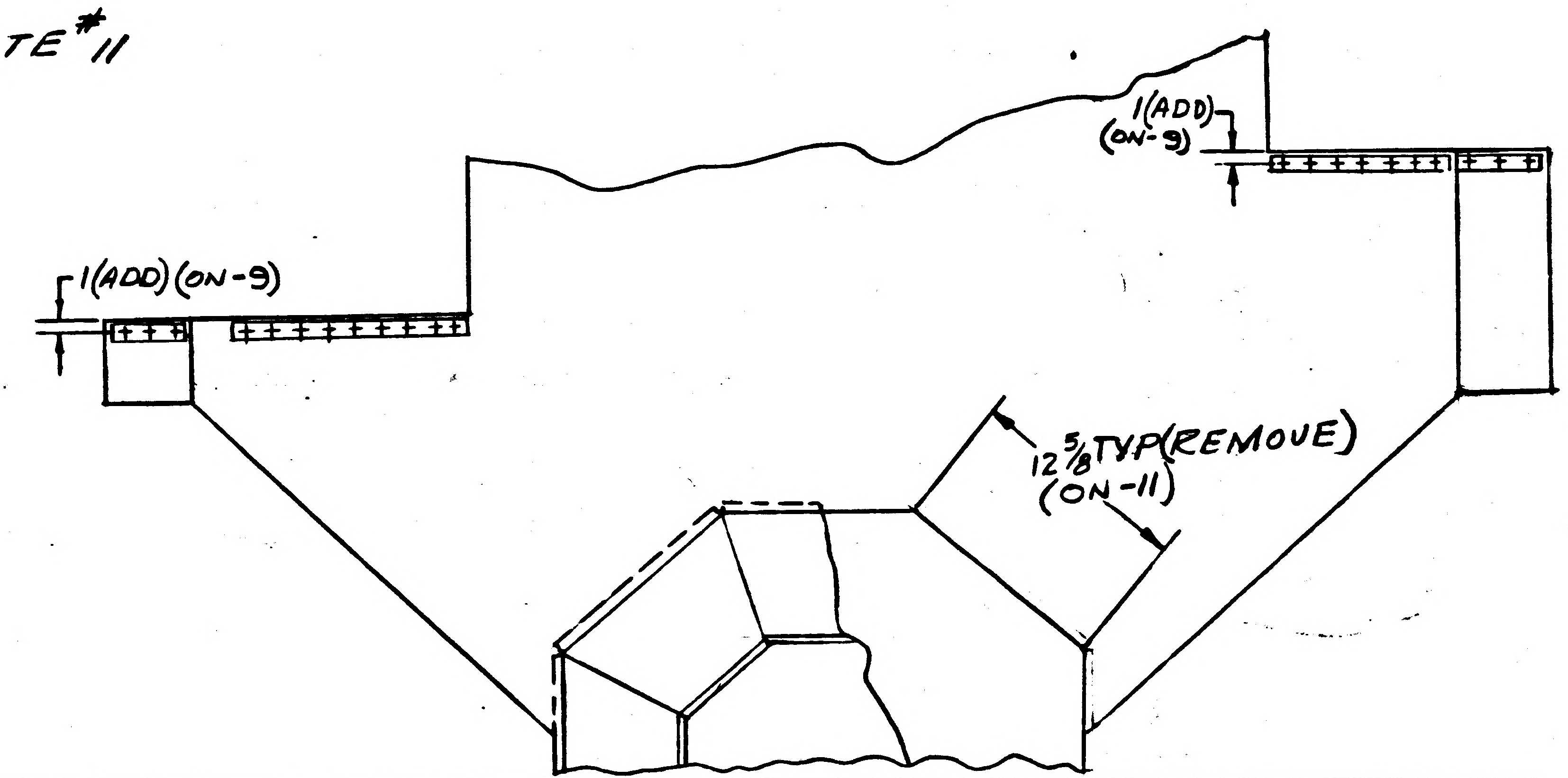
ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-28750		EO NO. B1
CONTROL INFO NO. LDW280A0901		

IN NOTE
REMOVE NOTE #11



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDED LOCATING DIM LEFT OFF ON INITAL RELEASE -	ON-9 ADDED DIM. 1 (2 PLACES), ON-11 REMOVED DIM. 12 5/8 & NOTE #11	FR 10/11/66

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-8(18), LM-1(31) THRU LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP	APPROVED BY / DATE		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓		✓			10/1/66 VDI				WJH 10/4/66			10/11/66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY D.S. QUAD III SIDE PLM IMP THERMAL	LDW280-28750	B1

ISSUED BY R. CLARK/J STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL. 35 EMF

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NAS 9-1100

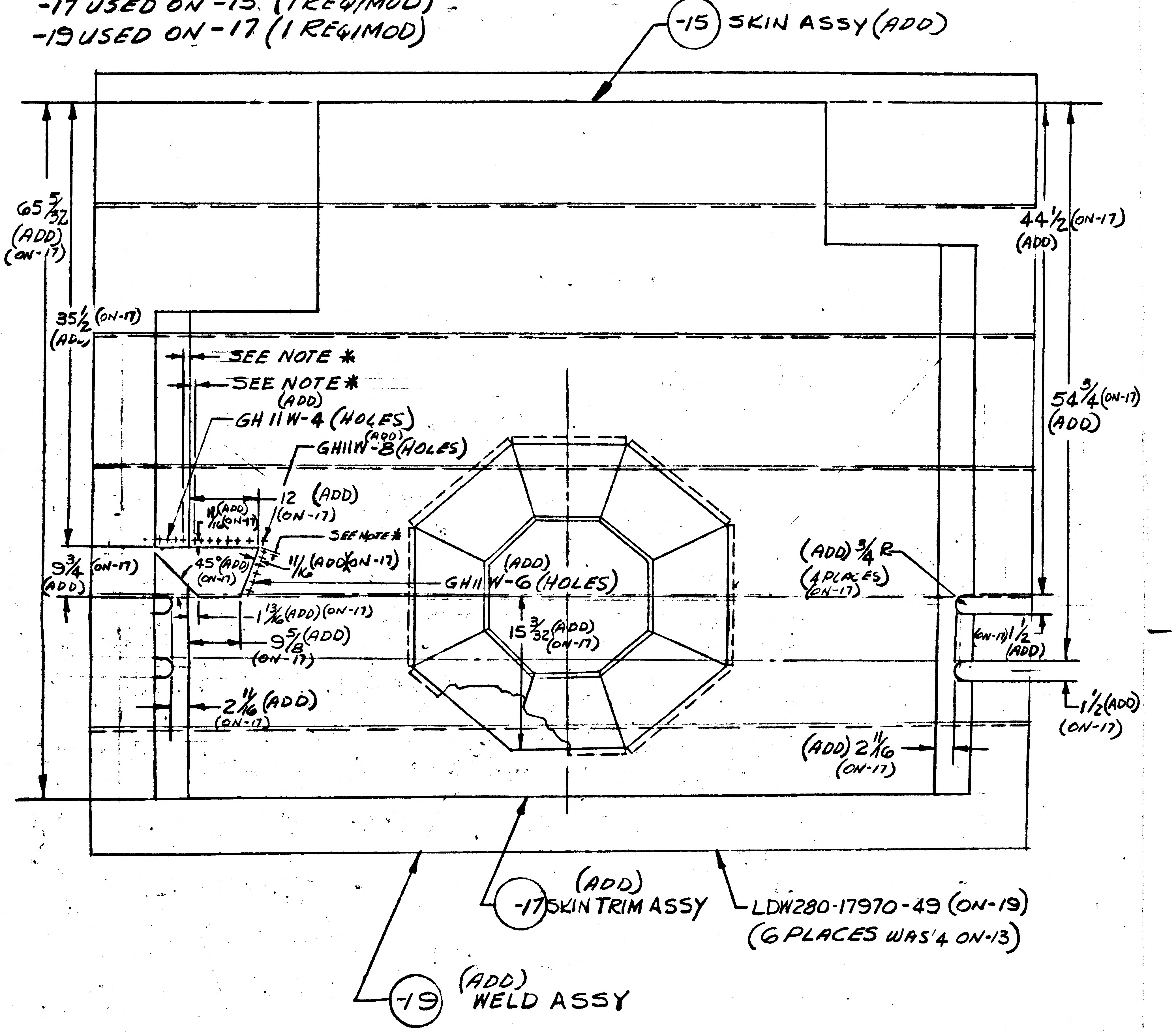
ENG 32.2 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28750		EO NO.	B2
CONTROL INFO NO. LDW280A 2107			

IN F/D & B/M
ADD-15 IDENT TO-9 EXCEPT AS NOTED BELOW
-17 " " -11 " " " "
-19 " " -13 " " " "
REMOVE -9
FOR-15 N/A & QUANTITIES SAME AS -9 EXCEPT ADD EFF. LM-7(37) THRU LM-15(45) N/A
LDW280-28748 (1 REQ/MOD)
-17 USED ON -15. (1 REQ/MOD)
-19 USED ON -17 (1 REQ/MOD)



-15 SKIN ASSY (ADD)
65 5/32 (ADD) (ON-17)
35 1/2 (ON-17) (ADD)
44 1/2 (ON-17) (ADD)
54 3/4 (ON-17) (ADD)
SEE NOTE *
SEE NOTE * (ADD)
GH 11W-4 (HOLES)
(ADD) GH11W-8 (HOLES)
12 (ADD) (ON-17)
11/16 (ADD) (ON-17)
SEE NOTE *
11/16 (ADD) (ON-17)
9 3/4 (ON-17) (ADD)
45° (ADD) (ON-17)
1 13/16 (ADD) (ON-17)
9 5/8 (ADD) (ON-17)
2 1/16 (ADD) (ON-17)
(ADD) GH11W-6 (HOLES)
15 3/32 (ADD) (ON-17)
(ADD) 3/4 R (4 PLACES) (ON-17)
(ON-17) 1/2 (ADD)
1 1/2 (ADD) (ON-17)
(ADD) 2 11/16 (ON-17)
(ADD) -17 SKIN TRIM ASSY
LDW280-17970-49 (ON-19)
(6 PLACES WAS 4 ON-13)
(ADD) -19 WELD ASSY

NOTE ** LOCATE TO MATCH LDW280-28806 TAB PATTERN

* USE NEXT AVAILABLE NOTE NUMBER 2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG											
REASON FOR EO TO PROVIDE METEOROID PROTECTION				DESCRIPTION OF EO ADDED-15, -17 & -19 & NOTE ** REMOVED -9										GAEC EO RELEASE 1/27	
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JHB					RWC	
				✓			-9	DATE	10/12/66	10/24			10/13/66	10-13	10/26/66
LM		LM-1(31) THRU LM-15(45)		REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
				PRIORITY C	DRAWING TITLE SKIN ASSY D.S. QUAD III SIDE PLM IMP THERMAL						DRAWING NO. LDW280-28750				EO NO. B2

D BY R. CLARK/J STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 35

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NAS 9-1100

B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LEO 280 | EO NO. 421
CONTROL INFO NO. LDW280A-4411

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM6	B 2	
LDW280-28734	"	A 8	
LDW280-28735	"	C 3	
LDW280-28746	LTA8(18) LM-1 (31) THRU LM-15(45)	B 3	
LDW280-28747	LTA8 (18) LM-1 (31) THRU LM-6(36)	B 1	
LDW280-28749	"	A 7	
LDW280-28750	"	B 3	
LDW280-28752	"	B 2	
LDW280-28753	"	A 3	
LDW280-28755	LTA8 (18) LM-1 (31)	A 7	
LDW280-28756	LTA8(18) LM-1(31) THRU LM-15(45)	A 6	
LDW280-28759	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28760	"	B 1	
LDW280-28768	LM-1(31)	B 2	
LDW280-28769	LM-1(31)	B 1	
LDW280-28771	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28772	"	B 1	
LDW280-28774	"	A 7	
LDW280-28775	"	B 2	
LDW280-28803	"	A 2	
LDW280-28805	"	A 1	
LDW280-51824	LM-1(31) THRU LM-15(45)	A 1	
LDW280-51825	"	A 2	
LDW280-51829	"	A 1	
LDW280-51830	"	A 1	
LDW280-51834	"	A 1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG									
REASON FOR EO: LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO				DESCRIPTION OF EO: ADDED NOTE *								GAEC EO RELEASE: K 12/20	
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: ✓ REVISE DWG	RECORD EO	DISPOSITION OF PARTS: NOT REWORK	REQ'D SCRAP	APPROVED BY / DATE	12/16/66 VDI	AB 12/16/66 ~~SUPPORT~~ THERMO	RELIAB. GROUP	12/19/66 GROUP LEADER	12/16/66 STRESS GROUP
LM		NOTED											
				PRIORITY: C	DRAWING TITLE: NOTED					DRAWING NO.: LEO 280		EO NO.: 421	

LIAISON ENGRG | 12/20 PROJ ENGRG | 12-20-66 ~~GOVT~~

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01
NAS 9-1100

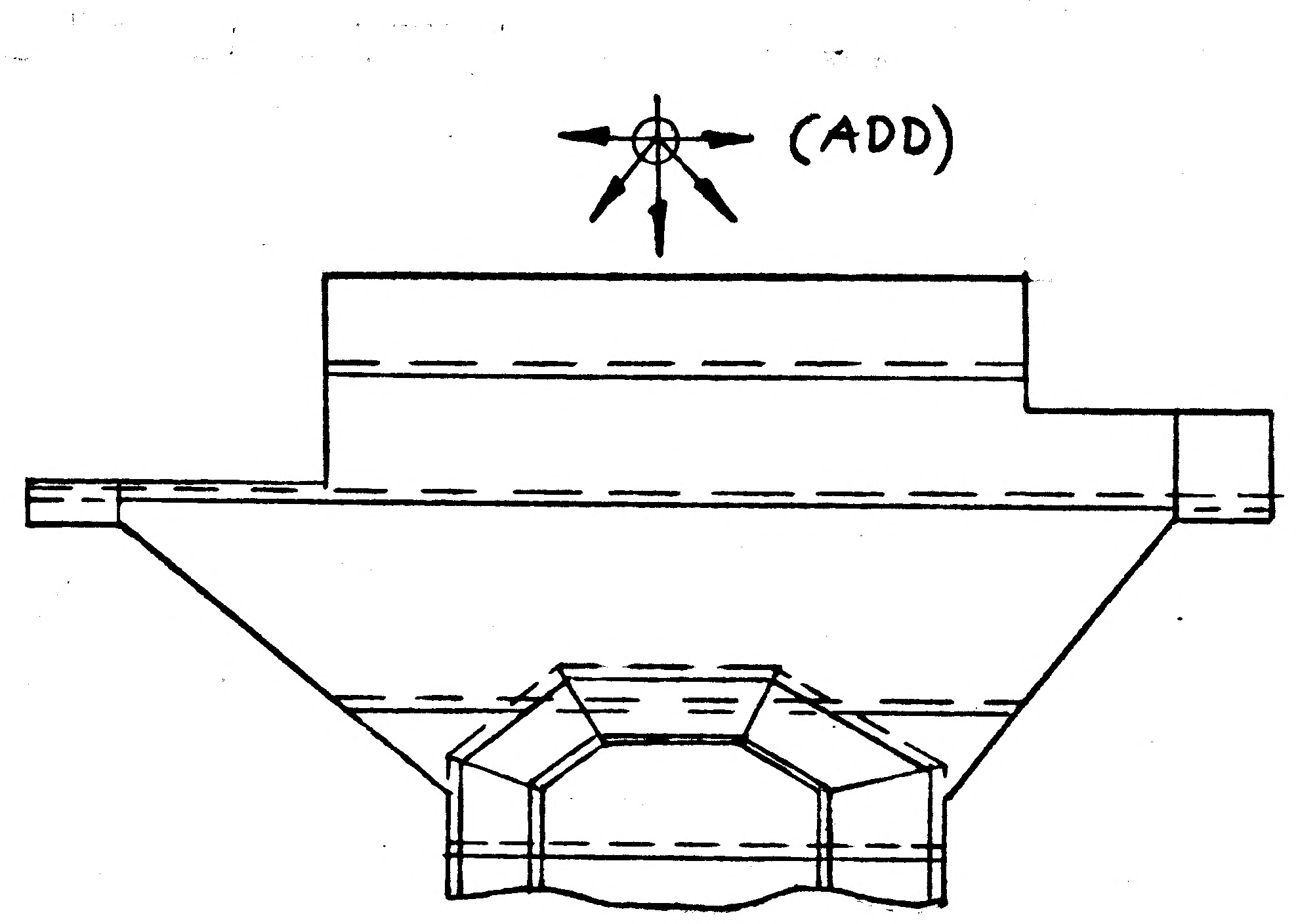
B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28750
EO NO. B4
CONTROL INFO NO. LDW280A4461

ON-17 ADDSYMBOL INDICATING PERMISSIBLE DIRECTION OF LAP JOINTS



*THIS CHANGE HAS BEEN INCORPORATED ON LM-1

THERMAL SHLD (2)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PROVIDE COMPLETE FABRICATION AND INSPECTION INFO	ADDED SYMBOL FOR LAP DIRECTIONS ON-15	1/6/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-1(31) THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT REQD	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY									
DATE	1/3/67	1/3/67		1/3/67	1/3/67		1-4-67	1/5/67
5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY - D/S QUAD III SIDE PLM IMP THERMAL	LDW280-28750	B4

ISSUED BY Jos Euan / John Strakusch SECTION V.D.I GROUP NO. 335 PL 35

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER EMF A

DWG. NO. LDW280-28750		EO NO. B5
CONTROL INFO NO. LDW280A9993		

ON-15 FOR EFF LM-4(34) THRU LM-6(36) N/A LDW280-28748 WAS LDW280-54748

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE C
TO CORRECT NEXT ASSEMBLY	ON-15 FOR EFF LM-4(34) THRU LM-6(36) N/A LDW280-28750 WAS LDW280-54750	LE 1/26 7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)-6(36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓		DATE	1/16/67			1/16/67	1/16/67		1-17-67	1-25-67
REVISE DWG	RECORD EO	REWORK	SCRAP	6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY D/S QUAD III SIDE PLM IMP THERMAL	LDW280-28750	B5

ISSUED BY T. AMBROSI / STRAKOSCH x 1372 SECTION V. D. I. GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28750
EO NO. B6
CONTROL INFO NO. LDW280A-5322

REF; EO B5
IN DESCRIPTION OF EO: N/A LDW280-28750 WAS LDW280-59750
S/B N/A LDW280-28748 WAS LDW280-59748

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO: EO CORRECTION

DESCRIPTION OF EO: REF; EO B5 IN DESCRIPTION OF EO: N/A LDW280-28750 WAS LDW280-59750 S/B N/A LDW280-28748 WAS LDW280-59748

GAEC EO RELEASE: C FR 2/1/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQ'D	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQ'D

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	1/31/67			1/31/67	2/1/67		2-2-67	2/1/67
6	VD1							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E	SKIN ASSY D/S QUAD III SIDE PLM IMP THERMAL	LDW280-28750	B6

ISSUED BY T. AMBROSIO / STRAKOSCH 1392 SECTION VD1 GROUP NO. 335 PL 35

01

NAS 9-1100

A

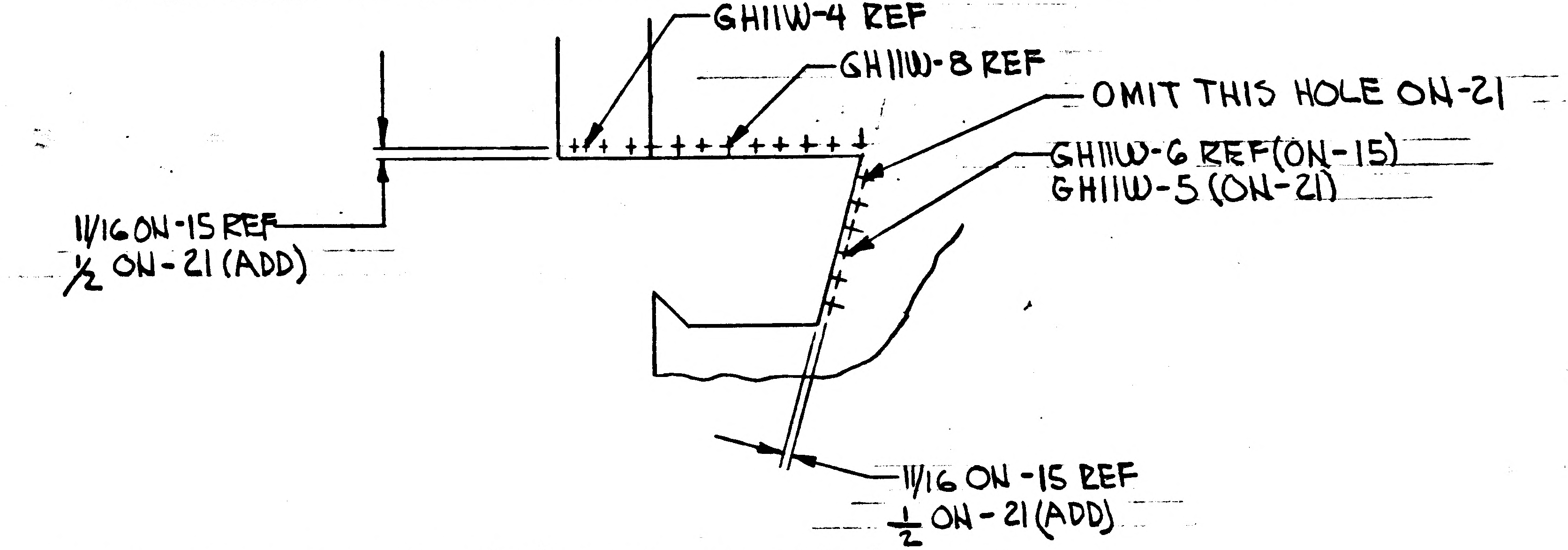
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-28750		EO NO. B7
CONTROL INFO NO. LDW280-A5504		

IN M/B FOR-15 REMOVE LM-2(32) THRU LM-15(45) EFF

IN F/D & LM ADD -21 SKIN IDENT TO -9 EXCEPT REMOVE ALL GT15B--- & CORRESPONDING GH11W--- HOLES & AS SHOWN BELOW.
-21 SKIN · MAKE FROM INCONEL 600 .00125 THICK PER AMS 5540E


GH11W-4 REF
GH11W-8 REF
OMIT THIS HOLE ON-21
GH11W-6 REF (ON-15)
GH11W-5 (ON-21)
11/16 ON-15 REF
1/2 ON-21 (ADD)
11/16 ON-15 REF
1/2 ON-21 (ADD)

EFF FOR-21 LM-2(32) THRU LM-15(45)
N/A FOR-21 : LDW280-28748

(2)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LCR 928 - IMPROVE PAINT ADHESION & IMPROVE EDGE DISTANCE	FOR-15 REMOVED LM-2(32) THRU LM-15(45) EFF ADDED-21	C ② LE 2/27/7

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS										
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓			✓	APPROVED BY	JAP			—	WJH			
								DATE	2/24/67			—	2/24/67		2/25/67	2-27-67
LM		LM-2(32) THRU	LM-15(45)	REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY DES. STAGE QUAD III SIDE FIXED	LDW280-28750	B7

ISSUED BY G. ZEMAN / J. STRAHOSCH SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-28750	EO NO. B8
CONTROL INFO NO. LDW 280 A 5830	

FOR -21 ASSY ADD LM-1 (31) REQMTS, N/A LDW280-28748, 1 REQ'D PER MODULE.
REMOVE -15 ASSY

5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCR - 928

REASON FOR EO: IMPROVE PAINT ADHESION
LCR. 928

DESCRIPTION OF EO: FOR -21 ADDED LM-1 (31) REQMTS. REMOVED -15

GAEC EO RELEASE: C
C/V

LE	3/14	7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-15

					GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY						W/LL			
DATE	3/7/67				3/7/67	3/8/67		3-14-67	3/14/67
5	V.D.I.	SUPPORT	RELIAB. GROUP						

PRIORITY: C
DRAWING TITLE: SKIN ASSY ~ D.S. ~ QUAD III SIDE PLUME IMP. ~ THERMAL
DRAWING NO.: LDW 280-28750
EO NO.: B8

ISSUED BY Gus HANSMANN X1153 SECTION V.D.I. GROUP NO. 280 PL 35

01 NAS 9-1100

ENG 32.2 REV 3-65

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280		EO NO. 559	
CONTROL INFO NO. LDW 280A 6306			

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW·
REMOVE LDW280-17970-ALL DASH NUMBERS AND ADD
"SEE NOTE *"
IN F/D REMOVE LDW280-17970-ALL DASH NUMBERS

REVISE NOTE *
(REF) "MANUFACTURED PARTS TO COMPLY WITH
REQUIREMENTS OF LPC 280-19."
(ADD) PARTS TO BE MADE FROM .00125 INCONEL
600 PER AMS 5540 E.

DRAWING No.	CHANGE #	SYMBOL	EFFECTIVITY	TITLE
✓LDW280-18130	A7	○	LTA-8 LM-1 THRU LM-15	SEE DWG
✓LDW280-18141	A3	○	LM-1 THRU LM-15	
✓LDW 280-28730	B7	□	LTA-8 LM-1 THRU LM-3	
✓LDW 280-28734	B2	□	LTA-8 LM-1 THRU LM-3	
✓LDW280-28738	A7	□	LTA-8 LM-1 THRU LM-15	
✓LDW 280-28740	B3	□	LTA-8 LM-1	
✓LDW 280-28741	A6	□	LTA-8 LM-1 THRU LM-6	
✓LDW 280-28744	A7	□	LTA-8 LM-1 THRU LM-6	
✓LDW 280-28747	B4	□	LTA 8 LM-1 THRU LM-15	
✓LDW 280-28750	B9	□	LTA-8 LM-1 THRU LM-15	
✓LDW280-28753	A5	□	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	□	LTA-8 LM-1 THRU LM-15	
LDW280-28760	B5	□	LTA-8 LM-1 THRU LM-3	
LDW280-28765	A7	○	LTA-8 LM-1 THRU LM-6	
LDW280-28769	B2	□	LM-1	
LDW 280-28772	B6	□	LM-1 THRU LM-15	
LDW280-28775	B7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28805	A6	□	LM-1 THRU LM-15	
LDW 280-28806	A4	□	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW 280-51824	A3	□	LM-1 THRU LM-15	

NOTE △ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS
OF LPC 280-19. PARTS TO BE MADE FROM .00125
INCONEL 600 PER AMS 5540E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY
WITH LPC 280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM □ REVISE NOTE *.
FOR SYM ○ ADD NOTE △ TO DWG

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE

DESCRIPTION OF EO: REMOVED LDW280-17970 FROM B/M & F/D (ALL DASH NO'S) FOR DWG'S □ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ○ ADDED NOTE △

GAEC EO RELEASE: 5 C
JS 4-19-7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	
		ABOVE	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY
✓		NOT	REQ	DATE 4/10/67

6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
				4/10/67	4/10/67		4/13

GOVT: 4-18-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 559

ED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 325 PL 25
7034

01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28750
EO NO. C1
CONTROL INFO NO. LDW280A7467

REVISE -21 SKIN ASSY

REWORK -17 TRIM ASSY AS SHOWN

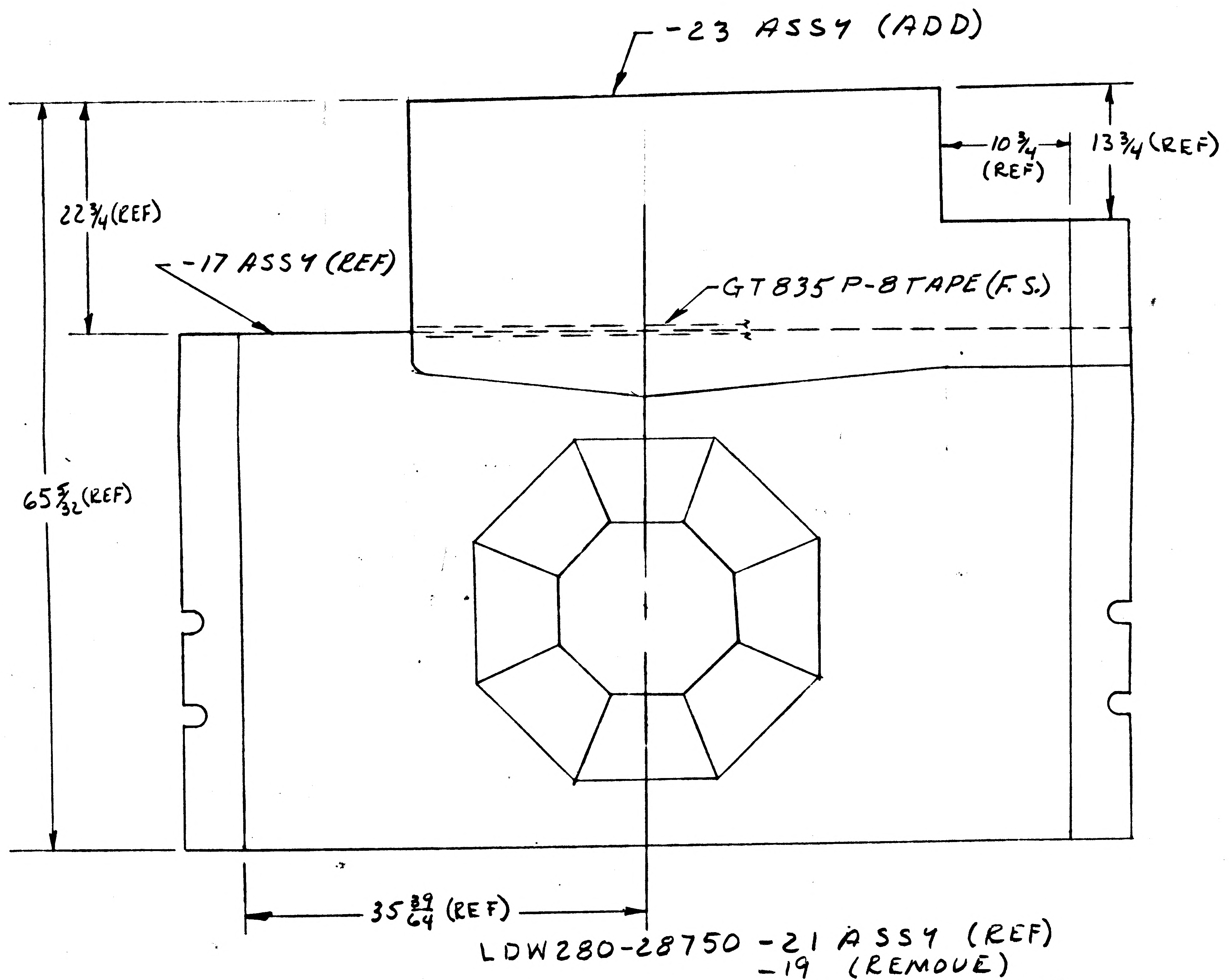
ADD -23 TRIM ASSY & GT835P-8 TAPE
* -23 MAY BE MADE BY REWORKING -17

REMOVE -19 WELD ASSY FROM -17

IN B/M FOR -21 REMOVE "SEE NOTE 6"; FOR -17 & -23 ADD ("SEE NOTE 5")

IN NOTE # 8 REMOVE -19 ADD -17 & -23

REMOVE NOTES # 1, 2, 3, 4 & -7
ADD NOTE -9. FINAL TRIM OF SKIN ASSEMBLIES SHALL BE DETERMINED FROM APPROVED MASTER TEMPLATE.



LDW280-28750 -21 ASSY (REF)
-19 (REMOVE)
-17 ASSY (REF)
-23 ASSY (ADD)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ✓ CL I ENGRG CHG ☐ LCD-1680 2

REASON FOR EO: REDUCTION OF D/S PLUME SHIELD SKIN SIZES

DESCRIPTION OF EO: REVISED -21, REWORKED -17 ADDED -23, REMOVED -19; IN B/M REMOVED "SEE NOTE 6 FROM -21; IN NOTE 8 REMOVED -19 ADDED -17 & -23; REMOVED NOTES 1 THRU 4 & 7 ADDED NOTE 9; IN B/M FOR -17 & -23 ADDED "SEE NOTES"

(R) GAEC EO RELEASE C: JK 6/9/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
		THRU LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK -23 -17 SCRAP
PRIORITY: C

APPROVED BY	JAP	MP		JAS	EP			
DATE	06/9/67	6/9/67		6/9/67	6/9		6-9-7	6/9/67
5	VDT	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

DRAWING TITLE: SKIN ASSY QUAD III SIDE PLM IMP THERMAL DESCENT STAGE
DRAWING NO. LDW280-28750
EO NO. C1

ISSUED BY H. DALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65 A

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

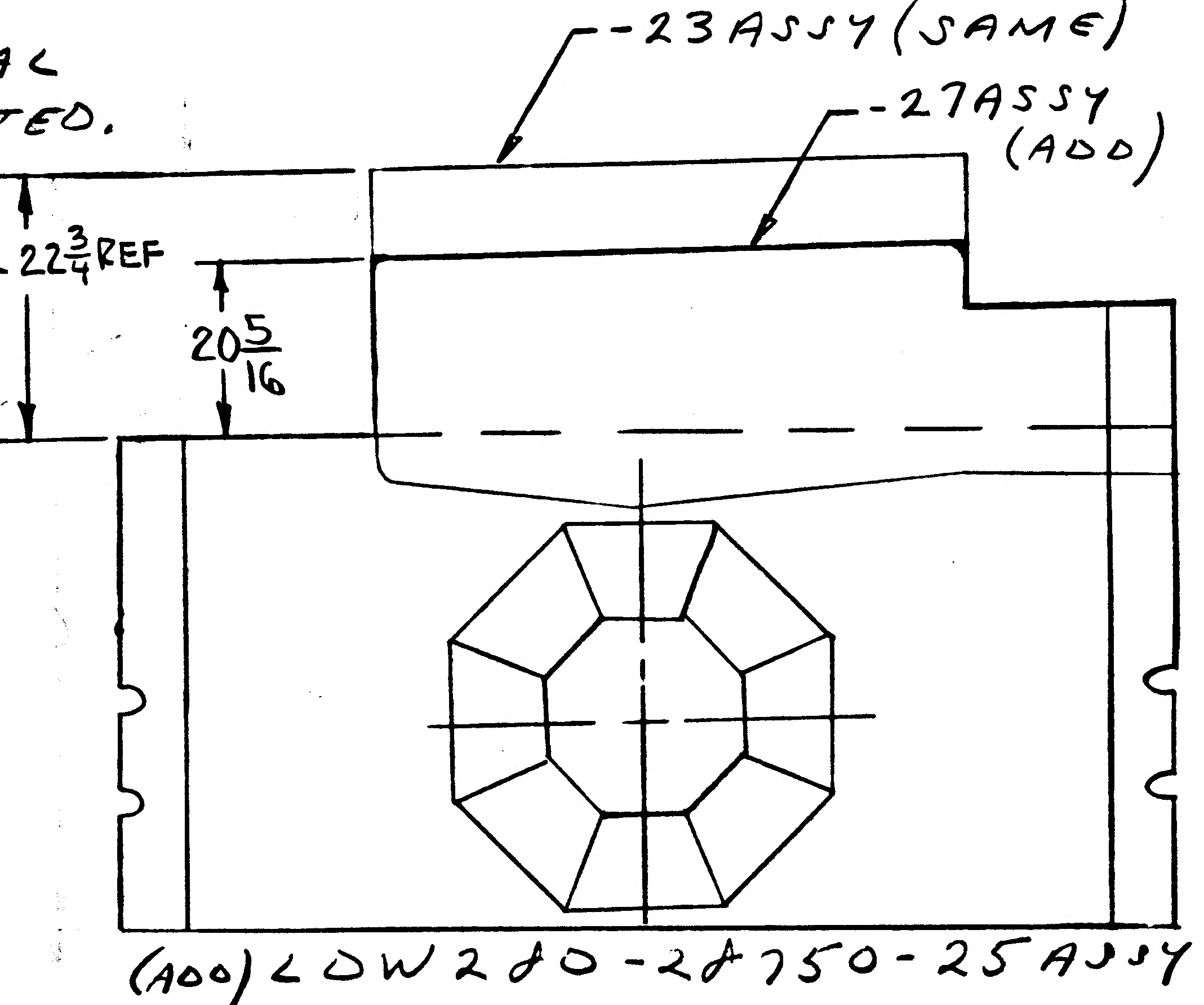
DWG. NO. LDW280-28750
EO NO. C2
CONTROL INFO NO. LDW280A9701

CREATE -27 ASSY, IDENTICAL TO -23 ASSY, EXCEPT AS NOTED.

CREATE -25 ASSY, IDENTICAL TO -21 ASSY, EXCEPT THAT -27 REPLACES -23.
RESTRICT -21 ASSY TO LM-1 & LM-2

TO NOTE 8; ADD -27

FOR -25
N/A LDW280-28748
1 REQD LM-3 THRU LM-15



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1244

5

REASON FOR EO: TO PROVIDE FOR F.I.T.H. SHIELD

DESCRIPTION OF EO:
CREATED -25 ASSY
RESTRICTED -21 ASSY
WAS USED ON LM-1 THRU LM-15
CREATED -27 ASSY
ADDED -27 TO NOTE 8

GAEC EO RELEASE: JK 11/6/7

MODEL	EFFECTIVITY: EI		
	~~PROCURING~~ ~~ACTIVITY NO.~~	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 THRU	LM-15

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		-21	

APPROVED BY								
DATE	11/6/67			11-2-67	11/2/67		11/6/67	11-4-67
P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY - D/S QUAD III SIDE PLM IMP THERMAL	LDW280-28750	C2

11-3-67 ISSUED BY E. ROESSLER / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

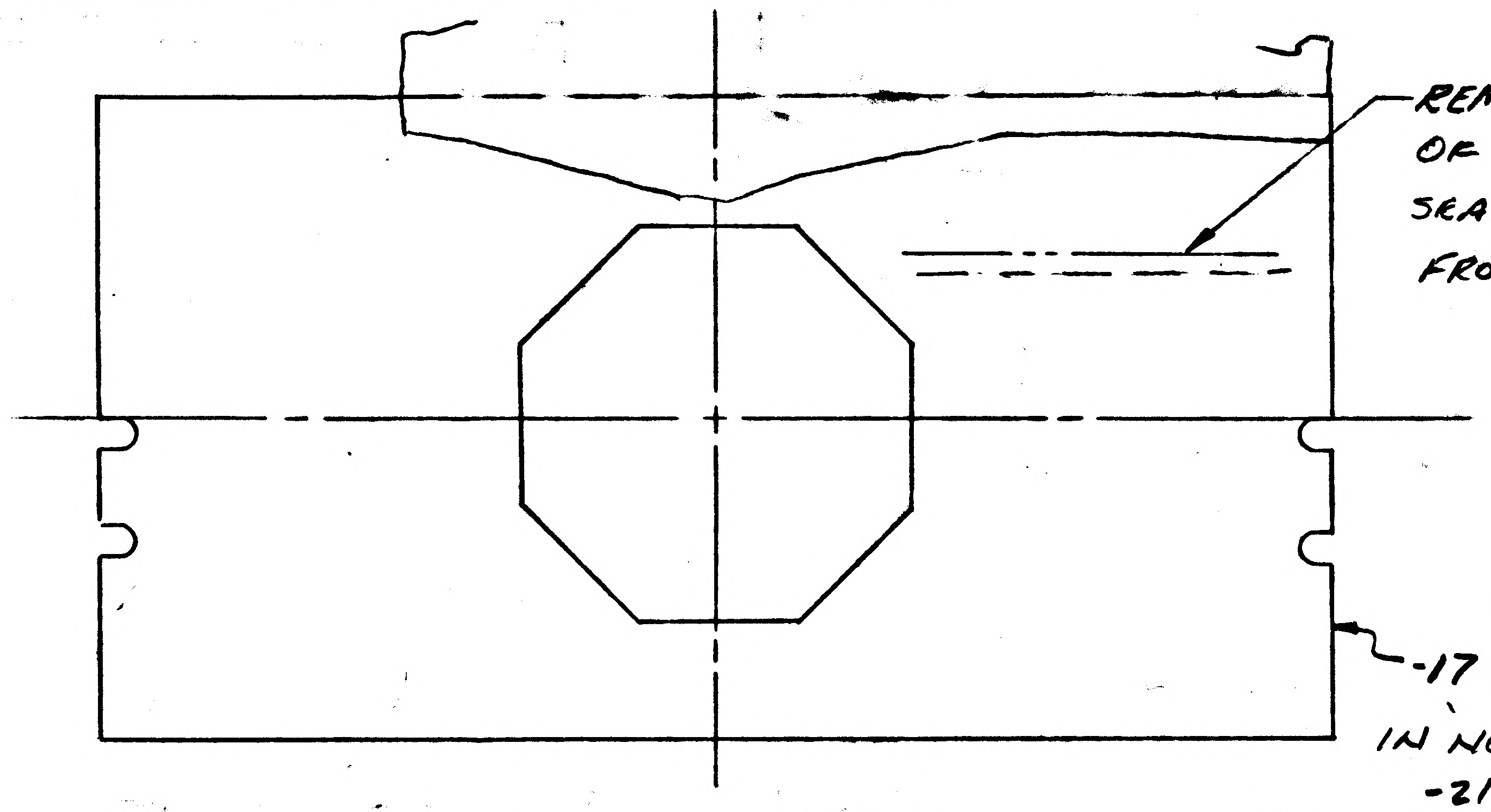
C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28750	EO NO. C3
CONTROL INFO NO. LDW280B0262	

IN F/D
ON -17 ASSY REMOVE PICTURES OF SEAM WELD



REMOVE PICTURE OF JOINTS AND SEAM WELD LINES FROM -17, -23, -27 (TYP)

-17 (REF)

IN NOTE #8 ADD -21, -25, -27

REMOVE SECTS A-A, B-B, CC, GG & FF (5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	

REASON FOR EO	DESCRIPTION OF EO REM. SEC AA, BB, CC, GG, FF.	GAEC EO RELEASE
DWG CORRECTION ERROR (SEAM WELD PICTURE NOT REQ'D PER LRC280-19)	ON-17 REMOVED PICTURE OF SEAM WELD JOINTS FROM -17, -23, -27. IN NOTE 8 ADD -21, -25, -27	JK 11/4/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LM		NOT REQ'D		✓		NOT REQ'D	

APPROVED BY	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
	[illegible]			—	[illegible]		[illegible]	[illegible]
DATE	11/2/67			—	11/2/67		11/2/67	11-10-67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E	SKIN ASSY D/S ~ QUAD III SIDE PLUME IMPINGEMENT THERMAL	LDW280-28750	C3

ISSUED BY DON THOMAS / P. THORJUSEN SECTION V.D.I. x 1153 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28750
EO NO. C4
CONTROL INFO NO. LDW280B0866

FOR -25 SKIN ASS'Y REMOVE N/A LDW280-28748
EFFECTIVITY LM-4(34) THRU LM-15(45)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD2360

(5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PLUME HEATING PROTECTION	FOR-25 REMOVED N/A LDW280-28748 EFF. LM-4 THRU LM-15.	JK 1/6/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓			-25	P	12/29/67			12/27/67	12/29/67		12/29/67	1-6-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASS'Y - D/S - QUAD III SIDE PLM IMP - THERMAL	LDW280-28750	C4

6 JAN '68
ISSUED BY J. BACKOFEN X1153 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-28752 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28748	LEM-6(36)	1
		LEM-5(35)	1
		LEM-4(34)	1
		LEM-3(33)	1
		LEM-2(32)	1
		LEM-1(31)	1
LEM	LDW280-28748	LTA-8(18)	1
PART NO. LDW280-28752-5		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28749	LEM-6(36)	1
		LEM-5(35)	1
		LEM-4(34)	1
		LEM-3(33)	1
		LEM-2(32)	1
		LEM-1(31)	1
LEM	LDW280-28749	LTA-8(18)	1
PART NO. LDW280-28752-7		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.01	2.00	3.00
REV	A	A	A	A

LAST SECT LTR USED C

LAST DASH NO. USED 7

GRUMMAN REL INFO A

PRIM NO. LE(001)

207 HP9-19-6 A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/16 ±.030 ±1/2

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM #1

DOCUMENTATION TYPE II

DRAWN BY OCONNELL

LAYOUT BY CLARK

CHECKED BY

GROUP LDR.

VEH. DES. INT 7/20

STRUCTURE

STRUCTURE 7/20

WEIGHTS 7-25

RELIABILITY

THERMAL

PROJ ENGR 7-29

REL GROUP 10-17-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL ASSY (WELDED)
DESCENT STAGE - Q III SIDE P.I.
THERMAL SHEILD - He TANK COVER

SIZE B

CODE IDENT NO. 26512

LDW280-28752 A

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
		300							RETRACED SH. 3.00 (LAST REVISION N/C) F SIZE WAS D				CMR		
A	1	3.00						Ⓡ	ADDED SHEET 1.01. REVISED NOTE 4. ADDED NOTES 6 & 7. ADDED -5 & -7 COVER ASSY'S. REMOVED -1 & -3 COVER ASSYS. Ⓐ EJR	LTA-8(18) LEM-1 THRU LEM-6(36)		✓	CMR 9/15/66		10-17-66

CHG APPROVED	LTR	~~GROUP LDR~~	VDI	STRUCT	STRUCT	WEIGHTS	THERMO		-			
	A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28752	A
SCALE NONE			SHEET 1.01

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY								CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						-7	-5											
							A/R		MESH	E	INCONEL SLEEVING				SEE NOTE 3			
						2			LDW280-18082-23	E	FOIL	SEE DWG						
						1			-21	E	FOIL							
						1			-20	E	FOIL							
						1			-19	E	FOIL							
						1			LDW280-18082-15	E	FOIL	SEE DWG						
							1		LDW280-28752-7	E	COVER ASSY (WELDED)					FLW	NONE	
									LDW280-28752-5	E	COVER ASSY (WELDED)					FLW	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELDING	LSP14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

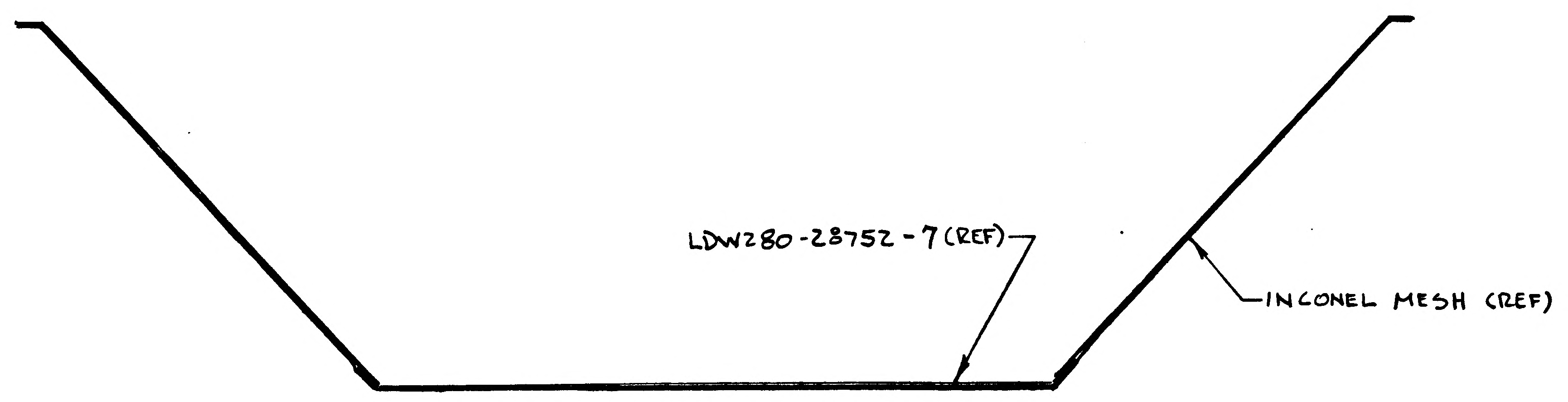
SIZE B
CODE IDENT NO. 26512
LDW280-28752
A

SCALE NONE
SHEET 2.00

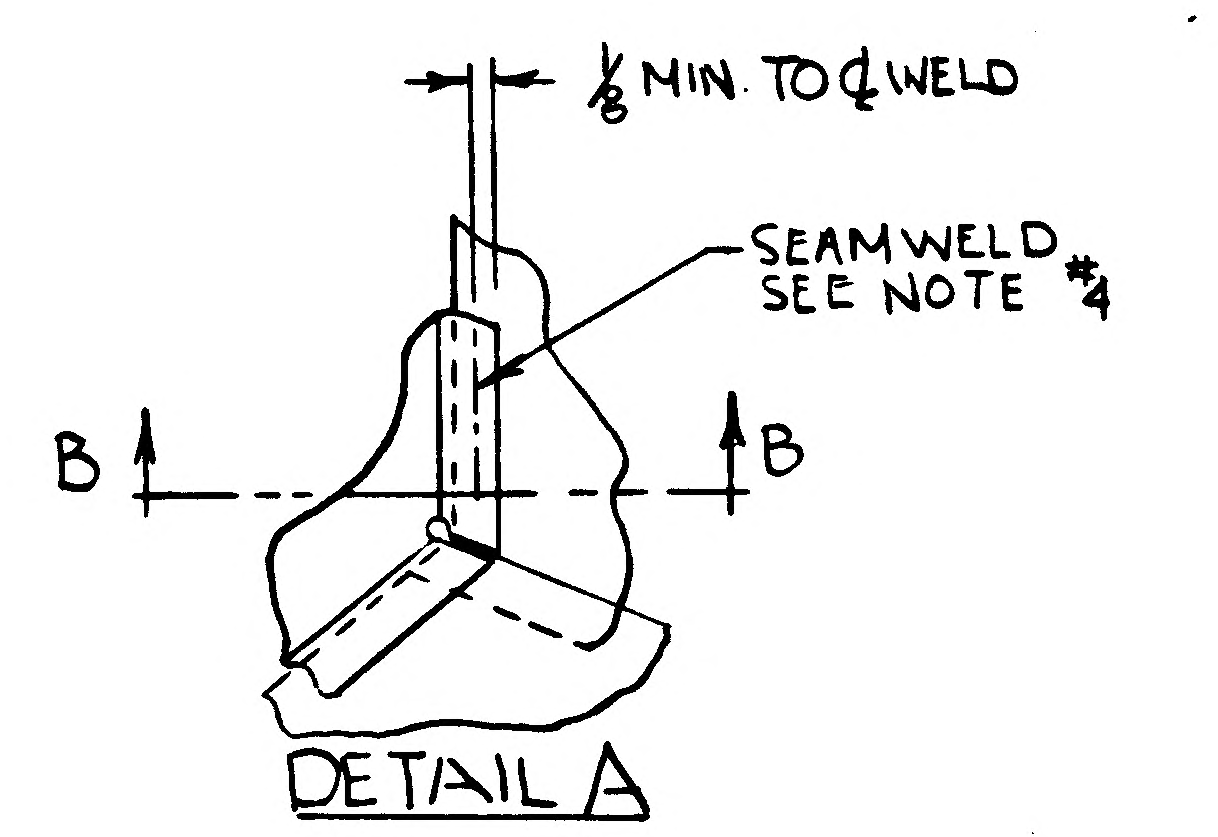
ENG 77.2 7-65

01

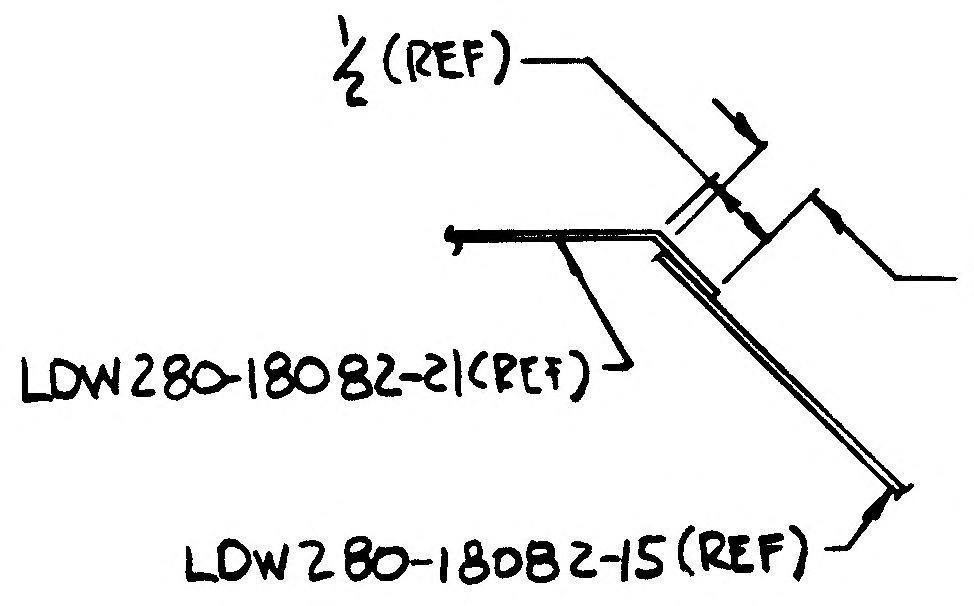
NAS 9-1100



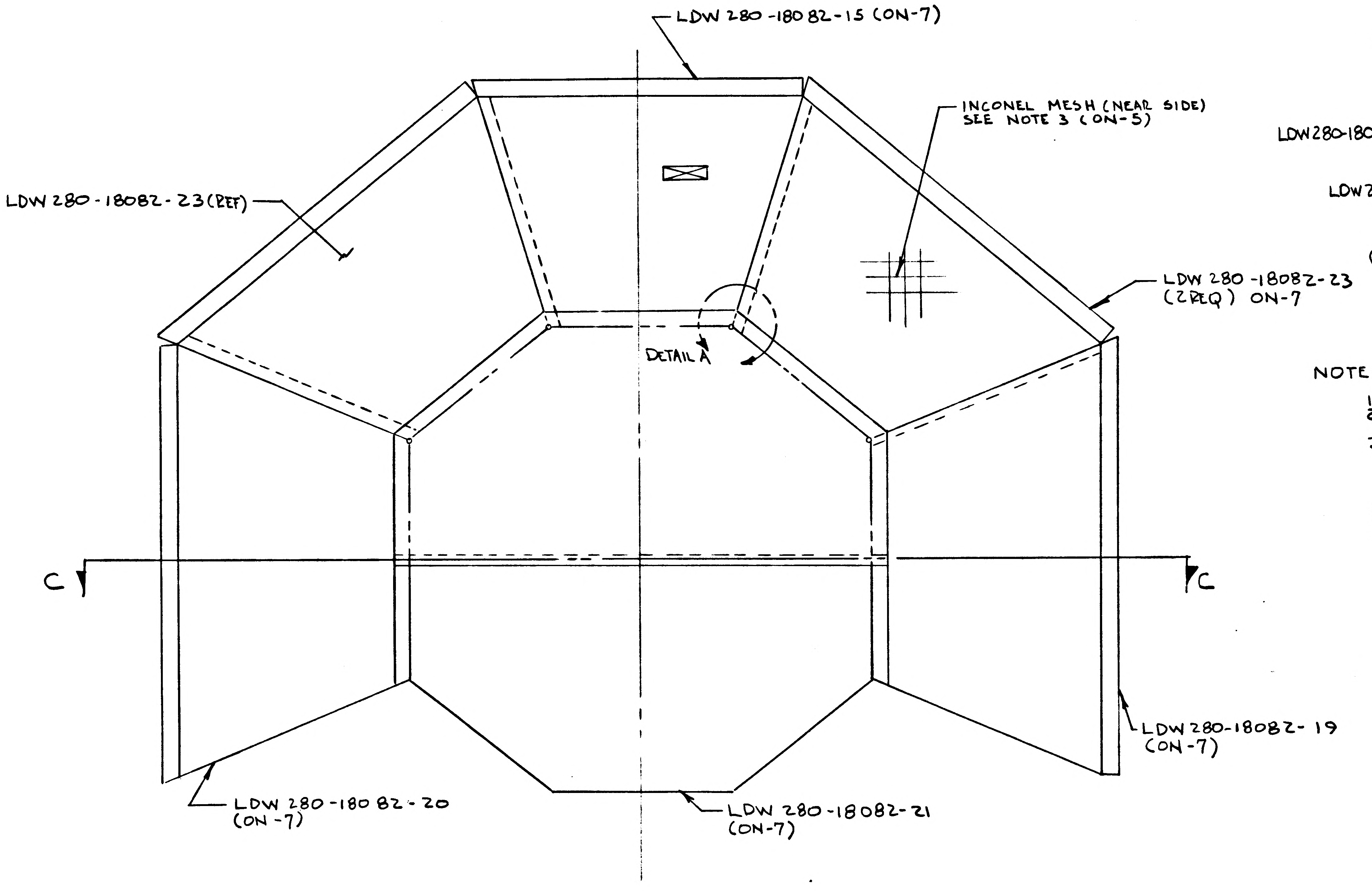
SECTION C-C



DETAIL A



SECTION B-B
(TYP WELDED JOINT)



LDW 280-28752-5 ASSY (WELDED)
-7 ASSY (WELDED)

NOTES

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. FABRICATION OF LDW 280-28752-1 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP-14-0011 LEVEL "C"
3. INCONEL KNITTED SLEEVING TO BE 6 TO 8 INCHES WHEN FLATTENED. WIRE TO BE .0035 TO .0040 INCH DIA. ROUND "INCONEL 600" ALLOY KNIT PATTERN SQUARE TYPE 5 TO 7 SQUARES PER LINEAR INCH. MAY BE PURCHASED FROM MONTGUMERY METAL FABRIC CO. 59 CANEL STREET, WINDSOR LOCKS, CONN. (CODE IDENT. 94725)
4. SEAM WELD LSP14-6102 EXCEPT THAT SPOTS SHALL BE TANGENT +1/32, -0.
5. WELD INCONEL MESH SLEEVING TO FOIL SHEETS PER LDW280-17522
6. PERMISSIBLE IRREGULARITIES IN WELDED ASSYS ARE AS FOLLOWS:
   a) HOLES IN THE SEAM WELD ROWS UP TO 1/8 MAX. & AT LEAST 1" APART.
   b) CRACKS IN THE FREE EDGE OF WELDED JOINTS NO CLOSER TOGETHER THAN 1/8" & NOT EXTENDING PAST THE WELD LINE.
   c) IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) & (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SHEET BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY
7. WELDED ASSYS MAY HAVE RANDOM WRINKLED APPEARANCE.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

LAYOUT RELEASE - TO BE REDRAWN
ON PRODUCTION FORMAT

THIS SHEET SUPERSEDES SHEET 3 LDW280-28752 NC

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE F	CODE IDENT NO. 26512	LDW280-28752	A
MODEL OR END ITEM	SCALE HALF		SHEET 3.00	

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 316
CONTROL INFO NO. LDW 280A 0936

ON THE FOLLOWING DRAWINGS ADD NOTE *:
*) INCONEL KNITTED SLEEVNG TO BE OXIDIZED BY EXPOSURE TO 1650 ±50°F IN AIR FOR FOUR (4) HOURS. FOR LTA5 (15) AND LTA 8 (18) OXIDIZATION IS OPTIONAL

DRAWING:	EFF	CHANGE NO.	TITLE
LDW280-25708	QUAL TEST LM1 THRU LM6 LTA5 & 8	B3	SEE DRAWING
LDW280-28735	LM1 THRU LM6 LTA8	C1	
LDW280-28737	"	A4	
LDW280-28740	"	B1	
LDW280-28743	"	A4	
LDW280-28746	"	B1	
LDW280-28749	"	A6	
LDW280-28752	"	B1	
LDW280-28755	LTA-8 & LM-1	A5	
LDW280-28759	LTA-8 LM-1 THRU LM-6	B1	
LDW280-28764	"	B1	
LDW280-28768	LM-1 &	B1	
LDW280-28771	LTA-8, LM-1 THRU LM-6	B1	
LDW280-28774	"	A6	
LDW280-28803	"	A1	SEE DRAWING
LDW280-28819	"	A1	SEE DRAWING

* - USE NEXT AVAILABLE NUMBER

3

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG

REASON FOR EO: THERMO REQUIREMENT

DESCRIPTION OF EO: ADDED NOTE *

GAEC C EO RELEASE: LE 10/18

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	
LM			
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
	JAB			RGM MAT'LS	WJH			
DATE	10/5/66			10/7/66	10/4/66		10/12/66	10/15/66

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 316

ISSUED BY AMBRUSIO / STRACOSCH X1153 SECTION V. D. 1 GROUP NO. 335 PL 35 EMF

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NAS 9-1100

8

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-4

DWG. NO. LEO 280
EO NO. 421
CONTROL INFO NO. LDW280A-4411

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM6	B 2	
LDW280-28734	"	A 8	
LDW280-28735	"	C 3	
LDW280-28746	LTA8(18) LM-1 (31) THRU LM-15(45)	B 3	
LDW280-28747	LTA8 (18) LM-1 (31) THRU LM-6(36)	B 1	
LDW280-28749	"	A 7	
LDW280-28750	"	B 3	
LDW280-28752	"	B 2	
LDW280-28753	"	A 3	
LDW280-28755	LTA8 (18) LM-1 (31)	A 7	
LDW280-28756	LTA8(18) LM-1(31) THRU LM-15(45)	A 6	
LDW280-28759	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28760	"	B 1	
LDW280-28768	LM-1(31)	B 2	
LDW280-28769	LM-1(31)	B 1	
LDW280-28771	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28772	"	B 1	
LDW280-28774	"	A 7	
LDW280-28775	"	B 2	
LDW280-28803	"	A 2	
LDW280-28805	"	A 1	
LDW280-51824	LM-1(31) THRU LM-15(45)	A 1	
LDW280-51825	"	A 2	
LDW280-51829	"	A 1	
LDW280-51830	"	A 1	
LDW280-51834	"	A 1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: 12/20

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK; SCRAP

APPROVED BY		AB							
DATE	12/16/66	12/16/66		12/16/66	12/16/66		12/20	12 20 66
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 421

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER MP-4

DWG NO. LEO280
EO NO. 476
CONTR INFO NO LDW280 A 5542

*

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45). QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280 - 25703 ✓	A6	SEE DRAWING
-25704 ✓	B1	
-25706 ✓	B1	
-25707 ✓	B4	
-25708 ✓	B6	
-28647 ✓	C1	
-28652 ✓	B8	
-28669 ✓	A3	
-28672 ✓	C1	
-28721 ✓	A2	
-28727 ✓	B2	
-28756 ✓	B3	
-28761	A4	
-28762	A1	
-28771	B5	
-28774	A8	
-28776	A1	
-28778	A1	
-28779	A4	
-28803	A3	
-28816	A2	
-28819	A2	
-51560	C1	
-51818	A3	
-51823	A1	
-52723	A5	
LDW280		SEE DRAWING

* USE-APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDITIONAL REQUIREMENTS	FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.	FR 2/23/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS	APPROVED BY	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
✓		NOT REQ'D						W/M		RMS	
			DATE	2/16				2/15/67		2-16-67	2-17-67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 476

ISSUED BY M. GREY / J. STRAKOSCH X-1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL 35

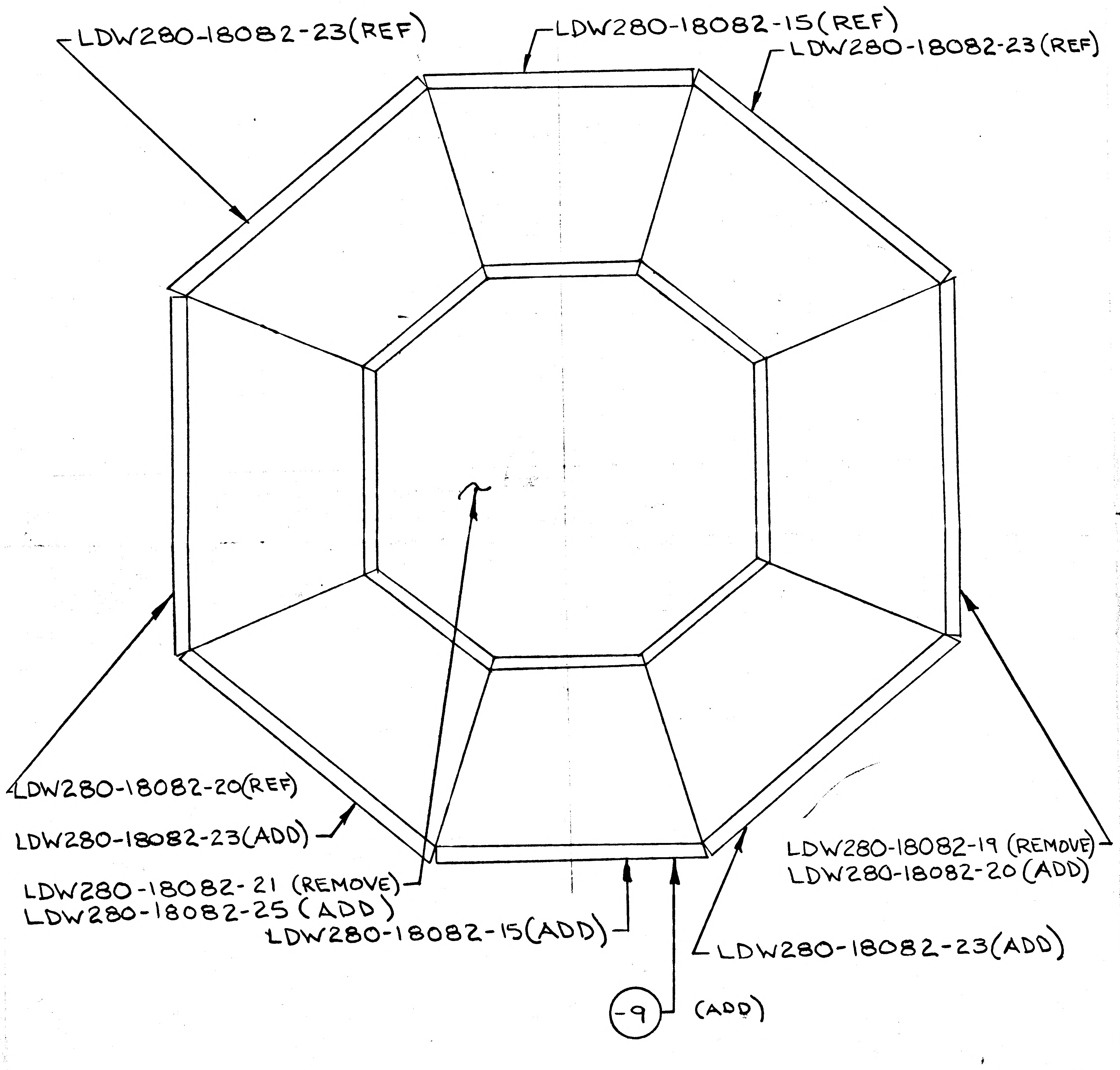
01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28752 | EO NO. B4
CONTROL INFO NO. LDW280B0862

ADD -9 ASS'Y IDENTICAL TO -7 ASS'Y EXCEPT AS SHOWN.
FOR -9 EFFECTIVITY LM-3(33) N/A LDW280-28749
1 REQ'D / MODULE.
FOR -7 REMOVE EFFECTIVITY LM-3(33) THRU LM-15(45).
FOR -5 REMOVE EFFECTIVITY LM-4(34) THRU LM-15(45).


LDW280-18082-23(REF)
LDW280-18082-15(REF)
LDW280-18082-23(REF)
LDW280-18082-20(REF)
LDW280-18082-23(ADD)
LDW280-18082-21 (REMOVE)
LDW280-18082-25 (ADD)
LDW280-18082-15(ADD)
LDW280-18082-19 (REMOVE)
LDW280-18082-20 (ADD)
LDW280-18082-23(ADD)
-9
(ADD)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2360

REASON FOR EO: PLUME HEATING PROTECTION

DESCRIPTION OF EO:
ADDED -9.
FOR -5 REMOVED EFF. LM-4 THRU LM-15.
FOR -7 REMOVED EFF. LM-3 THRU LM-15.

(R) GAEC EO RELEASE: C (5) JK 1/4/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK; SCRAP ✓

APPROVED BY	JAS			RJT	W/		J	Botte
DATE	12/28/67			12/27/67	12/29/67		12/28/67	1-3-68
P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: FOIL ASS'Y (WELDED) - D/S - QIII SIDE P.I. ~ THERMAL SH. ~ He TANK COVER
DRAWING NO.: LDW280-28752
EO NO.: B4

ISSUED BY: 6 JAN '68 J. BACKOFEN X1153
SECTION: VEH. DES. INT.
GROUP NO. 335
PL 25

01
NAS 9-1100

LDW280-28753 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28750	LM-15 (45)	1
		LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6 (36)	1
		LM-5 (35)	1
		LM-4 (34)	1
		LM-3 (33)	1
		LM-2 (32)	1
		LM-1 (31)	1
LM	LDW280-28750	LTA-8 (18)	1
PART NO. LDW280-28753-1		GAEC SCH NO. 52	

WORK PKG FUNCTION NO 110

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10
REV	A	A
SHEET	2.00	
REV	A	
SHEET	3.00	
REV	A	

LAST SECT LTR USED	B	GRUMMAN REL INFOA			
LAST DASH NO. USED	-19	PRIM NO.	JM		
		207	M716A	11-28-	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/16 ±.030 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II (5)

DRAWN BY	R. CLARK	WEIGHTS	D. ROBESCH
LAYOUT BY		RELIABILITY	
CHECKED BY	-	THERMO	HASLETT
GP LEADER	J. STRAKOSCH 7/14/66		
VEH DES INT	A. BISHOFF 7/16		
STRUCTURES	F. BUNCE 7/16	PROJ ENGR	F. DESENA 7/26
STRUCTURES	HILDERMAN 7/25	REL GROUP	C. BOTTI 8/2/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

COVER ASSEMBLY -
DESCENT STAGE - QUAD III -
PLUME IMPINGEMENT - THERMAL

SIZE B
CODE IDENT NO. 26512
LDW280-28753 A (A)
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDES LDW280-28753 NO CHG 11-14-67

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	SH CHG LTR	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
										RETRACED NO CHG, LAST REV NO CHG, J. BIANCHINO 11-14-67						
A	1	1.00, 2.00 & 3.00		A					EO A1	ADDED -17, REMOVED -13, ON -11 ADDED 2$\frac{15}{16}$, 5$\frac{9}{32}$ & 10$\frac{9}{16}$ WAS 10$\frac{3}{4}$, ON-15 ADDED 3$\frac{13}{16}$, 6$\frac{31}{32}$ & 11$\frac{5}{16}$ WAS 11$\frac{3}{8}$, 13$\frac{15}{16}$ WAS 14, ON-3 ADDED 7$\frac{1}{2}$ (2), ON-1 ADDED 12$\frac{23}{32}$, 7$\frac{5}{16}$, 5$\frac{7}{8}$, 3$\frac{15}{16}$	LTA-8 (18) LM-1(31) THRU LM-6(36)	-11 -15	-13	J. BIANCHINO 11-14-67		
	2	1.00, 2.00 & 3.00		A					EO A2	REF E.O. A1, ADDED -19 REMOVED -17. ON-15 3$\frac{3}{4}$ WAS 3$\frac{11}{16}$, 11$\frac{1}{4}$ WAS 11$\frac{5}{16}$, 3$\frac{3}{4}$ WAS 3$\frac{13}{16}$, ON-1 5$\frac{29}{32}$ WAS 5$\frac{7}{8}$, 7$\frac{7}{32}$ WAS 7$\frac{5}{16}$, 3$\frac{7}{16}$ WAS 3$\frac{15}{32}$		✓				
	3	3.00		A					LEO280-421	ADDED NOTE 2		NOT	REQD			
	4	1.00		A				✓	LEO280-526	FOR -1 ADDED LM-7(37) THRU LM-15 (45) EFFECTIVITY	LM-7 (37) THRU LM-15(45)	NOT	REQD			
	5	2.00 & 3.00		A				✓	LEO280-559	FROM B/M & FLD REMOVED LDW280-1797C FROM -11, -15 & -19 FOR LDW280-28753 REVISIED EXISTING NOTE 2 BY ADDING PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.	LTA-8(18) LM-1(31) THRU LM-15 (45)	NOT	REQD			
	6	1.00, 2.00 & 3.00		A		✓				DELETED LDW280-28753-3, -5, -11, -15 & -19, & REVISED -1 ASSY DIM TO AGREE WITH ASSY FABRICATED PER LPC280-19, & ADDED NOTE 3		NOT	REQD			11-28-67

FOR CONTINUATION OF REVISIONS SEE SHEET

ENG 77.3 5-64

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-28753	A
SCALE NONE		SHEET 1.10	

01

NAS 9-1100

CL	QTY PER ASSEMBLY -1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C		LDW280-28753-1	E		COVER ASSY (WELDED)	SEE NOTE 2				NOTE 2	NONE	

CL: CLEANLINESS LEVEL

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28753	A

SCALE NONE

SHEET 2.00

ENG 77.2 5-64

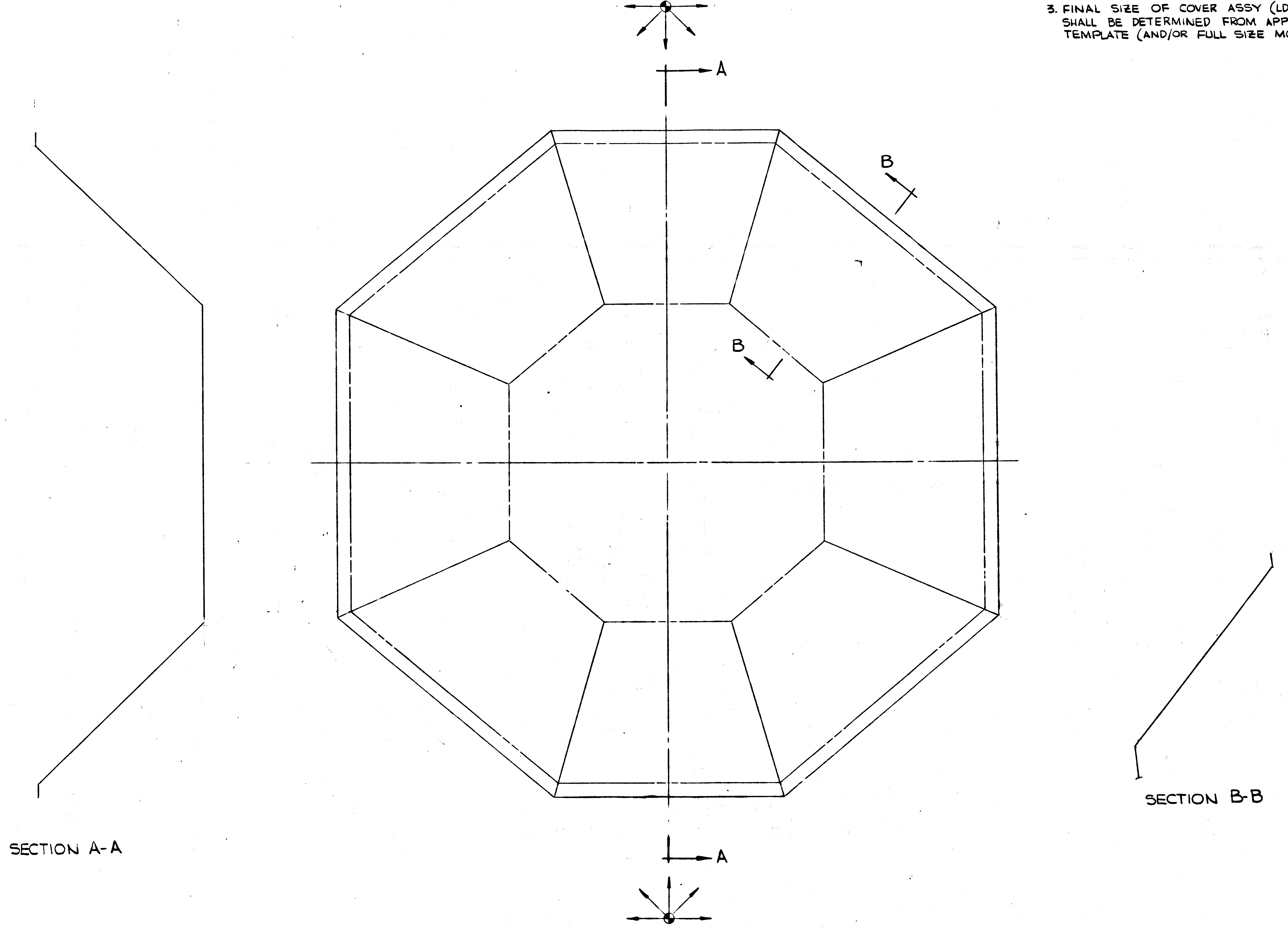
01

NAS 9-1100

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	☐
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	☐
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	☐
INSTALL RIVETS IN ACCORDANCE WITH	☐

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS
2. MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E
3. FINAL SIZE OF COVER ASSY (LDW280-28753-1) SHALL BE DETERMINED FROM APPROVED MASTER TEMPLATE (AND/OR FULL SIZE MOCKUP)



LDW280-28753-1 ASSY (WELDED) (A6)

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
F	26512	LDW280-28753	A
SCALE HALF		SHEET 3.00	

01 NAS 9-1100

ENG 32.1 REV 3-65

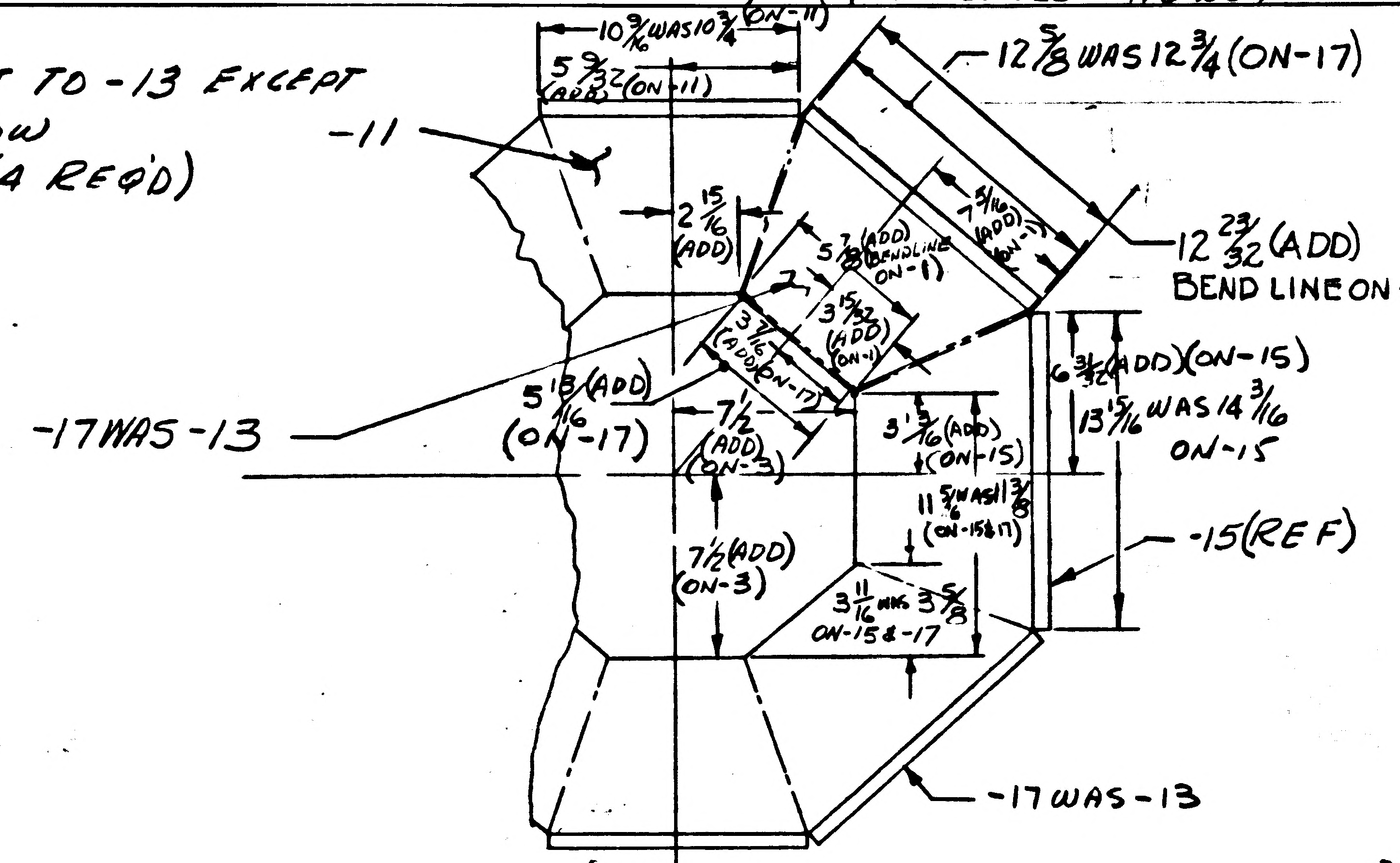
*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28753		EO NO. A1
CONTROL INFO NO. LDW280-A0254		

IN F/D & B/M
ADD -17 IDENT TO -13 EXCEPT
AS NOTED BELOW
EFF. ON -1 (4 REQ'D)



10 9/16 WAS 10 3/4 (ON-11)
5 9/32 (ADD) (ON-11)
-11
2 15/16 (ADD)
12 5/8 WAS 12 3/4 (ON-17)
7 5/16 (ADD) (ON-1)
5 7/8 (ADD) (BEND LINE ON-1)
3 15/32 (ADD) (ON-1)
3 7/16 (ADD) (ON-17)
12 23/32 (ADD)
BEND LINE ON-1
5 13/16 (ADD) (ON-17)
-17 WAS -13
7 1/2 (ADD) (ON-3)
6 31/32 (ADD) (ON-15)
13 15/16 WAS 14 3/16 ON-15
3 13/16 (ADD) (ON-15)
11 5/16 WAS 11 3/8 (ON-15 & 17)
-15 (REF)
7 1/2 (ADD) (ON-3)
3 11/16 WAS 3 5/8 ON-15 & -17
-17 WAS -13
2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO
TO PROVIDE ADDITIONAL INFO FOR FABRICATION

DESCRIPTION OF EO
ADDED -17, REMOVED -13
ON-11 ADDED 2 15/16, 5 9/32 & 10 9/16 WAS 10 3/4, ON-15 ADDED 3 13/16, 6 31/32 & 11 5/16 WAS 11 3/8, 13 15/16 WAS 14, ON-3 ADDED 7 1/2 (2) ON-1 ADDED 12 23/32 7 5/16, 5 7/8, 3 15/32

GAEC EO RELEASE: FR 9/19/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8(8) LEM-1(31) -2(32) -3(33) -4(34) -5(35), -6(36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		-15 -11	-13
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JAS	AR					RMC	
DATE	9/8/66	104		10/14/66	9/19/66		9-17	9/14/66
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COVER ASSY D.S. QUAD III PLM IMP THERMAL	LDW280-28753	A1

ISSUED BY R CLARK / J STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 35 ENF

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28753

EO NO. A2

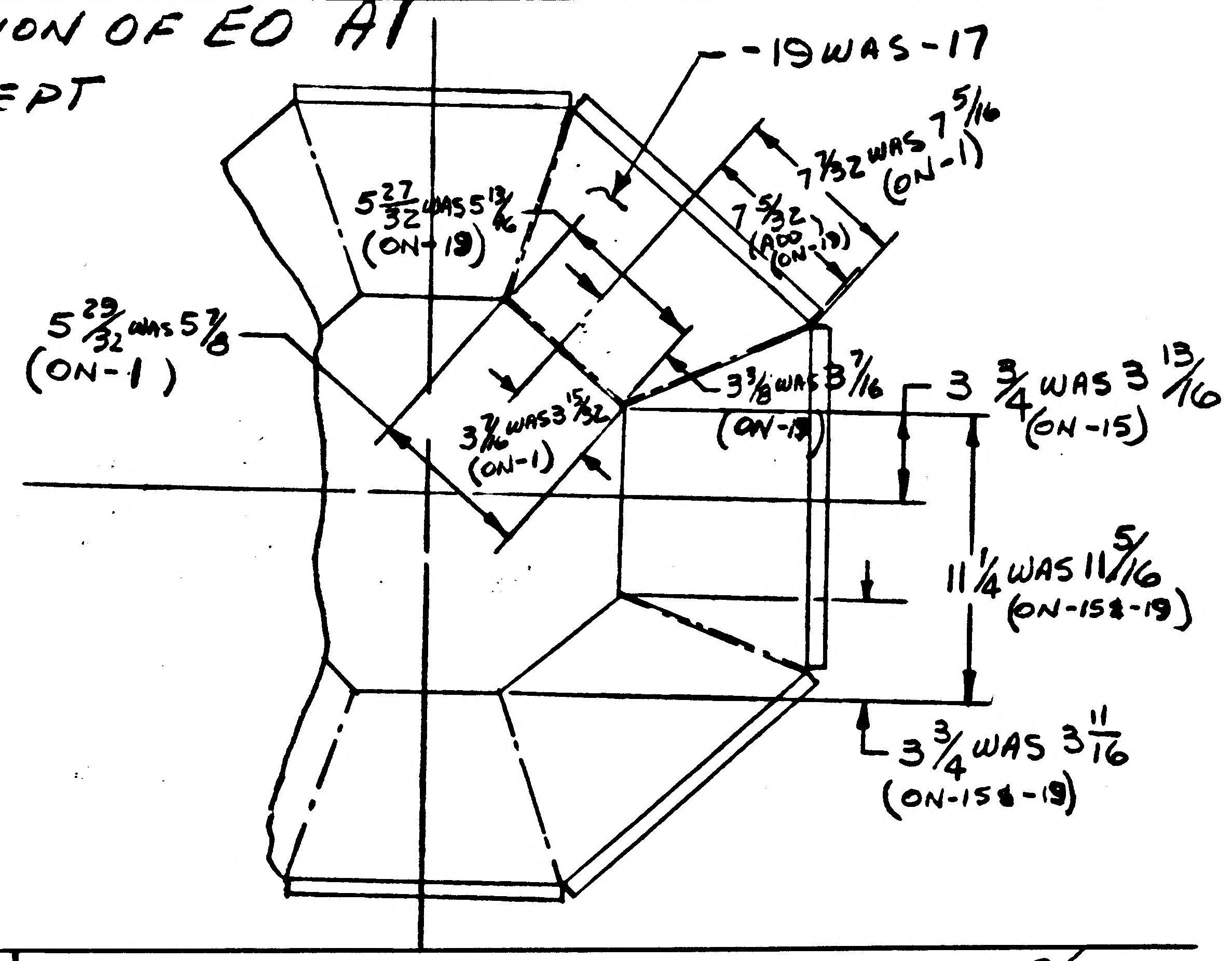
CONTROL INFO NO. LDW280-A0384

THIS E.O. IS A REVISION OF EO A1

IN F/O & BM

ADD-19 IDENT TO-17 EXCEPT
AS NOTED BELOW
EFF ON-1 (4 REQ/MOD)

DELETE -17


-19 WAS -17
7 7/32 WAS 7 5/16 (ON-1)
7 5/32 (ADD ON-19)
5 27/32 WAS 5 13/16 (ON-19)
5 29/32 WAS 5 7/8 (ON-1)
3 7/16 WAS 3 15/32 (ON-1)
3 3/8 WAS 3 7/16 (ON-19)
3 3/4 WAS 3 13/16 (ON-15)
11 1/4 WAS 11 5/16 (ON-15 & -19)
3 3/4 WAS 3 11/16 (ON-15 & -19)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		✓

REASON FOR EO: TO PROVIDE ADDITIONAL INFO FOR FABRICATION

DESCRIPTION OF EO: ADDED-19 REF EO A1 REMOVED-17
ON-15, 3 3/4 WAS 3 11/16, 11 1/4 WAS 11 5/16, 3 3/4 WAS 3 13/16
ON-1 5 29/32 WAS 5 7/8, 7 7/32 WAS 7 5/16, 3 7/16 WAS 3 15/32

Ⓡ GAEC C EO RELEASE: LE 9-29

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8(18)	
		LEM-1(31),-2(32) -3(33),-4(34) -5(35),-6(36)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY		SK					RME	RC
DATE ✓	9/17/66	10-4		10/11/66	9/17/66		9-29	9-26-66
	UDI	~~SUPPORT~~	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: COVER ASSY DS. QUAD III PLM IMP THERMAL

DRAWING NO.: LDW280-28753

EO NO.: A2

ISSUED BY R. CLARK / J STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

8

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LEO 280
EO NO. 421
CONTROL INFO NO. LDW280A-4411

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM6	B2	
LDW280-28734	"	A8	
LDW280-28735	"	C3	
LDW280-28746	LTA8(18) LM-1(31) THRU LM-15(45)	B3	
LDW280-28747	LTA8(18) LM-1(31) THRU LM-6(36)	B1	
LDW280-28749	"	A7	
LDW280-28750	"	B3	
LDW280-28752	"	B2	
LDW280-28753	"	A3	
LDW280-28755	LTA8(18) LM-1(31)	A7	
LDW280-28756	LTA8(18) LM-1(31) THRU LM-15(45)	A6	
LDW280-28759	LTA8(18) LM-1(31) THRU LM-6(36)	B2	
LDW280-28760	"	B1	
LDW280-28768	LM-1(31)	B2	
LDW280-28769	LM-1(31)	B1	
LDW280-28771	LTA8(18) LM-1(31) THRU LM-6(36)	B2	
LDW280-28772	"	B1	
LDW280-28774	"	A7	
LDW280-28775	"	B2	
LDW280-28803	"	A2	
LDW280-28805	"	A1	
LDW280-51824	LM-1(31) THRU LM-15(45)	A1	
LDW280-51825	"	A2	
LDW280-51829	"	A1	
LDW280-51830	"	A1	
LDW280-51834	"	A1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: 12/20

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REWORK, REQ'D SCRAP

		SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	12/6/66	11/16/66		12/14/66	12/14/66		12/20	12-20-66
	VDI							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 421

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 526
CONTROL INFO NO. LDW280 A5914

TO THE FOLLOWING DRAWINGS LISTED BELOW & THEIR DASH NUMBERS * THAT ARE EFFECTIVE ON LM-6(36) ADD EFFECTIVITIES FOR LM-7(37) LM-8(38), LM-9(39), LM-10(40), LM-11(41), LM-12(42), LM-13(43), LM-14(44), LM-15(45). QUANTITIES & NA REMAIN THE SAME AS LM-6(36.)

DRAWING No.	DASH No *	CHG. NO.	TITLE	NEXT ASSY
LDW280-10245	-17, -19	C4	ANGLE CAB. L.H WIND	LDW280-23074
-10261	-13,-15,-17,-19,-20	C1	CHAN. M/S BEAM	-54030
-10300	-13, -15	D2	CLIP RH ZO FRM LWR	-54020
-10310	-15	D1	CHAN CAB. WIND AREA	-23074
-10380	-15	C1	SHIM FWD HATCH HINGE	-54083
-10561	-11	A1	WEB M/S ENG SPT. FWD	-23077
-10702	-17	A1	DBLR DOCK TUN.	-23069
-10830	ULTRA SONIC STD. PANELS	B1	FAB. PROC-RCS-HE MDD	H23143
-10833	-11, -13, -15	B2	WEB ECS HEAT EXC SPT	-23253
-10904	-11, -13, -17	C3	SUPT IMU BEAM WIRING	-23031
-23168	-1, -3, -5 & -7	A2	HATCH ASSY DOCK TUNNEL	-23069
M-23139	-1	B1	VEE ASSY CAB NVP-LAP	-23066
-11066	-11, -12	A1	CLIP S BAND ANTENNA	-23246
-11110	-11	C1	FTG AEB CAGE STRUT	-23039
-11117	-17, -19	B1	CHANNEL X253 DECK	-23029
-11117	-11, -13 & -15		CHANNEL X253 DECK	-53476
-11159	-15, -17, -18	B2	ZEE SHIELD X253.5	-53476
-11191	-11	C1	SUPT P.F. EQUIP LINES	-54075
-11351	-1 & -3	B2	BRACKET ASSY	-23488
-53078	-1	A7	BEAM INSTL MS 210.25	-54012
H23903	-5	C4	SKIRT ASSY OXID	LDW280-23901
M10555	-1, -2	A1	CLIP LONGERON CABIN	-23048
-28753	-1	A4	SKIN ASSY DS SC	-28750
-23066	-1	B4	FR IN CAB N/I BAS SUP	-54002
-23511	NONE	B3	JIG DATA - REF DWG.	NONE
M11108	-1	B1	BOLT ZO R.H SHIELD SUPT	-51199
-25709	-1	A2	SHIELD INSTL DS EC	-25661
-28362	-3	A2	STRAP ASSY CABIN	-54357
-28645	-3	A2	ACCESS COV INST PLSS	-54553

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LM-7(37) THRU LM-15(45) EFF.

® GAEC 3 EO RELEASE: JK 3/27/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-7(37) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: NOT REQD — REWORK | SCRAP

APPROVED BY	Jaf			—				
DATE	3/16/67			—	3/20		3-23-67	3/24/67
6	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 526

ISSUED BY A. MAICA X1392 SECTION VEH. DES. INTRE GROUP NO. 535 PL 35

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NAS 9-1100

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

C

DWG. NO. LEO 280		EO NO. 559
CONTROL INFO NO. LDW 280A 6306		

ENG 33.2 REV 3-65

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW.
REMOVE LDW280-17970-ALL DASH NUMBERS AND ADD
"SEE NOTE *"

IN F/D REMOVE LDW280-17970-ALL DASH NUMBERS

REVISE NOTE *
(REF) "MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19."
(ADD) PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

DRAWING No.	CHANGE #	SYMBOL	EFFECTIVITY LTA-8 LM-1 THRU LM-15	TITLE SEE DWG
LDW280-18130	A7	⬡	LM-1 THRU LM-15	↑
LDW280-18141	A3.	⬡	LTA-8 LM-1 THRU LM-3	
LDW 280-28730	B7	□	LTA-8 LM-1 THRU LM-3	
LDW 280-28734	B2	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28738	A7	□	LTA-8 LM-1	
LDW 280-28740	B3	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28741	A6	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28744	A7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28747	B4	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28750	39	□	LTA-8 LM-1 THRU LM-15	
LDW280-28753	A5	□	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	□	LTA-8 LM-1 THRU LM-3	
LDW280-28760	B5	□	LTA-8 LM-1 THRU LM-6	
LDW280-28765	A7	⬡	LM-1	
LDW280-28769	B2	□	LM-1 THRU LM-15	
LDW 280-28772	B6	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28775	B7	□	LM-1 THRU LM-15	↓
LDW 280-28805	A6	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28806	A4	□	LM-1 THRU LM-15	SEE DWG
LDW 280-51824	A3	□		

NOTE △ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY WITH LPC 280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM □ REVISE NOTE *.
FOR SYM ⬡ ADD NOTE △ TO DWG

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE

DESCRIPTION OF EO: REMOVED LDW280-17970 FROM B/M & F/D (ALL DASH NO'S) FOR DWG'S □ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ⬡ ADDED NOTE △

GAEC EO RELEASE: (B) JS 4-19-7 5 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	
		ABOVE	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT, SCRAP REQ

APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
JAP				JM	WH		JW	Bott
DATE 4/10/67				4/10/67	4/11/67		4/13	4-18-67
6	VDI	SUPPORT	RELIAB. GROUP					

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 559

ED BY H. PALLMEYER / J. STRAKOSCH 7034 SECTION VEH DES INT GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28753 | EO NO. B1
CONTROL INFO NO. LDW280B1472

ON -1 ASSY REMOVE EFF LM-4(34) - LM-15(45)

DETAIL SPEC REQ ✓ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☐

REASON FOR EO	TO AGREE WITH CDR LIST (CDR LIST)
DESCRIPTION OF EO	ON -1 ASSY REMOVED EFF LM-4(34)-LM-15(45)
GAEC EO RELEASE	(5) C JK 2/…

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU	
		LM-15(45)	

DRAWING CHANGE REQD	REVISE DWG ✓ / RECORD EO
DISPOSITION OF PARTS	REWORK / SCRAP ✓
APPROVED BY	VDI: 1/18/68
SUPPORT	
RELIAB. GROUP	
GROUP LEADER	1-18-68
STRESS GROUP	1-18-68
LIAISON ENGRG	
PROJ ENGRG	1/18/68
PRIORITY	C
DRAWING TITLE	COVER ASSY D/S - QUAD III - PLUME IMPINGEMENT - THERMAL
DRAWING NO.	LDW280-28753
EO NO.	B1

ISSUED BY D.SHAPIRO/P.THORJUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

LDW280-28754 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW28[illegible]-28667	LM-2(32)	1
PART NO. LDW280-28[illegible]54-9			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28667	LM-1(31)	1
PART NO. LDW280-28754-7			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-286[illegible]	LTA-8(13)	1
PART NO. LDW280-28754-5		52	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	[illegible]					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED B-B

LAST DASH NO. USED -9

GRUMMAN REL INFO A

PRIM NO. JK 00[illegible] 2C07 MP 1A-12/4[illegible]

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 .030 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM 1

DOCUMENTATION TYPE * II

DRAWN BY	J. BACKOFEN		
LAYOUT BY		THERMO	[illegible] 8/4/66
CHECKED BY			
GR.LEADER	[illegible] 7/1/66		
VEH.DES.INT.	[illegible] 7/6		
STRUCTURE	[illegible] 7/16	PROJ ENGR	[illegible] 7-21
STRUCTURE	[illegible] 7/16	REL GROUP	Bolts 8.24.66
WEIGHTS	[illegible] 7/22		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASS'Y D/S
QUAD 4 RCS PLUME
IMPINGEMENT - THERMAL UPPER

SIZE	CODE IDENT NO.		
B	26512	LDW280-28754	A

(A)

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

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NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00,1.10,2.00 3.00						EOA1	REMOVED LM-1 FROM-1 ADDED-3,(ADDED SHT 1.10)	LM-1 (31)		✓	RICHARD REIERSON 11-28-67		
	2	1.00,2.00, 1.10,3.00						EOA2	ADDED-5 & -7 REMOVED -1 & -3 ADDED NOTE 4	LTA-8 LM-1		-1 & -3			
	3	1.00,1.10						EOA3	-7 N/A LDW280-28667 WAS N/A LDW280-51667 FOR LM-1	LM-1	NOT	REQ.D			
	4	1.10,3.00						EOA4	REF. EOA2 : REMOVED IN SECTION A-A NOTE DIRECTION OF STAPLES OPTIONAL	LTA-8 LM-1	✓				
	5	1.00,1.10, 2.00,3.00						EOA5	ADDED-9 REVISED -7 N/A LDW280-28667 (WAS) LDW280-51667 FOR LM-1	LM-1 THRU LM-15	NOT	REQD			
	6	1.00,1.10, 2.00,3.00						EOA6	FOR-7 ADDED GS11K-1-46, GS11K-3-682, GS11K-2-065, GS11K-2-107, GS577A-1 & GT835P-8. FOR-9 REMOVED LM-3 THRU LM-15 EFF REPLACED LDW280-28756-9 WITH-13. ADDED-11 EFF LM-3 THRU LM-15. ADDED NOTE 3		✓	-9			
	7	1.10,2.00 3.00					✓	EOA7	REVISED EOA6 FOR-7 SKIN ASSY REMOVED LDW280-28756-7 & LDW280-18083-13 & REPLACED WITH LDW280-28756-17 & LDW280-18083-21		✓				
	8	1.10,1.00, 2.00,3.00					✓	EOA8, LCD1135	REVISED EOA6 ; REMOVED-11 & LDW280-28756-15 FOR-9 REPLACED EFF LM-3 THRU LM-15	LM-3 THRU LM-15	✓	-11			
	9	1.10,2.00 3.00					✓	LE0280-589 LCD 928	ON-7 & -9 REPLACED GS577A-1 WITH GS577A-4	LM-1 THRU LM-15	✓				
	10	1.10,1.00				✓		LE0280-704 LCD 1244 ⓥ	RESTRICTED -9 TO (LM-2) WAS (LM-2(32) THRU LM-15(45)) L.D.	LM-3 THRU LM-15		-9	H.D.		

CHG APPROVED

LTR	GROUP LDR	VEH.D[illegible]	STRUCTURE	STRUCTURE	WEIGHTS	THERMO
A						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28754	A Ⓐ
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

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NAS 9-1100

QTY PER ASSEMBLY -9	-7	-5	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
A/R	A/R			GT835P-8	E	TAPE	GRUMMANSTD						
A/R	A/R			GS577A-4		STAPLE							
1	1			GS11K-2-107		STRIP							
1	1			GS11K-2-065									
1	1			GS11K-3-682									
1	1			GS11K-1-46		STRIP	GRUMMAN STD						
	1			LDW280-18083-21		PATCH	SEE DWG						
12	16	13		LDW280-17932-13		WASHER	SEE DWG						
	1			LDW280-17932-11		WASHER	SEE DWG						
	1			LDW280-23720-1		STAPLE ASSY	SEE DWG						
12	16	13		LDW280-23720-3		STAPLE ASSY							
	1			LDW280-28756-17		SKIN ASSY							
1				LDW280-28756-13		SKIN ASSY							
1				LDW280-28755-13		FOIL ASSY							
		1		LDW280-28756-1		SKIN ASSY							
	1	1		LDW280-28755-1		FOIL ASSY							
1	1	1		LDW280-28757-19		FOIL ASSY							
1	1	1		LDW280-28757-17		FOIL ASSY							
				LDW280-28754-9		SHIELD ASSY					NONE	NONE	
				LDW280-28754-7	E	SHIELD ASSY	SEE DWG.				NONE	NONE	
				LDW280-28754-5	E	SHIELD ASSY	SEE DWG				NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

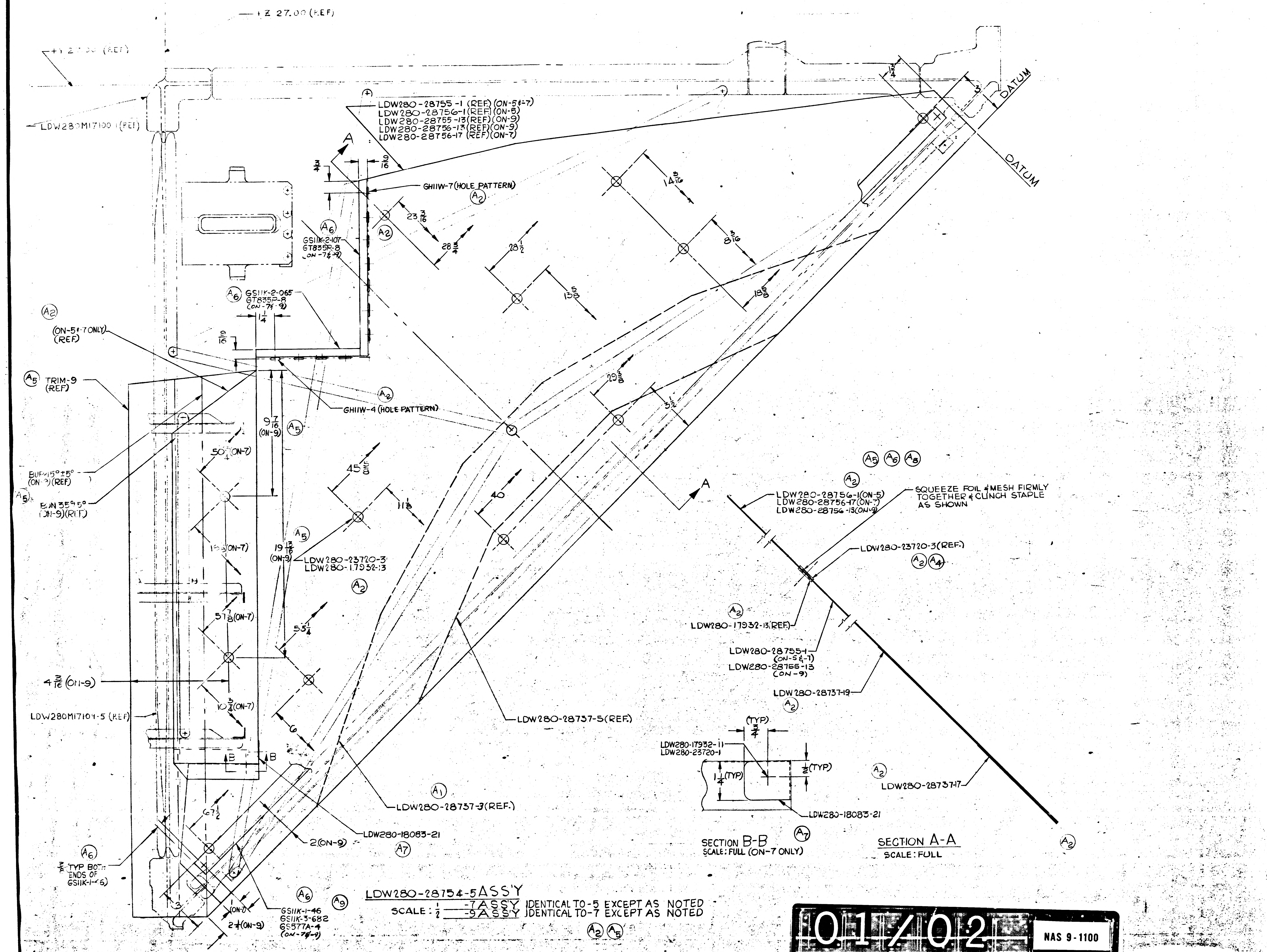
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28754 A Ⓐ

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01 NAS 9-1100



+Z 27.00 (REF)
+Y 2_.00 (REF)
LDW280M17100-1 (REF)
LDW280-28755-1 (REF) (ON-5 & -7)
LDW280-28756-1 (REF) (ON-5)
LDW280-28755-13 (REF) (ON-9)
LDW280-28756-13 (REF) (ON-9)
LDW280-28756-17 (REF) (ON-7)
A
3/4
10/16
GH11W-7 (HOLE PATTERN)
A2
A6
A2
GS11K-2-107
GT835P-8
(ON-7 & -9)
23 3/16
28 3/4
28 1/2
13 5/8
14 9/16
8 3/16
18 5/8
DATUM
DATUM
1 3/4
3
A6
GS11K-2-065
GT835P-8
(ON-7 & -9)
1 1/4
9/16
A2
(ON-5 & 7 ONLY)
(REF)
A5
TRIM-9
(REF)
A2
GH11W-4 (HOLE PATTERN)
9 7/16
(ON-9)
A5
29 3/8
3 1/2
BUP 15° ±5°
(ON-9) (REF)
A5
BUN 35° ±5°
(ON-9) (RET)
50 1/4 (ON-7)
45 3/16
11 3/8
40
A
19 13/16
(ON-9)
A5
LDW280-23720-3
LDW280-17932-13
A2
1 5/8 (ON-7)
57 7/8 (ON-7)
55 1/4
4 3/16 (ON-9)
10 3/4 (ON-7)
LDW280M17104-5 (REF)
6
B
B
LDW280-28737-5 (REF.)
A1
LDW280-28737-3 (REF.)
67 1/2
2 (ON-9)
LDW280-18083-21
A7
A6
3/4 TYP BOTH ENDS OF GS11K-1-46
2 1/2 (ON-9)
(ON-7)
A6
A9
GS11K-1-46
GS11K-3-682
GS577A-4
(ON-7 & -9)
A5 A6 A8
A2
LDW280-28756-1 (ON-5)
LDW280-28756-17 (ON-7)
LDW280-28756-13 (ON-9)
SQUEEZE FOIL & MESH FIRMLY TOGETHER & CLINCH STAPLE AS SHOWN
LDW280-23720-3 (REF.)
A2 A4
A2
LDW280-17932-13 (REF.)
LDW280-28755-1
(ON-5 & -7)
LDW280-28755-13
(ON-9)
LDW280-28737-19
A2
(TYP)
3/4
LDW280-17932-11
LDW280-23720-1
1 1/4 (TYP)
1/2 (TYP)
LDW280-18083-21
A2
LDW280-28737-17
A7
A2

SECTION B-B
SCALE: FULL (ON-7 ONLY)

SECTION A-A
SCALE: FULL

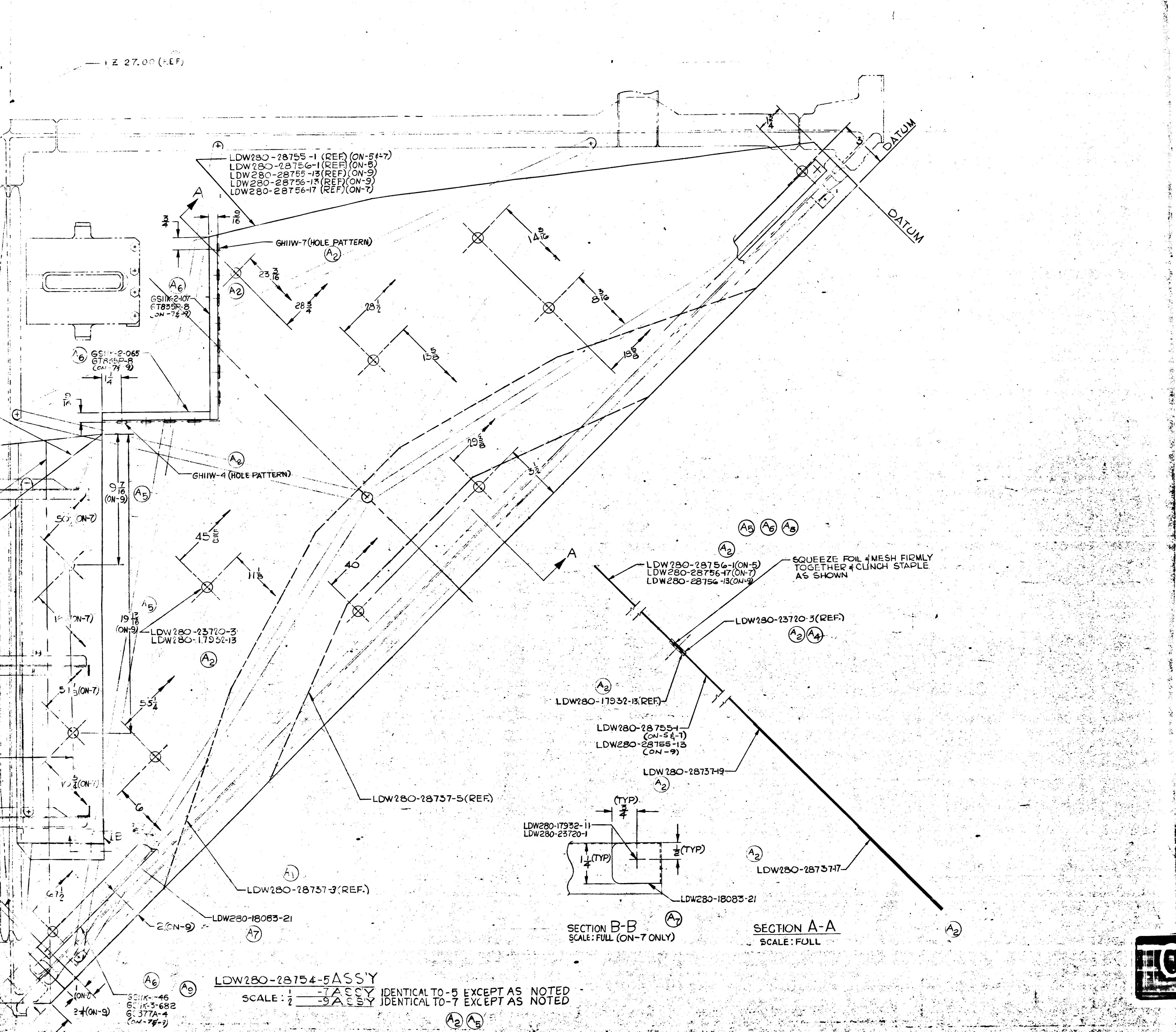
LDW280-28754-5 ASS'Y
SCALE: 1/2 -7 ASS'Y IDENTICAL TO -5 EXCEPT AS NOTED
-9 ASS'Y IDENTICAL TO -7 EXCEPT AS NOTED
A2 A5

01/02 NAS 9-1100

NOTES:
1- N_ D _O_ _ ING _OU_ S_ _
2- FABRICATION OF SHIELD UNDER _ONDITIONS WI_ LSP-14 _OH LEVEL _
3- FABRICAT_ PER LPC280_
4. TAPE E_ _S OF -5 & -7 A_

THIS _ LAYOUT BE _ ON _ F_

GRUMMAN AIRCRA
SIZE J
CODE IDENT NO. 26512
MODEL OR END ITEM
SCALE


Z 27.00 (REF)
LDW280-28755-1 (REF) (ON-5&-7)
LDW280-28756-1(REF)(ON-5)
LDW280-28755-13(REF)(ON-9)
LDW280-28756-13(REF)(ON-9)
LDW280-28756-17(REF)(ON-7)
DATUM
DATUM
1 1/4
A
A
GHIIW-7(HOLE PATTERN)
A2
A6
GSIIK-2-107
GT859P-8
(ON-7&-9)
A6
GSIIK-2-065
GT859P-8
(ON-7&-9)
23 3/16
28 3/4
28 1/2
14 3/16
8 3/16
1 5/8
13 5/8
29 3/8
3 1/2
1 1/4
1 1/16
GHIIW-4 (HOLE PATTERN)
9 7/16
(ON-9)
A5
50 (ON-7)
45
11 1/8
40
19 11/16
(ON-9)
LDW280-23720-3
LDW280-17932-13
A2
A5
51 1/8 (ON-7)
55 1/4
6
6 1/2
2 (ON-9)
A5 A6 A8
A2
LDW280-28756-1(ON-5)
LDW280-28756-17(ON-7)
LDW280-28756-13(ON-9)
SQUEEZE FOIL & MESH FIRMLY TOGETHER & CLINCH STAPLE AS SHOWN
LDW280-23720-3(REF)
A2 A4
A2
LDW280-17932-13(REF)
LDW280-28755-1
(ON-5&-7)
LDW280-28755-13
(ON-9)
LDW280-28737-19
A2
LDW280-28737-5(REF)
(TYP)
3/4
LDW280-17932-11
LDW280-23720-1
1 1/4 (TYP)
1/2 (TYP)
LDW280-18083-21
A2
LDW280-28737-17
A1
LDW280-28737-3(REF)
LDW280-18083-21
A7
SECTION B-B
SCALE: FULL (ON-7 ONLY)
A7
SECTION A-A
SCALE: FULL
A2
A6
GSIIK-46
GSIIK-3-682
GT377A-4
(ON-7&-9)
A9
LDW280-28754-5ASS'Y
SCALE: 1/2
-7ASS'Y IDENTICAL TO-5 EXCEPT AS NOTED
-9ASS'Y IDENTICAL TO-7 EXCEPT AS NOTED
A2 A5

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

NOTES:
1-NO TOOLING HOLES PERMITTED IN PARTS.
2-FABRICATION OF SHIELL ASS'Y TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP-14-001I LEVEL "G"
3-FABRICATE PER LPC280-25.
4. TAPE EDGES OF -5&-7 AS PER LPC-280-4

LDW280-28754 A

LDW280-28754 A

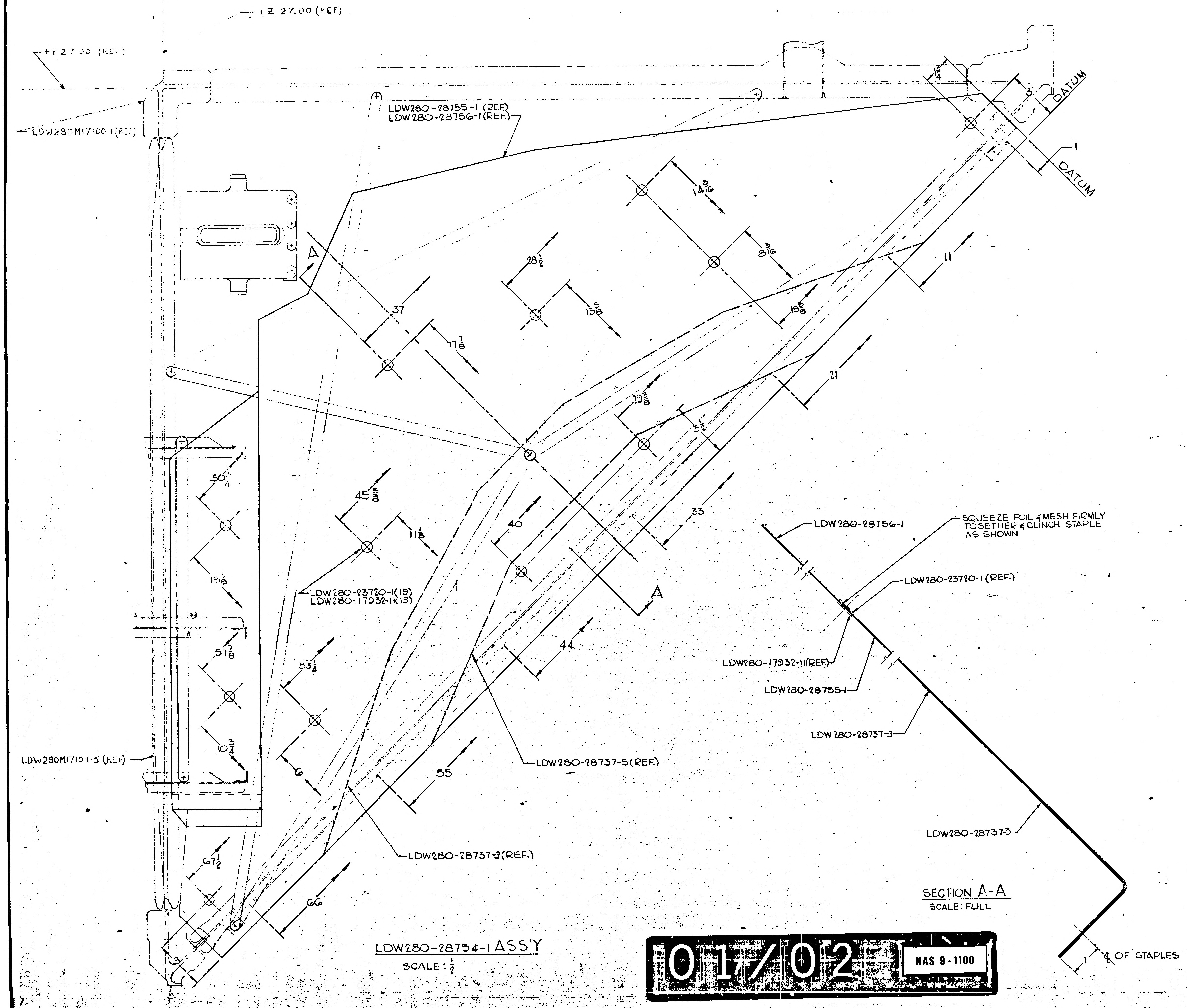
THIS DWG IS A LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT

02/02 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	J	26512	LDW280-28754	A
	SCALE NOTED		SHEET 3 OF 3	

ENG 73.7 6-64


+Z 27.00 (REF)
+Y 2 . 00 (REF)
LDW280M17100-1 (REF)
LDW280-28755-1 (REF)
LDW280-28756-1 (REF)
DATUM
DATUM
3
1
$\frac{3}{4}$
$14\frac{9}{16}$
$8\frac{3}{16}$
$28\frac{1}{2}$
$15\frac{5}{8}$
$13\frac{5}{8}$
11
A
37
$17\frac{7}{8}$
21
$29\frac{3}{8}$
$3\frac{1}{2}$
$50\frac{3}{4}$
$45\frac{5}{8}$
$11\frac{1}{8}$
40
33
$15\frac{1}{8}$
A
LDW280-23720-1(19)
LDW280-17932-1(19)
$51\frac{7}{8}$
44
$55\frac{1}{4}$
$10\frac{3}{4}$
6
55
LDW280M17104-5 (REF)
LDW280-28737-5(REF.)
LDW280-28737-3(REF.)
$67\frac{1}{2}$
66
3
LDW280-28754-1 ASS'Y
SCALE: $\frac{1}{2}$
LDW280-28756-1
SQUEEZE FOIL & MESH FIRMLY TOGETHER & CLINCH STAPLE AS SHOWN
LDW280-23720-1 (REF.)
LDW280-17932-11(REF.)
LDW280-28755-1
LDW280-28737-3
LDW280-28737-5
SECTION A-A
SCALE: FULL
1
℄ OF STAPLES

01/02

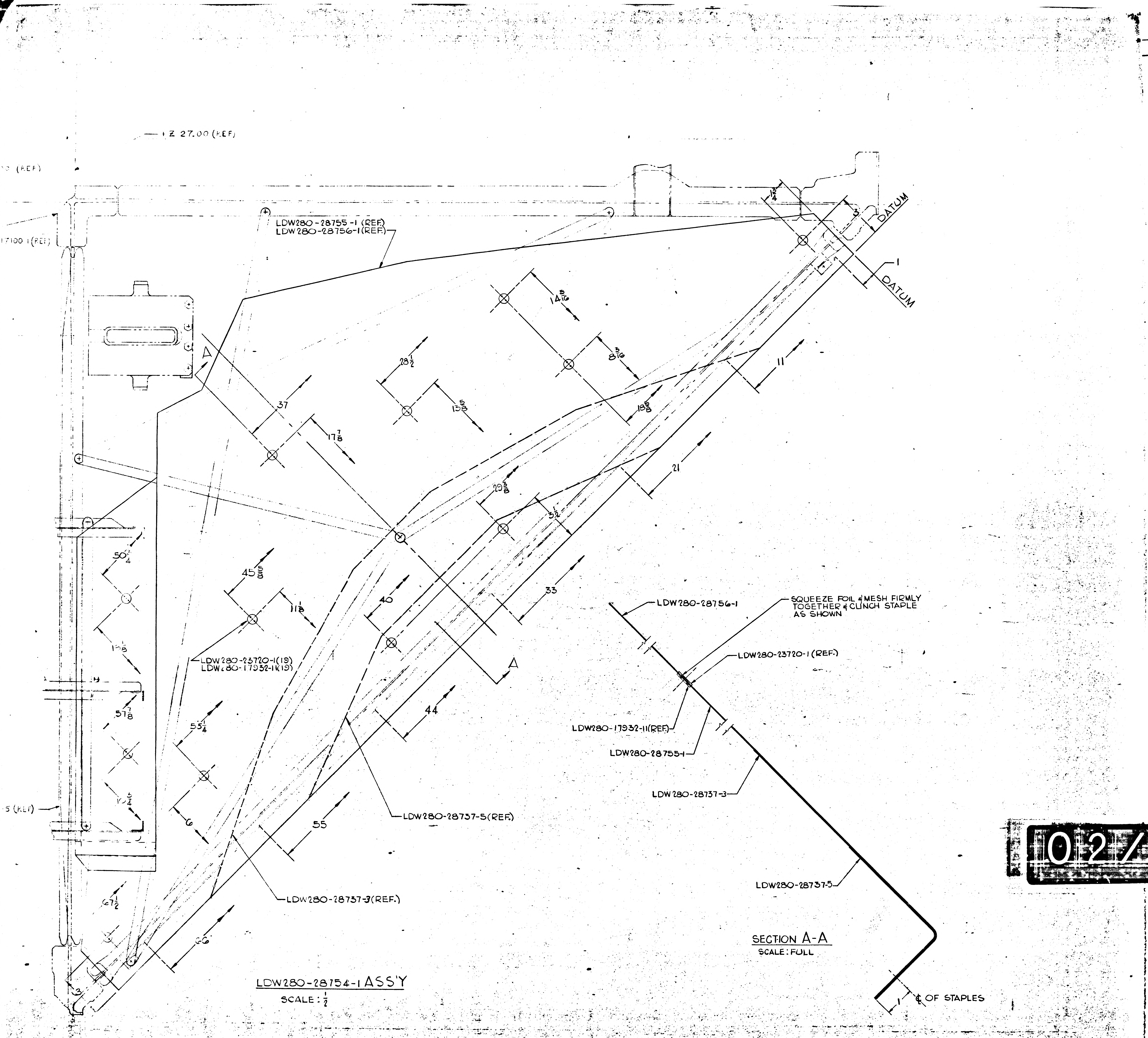
NAS 9-1100

NOTES

GRUMMAN AIRCRAF

J

26512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(REF)
17.00 (REF)
LDW280-28755-1 (REF)
LDW280-28756-1 (REF)
DATUM
DATUM
1
3
$14\frac{3}{16}$
$8\frac{3}{16}$
$28\frac{1}{2}$
$13\frac{5}{8}$
$18\frac{5}{8}$
11
37
$17\frac{7}{8}$
A
21
$29\frac{3}{8}$
$3\frac{1}{2}$
$50\frac{3}{4}$
$45\frac{5}{8}$
$11\frac{3}{8}$
40
33
A
$15\frac{1}{8}$
LDW280-23720-1(19)
LDW280-17932-11(19)
$57\frac{7}{8}$
$55\frac{1}{4}$
44
$15\frac{1}{4}$
6
55
5 (REF)
LDW280-28737-5(REF.)
LDW280-28737-3(REF.)
$67\frac{1}{2}$
66
3
LDW280-28756-1
SQUEEZE FOIL & MESH FIRMLY TOGETHER & CLINCH STAPLE AS SHOWN
LDW280-23720-1 (REF.)
LDW280-17932-11(REF.)
LDW280-28755-1
LDW280-28737-3
LDW280-28737-5
1
℄ OF STAPLES

SECTION A-A
SCALE: FULL

LDW280-28754-1 ASS'Y
SCALE: $\frac{1}{2}$

NOTES:
1- NO [illegible] PERMITTED IN PARTS.
2- FABRICATION OF [illegible]
[illegible]
LSP-14- [illegible] LEVEL [illegible]

THIS [illegible]

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

02/02
NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
J	26512	LDW280-28754

MODEL OR END ITEM
SCALE
SHEET

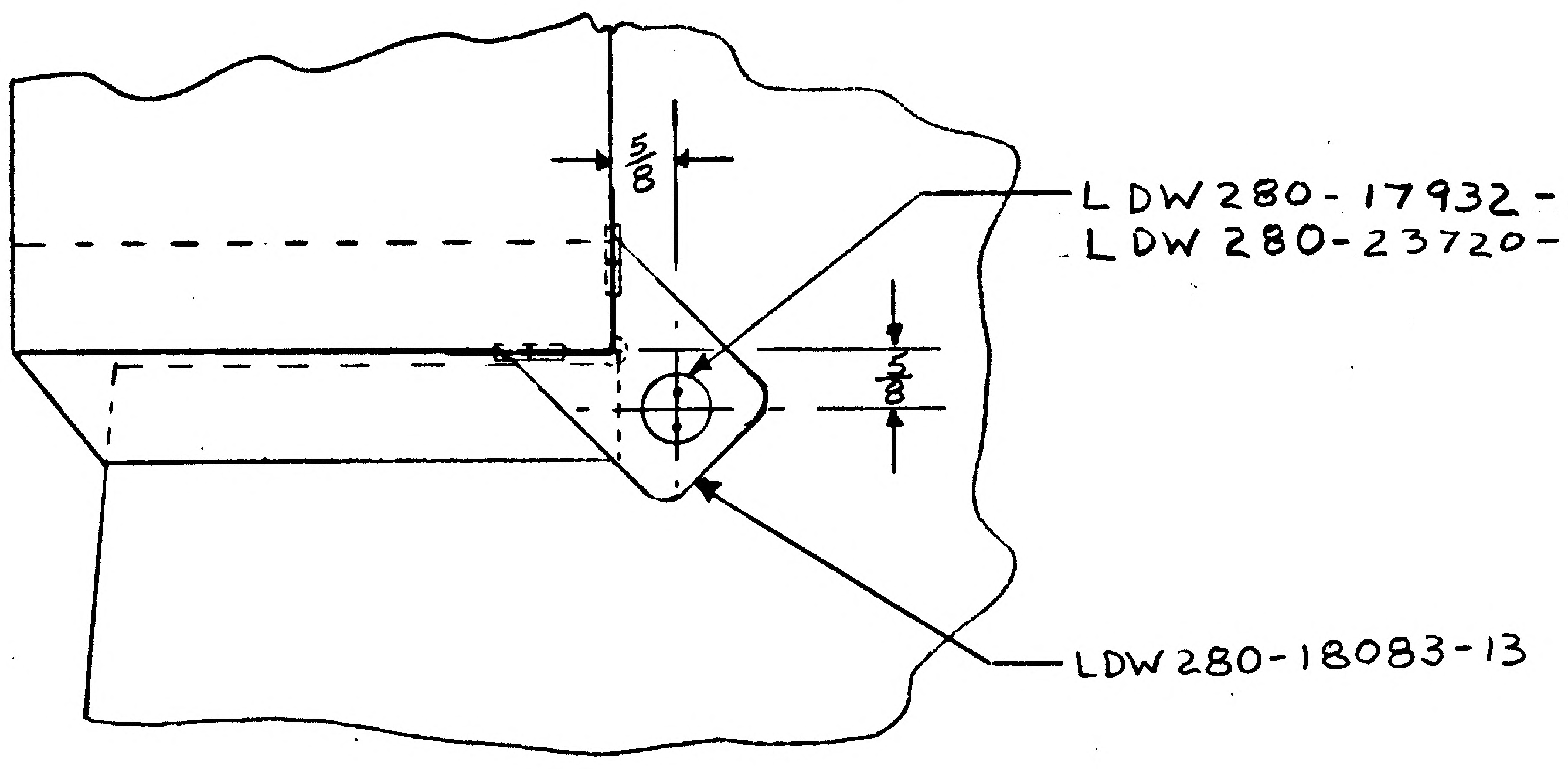
01

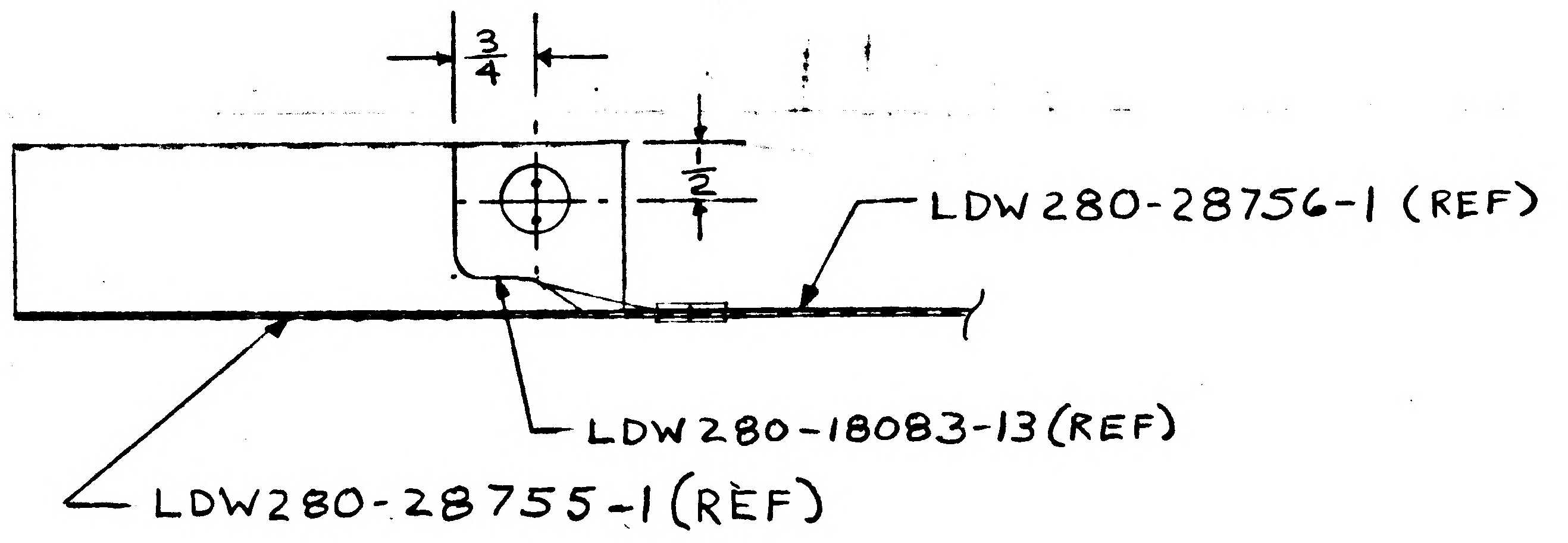
ENG 22.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28754
EO NO. A1
CONTROL INFO NO. LDW 280- 7507

REMOVE N/A LDW280-28667 FOR LEM-1 (31) FROM-1
CREATE LDW280-28754-3 IDENTICAL TO -1 EXCEPT AS
SHOWN, N/A LDW280-51667 FOR LEM-1 (31)
IN B/M~~F~~/DFOR -3 ADD(1) LDW280-18083-13 PATCH
(22) LDW280-17932-11 WAS (19)
(22) LDW280-23720-1 WAS (19)


5/8
LDW280-17932-11 (3)
LDW 280-23720-1 (3)
5/8
LDW280-18083-13


3/4
1/2
LDW280-28756-1 (REF)
LDW280-18083-13 (REF)
LDW280-28755-1 (REF)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL REQUIREMENT

DESCRIPTION OF EO: REMOVED LEM-1 FROM -1
ADDED -3

GAEC EO RELEASE: ® C 8.25 52

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	pvd	say	mu for MS 9/1/66		WB		PMC (WB)	Bott.
DATE	8/13/66	8-30			8/15/66		8-24-66	8-22-66
	VDI	~~SUPPORT~~	GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: SHIELD ASS'Y D/S QUAD IV RCS PLUME IMPINGEMENT-THERMAL UPPER

DRAWING NO. LDW280-28754

EO NO. A1

ISSUED BY J. Backofen x 1152

SECTION Veh Des Int GROUP NO. 335 PL 35

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-28754
EO NO. A3
CONTROL INFO NO. LDW280A-1002

FOR -7 N/A LDW280-28667 FOR LM-1(31)
WAS N/A LDW280-51667

3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: CANCELLATION OF LDW280-51667

DESCRIPTION OF EO: -7 N/A LDW280-28667 WAS N/A LDW280-51667 FOR LM-1

THERMO 10/17 V.J.J.

Ⓡ GAEC EO RELEASE 4

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		NOT	REQ'D

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~DSVT~~
APPROVED BY								
DATE	10/5/66				10/10/66		10-11-66	10/17/66
	10/5/66							

PRIORITY: C

DRAWING TITLE: SHIELD ASS'Y D/S QUAD IV RCS PLUME IMP.~THERMAL UPPER

DRAWING NO. LDW280-28754

EO NO. A3

ISSUED BY J. BACKOFEN X 1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28754 EO NO. A4
CONTROL INFO NO. LDW280-A-2920

IN SECTION A-A REMOVE NOTE DIRECTION OF STAPLES OPTIONAL

THIS IS A REVISION OF EO A2

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: TO PROVIDE PAINTED SURFACE ON OUTSIDE

DESCRIPTION OF EO: REF. EO A2 REMOVED IN SECTION A-A NOTE DIRECTION OF STAPLES OPTIONAL

GAEC EO RELEASE: ⑤ FR 11/10/66

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY									
DATE		11/9/6		11/9/66			11-9-66	11-9-66
5	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY D/S QUAD IV RCS PLUME IMPINGEMENT THERMAL UPPER	LDW280-28754	A4

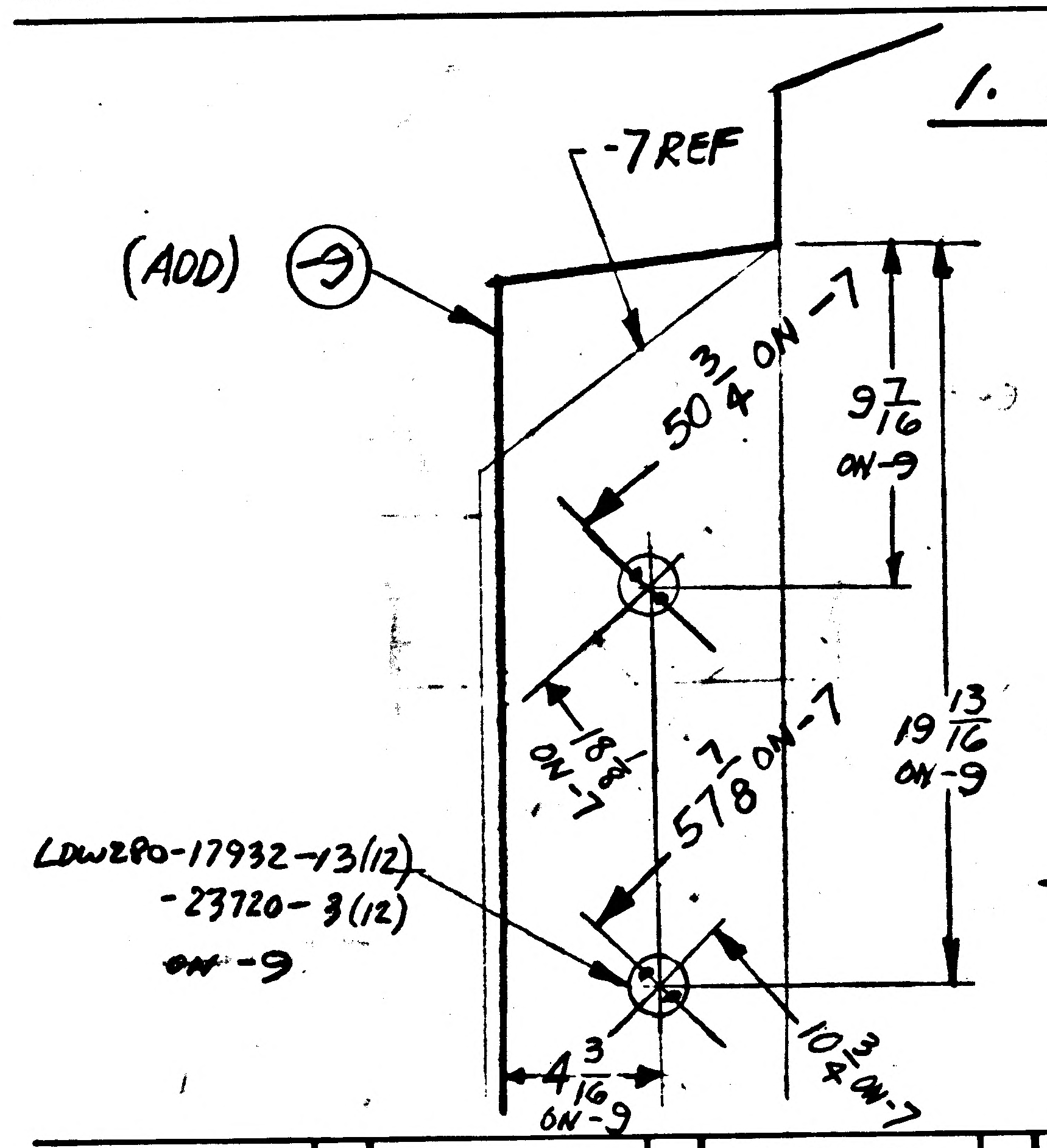
ISSUED BY M. RANKEL X1392 SECTION VEH. DES. INT GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28754 | EO NO. A5
CONTROL INFO NO. LDW280A 3530



1. IN F/D & B/M:
   a) CREATE -9 IDENT TO -7 EXCEPT AS NOTED
      -9 N/A LDW280-28667 LM 2 THRU 15 1 REQD/MOD
      FOR -9, LDW280-28755-13 (WAS) -1
      -28756-9 (WAS) -7
      -23720-3 (12) WAS (16)
      LDW280-17932-13 (12) WAS (16)
      REMOVE LDW280-18083-11
   b) -9 I/T=E
2. IN MOD/BLK:
   a) -7 N/A LDW280-28667 (WAS) LDW280-51667 LM1
3. IN MOD/BLK:
   a) ADD -9 N/A LDW280-28667 LM2 THRU 15 1 REQD/MOD
4. IN F/D:
   a) ADD DIM SHN FOR -9 ONLY

Pre-CF 2

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO
RELOCATE WASHERS AWAY FROM RADIUS OF BEND

DESCRIPTION OF EO
ADDED -9
REVISED -7 N/A LDW280-28667 (WAS) LDW280-51667 FOR LM 1

GAEC EO RELEASE: FR 12/6/66

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM	LM 1 (31) THRU LM15 (45)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD	

APPROVED BY		MS				12/6	RMC (E)	
DATE	11/19/66	11/23		11/18/66	11/23/66		11-23-66	12/5/66
5	VD1	SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT.

PRIORITY: C
DRAWING TITLE: SHIELD ASSY, D/S, QUAD 4, RCS PLUME IMPINGEMENT-THERMAL UPPER
DRAWING NO.: LDW280-28754
EO NO.: A5

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VD1 GROUP NO. 335 PL 35

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NAS 9-1100

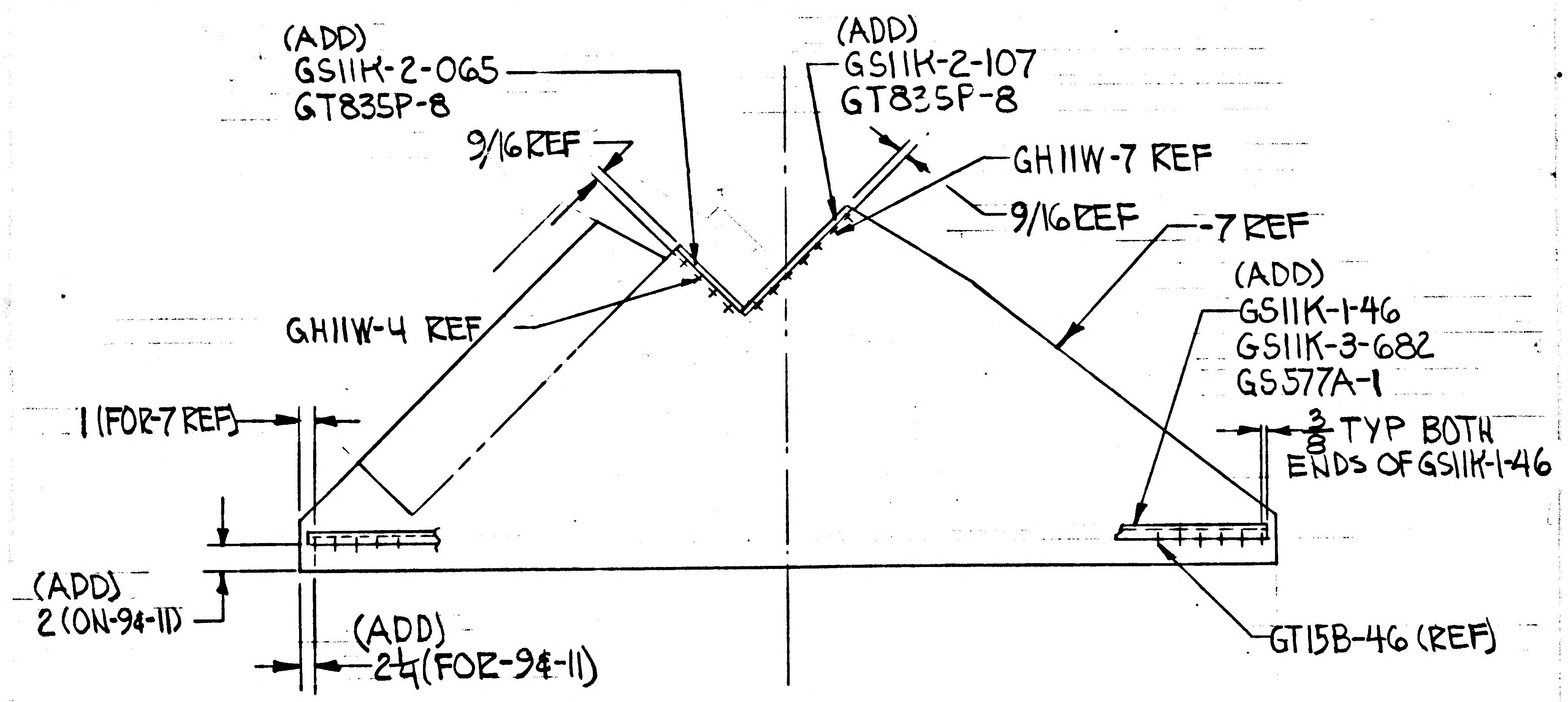
A

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-28754 | EO NO. A6
CONTROL INFO NO. LDW280A-5509

IN F/D & L/M FOR-7 ADD GS11K-1-46, GS11K-3-682, GS11K-2-065 & GS11K-2-107, & GS577A-1 (AS REQD) & GT835P-8 (AS REQD) AS SHOWN BELOW


(ADD)
GS11K-2-065
GT835P-8
9/16 REF
(ADD)
GS11K-2-107
GT835P-8
GH11W-7 REF
9/16 REF
-7 REF
(ADD)
GS11K-1-46
GS11K-3-682
GS577A-1
GH11W-4 REF
1 (FOR-7 REF)
3/8 TYP BOTH ENDS OF GS11K-1-46
(ADD)
2 (ON-9 & -11)
(ADD)
2 1/4 (FOR-9 & -11)
GT15B-46 (REF)

IN F/D & L/M FOR-9: REMOVE LM-3 (33) THRU LM-15 (45) EFF.
REPLACE LDW280-28756-9 SKIN ASSY WITH
LDW280-28756-13 SKIN 1 REQD
ADD GS11K-1-46, GS11K-3-682, GS11K-2-065, GS11K-2-107
GS577A-1 & GT835P-8.

IN F/D & L/M ADD -11 SHIELD ASSY IDENTICAL TO -9 EXCEPT
LDW280-28756-15 SKIN REPLACES
LDW280-28756-13 SKIN
EFF FOR -11 LM-3(33) THRU LM-15(45) 1 REQD
N/A FOR -11 LDW280-28667

ADD NOTE *: FABRICATE PER LPC280-25

* = NEXT AVAILABLE NOTE NO

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		

REASON FOR EO: LCR-928 TO IMPROVE PAINT ADHESION

DESCRIPTION OF EO: ADDED NOTE * FOR-7 ADDED GS11K-1-46, GS11K-3-682, GS11K-2-065, GS11K-2-107 GS577A-1 & GT835P-8. FOR-9 REMOVED LM-3 THRU LM-15 EFF REPLACED LDW280-28756-9 WITH -13. ADDED -11 EFF LM-3 THRU LM-15

GAEC EO RELEASE: C/ 2 2/23/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP ✓

			SUPPORT TECHNOLOGY	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY									
DATE	2/21/67				2/18/67	2/21/67		2/21/67	2-22-67
	5	VDI							

PRIORITY: C
DRAWING TITLE: SHIELD ASSY QUAD III UPPER DES STAG
DRAWING NO.: LDW280-28754
EO NO.: A6

ISSUED BY G ZEMAN / J. STRAROSCH SECTION VDI GROUP NO. 335 PL 35

B

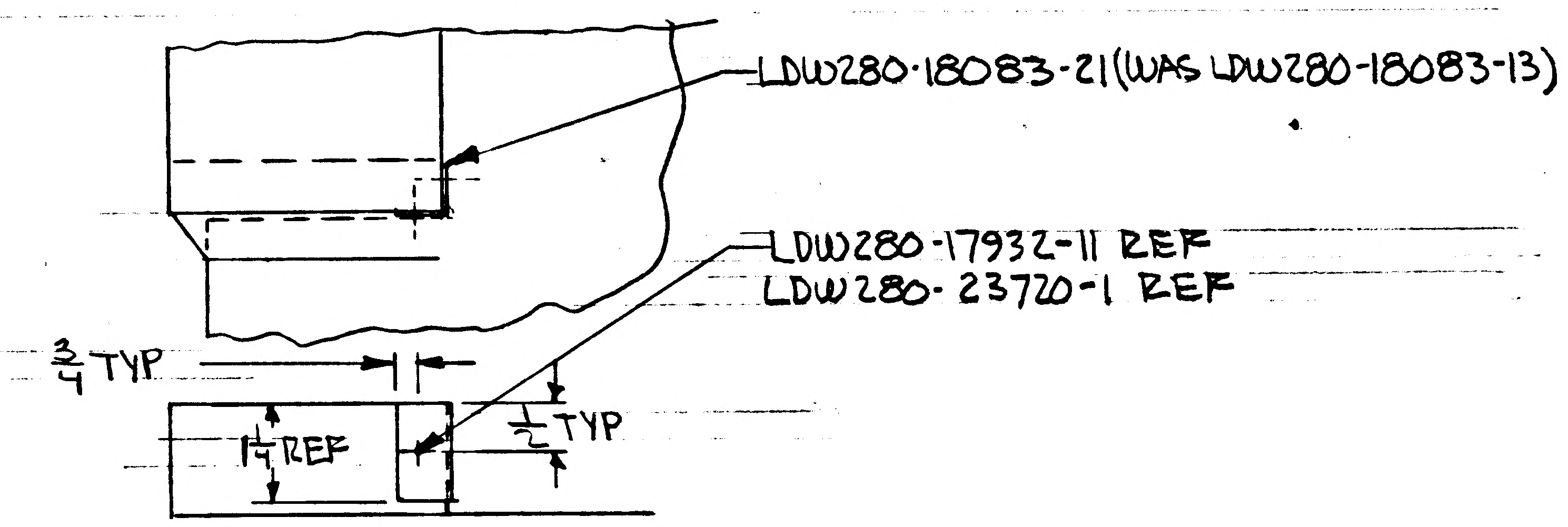
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-28754 | EO NO. A1
CONTROL INFO NO. LDW280A-5694

THIS IS A REVISION TO EO A6 LDW280-28754

ON EO A6 ADD FOR -7 SKIN ASSY REMOVE LDW280-28756-7 SKIN ASSY & REPLACE WITH LDW280-28756-17 SKIN ASSY
REMOVE LDW280-18083-13 & REPLACE WITH LDW280-18083-21



DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		2

REASON FOR EO: LCR928 IMPROVE PAINT ADHESION

DESCRIPTION OF EO: REVISED EO A6. FOR -7 SKIN ASSY REMOVED LDW280-28756-7 & LDW280-18083-13 & REPLACED WITH LDW280-28756-17 & LDW280-18083-21

GAEC EO RELEASE C: JK 3/13/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	
		LM-15(45	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	3/6/67			3/4/67	3/4/67		3-11-67	3-13-67
5	VD1							

PRIORITY: C
DRAWING TITLE: SHIELD ASSY QUAD II DES STAGE UPPER
DRAWING NO.: LDW280-28754
EO NO.: A1

ISSUED BY G ZEMAN/ J. STRAROSCH SECTION VD1 GROUP NO. 335 PL 35

01 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-28754 | EO NO. A8
CONTROL INFO NO. LDW280A 6201

THIS IS A REVISION TO EO A6

ON E.O. A6 REMOVE -11 SHIELD ASSY & LDW280-28756-15

FOR -9 REPLACE EFFECTIVITY LM-3(33) THRU LM-15(45)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

LCD 19-1135 2

REASON FOR EO: ADDITIONAL THERMAL PROTECTION LCD-19-1135

DESCRIPTION OF EO: REVISED EO A6 REMOVED -11 & LDW280-28756-15 FOR -9 REPLACED EFF LM-3(33) THRU LM-15(45)

GAEC EO RELEASE: JK 4/5/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
											Dam	
✓		✓	-11 -15	DATE				4/1/67	4/3/67		4/3/67	4-5-67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: SHIELD ASSY DESCENT STAGE QUAD IV UPPER

DRAWING NO.: LDW280-28754

EO NO.: A8

ISSUED BY H. PALLMEYER / J STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER ✳

DWG. NO. LEO 280
EO NO. 589
CONTROL INFO NO. LDW280A6772

ON THE DWGS LISTED BELOW IN L/M & F/D AT INSTL OF ALL GS11K-1---
TAB STRIPS REMOVE GS577A-1 & ADD GS577A-4 STAPLE

DWG No ✳	EFF	CHANGE No	TITLE
LDW280-28559-5	LM-1(31)	B3	
LDW280-28665-5	LM-1(31)	B10	
LDW280-28733-3	LM-1(31) THRU LM-3(33)	A4	
LDW280-28736-5 & -7	LM-1(31) THRU LM-15(45)	A5	
LDW280-28748-11, -13 & -15	LM-1(31) THRU LM-15(45)	A10	
LDW280-28754-7 & -9	LM-1(31) THRU LM-15(45)	A9	
LDW280-28758-5 & -7	LM-1(31) THRU LM-3(33)	B3	SEE
LDW280-28770-5	LM-1(31) THRU LM-15(45)	B5	
LDW280-28773-11 & -13	LM-1(31) THRU LM-3(33)	A8	
LDW280-28804-5	LM-1(31) THRU LM-15(45)	A6	
LDW280-28817-7	LM-1(31) THRU LM-15(45)	A4	DWG
LDW280-51742-3	LM-1(31)	A4	
LDW280-51831-1	LM-1(31) THRU LM-15(45)	A2	
LDW280-52739-3	LM-2(32) THRU LM-15(45)	A2	
LDW280-52742-1, -3, -5, -7, -9 & -11	LM-2(32) THRU LM-15(45)	A7	
LDW280-52763-9 & -11	LM-2(32) THRU LM-15(45)	A5	
LDW280-52767-1 & -3	LM-2(32) THRU LM-15(45)	B3	
LDW280-53600-3 & -5	LM-3(33)	A3	
LDW280-54605-1	LM-4(34) THRU LM-15(45)	A2	
LDW280-54714-1	LM-4(34) THRU LM-15(45) & DES. VER. 70	A5	
LDW280-54733-1	LM-4(34) THRU LM-15(45)	A2	
LDW280-54758-1 & -3	LM-4(34) THRU LM-15(45)	A1	
LDW280-54784-1	LM-4(34) THRU LM-15(45) & DES. VER. 70	A2	
LSK280-10993-17, -19 & -21	DES. VER. 70	A4	

CDR = 5/10/67

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 928

REASON FOR EO: TO PROVIDE CORRECT STAPLE CALLOUT

DESCRIPTION OF EO: ON ✳
REPLACED GS577A-1 WITH GS577A-4

Ⓡ GAEC EO RELEASE: JK 5/?/7 2 C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	(NOTED ABOVE)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				—	W.H.		Dam	
DATE	5/4/67			—	5/4/67		5/6/67	5/8/67
5	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO280	589

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 704
CONTROL INFO NO. LDW 280 A 7882

FOR THE NOTED DWGS, REVISE EFFECTIVITY AS SHOWN:

DWG NO.	DASH NO. ▲	DWG TITLE	EFF (NOW) ‡	EFF (WAS) *	CHANGE NO.
LDW 280-28714 ✓	-7	SHIELD ASSY DESCENT STAGE PLUME IMPINGEMENT	LM-2 (32)	LM-2(32) & LM-3(33)	C2
-28736 ✓	-7	SHIELD ASSY, D/S QUAD II PLUME IMPINGEMENT	LM-2 (32)	LM-2(32) THRU LM-15(45)	A6
-28745 ✓	-5	SHIELD ASSY, D/S QUAD III PLUME IMPINGEMENT	LM-1(31) & LM-2(32)	LM-1(31) THRU LM-15(45)	C1
LDW280-28754 ✓	-9	SHIELD ASSY, D/S QUAD IV PLUME IMPINGEMENT	LM-2 (32)	LM-2(32) THRU LM-15(45)	A10

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1244 OK

5

REASON FOR EO: TO PROVIDE FOR FITH SHIELD

DESCRIPTION OF EO: FOR THE DWGS NOTED, RESTRICTED DASH No. (▲) NOW (‡) WAS (*)

Ⓡ GAEC EO RELEASE: JK 9/1/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33) THRU	
LM		LM-15 (45	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	8/30/67			8/30/67	8/31/67		8/31/67	9/1/67

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO 280-
EO NO.: 704

9/1
ISSUED BY A. RICHER X1392 / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28755 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28754	LM-2 (32)	1
PART NO. LDW280-28755-13		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28754	LM-1 (31)	1
LM	LDW280-28754	LTA-8 (18)	1
PART NO. LDW280-28755-1		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00		3.00		
REV	A	A		A		A		
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED E+E

LAST DASH NO. USED -15

GRUMMAN REL INFO A

PRIM NO. 207 K(001) MP-IF 9/6/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/16 ±.030 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY J. Backofen 7/15/66
THERMO
LAYOUT BY
RELIABILITY
CHECKED BY
GP LEADER 7/15/66
VEH DES INT 7/16
STRUCT. EB 7/16
PROJ ENGR 7-26
STRUCT. Hildesmann 7/16
REL GROUP Botti 8-2-66
WEIGHTS 7-25

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL ASSY D/S QUAD 4
PLUME SHIELD
UPPER

SIZE B
CODE IDENT NO. 26512
LDW280-28755 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

0 1

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
A	1	1.10, 3.00 1.00						LE0280-188	REWROTE SEAMWELD NOTE 1 & ADDED NOTES 6 & 7 (ADDED SH 1.10)	LTA-8, LM-1	NOT	REQD	LEVINE 9-3-68		
	2	3.00						EOA2	ON -1: ADDED 45°, DIMS. 5", 8 1/4, 24 15/16, & 27 3/16		✓				
	3	3.00						LE0280-240	ADDED PART 'C' TO NOTE 6 (REF LE0280-188)						
	4	3.00						EOA4	REVISED TRIM OF -3. REMOVED DETAIL 'A' & SECT. B-B. REMOVED EDGE VIEW & ASSOCIATED DIMS.						
	5	3.00						LE0280-316	ADDED NOTE 8						
	6	1.00, 2.00, 3.00						EOA6	ADDED -13 & -15, SECT. E-E, NOTES 9 & 10. REMOVED NOTE 2 & SECT. C-C.	LM-2 THRU LM-15	NOT	REQD			
	7	3.00						LE0280-421	ADDED NOTE 11	LTA-8, LM-1					
	8	1.00				✓		LE0280-705 LCD 1244 ④	FOR -13: RESTRICTED -13 TO LM-2 WAS LM-2 THRU LM-15	LM-2		-13	ES		

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	THERMO	RELIABILITY
A							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28755	A Ⓐ
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

	-15	-13	-11	-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		AR				AR		MESH	E	INCONEL KNITTED SLEEVING	SEE NOTES 3 & 9						
			1					LDW280-17950-39		FOIL SHEET	SEE DWG						
				1				-35									
				1				-33									
				1				LDW280-17950-31		FOIL SHEET	SEE DWG						
		1						LDW280-28755-15		TRIM & FORM ASSY					NONE		
								LDW280-28755-13		FOIL ASSY WELDED					FLW	NONE	
						1		LDW280-28755-11		ZEE ASSY WELDED	SEE NOTES 9 & 10						
	1				1			LDW280-28755-5		WELD ASS'Y	SEE NOTES 9 & 10				FLW		
						1		LDW280-28755-3		TRIM & FORM ASSY					NONE		
								LDW280-28755-1	E	FOIL ASS'Y WELDED					FLW	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELD	LSP14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28755	A

Ⓐ

SCALE NONE

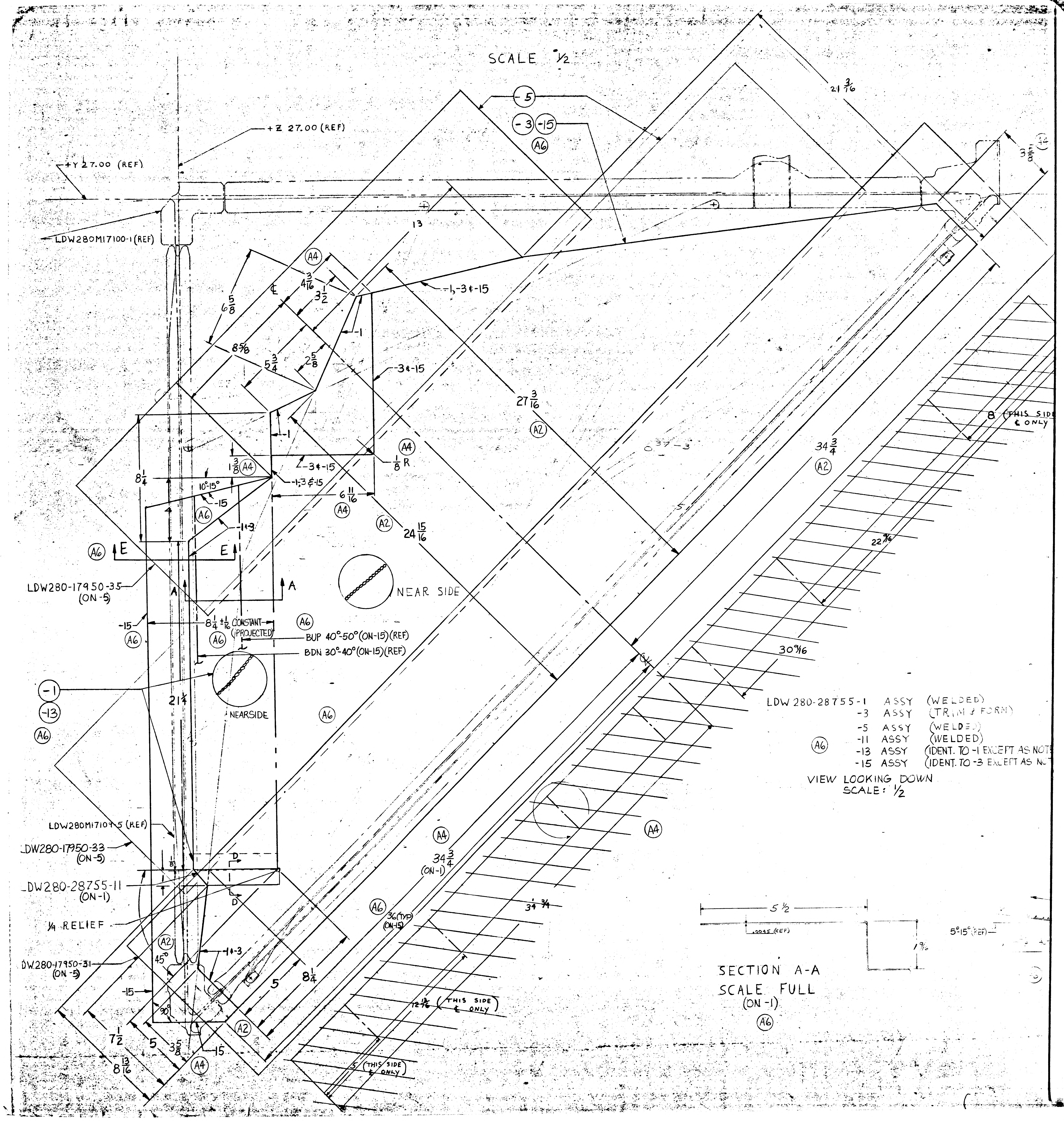
SHEET 2.00

ENG 77.2 7-65

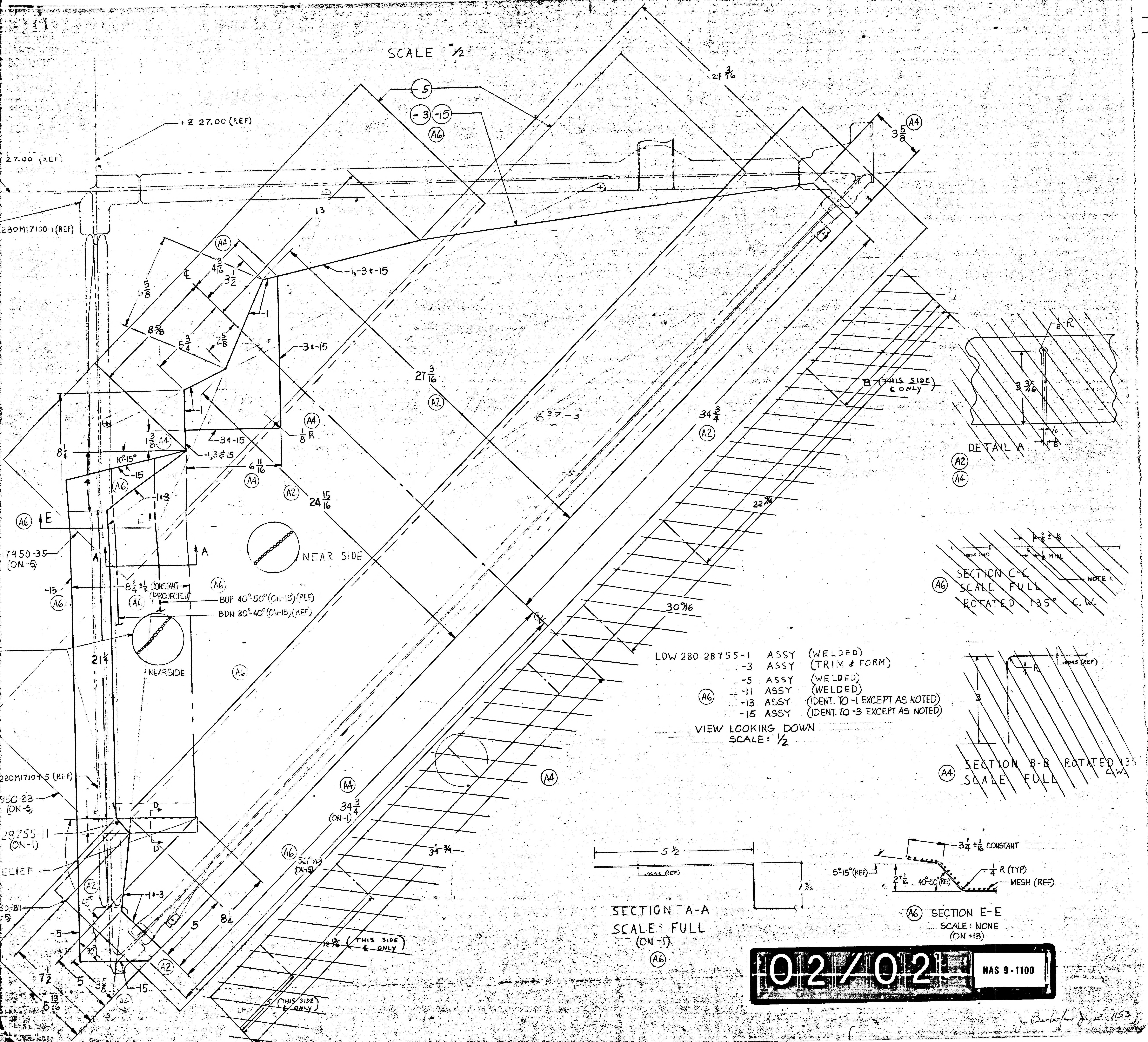
01

NAS 9-1100

01/02 NAS 9-1100



SCALE 1/2
-5
-3 -15
A6
21 3/16
+Z 27.00 (REF)
+Y 27.00 (REF)
LDW280M17100-1 (REF)
13
A4
4 3/16
3 1/2
6 5/8
8 5/8
5 3/4
2 5/8
-1,-3 & -15
-1
-3 & -15
27 3/16
A2
8 1/4
1 3/8
-3 & -15
-1,3 & -15
1/8 R
6 11/16
10°-15°
-15
-1 & 3
24 15/16
34 3/4
E
A
NEAR SIDE
LDW280-17950-35 (ON-5)
8 1/4 ± 1/16 CONSTANT (PROJECTED)
BUP 40°-50° (ON-15) (REF)
BDN 30°-40° (ON-15) (REF)
-1
-13
21 1/4
NEARSIDE
30 9/16
22 9/16
8 (THIS SIDE ℄ ONLY)
LDW 280-28755-1 ASSY (WELDED)
-3 ASSY (TRIM & FORM)
-5 ASSY (WELDED)
-11 ASSY (WELDED)
-13 ASSY (IDENT. TO -1 EXCEPT AS NOTE
-15 ASSY (IDENT. TO -3 EXCEPT AS N
VIEW LOOKING DOWN
SCALE: 1/2
LDW280M17104-5 (REF)
LDW280-17950-33 (ON-5)
LDW280-28755-11 (ON-1)
1/4 RELIEF
D
34 3/4 (ON-1)
36 (TYP) (ON-15)
34 3/4
5 1/2
.0045 (REF)
1 9/16
5°15' (REF)
SECTION A-A
SCALE FULL
(ON-1)
LDW280-17950-31 (ON-5)
45°
90°
-1 & -3
5
8 1/4
12 13/16 (THIS SIDE ℄ ONLY)
5 (THIS SIDE ℄ ONLY)
7 1/2
5
3 5/8
8 13/16
15


SCALE ½
+Z 27.00 (REF)
27.00 (REF)
280M17100-1 (REF)
-5
-3 -15
A6
21 3/16
3 5/8
A4
13
4 3/16
3 ½
5/8
-1,-3 & -15
-1
8 5/8
5 ¾
2 5/8
-3 & -15
27 3/16
A2
8 (THIS SIDE ℄ ONLY)
1 3/8
-3 & -15
-1,3 & 15
1/8 R
6 11/16
8 ¼
10°-15°
-15
-1 & 3
24 15/16
34 ¾
E
A
NEAR SIDE
-17950-35 (ON-5)
8 ¼ ± 1/16 CONSTANT (PROJECTED)
BUP 40°-50° (ON-15) (REF)
BDN 30°-40° (ON-15) (REF)
22 9/16
30 9/16
21 ¼
NEARSIDE
LDW 280-28755-1 ASSY (WELDED)
-3 ASSY (TRIM & FORM)
-5 ASSY (WELDED)
-11 ASSY (WELDED)
-13 ASSY (IDENT. TO -1 EXCEPT AS NOTED)
-15 ASSY (IDENT. TO -3 EXCEPT AS NOTED)
VIEW LOOKING DOWN
SCALE: ½
280M17104-5 (REF)
-950-33 (ON-5)
-28755-11 (ON-1)
RELIEF
D
34 ¾ (ON-1)
3 ¼ 3/4
36° (TYP) (ON-15)
45°
8 ¼
5
7 ½
5
3 5/8
6 13/16
-15
12 ¼ (THIS SIDE ℄ ONLY)
5 (THIS SIDE ℄ ONLY)
1/8 R
3 3/16
DETAIL A
.0005 (MAX)
1/8 MIN.
SECTION C-C
SCALE FULL
ROTATED 135° C.W.
NOTE 1
¼ R
.0045 (REF)
3
SECTION B-B ROTATED 135° C.W.
SCALE FULL
5 ½
.0045 (REF)
1 9/16
SECTION A-A
SCALE FULL
(ON-1)
3 ¼ ± 1/16 CONSTANT
5°15° (REF)
2 ± 1/16
40°-50° (REF)
¼ R (TYP)
MESH (REF)
SECTION E-E
SCALE: NONE
(ON-13)

02/02

NAS 9-1100

LAYOUT RELEASE TO
BE REDRAWN ON
PRODUTION FORMAT

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

NOTES

1. SEAMWELD PER LSP14-6102 EXCEPT THAT [illegible]
2. ~~WELD INCONEL KNITTED SLEEVING TO FOIL SHEET PER LDW280-17522 AFTER FORMING AND TRIMMING~~
3. INCONEL KNITTED SLEEVING TO BE .6 TO .8 INCHS WHEN FLATTENED, WIRE TO BE .0035 TO .0040 INCH DIA. ROUND, "INCONEL 600" ALLOY KNIT PATTERN SQUARE TYPE 5 TO / 54 ARMS PER LINEAR INCH, MAY BE PURCHASED FROM MONTGOMERY METAL FABRIC CO., WINDSOR LOCKS, CONN. 59 CANAL ST. (CODE IDENT 94/23)
4. FABRICATION OF FOIL TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011 LEVEL "C"
5. NO TOOLING HOLES PERMITTED.
6. PERMISSIBLE IRREGULARITIES IN WELDED ASSYS ARE AS FOLLOWS:
   - (a) HOLES IN THE SEAMWELD ROWS UP TO 1/8 MAX. & AT LEAST 1 INCH APART.
   - (b) CRACKS IN THE FREE EDGE OF WELDED JOINT NO CLOSER TOGETHER THAN 1/8 & NOT EXTENDING PAST THE [illegible].
   - (c) IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) & (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL & THICKNESS AS THE BASIC [illegible], BUT SHALL NOT EXCEED AN AREA OF 3 SQ. INCH & SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE [illegible] SEAM AROUND ENTIRE PERIPHERY.
7. WELDED ASSY MAY HAVE RANDOM WRINKLED APPEARANCE.
8. INCONEL KNITTED SLEEVING TO BE OXIDIZED BY EXPOSURE TO 1650° ± 50°F IN AIR FOR [illegible] FOR [illegible] OXIDATION [illegible] NAL.
9. FABRICATE FOIL ASSY IN ACCORDANCE WITH LPC280-9.
10. MAKE FROM ANNEALED BRIGHT ROLLED NICKEL FOIL COMMERCIALLY PURE (NICKEL 200 OR EQUIV.) MIN. LENGTH 48 INCHES, .0005 THICK.
11. MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC280-19.

LDW280-28755

LDW280-28755

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-28755	A
MODEL OR END ITEM	SCALE		SHEET 3	

HG

BHG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280
EO NO. 240
CONTROL INFO NO. LEM-2-2642

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE ✱.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LDW 280-25703	A4	A5	✱, ✱✱, ✱✱✱
-25704	A3	A4	✱, ✱✱, ✱✱✱
-25705	B5	C2	✱, ✱✱
-25706	A3	A5	✱, ✱✱, ✱✱✱
-25707	B1	B2	✱, ✱✱, ✱✱✱
-28730	A1	A5	✱
-28734	A1	A4	✱
-28735	A1	B1	✱
-28737	A1	A2	✱
-28738	A1	A2	✱
-28740	A1	A2	✱
-28741	A1	A2	✱
-28743	A1	A2	✱
-28744	A1	A2	✱
-28746	A1	A2	✱
-28747	A1	A2	✱
-28749	A1	A2	✱
-28750	A1	A2	✱
-28755	A1	A3	△
-28756	A1	A3	△
-28759	A1	A3	✱
-28760	A1	A2	✱
-28764	A1	A2	✱
-28765	A1	A2	✱
-28771	A2	A3	✱
-28772	A2	A3	✱
-28774	A1	A2	✱
LDW 280 -28775	A1	A2	✱

EFFECTIVITY:
✱✱✱ - QUAL TEST (72)
✱✱ - LTA-5 (15)
✱ - LEM-1 (31) THRU -6 (36) & LTA-8 (18)
△ - LTA-8, LEM-1

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	GAEC C EO RELEASE
REASON FOR EO TO FACILITATE MANUFACTURING	DESCRIPTION OF EO REF LEO 280-118 ADDED PART "C" TO NOTE ✱.		

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LEM		SEE ABOVE		✓		✓	

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE 8-20-66	7/18/66				CAW 8/23/66	CAW 8/23/66	RMC 9-3	8-10-66

PRIORITY C2
DRAWING TITLE —
DRAWING NO. LEO-280
EO NO. 240

ISSUED BY LIAISON G. MARTELL x3604 SECTION VD1 (DESCENT STAGE) GROUP NO. 335 PL 35

01 NAS 9-1100

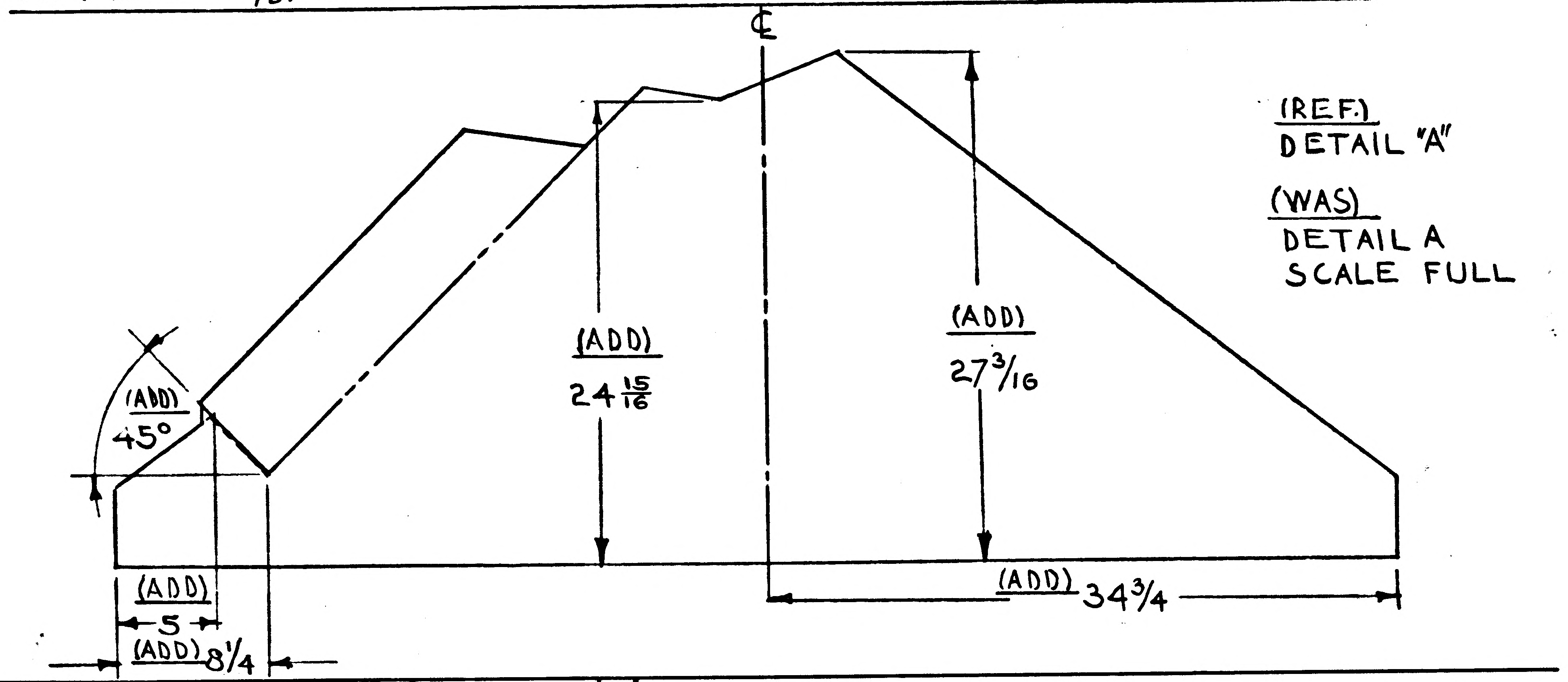
1.*

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28755		EO NO. A2
CONTROL INFO NO. LEM-2-2555		

ON-1 REVISE F/D. BY ADDING PERIMETER DIMENSIONS TO AGREE WITH EO.



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

2

REASON FOR EO: INSUFFICIENT PERIMETER DIMENSIONING TO MAKE PART

DESCRIPTION OF EO: ON-1 ADDED: 45°; -5; -8 1/4; -24 15/16; ℄-27 3/16 DIM.S.

Ⓡ GAEC C EO RELEASE: FS 8-25

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-1 (31)	
		LTA-8 (18	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	JB	LPH			~	caw		
DATE	9/1	9/14/66	11/5/66		~	8/29/66	8-25-66	8-24-66
8-10-66 VDI	~~SUPPORT~~ W/S	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

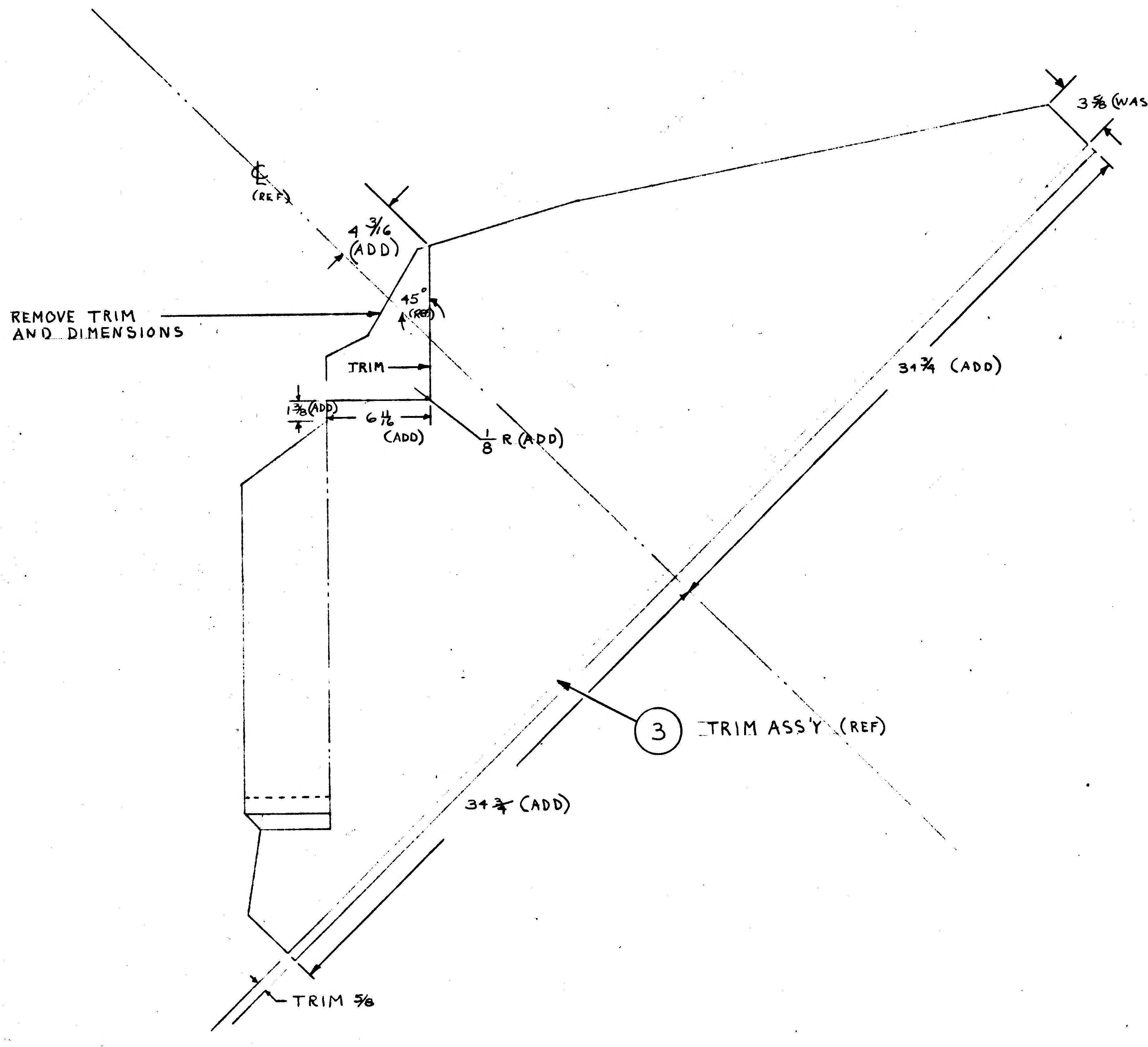
PRIORITY: C2
DRAWING TITLE: FOIL ASSY. D/S QUAD 4 PLUME SHIELD UPPER
DRAWING NO.: LDW280-28755
EO NO.: A2

ISSUED BY LIAISON T.J.MARTIN -X3604 SECTION V.D.1 GROUP NO. 335 PL 35

01

NAS 9-1100

REVISE TRIM OF -3 (TRIM ¢ FORM ASS'Y) AS SHOWN.
REMOVE DETAIL A, SECT. B-B, AND EDGE VIEW WITH DIMENSIONS



℄ (REF)
4 3/16 (ADD)
REMOVE TRIM AND DIMENSIONS
45° (REF)
TRIM
1 3/16 (ADD)
6 1/16 (ADD)
1/8 R (ADD)
3 5/8 (WAS) 4 1/4
34 3/4 (ADD)
3
TRIM ASS'Y (REF)
34 7/8 (ADD)
TRIM 5/8

DETAIL SPEC REQD		CLASS II ENGRG CHG		CLASS I ENGRG CHG		CONTROL INFO NO. LDW280A-0431

REASON FOR EO: ADDITIONAL THERMO REQUIREMENTS

DESCRIPTION OF EO:
REVISED TRIM OF -3.
REMOVED DETAIL A, SECT. B-B.
REMOVED EDGE VIEW AND ASSOCIATED DIMENS.

THERMO Ⓡ GRUMMAN EO RELEASE

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA 8 (18)	
LEM		LEM-1 (31)	

DRAWING REVISION REQD		DISPOSITION OF PARTS									
REVISE DWG	RECORD EO	REWORK	SCRAP								
✓		✓		BY						RMC ⓦ	
				DATE	9/15/66	9.29		11/16	9/17/66	9.vv	9/22/66
					VDI	~~SUPPORT~~ WTS	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR

PRIORITY: C

DRAWING TITLE: FOIL ASS'Y D/S QUAD IV PLUME SHIELD UPPER

ENGINEERING ORDER
DRAWING NO. LDW280-28755
EO NO. A4

ISSUED BY: J. BALKOIEN
SECTION: VEH. DES. INT.
GROUP NO. 335
PL 35
CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 32 3 REV 3-65

THIS IS AN ORIGINAL DRAWING

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 316
CONTROL INFO NO. LDW280A0936

ON THE FOLLOWING DRAWINGS ADD NOTE *:
*) INCONEL KNITTED SLEEVNG TO BE OXIDIZED BY EXPOSURE TO 1650 ±50°F IN AIR FOR FOUR (4) HOURS. FOR LTA5 (15) AND LTA8 (18) OXIDIZATION IS OPTIONAL

DRAWING:	EFF	CHANGE NO.	TITLE
LDW280-25708	QUAL TEST LM1 THRU LM6 LTA5 & 8	B3	SEE DRAWING
LDW280-28735	LM1 THRU LM6 LTA8	C1	
LDW280-28737	"	A4	
LDW280-28740	"	B1	
LDW280-28743	"	A4	
LDW280-28746	"	B1	
LDW280-28749	"	A6	
LDW280-28752	"	B1	
LDW280-28755	LTA-8 & LM-1	A5	
LDW280-28759	LTA-8 LM-1 THRU LM-6	B1	
LDW280-28764	"	B1	
LDW280-28768	LM-1 &	B1	
LDW280-28771	LTA-8, LM-1 THRU LM-6	B1	
LDW280-28774	"	A6	
LDW280-28803	"	A1	SEE DRAWING
LDW280-28819	"	A1	SEE DRAWING

* - USE NEXT AVAILABLE NUMBER

3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
THERMO REQUIREMENT	ADDED NOTE *	[illegible]

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	
LM			
LM			

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

	VDI	SUPPORT	RELIAB. GROUP	~~GROUP~~ LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	[illegible]			RGM	WJH		[illegible]	[illegible]
DATE	[illegible]			MAT'LS 10/7/66	[illegible]		10/12/66	10/15/66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	316

ISSUED BY AMBROSIO / STRAKOSCH X1153 SECTION V.D.1 GROUP NO. 335 PL 35 EMF

01
NAS 9-1100

01

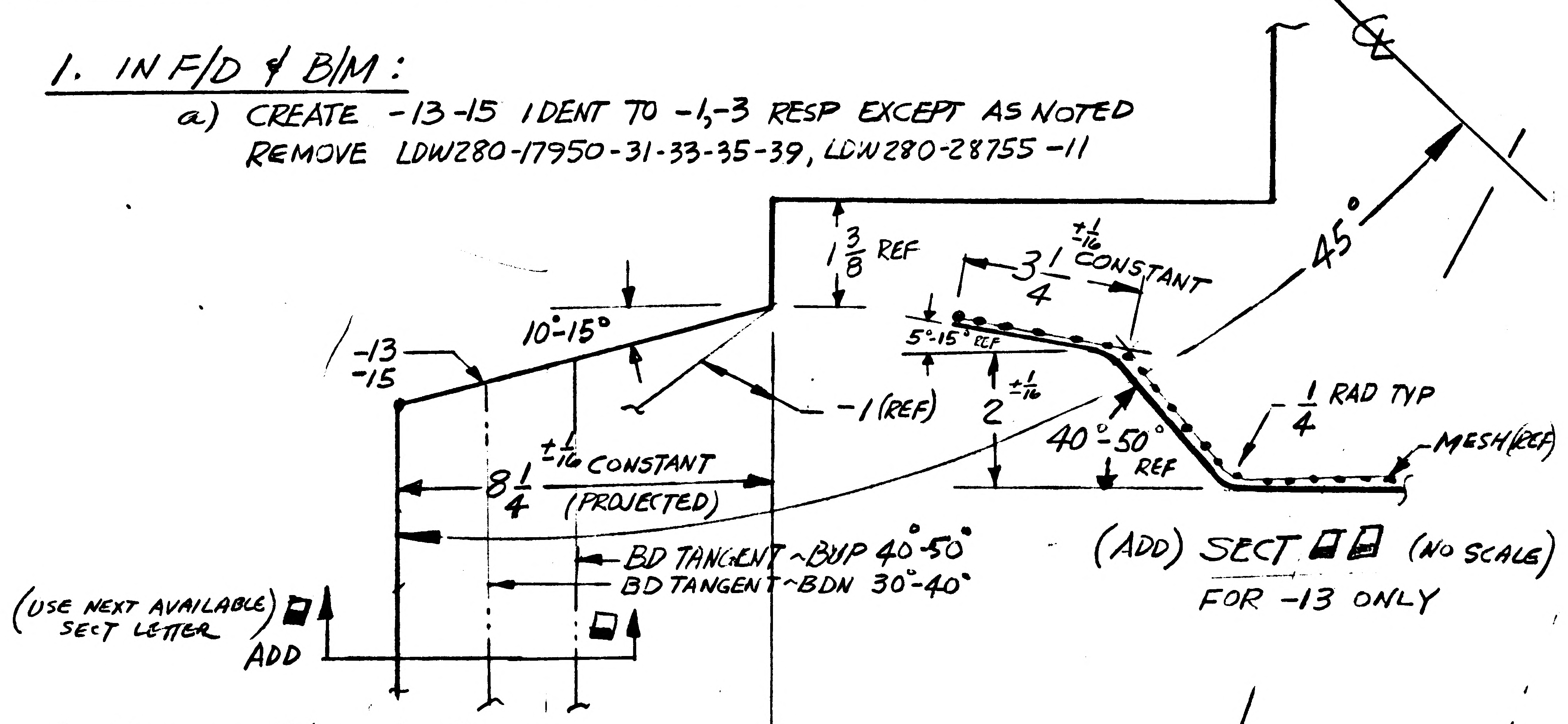
NAS 9-1100

NG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28755		EO NO. A6	
CONTROL INFO NO. LDW280A-3469			

1. IN F/D ¢ B/M:
   a) CREATE -13-15 IDENT TO -1,-3 RESP EXCEPT AS NOTED
   REMOVE LDW280-17950-31-33-35-39, LDW280-28755-11



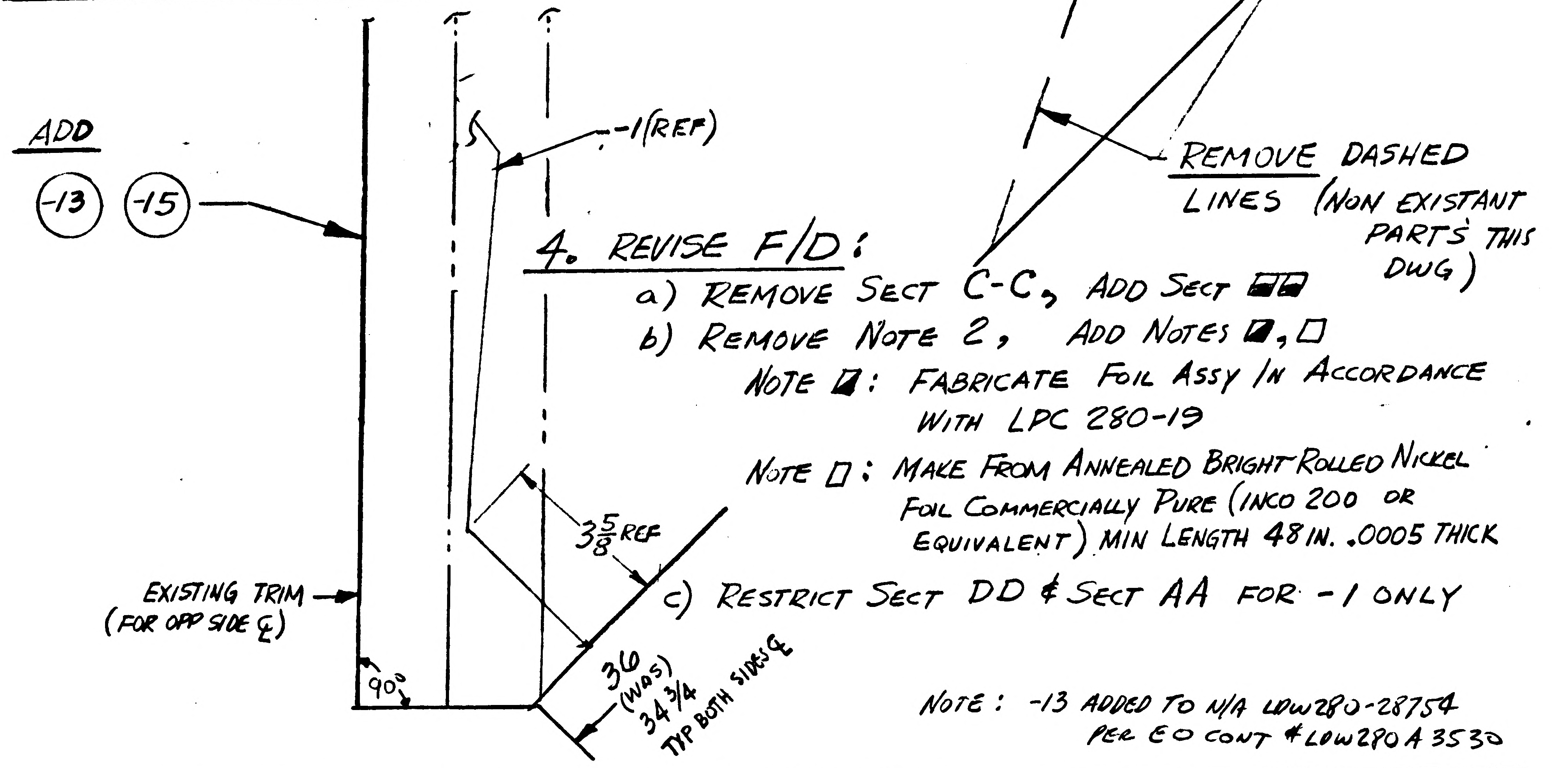
℄
45°
$1\frac{3}{8}$ REF
$3\frac{1}{4}$ $\pm\frac{1}{16}$ CONSTANT
5°-15° REF
-13
-15
10°-15°
-1 (REF)
2 $\pm\frac{1}{16}$
40°-50° REF
$\frac{1}{4}$ RAD TYP
MESH (REF)
$8\frac{1}{4}$ $\pm\frac{1}{16}$ CONSTANT (PROJECTED)
BD TANGENT ~BUP 40°-50°
BD TANGENT ~BDN 30°-40°
(USE NEXT AVAILABLE SECT LETTER) ◪
◪
ADD

(ADD) SECT ◪◪ (NO SCALE)
FOR -13 ONLY

2. REVISE B/M AS SHOWN:

-15	-13				PART NO.		NOMENCLATURE			PROCESS
	✓				MESH	E	INCONEL KNITTED SLEEVING	(SEE NOTE 3 ¢ ◪)		
	/				LDW280-28755-15	E	TRIM ¢ FORM ASSY			
					-13		FOIL ASSY (WELDED)			FLW
					-11		ZEE ASSY (WELDED)	(SEE NOTE ☐ ¢ ◪)		
/					-5		WELD ASSY	(SEE NOTE ☐ ¢ ◪)		
					-3		TRIM ¢ FORM ASSY			
					LDW280-28755-1	E	FOIL ASSY (WELDED)			FLW

3. REVISE MOD/BLK: ADD -13 N/A LDW280-28754 LM2 THRU 15 1 REQ/MOD



ADD
(-13) (-15)
-1 (REF)
$3\frac{5}{8}$ REF
EXISTING TRIM (FOR OPP SIDE ℄)
90°
36 (WAS) $34\frac{3}{4}$ TYP BOTH SIDES ℄

REMOVE DASHED LINES (NON EXISTANT PARTS THIS DWG)

4. REVISE F/D:
   a) REMOVE SECT C-C, ADD SECT ◪◪
   b) REMOVE NOTE 2, ADD NOTES ◪, ☐
      NOTE ◪: FABRICATE FOIL ASSY IN ACCORDANCE WITH LPC 280-19
      NOTE ☐: MAKE FROM ANNEALED BRIGHT ROLLED NICKEL FOIL COMMERCIALLY PURE (INCO 200 OR EQUIVALENT) MIN LENGTH 48 IN. .0005 THICK
   c) RESTRICT SECT DD ¢ SECT AA FOR -1 ONLY

NOTE: -13 ADDED TO N/A LDW280-28754 PER EO CONT # LDW280A 3530

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG			2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
CLEARANCE FOR BATTERY SUPPORT STRUCTURE	ADDED -13-15 & SECT ◪◪, NOTES ◪, ☐ REMOVED NOTE 2, SECT C-C	FR 12/3/6

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM	LM 2 (32) THRU LM 15 (45)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
REVISE DWG	RECORD EO	REWORK	SCRAP	APPROVED BY	JLP			JRS	NJH		RMC	
✓		NOT REQD		DATE	11/19/66	11/23/66		11/18/66	11/28/66		12-1-66	12/2/66
				5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	FOIL ASSY D/S QUAD IV PLUME SHIELD UPPER	LDW280-28755	A6

ISSUED BY JOHN LANG / J. STRAKOSCH X1153 SECTION VEHICLE DESIGN INTEGRATION GROUP NO. 335 PL 35

ENG 32.2 REV 3-48

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMP-A

DWG. NO. LEO 280 | EO NO. 421
CONTROL INFO NO. LDW280A-4411

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM-6	B 2	
LDW 280-28734	"	A 8	
LDW 280-28735	"	C 3	
LDW 280-28746	LTA 8 (18) LM-1 (31) THRU LM-15 (45)	B 3	
LDW280-28747	LTA 8 (18) LM-1 (31) THRU LM-6 (36)	B 1	
LDW280-28749	"	A 7	
LDW280-28750	"	B 3	
LDW280-28752	"	B 2	
LDW280-28753	"	A 3	
LDW280-28755	LTA 8 (18) LM-1 (31)	A 7	
LDW280-28756	LTA 8 (18) LM-1 (31) THRU LM-15 (45)	A 6	
LDW280-28759	LTA 8 (18) LM-1 (31) THRU LM-6 (36)	B 2	
LDW280-28760	"	B 1	
LDW280-28768	LM-1 (31)	B 2	
LDW280-28769	LM-1 (31)	B 1	
LDW280-28771	LTA 8 (18) LM-1 (31) THRU LM-6 (36)	B 2	
LDW 280-28772	"	B 1	
LDW280-28774	"	A 7	
LDW280-28775	"	B 2	
LDW280-28803	"	A 2	
LDW 280-28805	"	A 1	
LDW280-51824	LM-1 (31) THRU LM-15 (45)	A 1	
LDW280-51825	"	A 2	
LDW280-51829	"	A 1	
LDW280-51830	"	A 1	
LDW280-51834	"	A 1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC280-19

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: 12/20

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REWORK ☐ REQ'D SCRAP ☐

APPROVED BY		AB						
DATE	12/16/66	12/16/66		12/16/66	12/16/66		12/20	12-20-66
1	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 421

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01 NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG NO. LE0280
EO NO. 705
CONTROL INFO NO. LDW280A 8997

IN M/B RESTRICT THE FOLLOWING PARTS FOR USE AS SHOWN.

DWG No	DASH No*	**REST. FOR USE ON	***WAS USED ON	CH. LTR	TITLE
✓LDW280-18125	-15,-17&-18	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	↑
✓LDW280-18130	-11,-13&-14	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	A8	
✓LDW280-18168	-17	LM-1 & LM-2	LM-1 THRU LM-15	A2	
✓LDW280-28730	-21	LM-2	LM-2 & LM-3	B8	
✓LDW280-28737	-15,-17,-19 -21,-25&-27	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	SEE DWG
	-35	LM-1 & LM-2	LM-1 THRU LM-15		
✓LDW280-28738	-9	LM-1 & LM-2	LM-1 THRU LM-15	A8	
✓LDW280-28746	-15&-31	LM-1 & LM-2	LM-1 THRU LM-15	B4	
✓LDW280-28747	-13	LM-1 & LM-2	LM-1 THRU LM-15	B5	
✓LDW280-28755	-13	LM-2	LM-2 THRU LM-15	A8	
LDW280-28756	-13	LM-2	LM-2 THRU LM-15	C1	↓

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1244 ok 5

REASON FOR EO: PROVISIONS FOR FITH SHIELD

DESCRIPTION OF EO: FOR * NOTED DWGS RESTRICTED DASH No * TO ** WAS ***.

Ⓡ GAEC EO RELEASE: JK 9/5/?

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	Jap			JHS	[illegible]		WRB	[illegible]
DATE	8/31/67			8/30/67	9/1/67		9/1/67	9/1/67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 705

9/1
ISSUED BY G. ZEMAN/J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-28756 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28754	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
		LM-3(33)	1
LM	LDW280-28754	LM-2(32)	1
PART NO. LDW280-28756-13		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28754	LM-1(31)	1
PART NO. LDW280-28756-17		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28754	LTA-8(18)	1
PART NO. LDW280-28756-1		GAEC SCH NO. 52	

WORK PKG FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	1.11	2.00		3.00			
REV	B	B	B	B		B			
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	F	GRUMMAN REL INFO B		
LAST DASH NO. USED	-19	PRIM NO. 207	JK(001) MP-14A	6/26/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
±1/16 ±.030 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	J. BACKOFEN 7/14/66	THERMO	HULETT 8/16/66
LAYOUT BY		RELIABILITY	
CHECKED BY			
GR LEADER	J. STRAKOSCH 7/15/66		
VEH DES INT	W. BISCHOFF 7/16		
STRUCTURES	F.B. 7/16	PROJ ENGR	F. DE SENA/RMC 7/25
STRUCTURES	R. HINDERMAN 7/16	REL GROUP	BOTTI 8/18/66
WEIGHTS	V.C. ANGELORO 7/22		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ASSY
DESCENT STAGE QUAD 4 PLUME SHIELD
UPPER

SIZE	CODE IDENT NO.		
B	26512	LDW280-28756	B (B)
SCALE NONE		SHEET 1.00 OF 5	

THIS DWG SUPERSEDES LDW280-28756 NO CHANGE 8/18/66

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE LAST REV NO CHG ADDED SH 1.10 & 1.11	M.H.MULLER	5-4-67				
A	1							LEO280-188	REWROTE SEAMWELD NOTE & ADDED NOTES 5 & 6	LTA-8 LM-1	NOT	REQD	M. H. MULLER 5/4/67		
	2							EOA 2	ON-1 ADDED 45°, 5, 8 1/4, 24 15/16 & 27 3/16 DIM		✓				
	3	1.10, 3.00						LEO280-240	REF LEO 280-118 ADDED PART ℄ TO NOTE 5	LTA-8 LM-1	✓				
	4	1.00, 1.10 & 2.00 & 3.00						EOA4	REVISED TRIM OF -3; REMOVED DETAIL 'A', SECT B-B, AND EDGE VIEW; ADDED GH11W-46 & GT15B-46 TO -1; REMOVED LM-1 EFF FROM -1; ADDED -7; ADDED CALLOUT -1 WELD ASSY;	LTA-8 LM-1	✓				
	5	1.00, 1.10 2.00 & 3.00						EOA5	ADDED -9, -11, SECT E-E & NOTES 7, 8 & 9; REMOVED SECT C-C	LM-2 THRU LM-15	NOT	REQD			
	6	1.10, 3.00						LEO280-421	ADDED NOTE 10	LM-1 THRU -15 LTA-8	NOT	REQD			
	7	1.10, 3.00						EOA 7	ON -3 & -11 ADDED SYMBOL FOR LAP DIRECTION	LM-1 THRU LM-15	✓				
	8	1.00, 1.10 3.00						EOA8	IN F/D & B/M REMOVED -9 SKIN ASSY & -11 TRIM & FORM ASSY; ADDED -13 & -15:	LM-2 THRU LM-15		-9			
	9	1.00 1.10, 3.00					✓	EOA9	REMOVED -7 ADDED -17	LM-1		-7			
	10	1.00, 1.10 2.00, 3.00					✓	EOA10 LCD19-1135	REVISED EOA9; REMOVED DIMENSIONAL DIFFERENCES BETWEEN -19 & -3; EFF FOR -17 LM-1 (31) REVISED EOA8 REMOVED -15 SKIN. FOR -13 ADDED EFF LM-3 (33) THRU LM-15 (45)	LM-1 THRU LM-15	✓	-15			
B	1	1.00, 1.10 2.00 & 3.00					✓	LEO280-559	FROM B/M & FLD REMOVED LDW280-17970 (ALL DASH NO'S) REVISED EXISTING NOTE 10 BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.	LTA-8 LM-1 THRU LM-15	NOT	REQD			

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCTURE	STRUCTURE	MATERIALS	THERMO	WEIGHTS	PROJ			
A											
B											

FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28756	B
SCALE NONE			SHEET 1.10

(B)

ENG 77.3 5-65

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~CONT.~~ APPD
B	2	1.10						A+B Ⓒ	REF EOA4, IN REVISION "ADDED GH11W-46 & GT15B-46 TO -1" SHOULD BE "ADDED GH11W-46 TO -3 & GT15B-46 TO -1" REF EOA9 IN REVISION SHOULD BE ADDED -17 & -19 D.J.	NOTED	NOT	REQD	M.H. MULLER 5/4/67		6-26-67

CHG APPD LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURE	STRUCTURE	MATERIALS	THERMO	WEIGHTS	PROJ			
B		6/19/67	6/20/67								

FOR CONTINUATION OF REVISIONS SEE SHEET ________

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28756	B
SCALE NONE		SHEET 1.11	

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ENG 77.3 5-65

01

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QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				-17	-3	-1											
						1		GT15B-46	E	TAPE	GRUMMAN STD						
				1				LDW280-18083-19		ZEE	SEE DWG						
						1		LDW280-18083-11		ZEE	SEE DWG						
				1				LDW280-28756-19		TRIM & FORM ASSY	SEE NOTE 10				NONE	NONE	
								-17		SKIN ASSY WELDED					FLW	NOTE 9	
								-13		SKIN ASSY WELDED	SEE NOTE 10				FLW	NOTE 9	
					1			-5		WELD ASSY	SEE NOTES 7 & 8				FLW	NONE	
						1		-3		TRIM & FORM ASSY					NONE	NONE	
								LDW280-28756-1	E	SKIN ASSY WELDED					FLW	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	FOIL WELDING	LSP14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28756	B

SCALE NONE

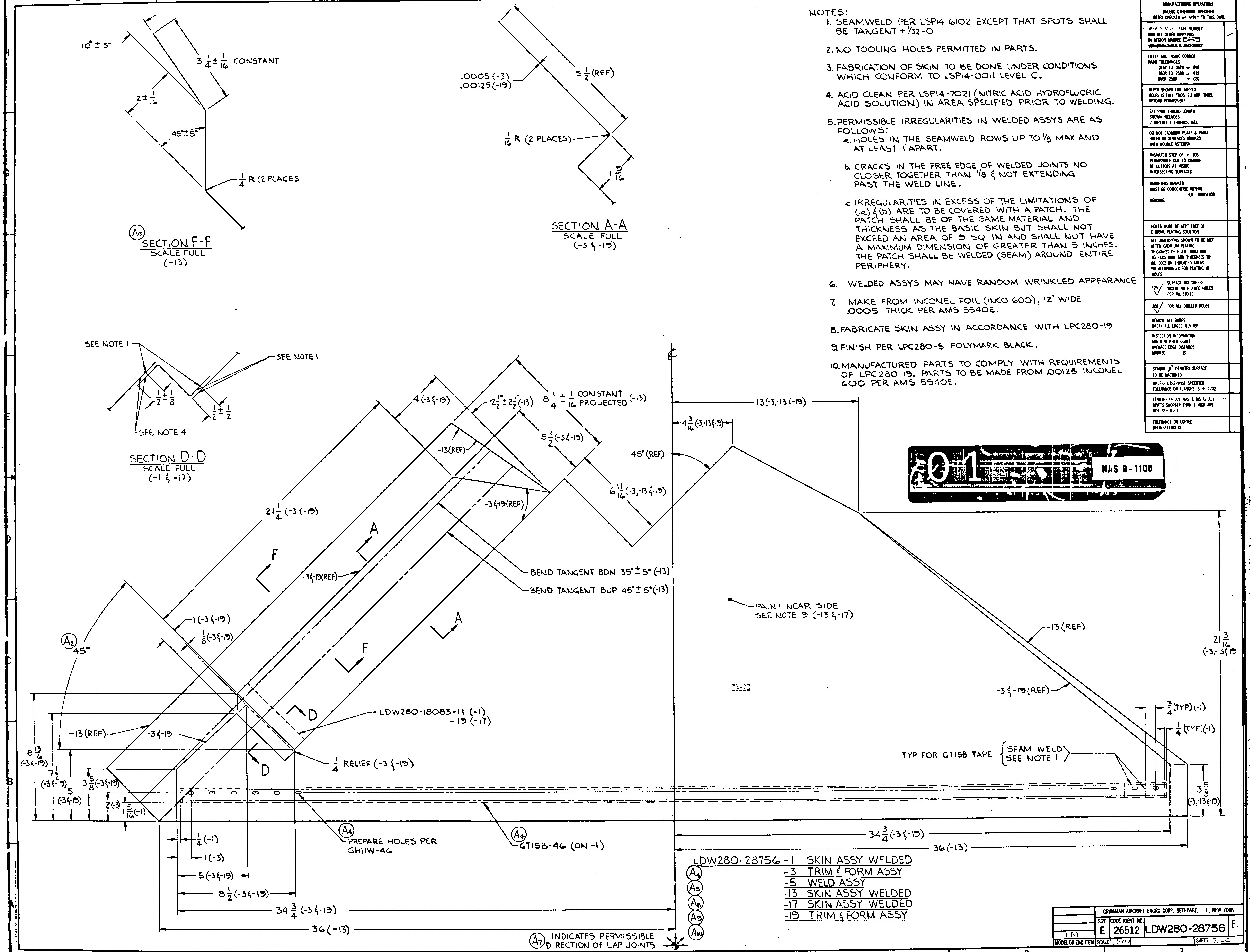
SHEET 2.00

(B)

ENG 77.2 7-65

01

NAS 9-1100



8
7
6
5
4
3
2
1
H
G
F
E
D
C
B
10° ± 5°
3 1/4 ± 1/16 CONSTANT
2 ± 1/16
45° ± 5°
1/4 R (2 PLACES
A5
SECTION F-F
SCALE FULL
(-13)
.0005 (-3)
.00125 (-19)
5 1/2 (REF)
1/16 R (2 PLACES)
1 9/16
SECTION A-A
SCALE FULL
(-3 & -19)
SEE NOTE 1
SEE NOTE 1
1/2 ± 1/8
1/2 ± 1/2
SEE NOTE 4
SECTION D-D
SCALE FULL
(-1 & -17)
4 (-3 & -19)
12 1/2° ± 2 1/2° (-13)
8 1/4 ± 1/16 CONSTANT PROJECTED (-13)
5 1/2 (-3 & -19)
-13 (REF)
6 11/16 (-3, -13 & -19)
-3 & -19 (REF)
21 1/4 (-3 & -19)
A
F
-3 & -19 (REF)
BEND TANGENT BDN 35° ± 5° (-13)
BEND TANGENT BUP 45° ± 5° (-13)
13 (-3, -13 & -19)
4 3/16 (-3, -13 & -19)
45° (REF)
PAINT NEAR SIDE
SEE NOTE 9 (-13 & -17)
-13 (REF)
-3 & -19 (REF)
21 3/16 (-3, -13 & -19)
A2
45°
-1 (-3 & -19)
1/8 (-3 & -19)
A
F
D
LDW280-18083-11 (-1)
-19 (-17)
1/4 RELIEF (-3 & -19)
D
-13 (REF)
-3 & -19
8 13/16 (-3 & -19)
7 1/2 (-3 & -19)
5 (-3 & -19)
3 5/8 (-3 & -19)
2 (-3)
1 5/16 (-1)
3/4 (TYP) (-1)
1/4 (TYP) (-1)
TYP FOR GT15B TAPE
SEAM WELD
SEE NOTE 1
3 5/8 (-3, -13 & -19)
1/4 (-1)
1 (-3)
5 (-3 & -19)
8 1/2 (-3 & -19)
34 3/4 (-3 & -19)
36 (-13)
A4
PREPARE HOLES PER GH11W-46
A4
GT15B-46 (ON -1)
34 3/4 (-3 & -19)
36 (-13)
A7
INDICATES PERMISSIBLE DIRECTION OF LAP JOINTS

NOTES:

1. SEAMWELD PER LSP14-6102 EXCEPT THAT SPOTS SHALL BE TANGENT + 1/32 - 0
2. NO TOOLING HOLES PERMITTED IN PARTS.
3. FABRICATION OF SKIN TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011 LEVEL C.
4. ACID CLEAN PER LSP14-7021 (NITRIC ACID HYDROFLUORIC ACID SOLUTION) IN AREA SPECIFIED PRIOR TO WELDING.
5. PERMISSIBLE IRREGULARITIES IN WELDED ASSYS ARE AS FOLLOWS:
   a. HOLES IN THE SEAMWELD ROWS UP TO 1/8 MAX AND AT LEAST 1" APART.
   b. CRACKS IN THE FREE EDGE OF WELDED JOINTS NO CLOSER TOGETHER THAN 1/8 & NOT EXTENDING PAST THE WELD LINE.
   c. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) & (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.
6. WELDED ASSYS MAY HAVE RANDOM WRINKLED APPEARANCE
7. MAKE FROM INCONEL FOIL (INCO 600), 12" WIDE .0005 THICK PER AMS 5540E.
8. FABRICATE SKIN ASSY IN ACCORDANCE WITH LPC280-19
9. FINISH PER LPC280-5 POLYMARK BLACK.
10. MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING THICKNESS OF PLATE .0003 MIN TO .0005 MAX MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL STD 10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

01 NAS 9-1100

LDW280-28756-1 SKIN ASSY WELDED
A4 -3 TRIM & FORM ASSY
A5 -5 WELD ASSY
A8 -13 SKIN ASSY WELDED
A9 -17 SKIN ASSY WELDED
A10 -19 TRIM & FORM ASSY

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE E	CODE IDENT NO. 26512	LDW280-28756	E
MODEL OR END ITEM	SCALE 1/2 & NOTED		SHEET 5 OF 6	

HC

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280
EO NO. 240
CONTROL INFO NO. LEM-2-2642

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE ✱.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH.
THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LDW 280-25703	A4	A5	✱, ✱✱, ✱✱✱
-25704	A3	A4	✱, ✱✱, ✱✱✱
-25705	B5	C2	✱, ✱✱
-25706	A3	A5	✱, ✱✱, ✱✱✱
-25707	B1	B2	✱, ✱✱, ✱✱✱
-28730	A1	A5	✱
-28734	A1	A4	✱
-28735	A1	B1	✱
-28737	A1	A2	✱
-28738	A1	A2	✱
-28740	A1	A2	✱
-28741	A1	A2	✱
-28743	A1	A2	✱
-28744	A1	A2	✱
-28746	A1	A2	✱
-28747	A1	A2	✱
-28749	A1	A2	✱
-28750	A1	A2	△
-28755	A1	A3	△
-28756	A1	A3	✱
-28759	A1	A3	✱
-28760	A1	A2	✱
-28764	A1	A2	✱
-28765	A1	A2	✱
-28771	A2	A3	✱
-28772	A2	A3	✱
-28774	A1	A2	✱
LDW 280-28775	A1	A2	✱

EFFECTIVITY:
✱✱✱ - QUAL TEST (72)
✱✱ - LTA-5 (15)
✱ - LEM-1 (31) THRU-6 (36) & LTA-8 (18)
△ - LTA-8, LEM-1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: TO FACILITATE MANUFACTURING

DESCRIPTION OF EO: REF LEO 280-118
ADDED PART "C" TO NOTE ✱.

GAEC EO RELEASE: 2

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		SEE ABOVE	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP
PRIORITY: C_2

APPROVED BY	MJS			CAW	CAW	RMC
DATE	8/18/66			8/23/66	8/23/66	9-3
8-20-66	VDC	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

DRAWING TITLE: —
DRAWING NO. LEO-280
EO NO. 240

ISSUED BY LIAISON G. MARTELL x3604 SECTION VDI (DESCENT STAGE) GROUP NO. 335 PL 35

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NAS 9-1100

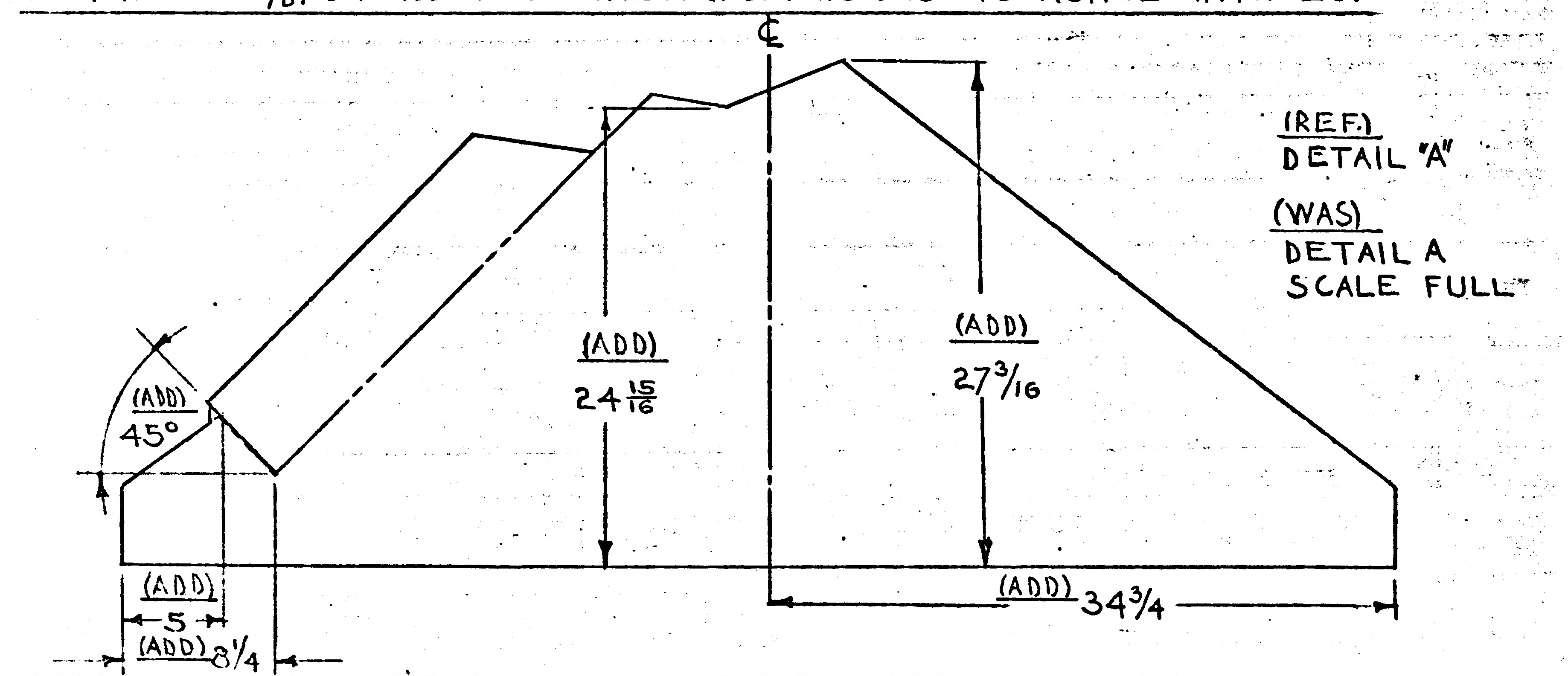
*

2.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28756 | EO NO. A2
CONTROL INFO NO. LEM-2-2556

ON-1 REVISE F/D. BY ADDING PERIMETER DIMENSIONS TO AGREE WITH EO.



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO: INSUFFICIENT PERIMETER DIMENSIONING TO MAKE PART

DESCRIPTION OF EO: ON-1 ADDED: 45°; -5; -8 1/4; -24 15/16; ℄-27 3/16 DIM.S.

GAEC EO RELEASE: FS 8-256

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-1 (31)	
		LTA-8 (18	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP								
✓		✓		APPROVED BY					~		
				DATE	9/1	9/19/6			~	8/24/66	8-25-66	8-24-66
				8-10-66	✓	~~SUPPORT~~ WTS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C2
DRAWING TITLE: SKIN ASS'Y D/S. QUAD 4 PLUME SHIELD UPPER
DRAWING NO. LDW280-28756
EO NO. A2

ISSUED BY LIAISON T.J.MARTIN -X3604 SECTION V.D.1 GROUP NO. 335 PL 35

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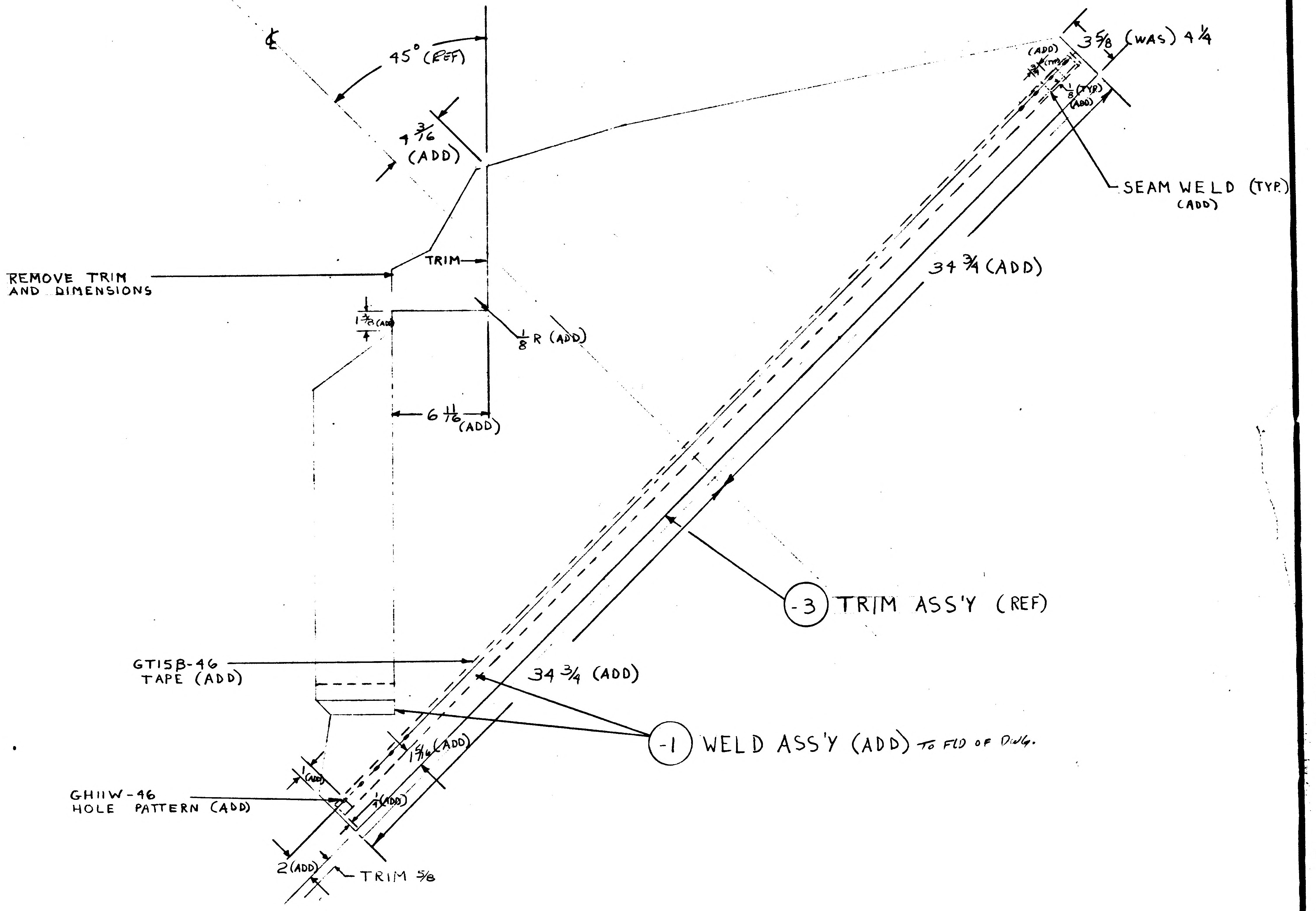
REVISE TRIM OF -3 (TRIM & FORM ASS'Y) AS SHOWN.
ADD CALL OUT -1 (WELD ASS'Y).
REMOVE DETAIL A, SECT. B-B, AND EDGE VIEW WITH DIMENSIONS.
ADD -7 - IDENTICAL TO -1 EXCEPT ADD (FINSH PER LPC-280-5. PAINT NEAR SIDE) FOR LEM-1 ONLY.

IN B/M ADD GT15B-46 (TAPE) FOR-1, GH11W-46 (HOLE PATTERN) FOR-3.
REMOVE LEM-1 REQM'TS FROM -1



℄
45° (REF)
7 3/16 (ADD)
3 5/8 (WAS) 4 1/4
(ADD)
(TYP)
(ADD)
SEAM WELD (TYP) (ADD)
REMOVE TRIM AND DIMENSIONS
TRIM
1 3/4 (ADD)
1/8 R (ADD)
6 11/16 (ADD)
34 3/4 (ADD)
-3 TRIM ASS'Y (REF)
GT15B-46 TAPE (ADD)
34 3/4 (ADD)
-1 WELD ASS'Y (ADD) TO FLD OF DWG.
1 3/16 (ADD)
(ADD)
GH11W-46 HOLE PATTERN (ADD)
1/2 (ADD)
2 (ADD)
TRIM 3/8

②

DETAIL SPEC REQD		CLASS II ENGRG CHG		CLASS I ENGRG CHG		CONTROL INFO NO. LDW280A-0444

REASON FOR EO: ADDITIONAL THERMO REQUIREMENTS

DESCRIPTION OF EO: REVISED TRIM OF -3. ADDED CALLOUT -1 WELD ASSY. REMOVED DETAIL A, SECT. B-B, AND EDGE VIEW ADDED GH11W-46 & GT15B-46 TO-1 REMOVED LEM-1 EFF FROM-1 ADDED -7

THERMO FR 9/28/66

GRUMMAN EO RELEASE

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA 8 (18)	
LEM		LEM-1 (31)	

DRAWING REVISION REQD: ✓ REVISE DWG, RECORD EO
DISPOSITION OF PARTS: ✓ REWORK, SCRAP

BY							RMC	
DATE	9/15/66	9-30	11/5		9/17		9-28	9/29/66
	VDI	~~SUPPORT~~	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	~~GOVT~~

PRIORITY: C

DRAWING TITLE: SKIN ASS'Y D/S QUAD IV PLUME SHIELD UPPER

ENGINEERING ORDER
DRAWING NO. LDW280 28756
EO NO. A4

ISSUED BY J. BACKOFEN
SECTION VEH. DES. INT.
GROUP NO. 335
PL 35
CODE IDENT NO. 26512
GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 323 REV 3-66

THIS IS AN ORIGINAL DRAWING

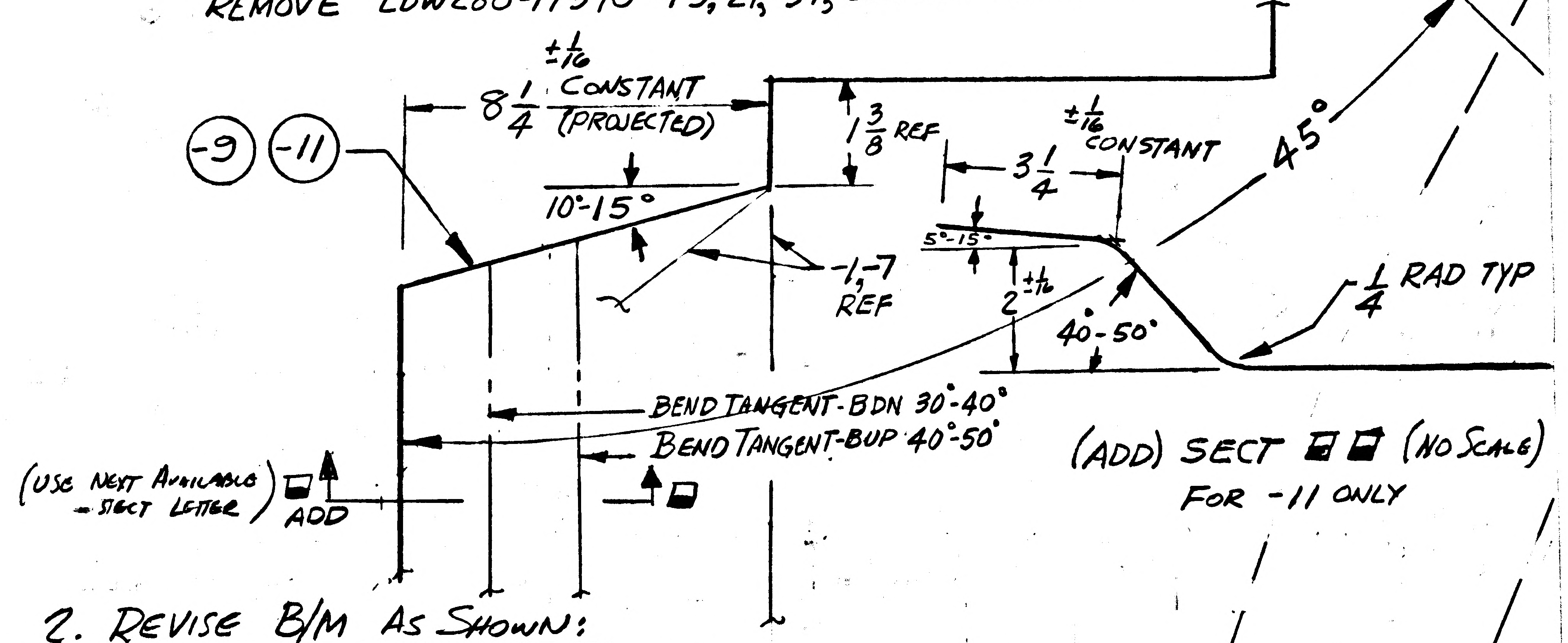
01 NAS 9-1100

VO 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28756 | EO NO. A5
CONTROL INFO NO. LDW280A 3485

1. IN F/D & B/M:
   a) CREATE -9, -11 IDENT TO -1, -3 RESP EXCEPT AS NOTED
   REMOVE LDW280-17970 -19, -21, -37, LDW280-18083-11



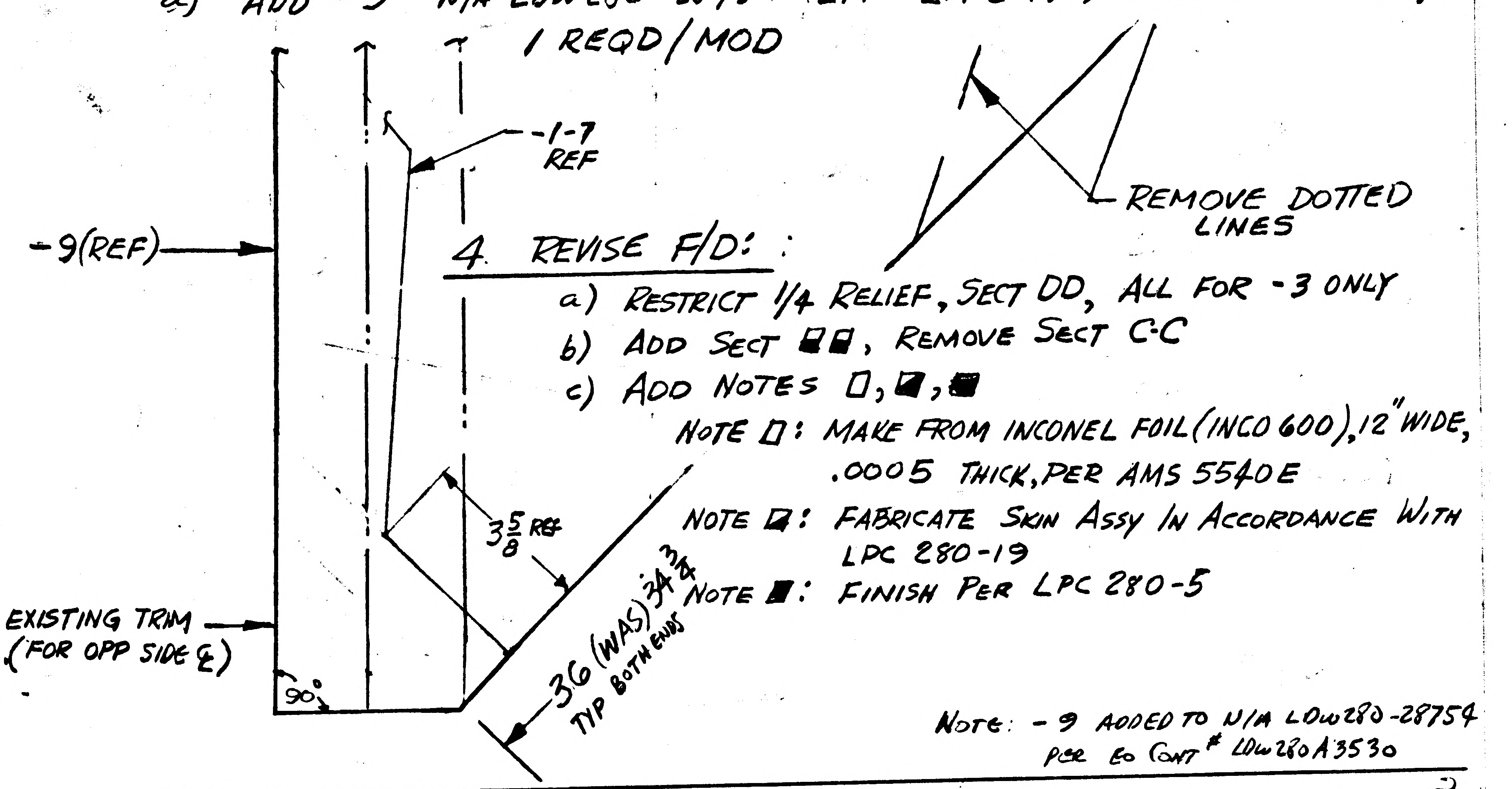
-9 (-11)
8 1/4 ±1/16 CONSTANT (PROJECTED)
10°-15°
1 3/8 REF
-1, -7 REF
3 1/4 ±1/16 CONSTANT
5°-15°
2 ±1/16
40°-50°
45°
℄
1/4 RAD TYP
BEND TANGENT-BDN 30°-40°
BEND TANGENT-BUP 40°-50°
(USE NEXT AVAILABLE SECT LETTER) ADD

(ADD) SECT ■■ (NO SCALE)
FOR -11 ONLY

2. REVISE B/M AS SHOWN:

-11	-9				PART NO		NOMENCLATURE		PROCESS	FINISH
	✓				GT15B-46	E	TAPE			
	1				LDW280-28756-11	↑	TRIM & FORM ASSY		NONE	NONE
					-9		SKIN ASSY (WELDED)	(SEE NOTE ◪)	FLW	SEE NOTE ■
					-7		SKIN ASSY (WELDED)		FLW	SEE NOTE ■
1					-5		WELD ASSY (SEE NOTE □ & ◪)		NOTED	NONE
					-3	↓	TRIM & FORM ASSY		NONE	NONE
					LDW280-28756-1	E	SKIN ASSY (WELDED)		FLW	NONE

3. IN MOD/BLOCK:
   a) ADD -9 N/A LDW280-28754 EFF LM 2 (32) THRU LM 15 (45)
   1 REQD/MOD



-9(REF)
-1-7 REF
REMOVE DOTTED LINES
3 5/8 REF
36 (WAS) 34 3/4 TYP BOTH ENDS
90°
EXISTING TRIM (FOR OPP SIDE ℄)

4. REVISE F/D:
   a) RESTRICT 1/4 RELIEF, SECT DD, ALL FOR -3 ONLY
   b) ADD SECT ■■, REMOVE SECT C-C
   c) ADD NOTES □, ◪, ■
   NOTE □: MAKE FROM INCONEL FOIL (INCO 600), 12" WIDE, .0005 THICK, PER AMS 5540E
   NOTE ◪: FABRICATE SKIN ASSY IN ACCORDANCE WITH LPC 280-19
   NOTE ■: FINISH PER LPC 280-5

NOTE: -9 ADDED TO N/A LDW280-28754
PER EO CONT # LDW280A3530

2

DETAIL SPEC REQ | CL II ENGRG CHG | CL I ENGRG CHG

REASON FOR EO: CLEARANCE FOR BATTERY - STRUCTURE

DESCRIPTION OF EO: ADDED -9, -11, SECT ■■, NOTES □, ◪, ■
REMOVED SECT C-C

GAEC C EO RELEASE: ER 12/5/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM	LM2-(32)	THRU LM 15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY			RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓		NOT	REQD		MS				WJM		RMC	
				DATE	11/19/66	11/23		11/18/66	11/28/66		12-1-66	12/2/66
				5	VDI	~~SUPPORT~~ THERMO						~~CONT~~

PRIORITY: C
DRAWING TITLE: SKIN ASSY D/S QUAD 4 PLUME SHIELD UPPER
DRAWING NO. LDW280-28756
EO NO. A5

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 35 ~~EHF~~

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EM-A

DWG. NO. LEO 280	EO NO. 421
CONTROL INFO NO. LDW280A-4411	

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM6	B 2	
LDW280-28734	"	A 8	
LDW280-28735	"	C 3	
LDW280-28746	LTA8(18) LM-1 (31) THRU LM-15(45)	B 3	
LDW280-28747	LTA8 (18) LM-1 (31) THRU LM-6(36)	B 1	
LDW280-28749	"	A 7	
LDW280-28750	"	B 3	
LDW280-28752	"	B 2	
LDW280-28753	"	A 3	
LDW280-28755	LTA8 (18) LM-1 (31)	A 7	
LDW280-28756	LTA8(18) LM-1(31) THRU LM-15(45)	A 6	
LDW280-28759	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28760	"	B 1	
LDW280-28768	LM-1(31)	B 2	
LDW280-28769	LM-1(31)	B 1	
LDW280-28771	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28772	"	B 1	
LDW280-28774	"	A 7	
LDW280-28775	"	B 2	
LDW280-28803	"	A 2	
LDW280-28805	"	A 1	
LDW280-51824	LM-1(31) THRU LM-15(45)	A 1	
LDW280-51825	"	A 2	
LDW280-51829	"	A 1	
LDW280-51830	"	A 1	
LDW280-51834	"	A 1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG									
REASON FOR EO LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO				DESCRIPTION OF EO ADDED NOTE *								GAEC EO RELEASE 12/20	
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY					
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		NOT	REQ'D	DATE	12/16/66	12/16/66		12/16/66	12/16/66	12/20	12-20-66
LM		NOTED		REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
				PRIORITY C	DRAWING TITLE NOTED					DRAWING NO. LEO 280	EO NO. 421		

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01
NAS 9-1100

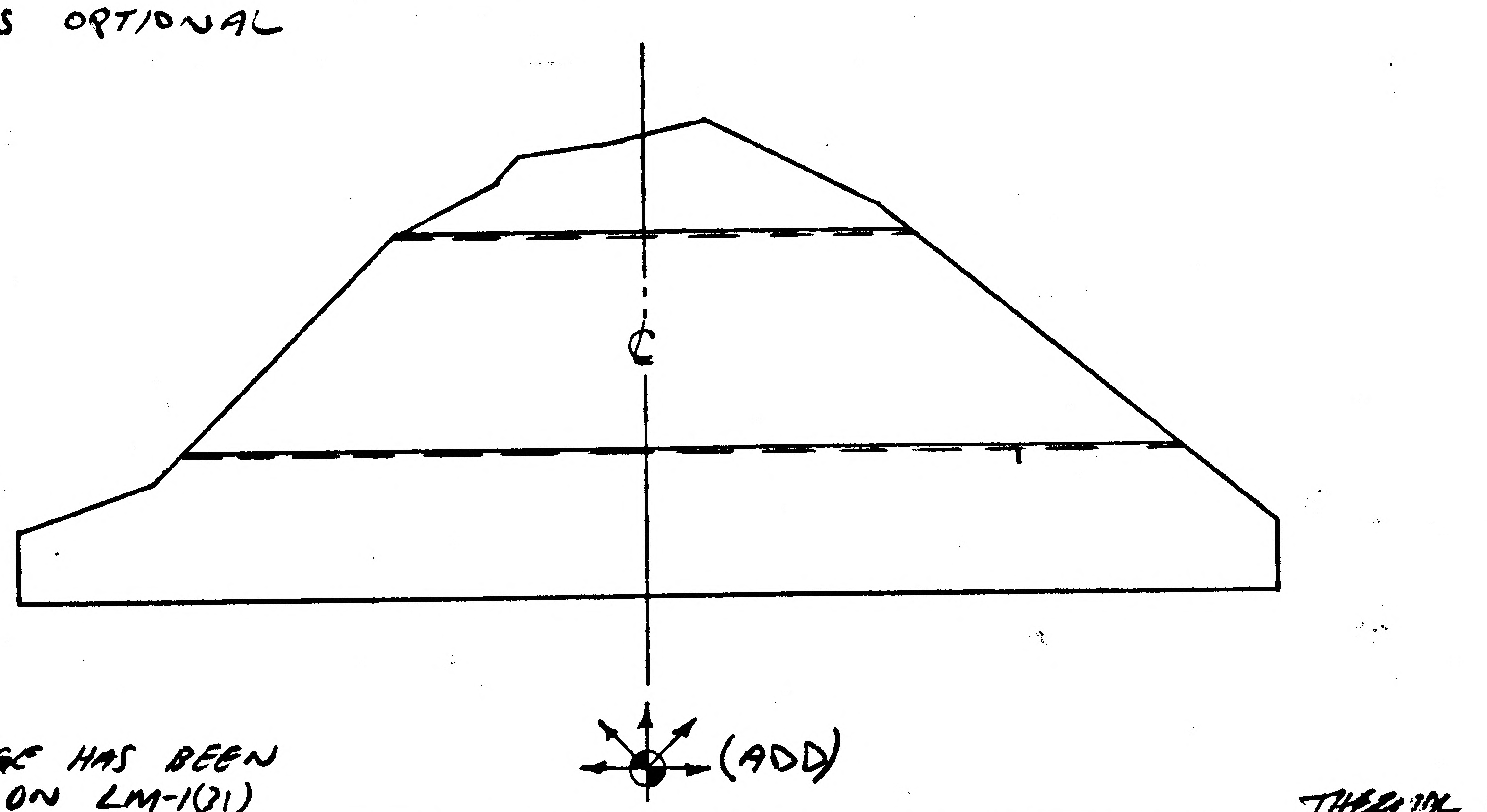
B / *

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28756	EO NO. A7
CONTROL INFO NO. LDW280A4571	

ON-3&-11 ADD SYMBOL INDICATING PERMISSIBLE DIRECTION OF LAP JOINTS
LTAB(18) IS OPTIONAL



* THIS CHANGE HAS BEEN INCORPORATED ON LM-1(31)

THERMAL SHLD
2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PROVIDE COMPLETE FABRICATION AND INSPECTION INFO	ON-3&-11 ADDED SYMBOL FOR LAP DIRECTION	H TE 1/6/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
LM		THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY									
DATE	1/3/67	1/4/67		1/3/67	1/3/67		1-4-67	1/5/67
5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASS'Y DESCENT STAGE PLUME SHIELD UPPER	LDW280-28756	A7

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION V.D.I. GROUP NO. 335 PL 35

01 NAS 9-1100

A

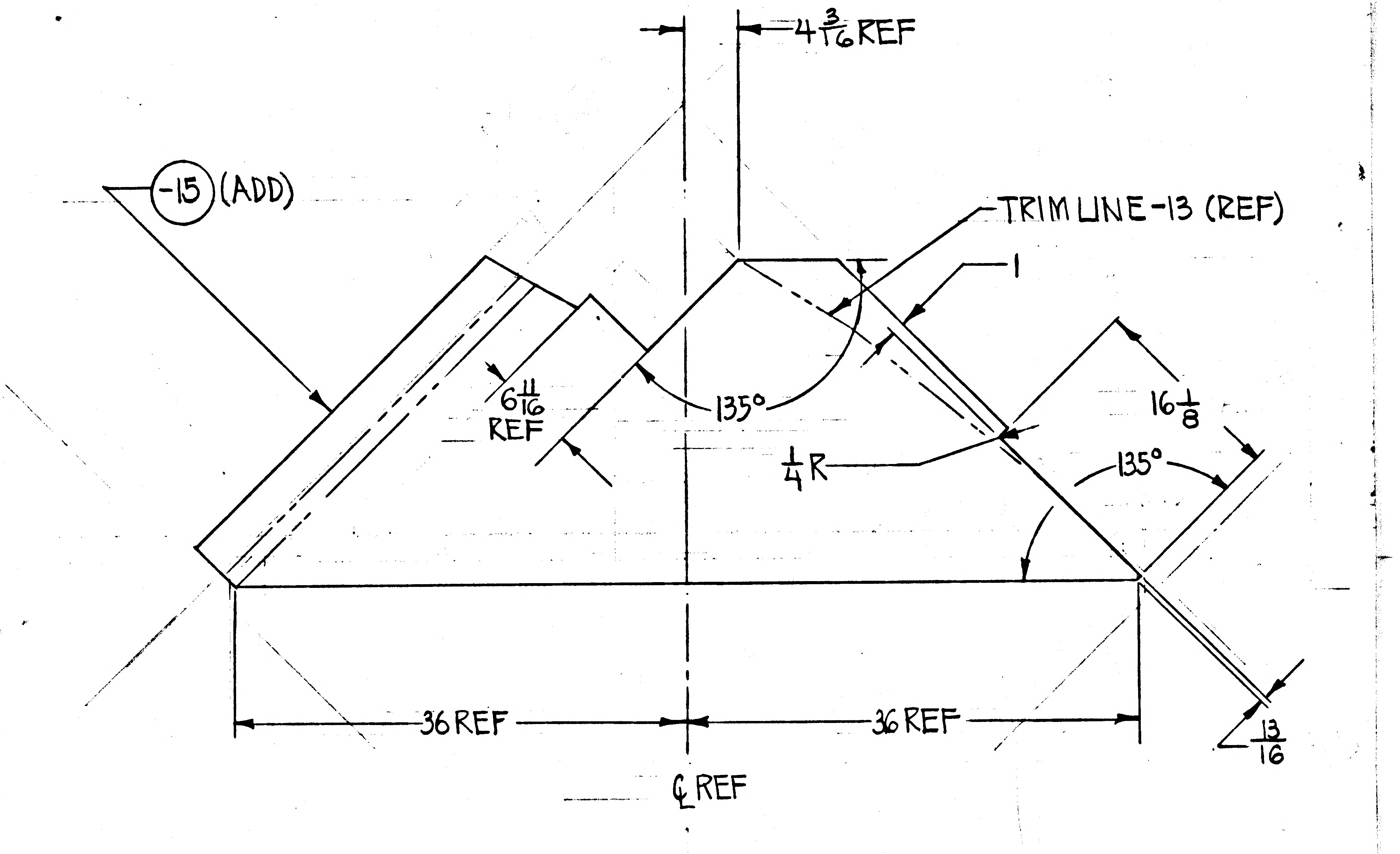
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28756	EO NO. A8
CONTROL INFO NO. LDW280A-5508	

IN F/D & L/M REMOVE -9 SKIN ASSY & -11 TRIM & FORM ASSY. ADD -13 SKIN IDENT TO -9 EXCEPT REMOVE GT15B-46 & GH11W-46. -13 MAKE FROM INCONEL 600 .00125 THICK (WAS .0005 THICK)
EFF FOR -13 LM-2(32) 1 REQD
N/A FOR -13 - LDW280-28754

IN F/D & LM ADD -15 SKIN IDENT TO -13 EXCEPT AS SHOWN
EFF FOR -15 LM-3(33) THRU LM-15(45) 1 REQD
N/A FOR -15 - LDW280-28754



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		

REASON FOR EO: LCR-928 TO IMPROVE PAINT ADHESION

DESCRIPTION OF EO: IN F/D & B/M REMOVED -9 SKIN ASSY & -11 TRIM & FORM ASSY ADDED -13 & -15

C/ GAEC EO RELEASE: FR 2/23/7 2

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS
LM		LM-2(32) THRU	LM-15(45)	✓ REVISE DWG	-9 SCRAP

APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
JAP			JAS	W/St			
DATE 2/21/67			2/18/67	2/21/67		2/21/67	2-22-67
5 VDI							

PRIORITY: C

DRAWING TITLE: SKIN ASSY DES. STAGE QUAD III PLUME SHIELD UPPER

DRAWING NO.: LDW280-28756

EO NO.: A8

ISSUED BY G. ZEMAN/J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

A

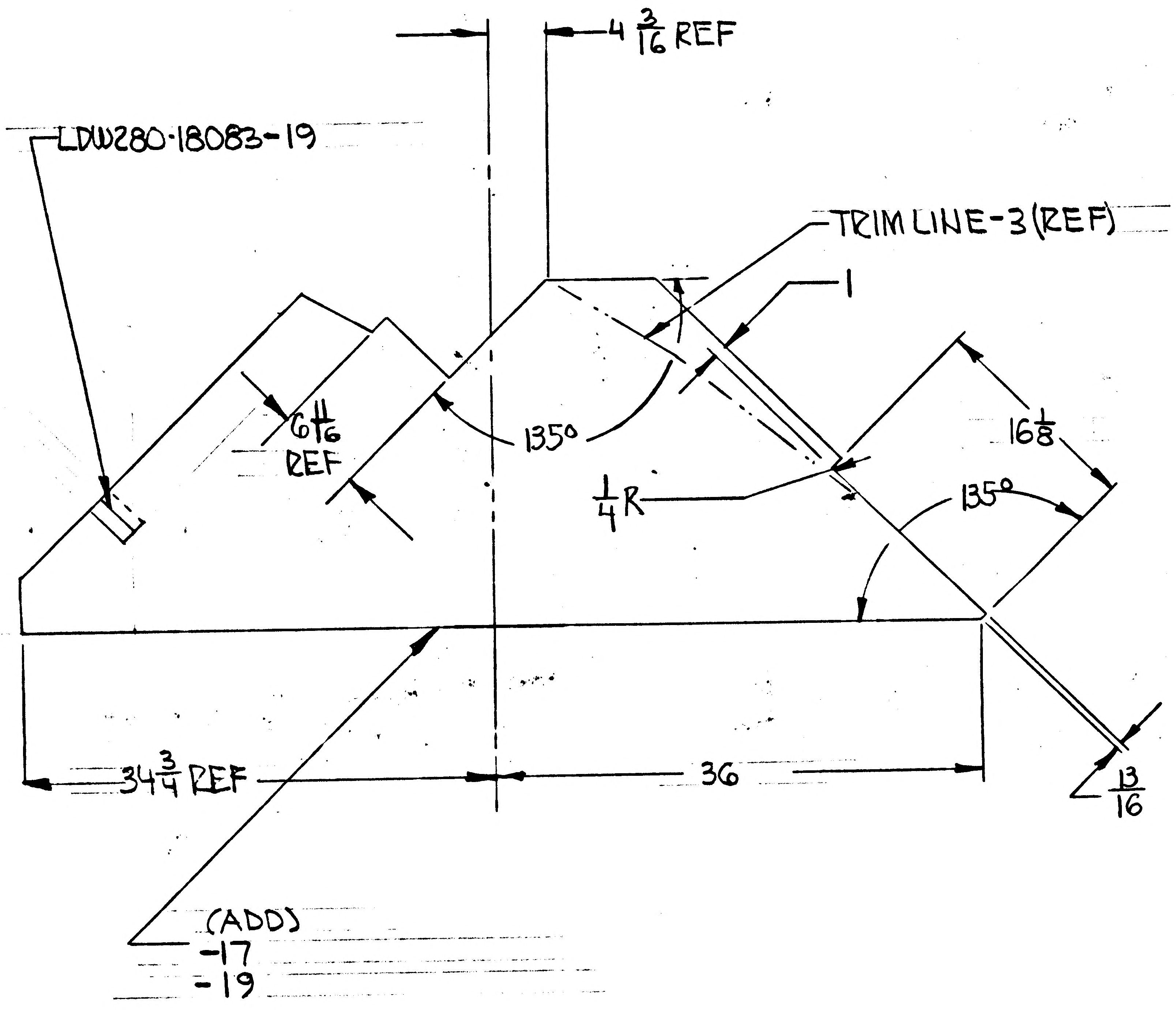
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28756		EO NO.	A7
CONTROL INFO NO. LDW280A-5690			

IN F/D & L/M REMOVE -7 SKIN ASSY. ADD -17 SKIN ASSY IDENTICAL TO -7 EXCEPT -19 SKIN REPLACES -3 TRIM ASSY, LDW280-18083-19 ZEE REPLACES LDW280-18083-11 & REMOVE GT1SB-46 & GH11W-46. -19 SKIN IS IDENTICAL TO -3 TRIM ASSY EXCEPT MATL TO BE INCONEL 600 - .00125 THICK PER AMS5540E AND CHANGES AS SHOWN BELOW

EFF FOR -17 LM-1(31) 1 REQD
N/A FOR -17 LDW280-28754



DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG			

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LCR 928 · TO IMPROVE PAINT ADHESION	REMOVED -7 ADDED -17	JK 3/13/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-7

APPROVED BY								
DATE	3/6/67			3/6/67	3/6/67		3-11-67	3-13-67
5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY QUAD III DES STAGE TOP	LDW280-28756	A9

ISSUED BY G. ZEMAN/J. STRAKOSCH SECTION VD1 GROUP NO. 335 PL 35

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-28756		EO NO. A10
CONTROL INFO NO. LDW280A 6177		

THIS EO REVISE EO A9 REMOVE ALL DIMENSIONAL DIFFERENCES BETWEEN -19 SKIN AND -3 TRIM ASSY.

"-19 SKIN IS IDENTICAL TO -3 TRIM ASSY EXCEPT MATL TO BE INCONEL 600 .00125 THICK PER AMS 5540E" (REF) -19 IS DIMENSIONALLY IDENTICAL TO -3.

-EFF FOR -17 LM-1(31) N/A LDW280-28754 (REF)

THIS EO REVISES EO A8

REMOVE -15 SKIN
FOR-13 ADD EFFECTIVITY LM-3(33) THRU LM-15(45)
N/A LDW 280-28754
NOW EFF. FOR-13 LM-2 (32) THRU LM-15(45) (REF)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 19-1135	2 C

REASON FOR EO: ADDITIONAL THERMAL PROTECTION LCD 19-1135

DESCRIPTION OF EO: REVISED EO A9 REMOVED DIMENSIONAL DIFFERENCES BETWEEN -19 & -3 EFF FOR -17 LM-1(31)
REVISED EO A8 REMOVED -15 SKIN. FOR -13 ADDED EFF LM-3(33) THRU LM-15(45)

Ⓡ GAEC EO RELEASE: JK 4/5/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	-15

	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY				JHS			Dam	
DATE	4/3/67			4/1/67	4/3/67		4/3/67	4-5-67
5								

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY DESCENT STAGE QUAD IV TOP	LDW280-28756	A10

ISSUED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280		EO NO. 559	
CONTROL INFO NO. LDW 280A 6306			

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW · REMOVE LDW280-17970 · ALL DASH NUMBERS AND ADD "SEE NOTE *"

IN F/D REMOVE LDW 280-17970-ALL DASH NUMBERS

REVISE NOTE *
(REF) "MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19."
(ADD) PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

DRAWING No.	CHANGE#	SYMBOL	EFFECTIVITY	TITLE
LDW280-18130	A7	⬡	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW280-18141	A3.	⬡	LM-1 THRU LM-15	
LDW 280-28730	B7	□	LTA-8 LM-1 THRU LM-3	
LDW 280-28734	B2	□	LTA-8 LM-1 THRU LM-3	
LDW280-28738	A7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28740	B3	□	LTA-8 LM-1	
LDW 280-28741	A6	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28744	A7	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28747	B4	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28750	B9	□	LTA-8 LM-1 THRU LM-15	
LDW280-28753	A5	□	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	□	LTA-8 LM-1 THRU LM-15	
LDW280-28760	B5	□	LTA-8 LM-1 THRU LM-3	
LDW280-28765	A7	⬡	LTA-8 LM-1 THRU LM-6	
LDW280-28769	B2	□	LM-1	
LDW 280-28772	B6	□	LM-1 THRU LM-15	
LDW 280-28775	B7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28805	A6	□	LM-1 THRU LM-15	
LDW 280-28806	A4	□	LTA-8 LM-1 THRU LM-15	
LDW 280-51824	A3	□	LM-1 THRU LM-15	SEE DWG

NOTE △ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY WITH LPC 280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM □ REVISE NOTE *.
FOR SYM ⬡ ADD NOTE △ TO DWG

5

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☑	CL I ENGRG CHG ☐										GAEC EO RELEASE	C
REASON FOR EO: UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE			DESCRIPTION OF EO: REMOVED LDW280-17970 FROM B/M & F/D (ALL DASH NO'S) FOR DWG'S □ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ⬡ ADDED NOTE △									JS	4-19-7
EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY						
MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓ REVISE DWG	RECORD EO	NOT REWORK	REQ SCRAP	DATE 4/10/67			4/10/67	4/11/67	4/18	4-18-67
								6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
LM		NOTED		PRIORITY	DRAWING TITLE					DRAWING NO.		EO NO.	
		ABOVE		C	NOTED					LEO 280		559	

ISSUED BY H. PALLMEYER / J. STRAKOSCH
7034
SECTION VEH DES INT GROUP NO. 335 PL 25

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG NO. LE0280
EO NO. 705
CONTROL INFO NO. LDW280A 8997

IN M/B RESTRICT THE FOLLOWING PARTS FOR USE AS SHOWN.

DWG No	DASH No *	** REST. FOR USE ON	*** WAS USED ON	CH. LTR	TITLE
✓ LDW280-18125	-15, -17 & -18	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	↑
✓ LDW280-18130	-11, -13 & -14	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	A8	
✓ LDW280-18168	-17	LM-1 & LM-2	LM-1 THRU LM-15	A2	
✓ LDW280-28730	-21	LM-2	LM-2 & LM-3	B8	
✓ LDW280-28737	-15, -17, -19 -21, -25 & -27	LTA-8, LM-1 & LM-2	LTA-8 & LM-1 THRU LM-15	B1	SEE DWG
	-35	LM-1 & LM-2	LM-1 THRU LM-15		
✓ LDW280-28738	-9	LM-1 & LM-2	LM-1 THRU LM-15	A8	
✓ LDW280-28746	-15 & -31	LM-1 & LM-2	LM-1 THRU LM-15	B4	
✓ LDW280-28747	-13	LM-1 & LM-2	LM-1 THRU LM-15	B5	
✓ LDW280-28755	-13	LM-2	LM-2 THRU LM-15	A8	
✓ LDW280-28756	-13	LM-2	LM-2 THRU LM-15	C1	↓

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 1244 ck 5

REASON FOR EO: PROVISIONS FOR FITH SHIELD

DESCRIPTION OF EO: FOR * NOTED DWGS RESTRICTED DASH No * TO ** WAS ***.

Ⓡ GAEC EO RELEASE: JK 9/5/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY				JMS			WLB	
DATE	8/31/67			9/20/67	9/1/67		9/1/67	9/1/67
	VDI							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 705

ISSUED BY 9/1 G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-28757 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28664	LM-3(33)	1EA
		LM-2(32)	1EA
		LM-1(31)	1EA
LM	LDW280-28664	LTA-8(18)	1EA
PART NO. LDW280-28757-5,-7,-9 & -11		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28561	LM-15(45)	1EA
		LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
		LM-10(40)	1EA
		LM-9(39)	1EA
		LM-8(38)	1EA
		LM-7(37)	1EA
		LM-6(36)	1EA
		LM-5(35)	1EA
		LM-4(34)	1EA
		LM-3 (33)	1EA
		LM-2 (32)	1EA
		LM-1(31)	1EA
LM	LDW280-28561	LTA8(18)	1EA
PART NO. LDW 280-28757-3,-13 & -14		GAEC SCH NO. 52	

WORK PKG FUNCTION #110 27

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	A	GRUMMAN REL INFO A
LAST DASH NO. USED	-14	PRIM NO. 207 JK(001) RIP. SA-6/2/7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.030 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100 | LINE ITEM I | DOCUMENTATION TYPE II

DRAWN BY	CASTELLANO 7/20/66	RELIABILITY	
LAYOUT BY	B. MAJUK	MATERIALS	C. KENGER 7/21/66
CHECKED BY			
GR. LDR	J. STRAKOSCH 7/20/66		
VDI	W. BISCHOFF 7/21/66		
STRUCT	WJF, FEB 7/22/66	PROJ ENGR	F. DESEANA 7/29/66
STRUCT	HILDERMAN 7/22/66	REL GROUP	BOTTI 8/1/66
WEIGHTS	D. ROBESCH 7/27/66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRAP ASSY
DESCENT STAGE THERMAL SHIELD-
ACCESS PANEL FLEXIBLE

SIZE B | CODE IDENT NO. 26512 | LDW280-28757 | A (11)

SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDES LDW780-28757 "NO CHG" 8/1/66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE - LAST REV NO CHANGE ADDED SH. 1.10 A. OCCHINO 5/31/67						
A	1	1.00, 2.00 & 3.00						A1	IN F/D & B/M ADDED -13 & -14, REMOVED -1 & -2 IN M/B -3 N/A LDW280-28561 WAS LDW280-51561 FOR LM-1 THRU LM-6; -5-7-9 & -11, N/A LDW 280-28664 WAS LDW 280-51664 FOR LM-1 THRU LM-3	LTA-8(18) LM-1(31) -2(32) -3(33) -4(34) -5(35) -6(36)		-1 & -2	A. OCCHINO 6-2-66		
	2	2.00 & 3.00						A2	ON -11 ASSY LDW280P17480-19 WAS LDW280P17480-11	LTA-8(18) LM-1(31 THRU 46) LM-6	✓				
	3	3.00						A3	REF: EO A1 LDW280P17479-39 WAS -35	LTA-8(18) LM-1(31) THRU LM-6 (36)	NOT REQ'D				
	4	2.00 & 3.00						A4	REF: EO A1 ADDED TO F/D & B/M LDW 280P18084-19 & -21 (WAS -13 & 15). REVISED CALLOUT FOR LDW280P18084-17 ON -13 -14 (WAS -3 -4)		NOT REQ'D				
	5	3.00						A5	ON -13 & -14 LDW280P17479-61 WAS LDW280P17479-11		✓				
	6	2.00 & 3.00						A6	IN F/D & B/M FOR -11 LDW 280P17479-63 WAS LDW280P17479-31		✓				
	7	1.00						A7	FOR -5-7-9 & -11 DELETED LM-4(34) THRU LM-6(36) N/A LDW280-54558 1 REQ'D/MOD. FOR -3, -13 & -14 ADDED LM-7(37) THRU LM-15(45) N/A LDW280-28561 1 REQ'D/MOD ⓒ D.J.	LM-4(34) THRU LM-15(45)		✓			

CHG APPROVED	LTR	GROUP LDR

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28757	A Ⓐ
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

-14	-13	-11	-9	-7	-5	-3	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								MS20470A3	E	RIVET	STD PART						
24	24	8	6	8	8	6		AN960-D3		WASHER	STD PART						
1	1							LDW280P18084-17		YOKE	SEE DWG						
				1				LDW280P18084-21		YOKE							
					1			LDW280P18084-19		YOKE							
1	1							LDW280P17480-61		STRAP							
		1						LDW280P17480-19									
1	1							LDW280P17480-17									
1	1							-15									
			1			1		-13									
1	1			1	1			LDW280P17480-11									
		1						LDW280P17479-63									
1	1							-39									
1	1							-37									
		1						-33									
			1					-29									
			1					-25									
					1			-23									
				1				-21									
						1		17									
						1		LDW280P17479-15		STRAP	SEE DWG						
								LDW280-28757-14		STRAP ASSY					NONE	NONE	
								-13									
								-11									
								-9									
								-7									
								-5									
								LDW280-28757-3	E	STRAP ASSY					NONE	NONE	
QTY PER ASSEMBLY																	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28757	A
SCALE NONE		SHEET 2.00	

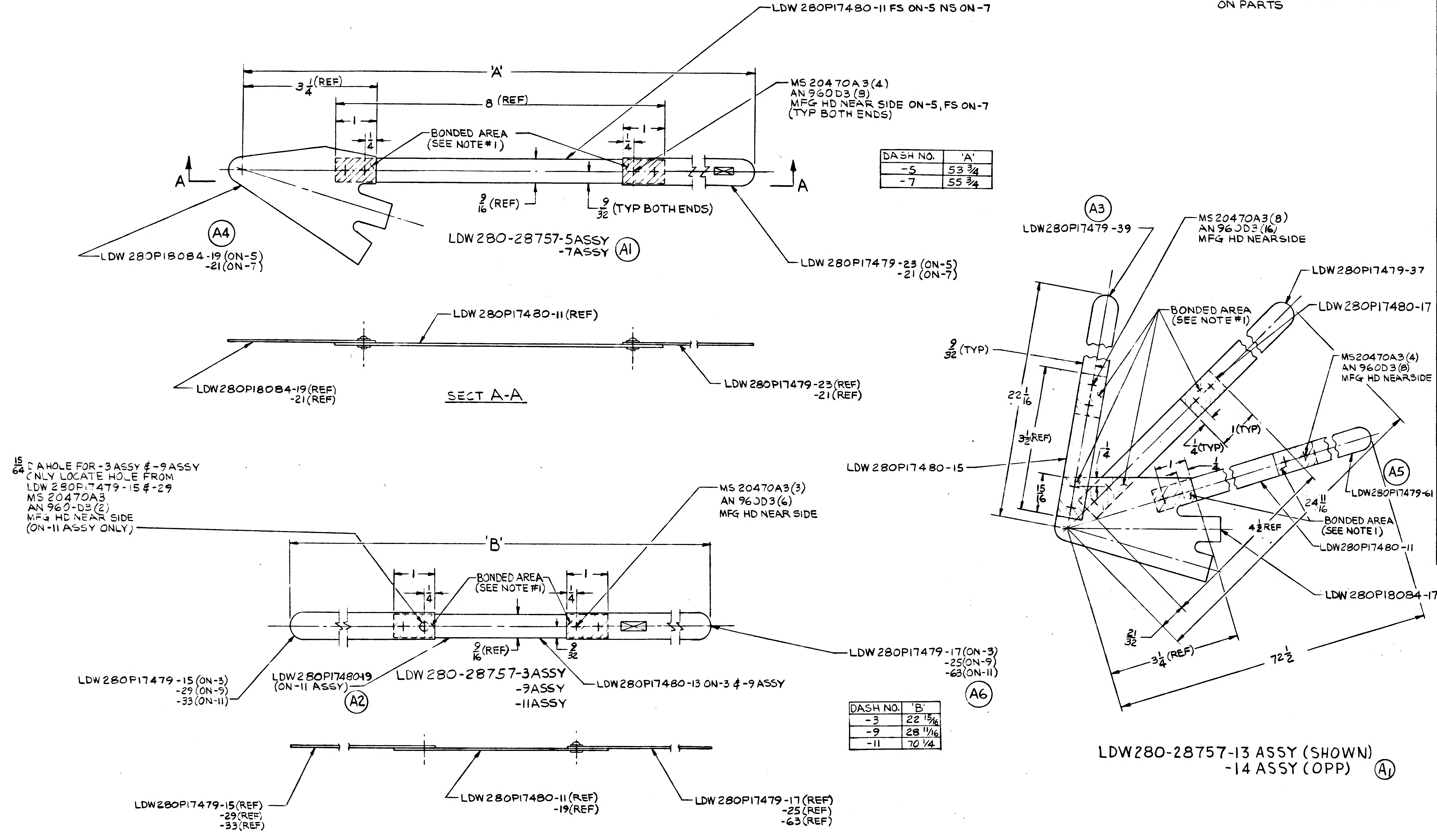
Ⓐ

ENG 77.2 7-65

01

NAS 9-1100

NOTE:
1. BOND IN ACCORDANCE WITH LSP-14-22500 USING EPON 934 CURE RANGE I
2. NO TOOLING HOLES PERMITTED ON PARTS



LDW 280P17480-11 FS ON-5 NS ON-7
'A'
$3\frac{1}{4}$ (REF)
8 (REF)
1
$\frac{1}{4}$
BONDED AREA (SEE NOTE #1)
MS 20470A3(4)
AN 960D3(8)
MFG HD NEAR SIDE ON-5, FS ON-7 (TYP BOTH ENDS)
A
A
$\frac{9}{16}$ (REF)
$\frac{9}{32}$ (TYP BOTH ENDS)
A4
LDW 280P18084-19 (ON-5) -21 (ON-7)
LDW 280-28757-5ASSY -7ASSY
A1
LDW 280P17479-23 (ON-5) -21 (ON-7)
LDW 280P17480-11 (REF)
LDW280P18084-19 (REF) -21 (REF)
SECT A-A
LDW 280P17479-23 (REF) -21 (REF)
$\frac{15}{64}$ DIA HOLE FOR -3 ASSY & -9 ASSY ONLY LOCATE HOLE FROM LDW 280P17479-15 & -29
MS 20470A3
AN 960-D3 (2)
MFG HD NEAR SIDE
(ON-11 ASSY ONLY)
MS 20470A3(3)
AN 960D3(6)
MFG HD NEAR SIDE
'B'
1
$\frac{1}{4}$
BONDED AREA (SEE NOTE #1)
$\frac{9}{16}$ (REF)
$\frac{9}{32}$
LDW 280P17479-15 (ON-3) -29 (ON-9) -33 (ON-11)
LDW 280P1748019 (ON-11 ASSY)
A2
LDW 280-28757-3ASSY -9ASSY -11ASSY
LDW 280P17480-13 ON-3 & -9 ASSY
LDW 280P17479-17 (ON-3) -25 (ON-9) -63 (ON-11)
A6
LDW280P17479-15 (REF) -29 (REF) -33 (REF)
LDW 280P17480-11 (REF) -19 (REF)
LDW 280P17479-17 (REF) -25 (REF) -63 (REF)
A3
LDW280P17479-39
MS 20470A3(8)
AN 960D3 (16)
MFG HD NEARSIDE
LDW280P17479-37
LDW280P17480-17
BONDED AREA (SEE NOTE #1)
$\frac{9}{32}$ (TYP)
MS20470A3(4)
AN 960D3(8)
MFG HD NEARSIDE
$22\frac{1}{16}$
$3\frac{1}{2}$ (REF)
1 (TYP)
$\frac{1}{4}$ (TYP)
$\frac{1}{4}$
LDW 280P17480-15
$\frac{15}{16}$
1
$\frac{1}{4}$
A5
LDW280P17479-61
$24\frac{11}{16}$
$4\frac{1}{2}$ REF
BONDED AREA (SEE NOTE 1)
LDW280P17480-11
LDW 280P18084-17 (ON-13 & 14)
A4
$\frac{21}{32}$
$3\frac{1}{4}$ (REF)
$72\frac{1}{2}$
LDW280-28757-13 ASSY (SHOWN) -14 ASSY (OPP)
A1

DASH NO.	'A'
-5	53 3/4
-7	55 3/4

DASH NO.	'B'
-3	22 15/16
-9	28 11/16
-11	70 1/4

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE EDGE DISTANCE IS 1½ FASTENER DIA FROM FASTENER ℄	✓
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS	

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	F	26512	LDW280-28757	A
	SCALE FULL		SHEET 3.00	

LDW280-28757 A

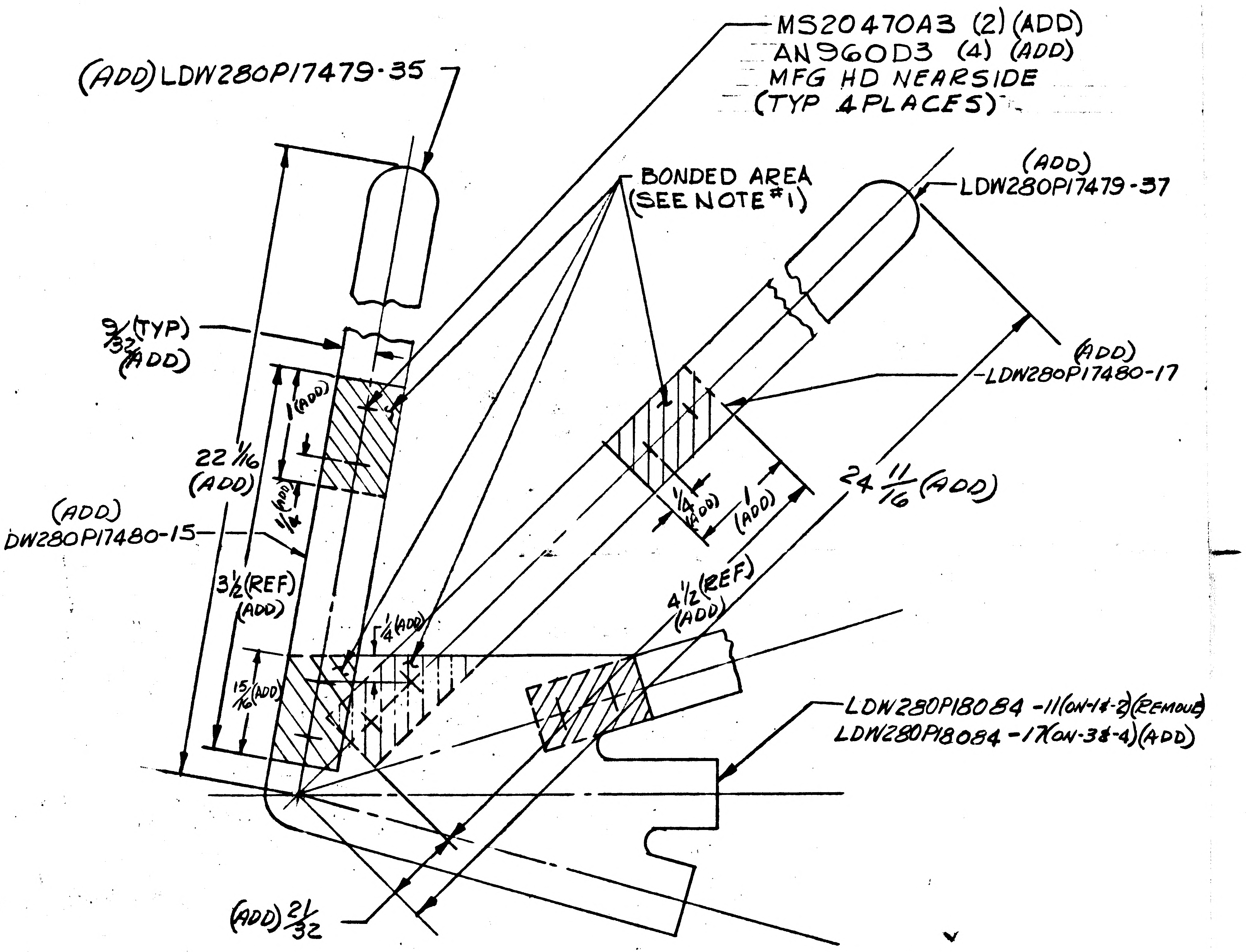
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28757
EO NO. A1
CONTROL INFO NO. LDW280A0572

IN F/D & B/M
ADD -13 & -14 IDENT TO -1 & -2 EXCEPT AS NOTED BELOW
-13 & -14 EFF LTA-8, LM-1 THRU LM-6 N/A LDW280-28561
1EA REQ/MOD

REMOVE -1 & -2



MS20470A3 (2) (ADD)
AN960D3 (4) (ADD)
MFG HD NEARSIDE
(TYP 4 PLACES)
(ADD) LDW280P17479-35
BONDED AREA
(SEE NOTE #1)
(ADD)
LDW280P17479-37
9/32 (TYP)
(ADD)
(ADD)
LDW280P17480-17
1 (ADD)
22 7/16
(ADD)
(ADD)
LDW280P17480-15
1/4 (ADD)
1/4 (ADD)
1 (ADD)
24 11/16 (ADD)
3 1/2 (REF)
(ADD)
1/4 (ADD)
4 1/2 (REF)
(ADD)
15/16 (ADD)
LDW280P18084 -11 (ON -1 & -2) (REMOVE)
LDW280P18084 -17 (ON -13 & -4) (ADD)
(ADD) 21/32

IN M/B
-3 N/A LDW280-28561 WAS LDW280-51561 FOR LM-1 THRU LM-6

-5, -7, -9 & -11 N/A LDW280-28664 WAS LDW280-51664 FOR LM-1 THRU LM-3

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADD'L STRAPS REQ'D FOR NEW BLKT SPACE -(THERMAL RQM'T)

DESCRIPTION OF EO: IN F/D & B/M ADDED -13 & -14, REMOVED -1 & -2 IN M/B -3 N/A LDW280-28561 WAS LDW280-51561 FOR LM-1 THRU LM-6 -5, -7, -9 & -11 N/A LDW280-28664 WAS LDW280-51664 FOR LM-1 THRU LM-3

GAEC EO RELEASE: 16 10/4

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-9(18) LEM-1(31) -2(32), -3(33), -4(34) -5(35), -6(36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP -1 & -2

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					W		RMC	
DATE	VD1				9/22		9-30	9/30/66

PRIORITY: C
DRAWING TITLE: STRAP ASSY D.S. THERMAL SHIELD ACCESS PANEL FLEXIBLE
DRAWING NO. LDW280-28757
EO NO. A1

ISSUED BY R. CLARK / J STRAKOSCH X1153 SECTION VD1 GROUP NO. 335 PL 35 EMF

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28757
EO NO. A2
CONTROL INFO NO. LM-27-264

IN B.M. & F/D
ON -11 ASSY LDW280P17480-19 STRAP
WAS -11 STRAP

27

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: UPDATE DRAWING REQMTS.

DESCRIPTION OF EO: ON -11 ASSY LDW280P17480-19 WAS LDW280P17480-11

GAEC C EO RELEASE: LE
27020

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (3, THRU 96) LM-6	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY					L.H.	J Tdey	RMC		
DATE	11/15				10-28-66	10-29-66	11-7-66	11/8/66	
6	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY: C 27
DRAWING TITLE: STRAP ASSEMBLY D/S THERMAL SHIELD-ACCESS PANEL FLEX
DRAWING NO.: LDW280-28757
EO NO.: A2

ISSUED BY LIAISON B. WALLACE F. CHRISTINA 1921 9043 (10-29-66) SECTION VDI-J. STRAKOSCH GROUP NO. 335 PL 27 EMF

01 NAS 9-1100

ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28757
EO NO. A3
CONTROL INFO NO. LM-27-268

THIS E.O. REVISES EO A1
LDW280P17479-39 (WAS -35)

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☑ | CL I ENGRG CHG ☐

27

REASON FOR EO: REVISION OF EO A1

DESCRIPTION OF EO: REF; EO A1.
LDW280P17479-39 WAS -35

GAEC EO RELEASE: C
ER
27-020

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
LM		LM-1(31) THRU	
LM		LM-6 36	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK / SCRAP: NOT REQ'D

APPROVED BY						J. Toley	RMC	
DATE	11/15				11-2-66	11-2-66	11-1-66	11/2/66
6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: STRAP ASSEMBLY
D/S THERMAL SHIELD - ACCESS PANEL FLEX
DRAWING NO.: LDW280-28757
EO NO.: A3

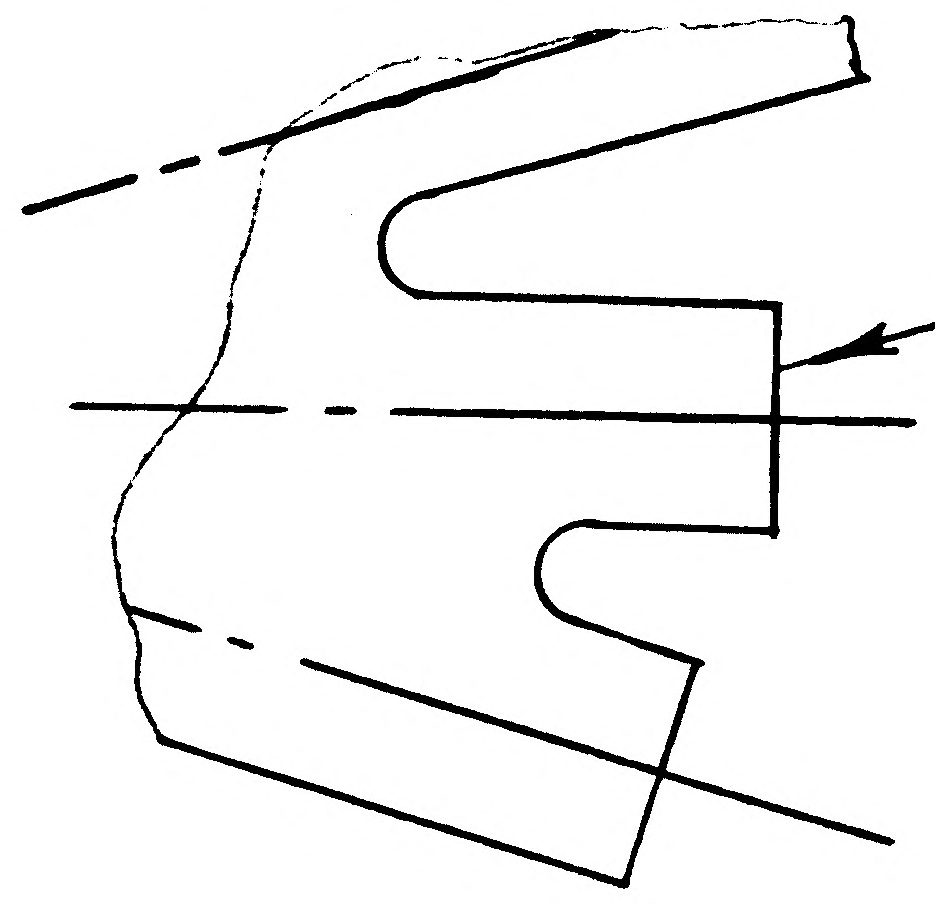
ISSUED BY LIAISON B. WALLACE 1921 F. CHRISTINA 4043 11-2-66 SECTION VDI-J. STRAKOSCH GROUP NO. 335 PL 35

01
NAS 9-1100

* GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-28757
EO NO. A4
CONTROL INFO NO. LM-27-273



S/B
LDW 280P 18084-17 ON-13-14 (ADD)
(WAS ON-3-4 ADD)

THIS IS A REVISION OF LDW280-28757 AI

IN F/D (ZONE 8 C) & B/M.
S/B LDW 280P 18084-19 (ON-5)
(WAS-13 ON-5)
S/B LDW 280P 18084-21 (ON-7)
(WAS-15 ON-7)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	27

REASON FOR EO	DESCRIPTION OF EO	® GAEC C EO RELEASE
TO ADD DETAIL PARTS TO ASSEM DRAWING. (REF 280P18084 AI)	REF: EO AI ADDED TO F/D & B/M LDW 280P 18084-19 & -21. (WAS -13 & 15). REVISED CALLOUT FOR LDW 280P18084 -17 ON -13-14 (WAS -3-4)	FK 27-020

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18) LM-6 (31) THRU (36)	LM-1 THRU

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY						
✓		NOT	REQ'D	DATE	11/15			11-3-66	11-3-66	11-7-66
REVISE DWG	RECORD EO	REWORK	SCRAP	6	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG

J. Toby RMC (W)

PROJ ENGRG ~~CONT.~~ 11/9/66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C 27	STRAP ASSY D.S. THERMAL SHIELD - ACCESS PANEL	LDW280-28757	A4

ISSUED BY LIAISON B WALLACE 1921 4043 11-3-66 SECTION VDI. GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65 A

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-28757		EO NO.	A5
CONTROL INFO NO.	LM-29-1035		

ON -13 & -14, IN B/M & F/D,

ADD LDW280P17479-61 STRAP. REMOVE

LDW280P17479-11 STRAP. LDW280P17479-61

REPLACES LDW280P1747-11. (1 REQ'D/ASSY)

REWORK;

FOR LTA-8 (18), RE-IDENTIFY LDW280P17479-11

AS LDW280P17479-61.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: EXISTING STRAP LENGTH CAN FALL SHORT AT INSTL.

DESCRIPTION OF EO: ON -13 & -14 LDW280P17479-61 WAS LDW280P17479-11.

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-8(18)/LM-1(3) THRU LM-6(36)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY					—		RMC (EJ)	
DATE	1/25				—	1-12-67	1-16-67	1/13/67
		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO	EO NO.
C29	STRAP ASSY - D/S THERMAL SHIELD ACCESS PANEL - FLEXIBLE	LDW280-28757	A5

ISSUED BY J. HEIMAN X7730 SECTION VIII GROUP NO. 355 PL 35

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NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER * EMF A

DWG. NO. LDW280-28757		EO NO. A6
CONTROL INFO NO. LMS-11810		

IN F/O & B/M FOR -11 STRAP ASSY LDW280P17479-63
WAS LDW280P17479-31

* HAS BEEN ACCOMPLISHED ON LTA-8(18) & LM-1(31)

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: INCREASED LENGTH OF STRAP TO ASSURE PROPER EDGE DISTENCE

DESCRIPTION OF EO: IN F/O & B/M FOR-11 LDW280P17479-63 WAS LDW280P17479-31

GAEC EO RELEASE: FR

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31) THRU	
		LM-6(36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	WT			~	JFJ	CH	RWC	
DATE	2/8/67			~	2-10-67	2-9-67	2-20-67	2/13/67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAP ASSY DESCENT STAGE - THERMAL SHIELD - ACCESS PANEL - FLEXIBLE	LDW280-28757	A6

ISSUED BY H. PALLMEYER X1153 X1724 SECTION VEH. DES INT GROUP NO. 335 PL 5

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-28757
EO NO. A1
CONTROL INFO NO. LDW280A 5937

IN M/B FOR -5, -7 -9 & -11
DELETE LM-4(34) THRU LM-6(36) N/A LDW280-54558 1 REQD/MOD.

FOR-3, -13 & -14
ADD LM-7(37) THRU LM-15(45) EFF. N/A LDW280-28561 1 REQD/MOD.

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		27

REASON FOR EO: UPDATING DWG'S TO CORR. N/A & EFF.

DESCRIPTION OF EO: FOR -5, -7, -9, & -11 DELETED LM-4(34) THRU LM-6(36) N/A LDW280-54558 1 REQD/MOD FOR -3, -13 & -14 ADDED LM-7(37) THRU LM-15(45) N/A LDW280-28561 1 REQD/MOD

GAEC EO RELEASE: (R) JK 3/13/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-7(37) THRU	LM-15(45)
LM		LM-4(34) THRU	LM-6(36)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD	

	6	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY					JAS			LW	
DATE					3/10/67			3-11-67	3-13-67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRAP ASS TS AC PNL	LDW280-28757	A1

ISSUED BY A. MAILA X1392 SECTION VEH. DES INTRE GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280		EO NO. 793
CONTROL INFO NO. LDW280B0053		

FOR THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS* THAT ARE EFF ON LM-4(34), REMOVE LM-4(34) THRU LM-15(45) REQMTS.

DRAWING NO. *	NEXT ASSY	TITLE	CHG NO.
LDW280-28561	LDW280-54553	SEE DWG	C5
-28773	-28561		A9
-28774	-28773		B1
-28775	-28773		B8
-28820	-28561		B2
-28819	-28820		A3
-18129	-28820		A4
-28776	-28561		A2
P17465	-28776		B3
P17514	-28776		B1
P17516	-28776		B4
P17535	-28776		B3
-28669	-54553		B1
-18239	-28561		A2
-54777			A2
P17496			A8
M17698			B7
P17479			A9
P17946			B3
P17967			B10
P18091			A3
-28757	-28561		B1
LDW280	LDW280	SEE DWG	

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DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ *LCD 2011 CCA668 (5)

REASON FOR EO	DESCRIPTION OF EO	® GAEC C EO RELEASE
REDESIGN OF THERMAL SHIELDING FOR EQUIP STOWAGE.	FOR *, REMOVED LM-4 THRU LM-15 REQMTS.	JK 11/8/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY		JAS							
DATE		11/7/67			11-6-67	11/7/67		11/7/67	11-7-67

PRIORITY C
DRAWING TITLE NOTED
DRAWING NO. LEO280
EO NO. 793

11-10
ISSUED BY S.TAMRES/P.THORJUSEN ×7033 SECTION VDI GROUP NO. 335 PL 25

LDW280-28758 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28664	LM-3(33)	1
PART NO. LDW 280-28758-9			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28664	LM-2(32)	1
LM	LDW280-28664	LM-1(31)	1
PART NO. LDW280-28758-5			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28664	LM-3(33)	1
LM	LDW280-28664	LM-2(32)	1
LM	LDW280-28664	LM-1(31)	1
PART NO. LDW280-28758-7			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28664	LTA-8(18)	1 EA
PART NO. LDW280-28758-1 & -3		52	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00				
REV	B	B	B	B	B				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	C	GRUMMAN REL INFO A		
LAST DASH NO. USED	-9	PRIM NO. FP (001)	"B"	EMF
		207	MPI	4-21-69

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/8 ±.030 ±1/2

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	—
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100
LINE ITEM NO. 1
DOCUMENTATION TYPE II

DRAWN BY	E. SULSENTI	RELIABILITY	
LAYOUT BY	R. FLANDERS 7-15-66		
CHECKED BY	JRT. AC		
GP LEADER	J. STRAKOSCH 7-15-66		
VEH. DES. INT	W. BISCHOFF 7-16-66		
STRUCTURES	FEB 7-16-66	PROJ ENGR	F. DE SENA / RC 7-26
STRUCTURES	HILDERMAN 7-16-66	REL GROUP	A. CARAMANICA 7-26
WEIGHTS	RABESCH 7-25		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSEMBLY
DESCENT STAGE - QUAD. I - SIDE PLUME
IMPINGEMENT THERMAL

SIZE	CODE IDENT NO.		
B	26512	LDW280-28758	B
SCALE	NONE	SHEET 1.00 OF 5	

(3)

ENG 77.1 12-65

SUPERSEDES LDW280-28758 N/C DATED 7-26-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
				RETRACED NO CHANGE LAST REVISION N/C SHEET 1.00 OF 4 WAS 1OF 3 ADDED SH 1.10						E O'CONNELL 10-4-66					
A	1	2.00 3.00						EO A1	IN B/M: ON-1 ASSY. LDW280-17932-11(7) WAS (5)- ON-3 ASSY. LDW280-23720-1 (5) WAS (7) - IN FLD. ON-1 TYP. 7 & 5 PLACES WAS 6 & 6 PLACES.	NOTED			E O'CONNELL 10-5-66		
	2	1.00 2.00 3.00						EO A2	ON-1 & -3 REMOVED REQUIREMENTS FOR LM-1(31) THRU LM-6(36) AND REVISED N/A FOR LTA-8 (18) WAS LDW280-28558 AND ADDED GH11W HOLES. ON-3 REMOVED LDW280-28760-3 AND ADDED LDW280-28760-9, REMOVED LDW280-28759-3 AND ADDED LDW280-28759-13 ADDED -5 & -7 ASSYS. AND NOTES 2 & 3		-3				
	3	1.00							REVISED N/A FOR LM-1, LM-2 & LM-3 LDW280-28664 WAS LDW280-51664 (REF EO A2)		NOT	REQ'D.	ll		
	4	1.00							REVISED N/A FOR -5 & -7 LDW280-54664 WAS LDW280-51664	LM-4, -5-6					
	1	1.00							INC. E.O. B1	LM-4, LM-5 LM-6			J. BISCALDI 4-11-69		
	2	2.00 3.00							INC. E.O. B2	LM-1 THRU LM-3					
B	3	2.00 3.00							INC. LEO. 280-589	LM-1 THRU LM-3					
	4	2.00 3.00							INC. E.O. B 4	NOT REQ'D					
	5	2.00 4.00 1.00		P					INC E.O. B5 ADDED SH 4.00	LM-3		H.D.	E.C.G.		

FOR CONTINUATION OF REVISIONS SEE SHEET ______

ENG 77.3 5-65

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-28758	B
SCALE NONE			SHEET 1.10

01

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		-9	-7	-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		QTY PER ASSEMBLY															
		1						GF11K-3-540	E	STRIP	GRUMMAN STD						
		1						GS11K-1-35		STRIP							
			1					GS11K-3-520		STRIP							
			1					GS11K-2-084		STRIP							
			1					GS11K-2-082		STRIP							
		AS REQD	AS REQD	AS REQD				GT835P-8		TAPE							
		AS REQD	AS REQD	AS REQD				GS577A-4		STAPLE							
				1				GS11K-3-502		STRIP							
		1		1				GS11K-2-520									
				1				GS11K-2-172									
			1	1				GS11K-1-34		STRIP							
		3						GF13B-11		FASTENER							
		3						GF13B-1		FASTENER ASSY							
		1						GS11K-2-142		STRIP	GRUMMAN STD						
		1		1		1		LDW280-28774-5		FOIL ASSY	SEE DWG						
			1					LDW280-28760-17		SKIN ASSY							
		1		1				LDW280-28760-15		SKIN ASSY							
					1			LDW280-28760-9		SKIN ASSY							
						1		LDW280-28760-1		SKIN ASSY							
			1		1			LDW280-28759-13		FOIL ASSY (WELDED)							
		1		1		1		LDW280-28759-1		FOIL ASSY (WELDED)							
		7	5	7	5	7		LDW280-23720-3		STAPLE ASSY							
		7	5	7	5	7		LDW280-17932-13		WASHER	SEE DWG						
								LDW280-28758-9		SHIELD ASSY					NONE	NONE	
								LDW280-28758-7		SHIELD ASSY					NONE	NONE	
								LDW280-28758-5		SHIELD ASSY					NONE	NONE	
								LDW280-28758-3		SHIELD ASSY					NONE	NONE	
								LDW280-28758-1	E	SHIELD ASSY					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

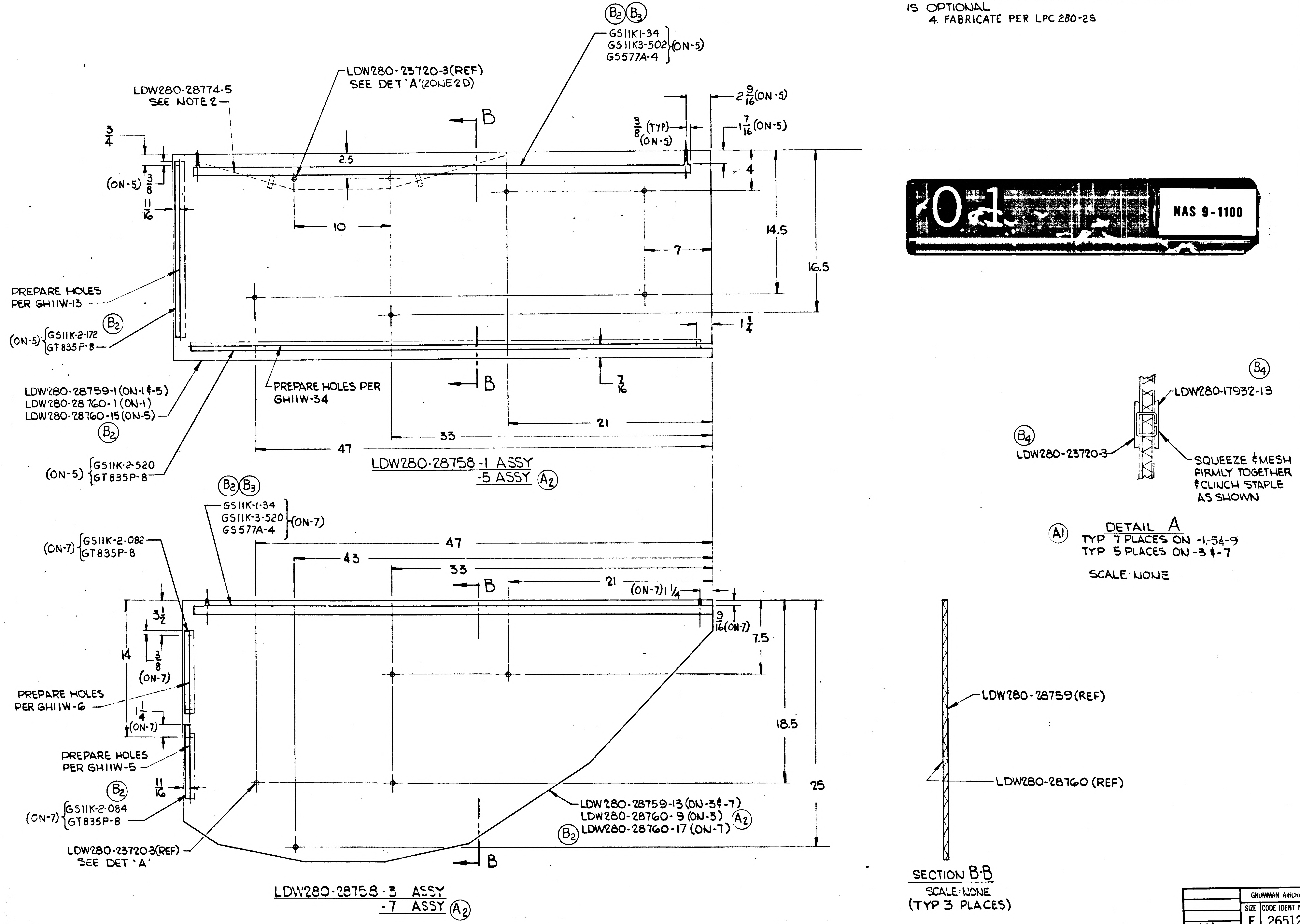
SIZE B
CODE IDENT NO. 26512
LDW280-28758
B
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

NOTES
1. FABRICATION OF LDW280-28758 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011 LEVEL "C".
2. TAPE PER LPC 280-4
3. DIRECTION OF LDW280-23720-3 STAPLE IS OPTIONAL
4. FABRICATE PER LPC 280-25

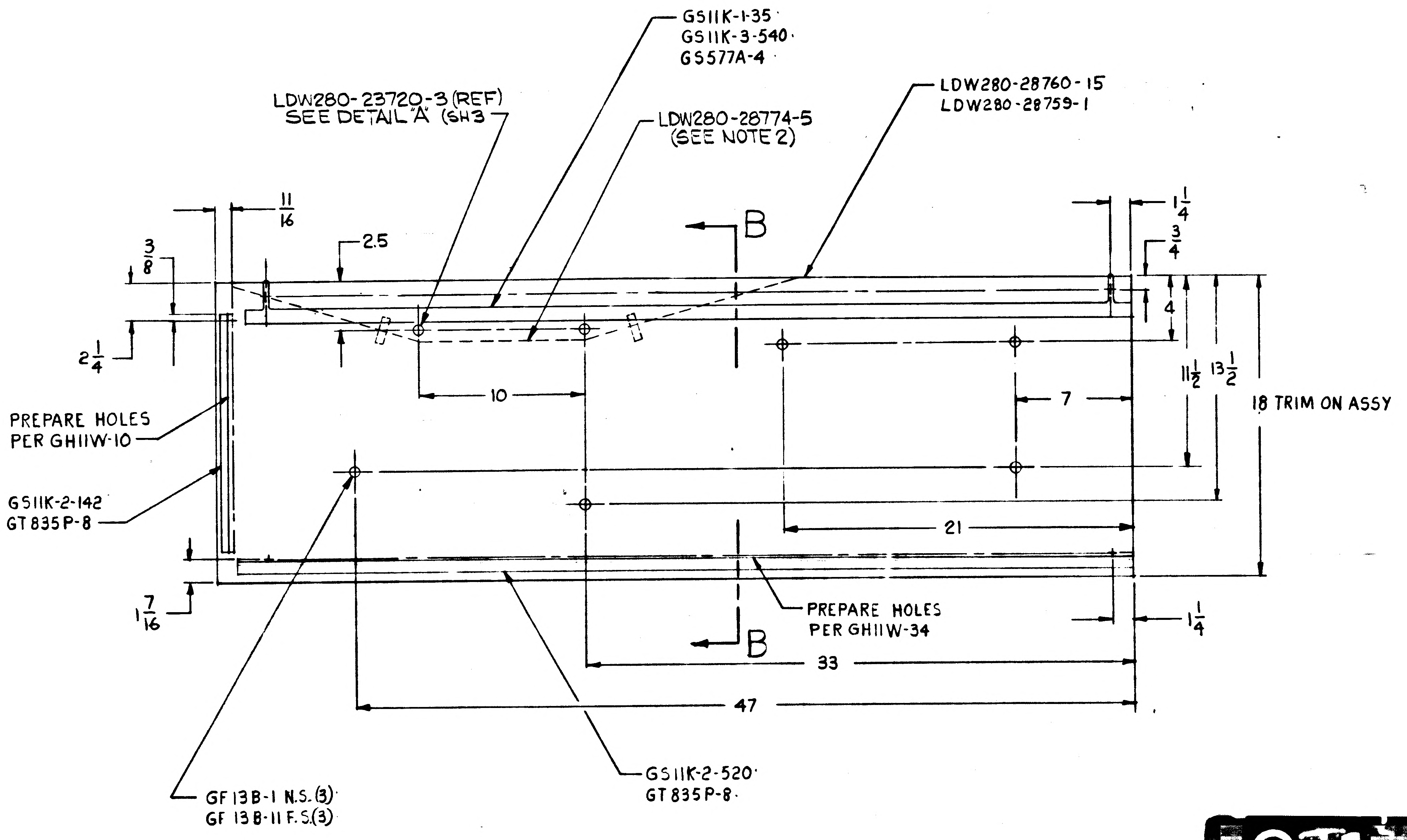

B2 B3
GS11K1-34
GS11K3-502 (ON-5)
GS577A-4
LDW280-23720-3 (REF)
SEE DET 'A' (ZONE 2D)
LDW280-28774-5
SEE NOTE 2
B
3/4
(ON-5) 3/8
11/16
2.5
3/8 (TYP) (ON-5)
2 9/16 (ON-5)
1 7/16 (ON-5)
4
10
7
14.5
16.5
PREPARE HOLES PER GH11W-13
B2
(ON-5) GS11K-2-172 GT835P-8
1 1/4
LDW280-28759-1 (ON-1 & -5)
LDW280-28760-1 (ON-1)
LDW280-28760-15 (ON-5)
B2
PREPARE HOLES PER GH11W-34
B
7/16
21
33
47
(ON-5) GS11K-2-520 GT835P-8
LDW280-28758-1 ASSY
-5 ASSY A2
B2 B3
GS11K-1-34
GS11K-3-520 (ON-7)
GS577A-4
(ON-7) GS11K-2-082 GT835P-8
47
43
33
B
21
(ON-7) 1 1/4
3 1/2
14
3/8 (ON-7)
9/16 (ON-7)
7.5
PREPARE HOLES PER GH11W-6
1 1/4 (ON-7)
PREPARE HOLES PER GH11W-5
18.5
25
11/16
B2
(ON-7) GS11K-2-084 GT835P-8
LDW280-28759-13 (ON-3 & -7)
LDW280-28760-9 (ON-3) A2
B2 LDW280-28760-17 (ON-7)
LDW280-23720-3 (REF)
SEE DET 'A'
B
LDW280-28758-3 ASSY
-7 ASSY A2
01
NAS 9-1100
B4
LDW280-17932-13
B4
LDW280-23720-3
SQUEEZE & MESH FIRMLY TOGETHER & CLINCH STAPLE AS SHOWN
A1 DETAIL A
TYP 7 PLACES ON -1, -5 & -9
TYP 5 PLACES ON -3 & -7
SCALE: NONE
LDW280-28759 (REF)
LDW280-28760 (REF)
SECTION B-B
SCALE: NONE
(TYP 3 PLACES)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LM	SIZE F	CODE IDENT NO. 26512	LDW280-28758	B
MODEL OR END ITEM	SCALE 1/4 & NOTED		SHEET 3	

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	


GS11K-1-35
GS11K-3-540
GS577A-4
LDW280-23720-3 (REF)
SEE DETAIL "A" (SH3
LDW280-28774-5
(SEE NOTE 2)
LDW280-28760-15
LDW280-28759-1
11/16
2.5
3/8
2 1/4
B
1 1/4
3/4
4
11 1/2
13 1/2
18 TRIM ON ASSY
10
7
21
PREPARE HOLES
PER GH11W-10
GS11K-2-142
GT835P-8
1 7/16
PREPARE HOLES
PER GH11W-34
1 1/4
33
47
GF13B-1 N.S.(3)
GF13B-11 F.S.(3)
GS11K-2-520
GT835P-8

B_5 LDW280-28758-9 ASSY

0 1 [illegible] NAS 9-1100

LM	GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714			
MODEL OR END ITEM	SIZE D	CODE IDENT NO. 26512	LDW280-28758	B
	SCALE 1/4		SHEET 4 [illegible]	

ENG 73.3 REV. 5-67

LDW280-28758 B

AG ✗

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28758		EO NO. A1
CONTROL INFO NO. LEM-2-2519		

ON-1 &.-3 ASS'Y.S REVISE B/M. &. IN F/D. QUANTITY CALLOUTS TO AGREE WITH EO.

SHEET 2.00

LDW280-17932-11 7 (ON-1 ASS'Y.) -5 (ON-3 ASS'Y.)

(WAS)

LDW280-17932-11 5 (ON-1 ASS'Y.) -5 (ON-3 ASS'Y.)

LDW280-23720-1 7 (ON-1 ASS'Y.) -5 (ON-3 ASS'Y.)

(WAS)

LDW280-23720-1 7 (ON-1 ASS'Y.) -7 (ON-3 ASS'Y.)

SHEET 3.00
DETAIL "C"
OF SECT. B.B

DO NOT SCALE (REF.)

TYP. 7 PLACES ON-1 (WAS) TYP. 6 PLACES ON-1
5 PLACES ON-3 6 PLACES ON-3 2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: ERRONEOUS QUANTITY CALLOUTS ON-1 & -3 ASS'Y.S

DESCRIPTION OF EO: IN B/M: ON-1 ASS'Y. LDW280-17932-11 (7) WAS (5) ~ ON-3 ASS'Y, LDW280-23720-1 (5) WAS (7) ~ IN F/D ON-1 TYP. 7 & 5 PLACES WAS 6 & .6 PLACES

Ⓟ GAEC EO RELEASE: LE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LEM		LTA-8 (18)	
		LEM-1 (31) THRU	
		LEM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY	AAR	[illegible]			~	caw	RMC (E)	[illegible]
DATE	8-23	9/1			~	8/17/66	8-19	8/18/66
8-3-66	WTJ	~~SUPPORT~~ VDI	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C_2	SHIELD ASS'Y.-DESCENT STAGE QUAD.-I SIDE PLUME IMPINGEMENT	LDW280-28758	A1

ISSUED BY **LIAISON** T.J. MARTIN -X3604 SECTION V.D.I. GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28758 EO NO. B1
CONTROL INFO NO. LDW280-A-3141

IN MOD BLK FOR -5&-7 REMOVE LM-4(34)
LM-5(35) & LM-6(36) EFF

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

2

REASON FOR EO: PARTS REDESIGNED FOR LM-4 TO PROVIDE ACCESS TO BATTERIES

DESCRIPTION OF EO: IN MOD BLK FOR -5&-7 REMOVED LM-4(34), LM-5(35) & LM-6(36) EFF.

GAEC EO RELEASE: FR 11/17/66

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36)	
LM		LM-5(35)	
LM		LM-4(34)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY					NM		RWC	
DATE	11/10/66	[illegible]		11/10/66	11/11/63		11-14-66	11/16/66
5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SHIELD ASSY-DESCENT STAGE-QUAD I SIDE PLUME IMPINGEMENT THERMAL
DRAWING NO.: LDW280-28758
EO NO.: B1

ISSUED BY E. MOUQUIN x1153 11-8-66 SECTION VEH. DES. INT. GROUP NO. 335 PL 35

01 NAS 9-1100

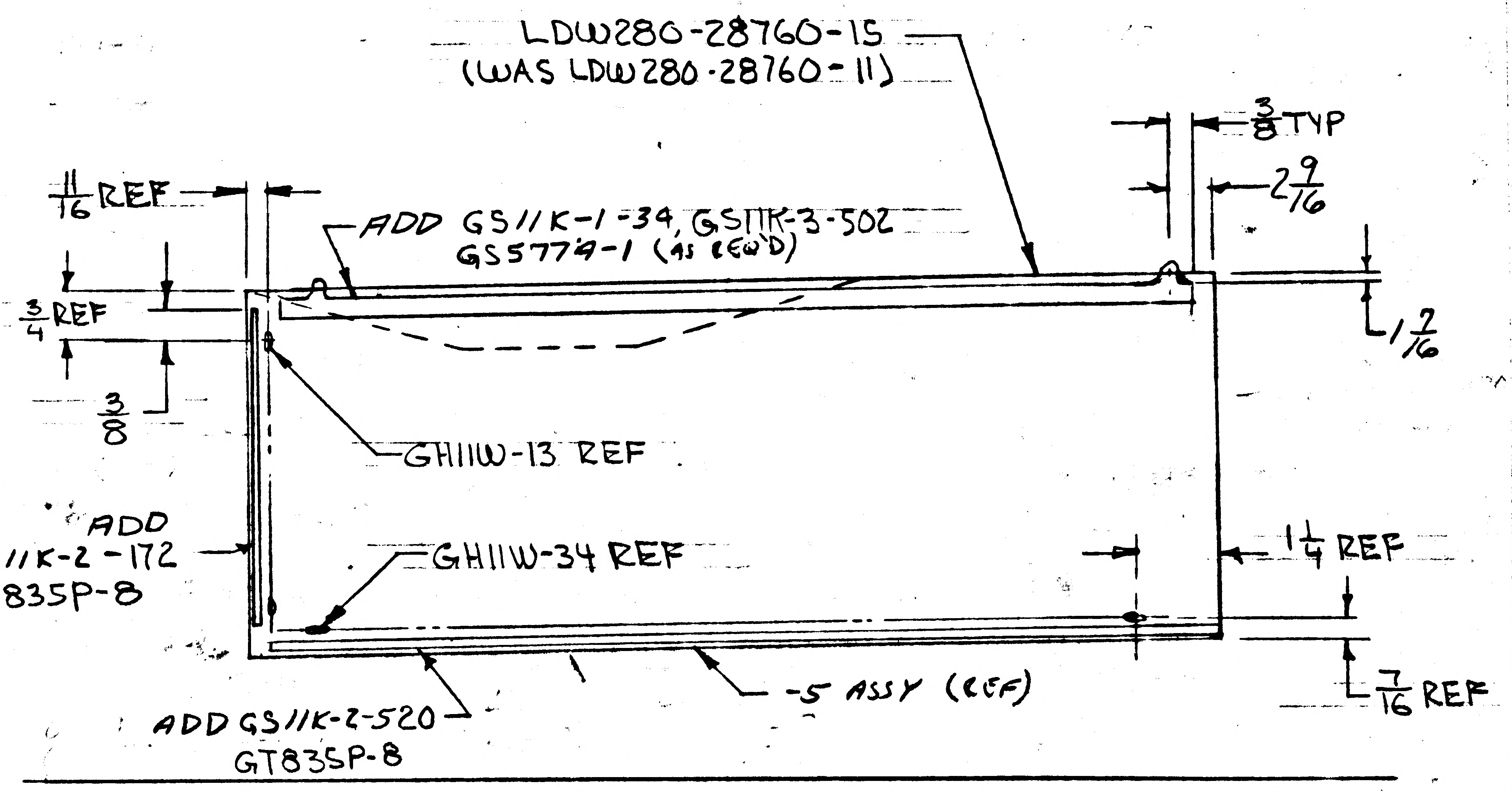
B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

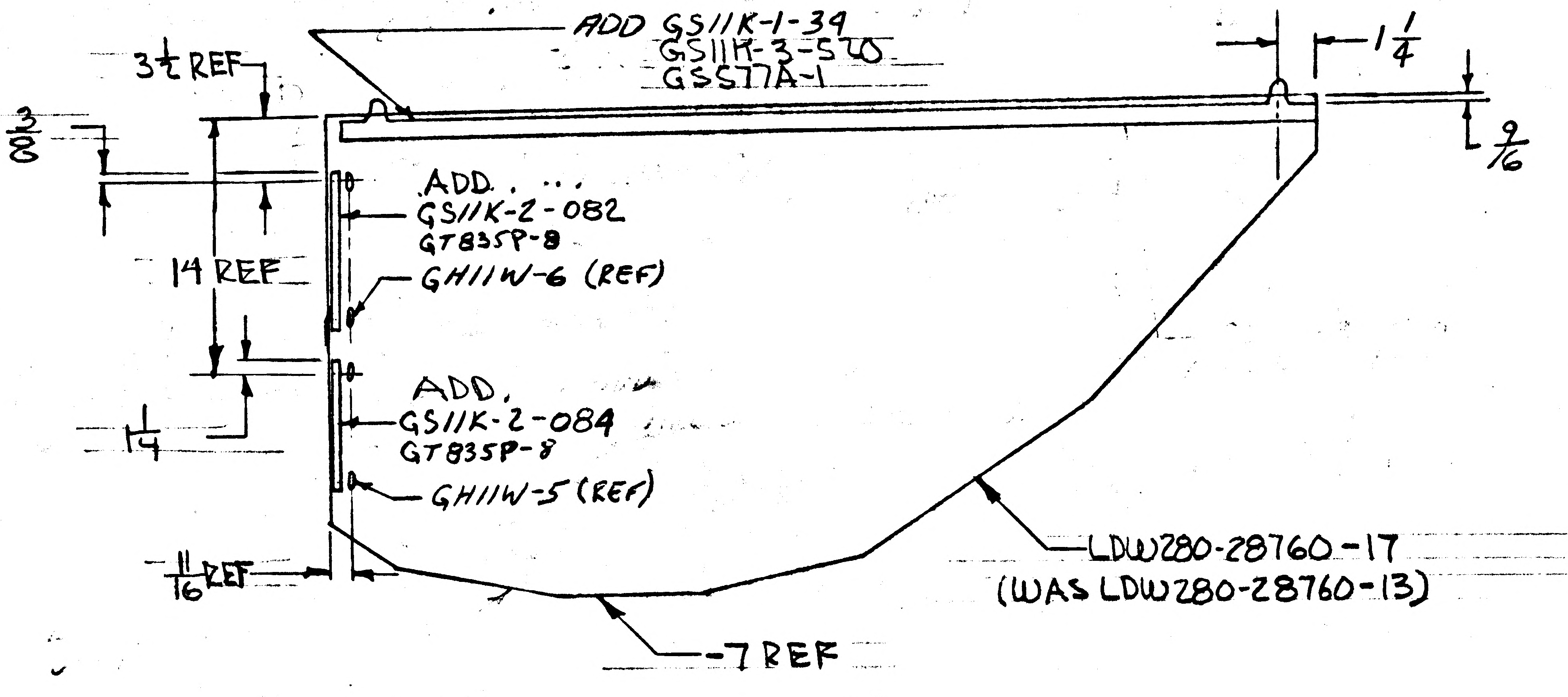
DWG. NO. LDW280-28758
EO NO. B2
CONTROL INFO NO. LDW280A-5463

ON-5 REMOVE LDW280-28760-11 & ADD LDW280-28760-15
ON-5 ADD GS11K-1-34, GS11K-3-502, GS11K-2-172, GS11K-2-520, GS577A-1 & GT835P-8 AS SHOWN



LDW280-28760-15
(WAS LDW280-28760-11)
3/8 TYP
2 9/16
11/16 REF
ADD GS11K-1-34, GS11K-3-502
GS5779-1 (AS REQ'D)
3/4 REF
1 7/16
3/8
GH11W-13 REF
ADD
GS11K-2-172
GT835P-8
GH11W-34 REF
1 1/4 REF
-5 ASSY (REF)
7/16 REF
ADD GS11K-2-520
GT835P-8

ON-7 REMOVE LDW280-28760-13 & ADD LDW280-28760-17. ADD GS11K-1-34
GS11K-3-520, GS11K-2-082, GS11K-2-084, GS577A-1 & GT835P-8 AS SHOWN



ADD GS11K-1-34
GS11K-3-520
GS577A-1
3 1/4 REF
1 1/4
3/8
9/16
ADD
GS11K-2-082
GT835P-8
GH11W-6 (REF)
14 REF
ADD
GS11K-2-084
GT835P-8
1 1/4
GH11W-5 (REF)
11/16 REF
LDW280-28760-17
(WAS LDW280-28760-13)
-7 REF

ADD NOTE: FABRICATE PER LPC280-25 (USE NEXT AVAILABLE NOTE No)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

2

REASON FOR EO: LCR-928 TO IMPROVE PAINT ADHESION

DESCRIPTION OF EO: ON-5 & -7 REMOVED LDW280-28760-11 & -13 & ADDED LDW280-28760-15 & -17. ADDED GS11K-1---, GS11K-2--- GS11K-3--- GT835P8 & GS577A-1. ADDED NOTE: FABRICATE PER LPC280-25

GAEC EO RELEASE: (R) C JK 2/28/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33)	
LM		THRU	
LM		LM-1 (31)	

	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
	✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	2/14/67			2/13/67	2/14/67		2/17/67	2/27/67
5	VDI							

PRIORITY: C

DRAWING TITLE: SHIELD ASSY D/S QUAD I SIDE PLUME IMPINGEMENT THERMAL

DRAWING NO.: LDW280-28758

EO NO.: B2

ISSUED BY T. AMBROSIO / STRAKOSCH X 1392 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280
EO NO. 589
CONTROL INFO NO. LDW280A6772

ON THE DWGS LISTED BELOW IN L/M & F/D AT INSTL OF ALL GS11K-1--- TAB STRIPS REMOVE GS577A-1 & ADD GS577A-4 STAPLE

DWG No *	EFF	CHANGE No	TITLE
LDW280-28559-5	LM-1(31)	B3	
LDW280-28665-5	LM-1(31)	B10	
LDW280-28733-3	LM-1(31) THRU LM-3(33)	A4	
LDW280-28736-5&-7	LM-1(31) THRU LM-15(45)	A5	
LDW280-28748-11,-13&-15	LM-1(31) THRU LM-15(45)	A10	
LDW280-28754-7&-9	LM-1(31) THRU LM-15(45)	A9	
LDW280-28758-5&-7	LM-1(31) THRU LM-3(33)	B3	SEE
LDW280-28770-5	LM-1(31) THRU LM-15(45)	B5	
LDW280-28773-11&-13	LM-1(31) THRU LM-3(33)	A8	
LDW280-28804-5	LM-1(31) THRU LM-15(45)	A6	
LDW280-28817-7	LM-1(31) THRU LM-15(45)	A4	DWG
LDW280-51742-3	LM-1(31)	A4	
LDW280-51831-1	LM-1(31) THRU LM-15(45)	A2	
LDW280-52739-3	LM-2(32) THRU LM-15(45)	A2	
LDW280-52742-1,-3,-5,-7,-9&-11	LM-2(32) THRU LM-15(45)	A7	
LDW280-52763-9&-11	LM-2(32) THRU LM-15(45)	A5	
LDW280-52767-1&-3	LM-2(32) THRU LM-15(45)	B3	
LDW280-53600-3&-5	LM-3(33)	A3	
LDW280-54605-1	LM-4(34) THRU LM-15(45)	A2	
LDW280-54714-1	LM-4(34) THRU LM-15(45) & DES.VER.70	A5	
LDW280-54733-1	LM-4(34) THRU LM-15(45)	A2	
LDW280-54758-1&-3	LM-4(34) THRU LM-15(45)	A1	
LDW280-54784-1	LM-4(34) THRU LM-15(45) & DES.VER.70	A2	
LSK280-10993-17,-19&-21	DES. VER. 70	A4	

CDR = 5/10/67

DETAIL SPEC REQ		CL II ENGRG CHG ✓	CL I ENGRG CHG	LCD 928

2

Ⓡ GAEC EO RELEASE C
JK 5/9/67

REASON FOR EO: TO PROVIDE CORRECT STAPLE CALLOUT

DESCRIPTION OF EO: ON * REPLACED GS577A-1 WITH GS577A-4

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		(NOTED ABOVE)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY
DATE 5/4/67
5 VDI

SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
		—	W.H. 5/4/67		Dam 5/6/67	5/8/67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 589

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28758
EO NO. B4
CONTROL INFO NO. LM 29-1103

ON -1,-3,-5 & -7 ASS'YS

LDW280-17932-11 S/B LDW280-17932-13

LDW 280-23720-1 S/B LDW230-23720-3

R (29)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: ADDITIONAL WASHER THKNESS REQD FOR THERMAL CONTROL

DESCRIPTION OF EO:
ON-1,3,5 & -7
LDW280-17932-13 WAS LDW280-17932-11
LDW280-23720-3 WAS LDW280-23720-1

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	NOT REQ'D		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQ'D	

			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	Jaf				—	~	W.F.	Jaf	
DATE	11/13/67				—	~	11/9/67	11/13/67	11/14/67
9/5/67	VDI								

PRIORITY: E29
DRAWING TITLE: SHIELD ASSY~D/S~QUAD I SIDE PLUME IMPINGMENT SHIELD
DRAWING NO.: LDW 280-28758
EO NO.: B4

ISSUED BY LIAISON W. FRANK (7930) SECTION YDI GROUP NO. 335 PL 25

01

NAS 9-1100

A

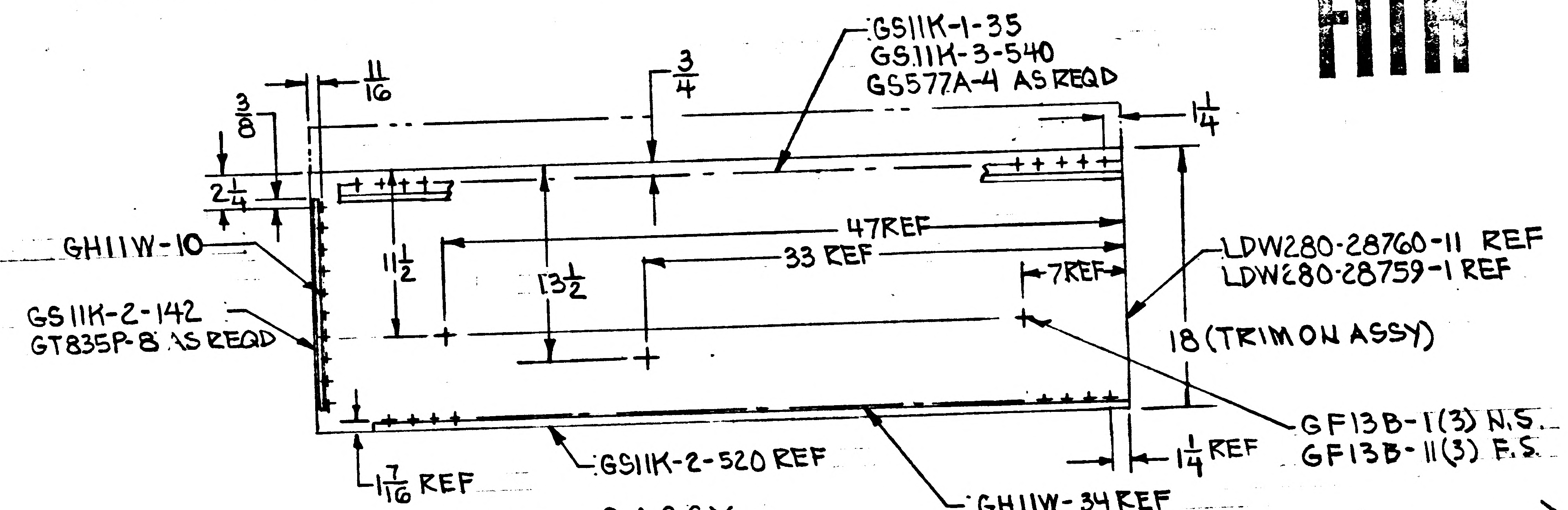
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28758
EO NO. B5
CONTROL INFO NO. LDW280 B1190

IN F/D & L/M RESTRICT -5 SHIELD ASSY FOR USE ON LM-1 & LM-2. ADD -9 SHIELD ASSY IDENTICAL TO -5 EXCEPT AS SHOWN

FITH



GS11K-1-35
GS11K-3-540
GS577A-4 AS REQD
11/16
3/4
3/8
1 1/4
2 1/4
GH11W-10
11 1/2
13 1/2
47 REF
33 REF
7 REF
LDW280-28760-11 REF
LDW280-28759-1 REF
GS11K-2-142
GT835P-8 AS REQD
18 (TRIM ON ASSY)
GF13B-1(3) N.S.
GF13B-11(3) F.S.
1 7/16 REF
GS11K-2-520 REF
1 1/4 REF
GH11W-34 REF

(ADD) -9 ASSY

EFF FOR -9 - LM-3(33) 1 REQD N/A FOR -9 - LDW280-28664

-9 MAY BE MADE BY REWORKING -5

PKG 46

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	LCD 1244

REASON FOR EO: PROVISION FOR FITH SHIELD

DESCRIPTION OF EO: RESTRICTED -5. WAS USED ON LM-1 THRU LM-3
ADDED -9

GAEC EO RELEASE: C (5) JK 1/17/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
REVISE DWG	RECORD EO	REWORK	SCRAP	APPROVED BY								
✓		✓ -5		DATE	1/12/68			1-12-68	1-13		1/12/68	1-12-68
				P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY. QDI SIDE	LDW280-28758	B5

CDR 2/5/68
ISSUED BY G. ZEMAN / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28759A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28758	L M-6(36)	1 EA
		L M-5(35)	1 EA
		L M-4(34)	1 EA
		L M-3(33)	1 EA
		L M-2(32)	1 EA
		L M-1(31)	1 EA
LM	LDW280-28758	LTA-8(18)	1 EA

PART NO. LDW280-28759-1 & -13

GAEC SCH NO.

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED A

LAST DASH NO. USED -13

GRUMMAN REL INFO			
PRIM NO.	F.S. COOL		
207	MP-14	11-8-6	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/16 ±.030 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM NO 1

DOCUMENTATION TYPE

DRAWN BY	CASTELLANO 7-15 66	RELIABILITY	
LAYOUT BY	FLANDERS 7-15 66	THERMO	[illegible] 11/5/66
CHECKED BY			
GR LEADER	J. STRAKOSCH 7-15-66		
VEH.DES.INT	W. BISCHOFF 7-15-66		
STRUCTURES	FEB 7-16-66	PROJ ENGR	DE SENA / RMC 7-26
STRUCTURES	HILDERMAN 7-16-66	REL GROUP	C. BOTTI 7-26-66
WEIGHTS	D. ROBESCH 7-25-66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL ASSY (WELDED)
DESCENT STAGE - QUAD I - REMOVABLE
PLUME IMPINGEMENT - SIDE

SIZE B
CODE IDENT NO. 26512
LDW280-28759A
SCALE NONE
SHEET 1.00 OF 4

SUPERSEDES LDW280-28759 N/C DATED

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
				RETRACED NO CHANGE LAST REV. N/C SHEET 1OF 4 WAS 1OF 3 ADDED SHEET 1.10 —						E.O'CONNELL 9-16-66					
A	1	3.00						LEO-280-188	REWROTE NOTE 1 AND ADDED NOTE 6a & b & 7	NOTED	NOT REQ'D.		E.O'CONNELL 9-22-66		
	2	2.00						EO A2	CORRECTED ASSY PROCEDURE IN B/M						
	3	3.00						LEO-280-240	ADDED PART C TO NOTE 6						
	4	1.00,2.00						EO A4	REMOVED -3 ADDED -13			-3			
	5	3.00							REMOVED -7 ADDED -15			-7			
	6	3.00						Ⓡ	CORRECTED DIRECTION OF SECT. A-A	NOT REQD	NOT	REQD	JK		11/7/66

FOR CONTINUATION OF REVISIONS SEE SHEET ________

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28759	A
SCALE NONE			SHEET 1.10

ENG 77.3 5-66

01 NAS 9-1100

QTY PER ASSEMBLY -13	-11	-9	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AS REQD			AS REQD		MESH	E	INCONEL KNITTED SLEEVING (SEE NOTE 4)							
	1				LDW280-17950-21		FOIL SHEET	SEE DWG						
	1	2			LDW280-17950-19		FOIL SHEET	SEE DWG						
	1				LDW280-17950-11		FOIL SHEET	SEE DWG						
1					LDW280-28759-15		FOIL ASSY	(MAKE FROM -11)				NONE	NONE	
					-13		FOIL ASSY (WELDED)					FLW		
					-11		FOIL SHEET ASSY					FLW		
					-9		FOIL SHEET ASSY					FLW		
			1		-5		FOIL ASSY	(MAKE FROM -9)				NONE		
					LDW280-28759-1	E	FOIL ASSY (WELDED)					FLW	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
FLW	RESISTANCE WELD	LSP14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

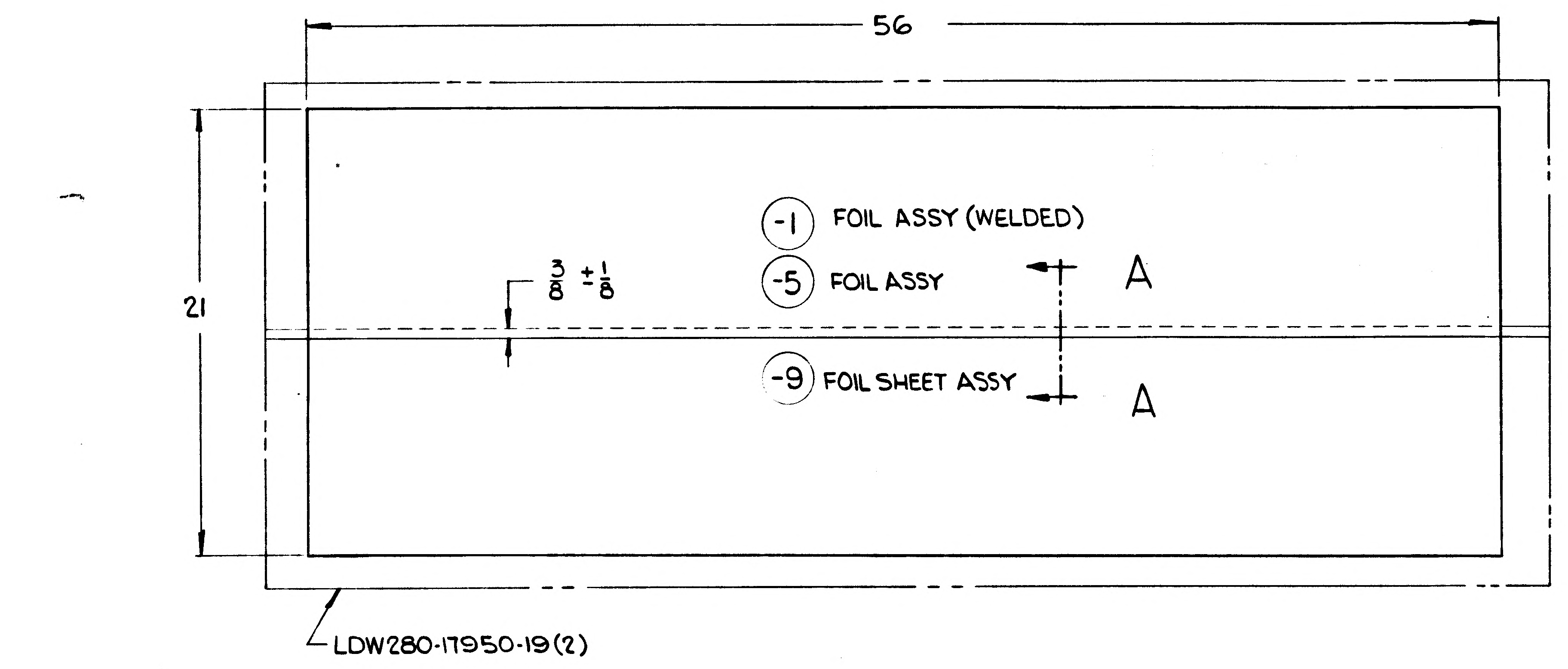
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

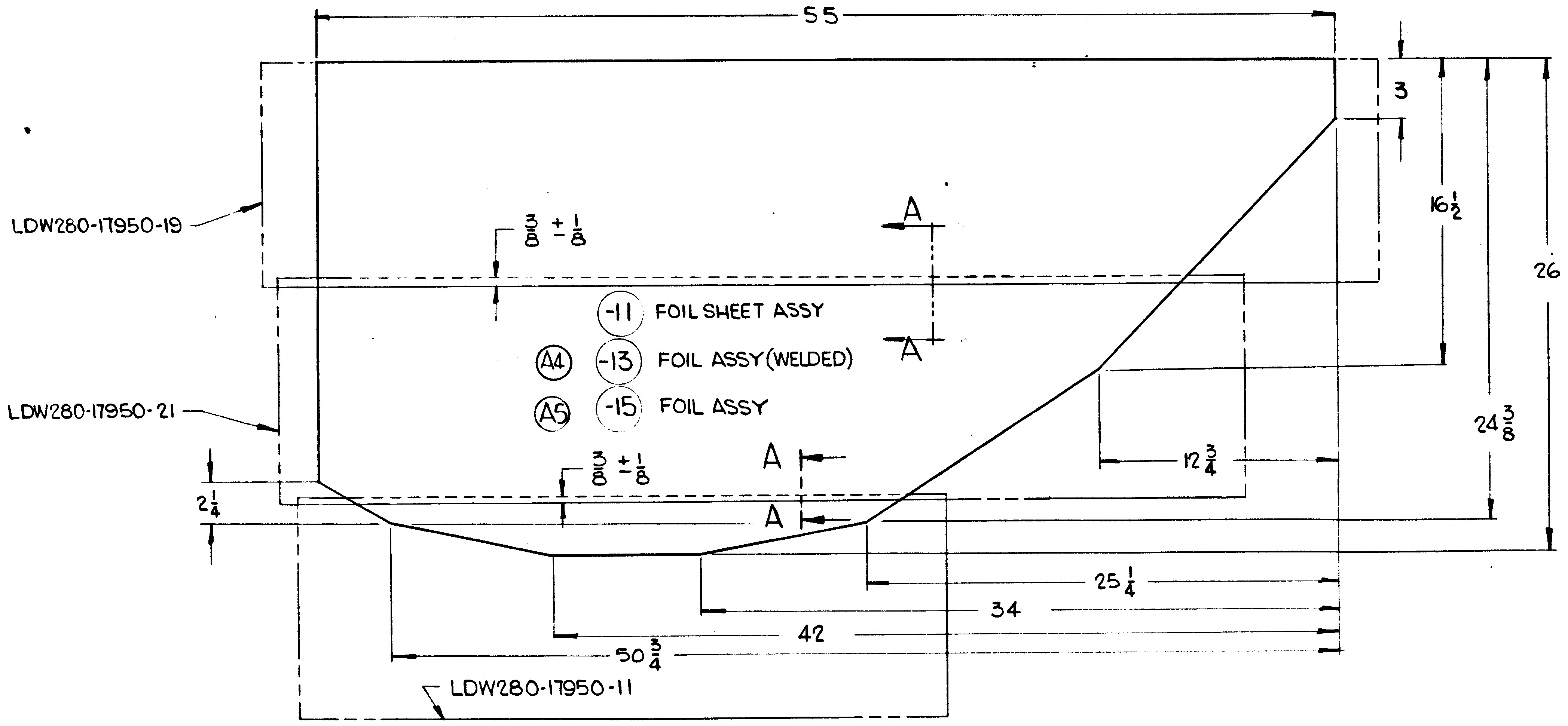
SIZE	CODE IDENT NO.		
B	26512	LDW280-28759	A
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01 NAS 9-1100

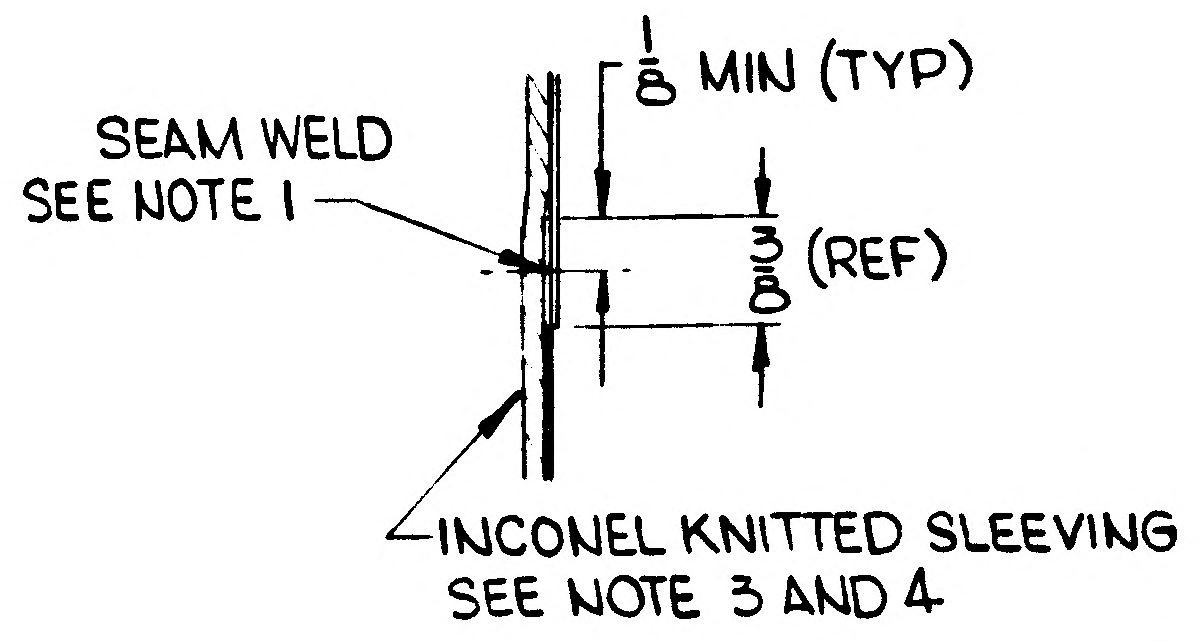
LDW280-28759 A


56
21
3/8 ± 1/8
-1 FOIL ASSY (WELDED)
-5 FOIL ASSY
-9 FOIL SHEET ASSY
A
A
LDW280-17950-19(2)


55
3
16 1/2
26
24 3/8
12 3/4
2 1/4
25 1/4
34
42
50 3/4
LDW280-17950-19
LDW280-17950-21
LDW280-17950-11
3/8 ± 1/8
3/8 ± 1/8
-11 FOIL SHEET ASSY
A4 -13 FOIL ASSY(WELDED)
A5 -15 FOIL ASSY
A
A
A
A

NOTES:

1. SEAMWELD PER LSP14-6102 EXCEPT THAT SPOTS SHALL BE TANGENT +1/32, -0.
2. FABRICATION OF FOIL ASSY. TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011 LEVEL 'C'.
3. WELD INCONEL KNITTED SLEEVING TO FOIL SHEET PER LDW280-17522.
4. INCONEL KNITTED SLEEVING TO BE 6 TO 8 INCHES WHEN FLATTENED. WIRE TO BE .0035 TO .0045 INCH DIA. ROUND "INCONEL 600" ALLOY KNIT PATTERN SQUARE TYPE 5 TO 7 SQUARES PER INCH. MAY BE PURCHASED FROM MONTGOMERY METAL FABRIC CO., 59 CANAL ST. WINDSOR LOCKS, CONN. (CODE IDENT 94725)
5. NO TOOLING HOLES PERMITTED IN PARTS.
6. PERMISSIBLE IRREGULARITIES IN WELDED ASSY. ARE AS FOLLOWS:
   a. HOLES IN THE SEAMWELD ROWS UP TO 1/8 MAX. AND AT LEAST 1 INCH APART.
   b. CRACKS IN THE FREE EDGE OF WELDED JOINTS NO CLOSE TOGETHER THAN 1/8" AND NOT EXTENDING PAST THE WELD LINE.
   c. IRREGULARITIES IN EXCESS OF 6a & b ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQUARE INCHES AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND THE ENTIRE PERIPHERY.
7. WELDED ASSEMBLIES MAY HAVE RANDOM WRINKLED APPEARANCE.


1/8 MIN (TYP)
SEAM WELD
SEE NOTE 1
3/8 (REF)
INCONEL KNITTED SLEEVING
SEE NOTE 3 AND 4

SECTION A-A
SCALE: NONE

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

AND ALL OTHER MARKINGS IN REGION MARKED

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

LDW280-28759A

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK				
SIZE D	CODE IDENT NO. 26512	LDW280-28759		A
MODEL OR END ITEM	SCALE 1/4 & NOTED		SHEET 3.00	

NAS 9-1100

HC

GMG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280
EO NO. 240
CONTROL INFO NO. LEM-2-2642

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE *.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LOW 280-25703	A4	A5	*,**,***
-25704	A3	A4	*,**,***
-25705	B5	C2	*, **
-25706	A3	A5	*,**,***
-25707	B1	B2	*,**,***
-28730	A1	A5	*
-28734	A1	A4	*
-28735	A1	B1	*
-28737	A1	A2	*
-28738	A1	A2	*
-28740	A1	A2	*
-28741	A1	A2	*
-28743	A1	A2	*
-28744	A1	A2	*
-28746	A1	A2	*
-28747	A1	A2	*
-28749	A1	A2	*
-28750	A1	A2	*
-28755	A1	A3	△
-28756	A1	A3	△
-28759	A1	A3	*
-28760	A1	A2	*
-28764	A1	A2	*
-28765	A1	A2	*
-28771	A2	A3	*
-28772	A2	A3	*
-28774	A1	A2	*
LOW 280 -28775	A1	A2	*

EFFECTIVITY:

*** - QUAL TEST (72)
** - LTA-5 (15)
* - LEM-1 (31) THRU -6 (36) & LTA-8 (18)
△ - LTA-8, LEM-1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG									GAEC C EO RELEASE 2
REASON FOR EO: TO FACILITATE MANUFACTURING				DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE *.									
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG ✓	RECORD EO	DISPOSITION OF PARTS: REWORK ✓	SCRAP	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
LEM 1		SEE ABOVE		PRIORITY C₂				DATE 8-20-66				CAW 8/23/66	CAW 8/23/66	RMC 9-3	8-30-66
				DRAWING TITLE —								DRAWING NO. LEO-280			EO NO. 240

ISSUED BY LIAISON G. MARTELL x3604 SECTION 1/D1 (DESCENT STAGE) GROUP NO. 335 PL 35

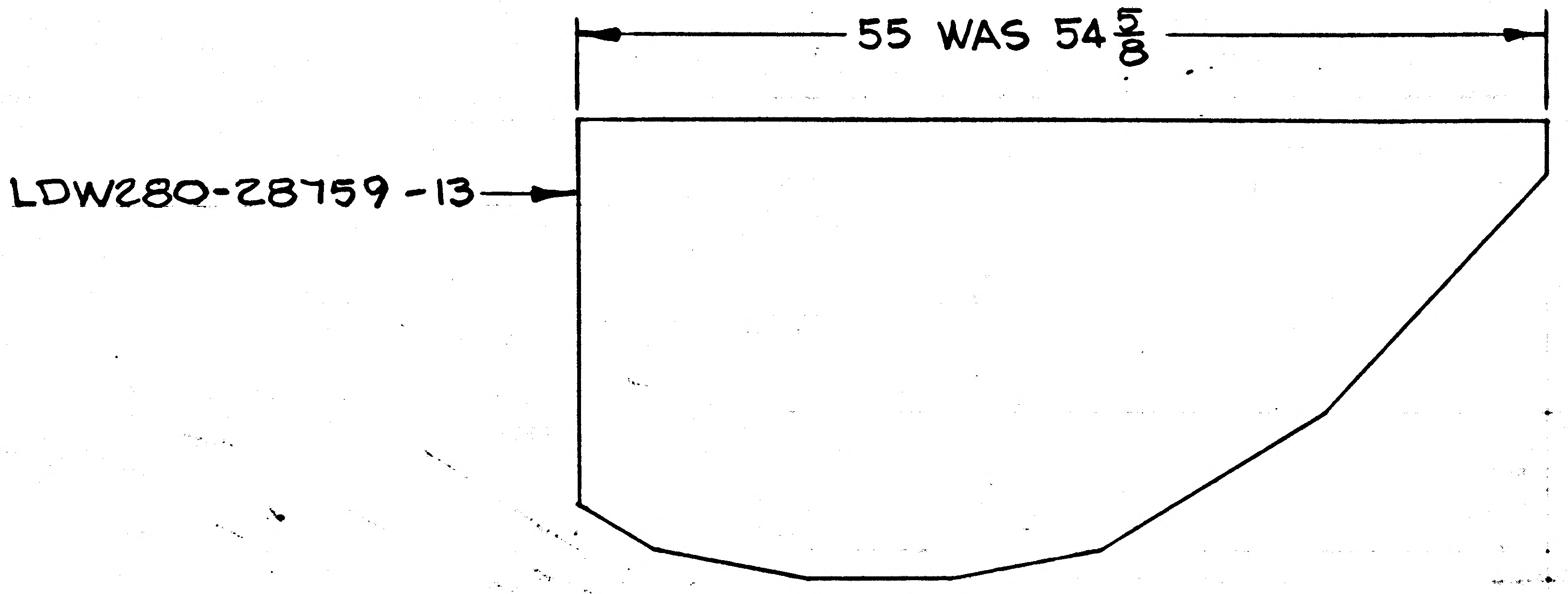
01

NAS 9-1100

ENG 32.1 REV 3-65 *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28759 EO NO. A4
CONTROL INFO NO. LDW280-A-0352



CREATE -13 IDENTICAL TO -3 EXCEPT AS SHOWN

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDITIONAL THERMAL REQUIREMENTS	REMOVED -3 ADDED -13	FR 9/23/6

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JAS	LBY			WJH		RWC	
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓			-3	DATE	7/13/66	9/22/66			9/15/66		9-21	9/21/66
LEM		LTA-8 (18)		REVISE DWG	RECORD EO	REWORK	SCRAP	9-9-66	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
LEM		LEM-1 (31) THRU		PRIORITY C												
LEM		LEM-6 (36)														

DRAWING TITLE: FOIL ASSY (WELDED) DESCENT STAGE QUAD I REMOVABLE PLUME IMPINGEMENT
DRAWING NO. LDW280-28759
EO NO. A4

ISSUED BY E MOUQUIN x1153 SECTION VEH. DES. INT. GROUP NO. 335 PL 35 EMF

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NAS 9-1100

NAS 9-1100

01

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 316
CONTROL INFO NO. LDW280A0936

ON THE FOLLOWING DRAWINGS ADD NOTE*:
*)INCONEL KNITTED SLEEVNG TO BE OXIDIZED BY EXPOSURE TO 1650 ±50°F IN AIR FOR FOUR(4) HOURS. FOR LTA5 (15) AND LTA 8 (18) OXIDIZATION IS OPTIONAL

DRAWING:	EFF	CHANGE NO.	TITLE
LDW280-25708	QUAL TEST LM1 THRU LM6 LTA5 & 8	B3	SEE DRAWING
LDW280-28735	LM1 THRU LM6 LTA8	C1	
LDW280-28737	"	A4	
LDW280-28740	"	B1	
LDW280-28743	"	A4	
LDW280-28746	"	B1	
LDW280-28749	"	A6	
LDW280-28752	"	B1	
LDW280-28755	LTA-8 & LM-1	A5	
LDW280-28759	LTA-8 LM-1 THRU LM-6	B1	
LDW280-28764	"	B1	
LDW280-28768	LM-1 &	B1	
LDW280-28771	LTA-8, LM-1 THRU LM-6	B1	
LDW280-28774	"	A6	
LDW280-28803	"	A1	SEE DRAWING
LDW280-28819	"	A1	SEE DRAWING

*-USE NEXT AVAILABLE NUMBER

3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: THERMO REQUIREMENT

DESCRIPTION OF EO: ADDED NOTE *

GAEC C EO RELEASE: LE 10/18

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	
LM			
LM			

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO
DISPOSITION OF PARTS: ✓ REWORK; SCRAP

APPROVED BY								
	JMB			RGM	WJH			
DATE	10/5/66			MAT'LS 10/7/66	10/4/66		10/12/66	10/15/66
	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 316

ISSUED BY AMBROSIO/STRAKOSCH X1153 SECTION V.D.1 GROUP NO. 335 PL 35-EMF

8

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LEO 280
EO NO. 421
CONTROL INFO NO. LDW280A-4411

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM6	B2	
LDW280-28734	"	A8	
LDW280-28735	"	C3	
LDW280-28746	LTA8 (18) LM-1 (31) THRU LM-15 (45)	B3	
LDW280-28747	LTA8 (18) LM-1 (31) THRU LM-6 (36)	B1	
LDW280-28749	"	A7	
LDW280-28750	"	B3	
LDW280-28752	"	B2	
LDW280-28753	"	A3	
LDW280-28755	LTA8 (18) LM-1 (31)	A7	
LDW280-28756	LTA8 (18) LM-1 (31) THRU LM-15 (45)	A6	
LDW280-28759	LTA8 (18) LM-1 (31) THRU LM-6 (36)	B2	
LDW280-28760	"	B1	
LDW280-28768	LM-1 (31)	B2	
LDW280-28769	LM-1 (31)	B1	
LDW280-28771	LTA8 (18) LM-1 (31) THRU LM-6 (36)	B2	
LDW280-28772	"	B1	
LDW280-28774	"	A7	
LDW280-28775	"	B2	
LDW280-28803	"	A2	
LDW280-28805	"	A1	
LDW280-51824	LM-1 (31) THRU LM-15 (45)	A1	
LDW280-51825	"	A2	
LDW280-51829	"	A1	
LDW280-51830	"	A1	
LDW280-51834	"	A1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: 12/20

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REWORK / REC'D SCRAP

APPROVED BY								
DATE	12/16/66	12/16/66		12/19/66	12/16/66		12/20	12-20-66
1	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 421

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

ENG 32.1 REV 3-65

DWG. NO. LDW280-28759
EO NO. B3
CONTROL INFO NO. LDW280A 6275

IN MODEL BLOCK FOR -1 & -13 ON N/A LDW280-28758
REMOVE EFF LM-4(34) - LM-6(36)

E.O. NUMBER WAS C4

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		2

REASON FOR EO: TO REVISE DWG TO AGREE WITH N/A

DESCRIPTION OF EO: IN M/B FOR -1 & -13 REMOVED EFF LM-4(34) THRU LM-6(36) ON N/A LDW280-28758

Ⓡ GAEC EO RELEASE: C
JK 4/17/?

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY							RMC	
DATE	4/8/67			4/6/67	4/10/67		4-11-67	4-14-67
6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	FOIL ASSY ~ DESCENT STAGE ~ QUAD I ~ REMOVABLE PLUME IMP, 1 SIDE	LDW280-28759	B3

ISSUED BY STEA/STRAKOSCH
SECTION VDI
GROUP NO. 335
PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-28759	EO NO. C4
CONTROL INFO NO. LDW280A 6275	

IN MODEL BLOCK FOR -1 & -13 ON N/A LDW280-28758

REMOVE EFF LM-4(34) - LM-6(36)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		2

REASON FOR EO: TO REVISE DWG TO AGREE WITH N/A

DESCRIPTION OF EO: IN M/B FOR -1 & -13 REMOVED EFF LM-4(34) THRU LM-6(36) ON N/A LDW280-28758

Ⓡ GAEC EO RELEASE: C
JK 4/17/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								RMC	
DATE	4/8/67			4/8/67	4/10/67		4-11-67	4-14-67	
6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	FOIL ASSY ~ DESCENT STAGE ~ QUAD I ~ REMOVABLE PLUME IMP, 1 SIDE	LDW280-28759	C4

ISSUED BY STEA/STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

LDW280-28760 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28758	LTA-8(18)	1 EA
PART NO. LDW280-28760-1 & -9			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28758	LEM-6(36)	1 EA
		LEM-5(35)	1 EA
		LEM-4(34)	1 EA
		LEM-3(33)	1 EA
		LEM-2(32)	1 EA
LEM	LDW280-28758	LEM-1(31)	1 EA
PART NO. LDW280-28760-11 & -13			

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A			
LAST DASH NO. USED	-13	PRIM NO.			
		207			

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.030 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100 LINE ITEM NO 1 DOCUMENTATION TYPE II

DRAWN BY	POTTINGER 7-15-66	RELIABILITY	
LAYOUT BY	R.FLANDERS		
CHECKED BY			
GP.LEADER	STRAKOSCH 7-15-66		
VEH.DES.INT.	W.BISCHOFF 7-16-66		
STRUCTURE	FEB 7-16-66	PROJ ENGR	F.DESENA/RMC 7-26
STRUCTURE	HILDERMAN 7-16	REL GROUP	BOTTI 7-26-66
WEIGHTS	D.ROBRESCH 7-16		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ASSEMBLY
DESCENT STAGE- QUAD. I-REMOVABLE
PLUME IMPINGEMENT

SIZE	CODE IDENT NO.		
B	26512	LDW280-28760	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

SUPERSEDES LDW280-28760 N/C DATED 7-26-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
				RETRACED NO CHANGE LAST REV. N/C SH 1 OF 4 WAS 1 OF 3 ADDED SH 1.10 E. O'CONNELL 9-17-66											
A	1	3.00						LEO280-188	REWROTE SEAMWELD NOTE (*3) AND ADDED NOTES 4a, b & 5.	NOTED	NOT	REQ'D.	E O'CONNELL 9-22-66		
	2	3.00						LEO280-240	ADDED PART 'C' TO NOTE 4						
	3	1.00, 2.00 3.00						EO A3	REMOVED -3 ADDED -9, -11 & -13 ADDED GT15B-34 TO -1. FOR -1 REMOVE LEM-1 THRU 6 EFFECTIVITY HR		-1	-3			

FOR CONTINUATION OF REVISIONS SEE SHEET ______

ENG 77.3 5-66

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-28760	A
SCALE NONE		SHEET 1.10	

01

NAS 9-1100

	QTY PER ASSEMBLY																
	-13	-11	-9	-7	-5	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	1	1	1			1		GT15B-34		TAPE	GRUMMAN STD.						
				1				LDW280-17970-37	E	FOIL	SEE DWG						
				1	2			LDW280-17970-35	↑	FOIL	SEE DWG						
				1				LDW280-17970-23		FOIL	SEE DWG						
								LDW280-28760-13		SKIN ASSY			MAKE FROM LDW280-28760-7		NONE	NOTE6	
								↑ -11		SKIN ASSY			MAKE FROM LDW280-28760-5		NONE	NOTE6	
								-9		SKIN ASSY			MAKE FROM LDW280-28760-7		NONE	NONE	
								-7		SKIN ASSY (WELDED)					FLW	NONE	
								↓ -5	↓	SKIN ASSY (WELDED)					FLW	NONE	
								LDW280-28760-1	E	SKIN ASSY			MAKE FROM LDW280-28760-5		NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELD	LSP14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

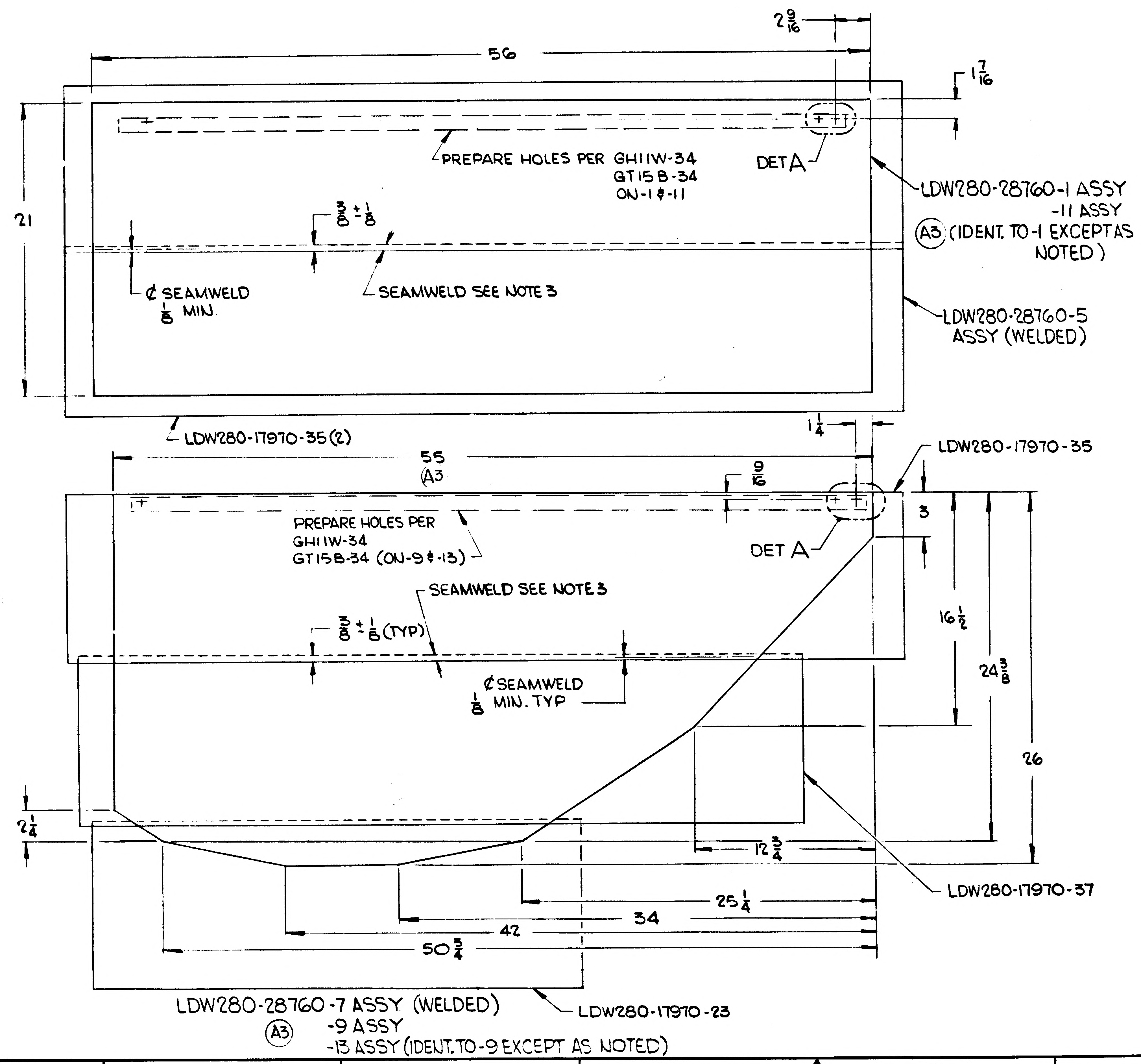
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28760	A
SCALE NONE		SHEET 2.00	

ENG 77.2 7-65

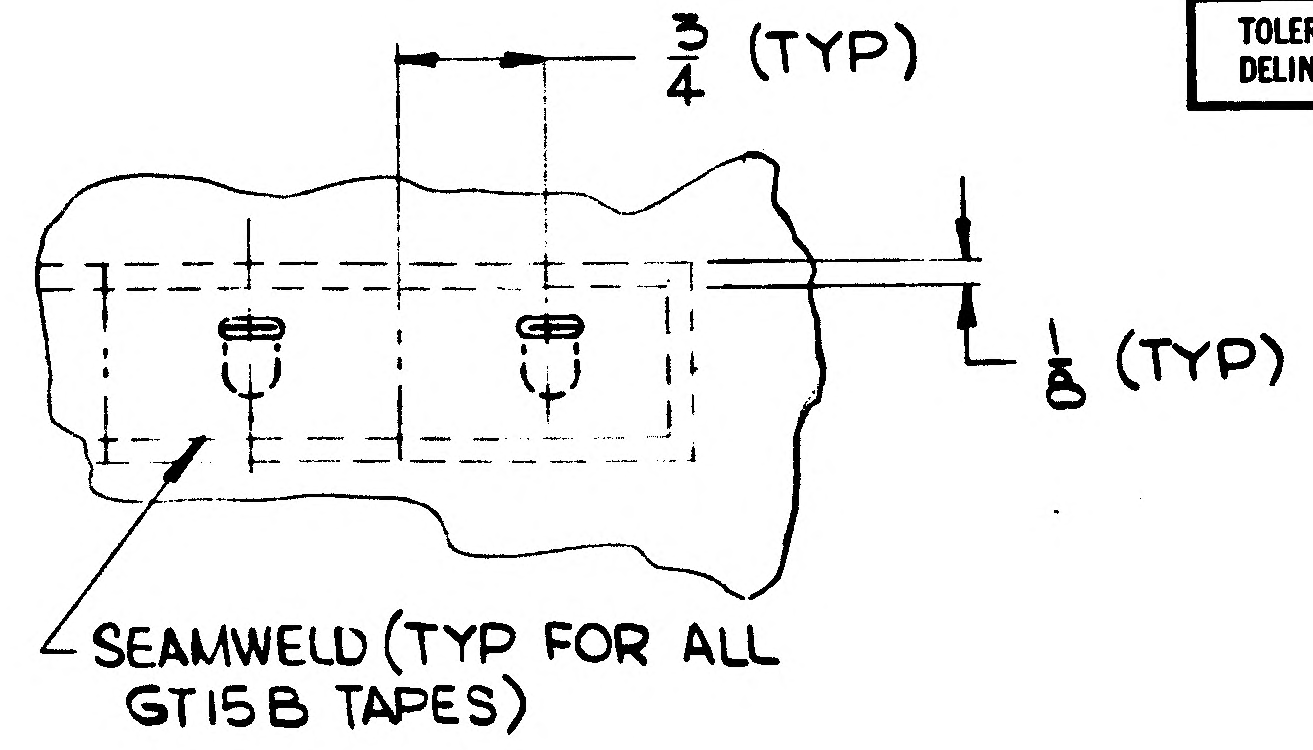
01 NAS 9-1100

LDW280-28760 A


56
$2\frac{9}{16}$
$1\frac{7}{16}$
21
PREPARE HOLES PER GH11W-34
GT15B-34
ON-1 & -11
DET A
$\frac{3}{8} \pm \frac{1}{8}$
¢ SEAMWELD
$\frac{1}{8}$ MIN.
SEAMWELD SEE NOTE 3
LDW280-28760-1 ASSY
-11 ASSY
Ⓐ3 (IDENT. TO -1 EXCEPT AS NOTED)
LDW280-28760-5
ASSY (WELDED)
LDW280-17970-35(2)
$1\frac{1}{4}$
LDW280-17970-35
55
Ⓐ3
$\frac{9}{16}$
PREPARE HOLES PER
GH11W-34
GT15B-34 (ON-9 & -13)
DET A
3
SEAMWELD SEE NOTE 3
$\frac{3}{8} \pm \frac{1}{8}$ (TYP)
¢ SEAMWELD
$\frac{1}{8}$ MIN. TYP
$16\frac{1}{2}$
$24\frac{3}{8}$
26
$2\frac{1}{4}$
$12\frac{3}{4}$
LDW280-17970-37
$25\frac{1}{4}$
34
42
$50\frac{3}{4}$
LDW280-28760-7 ASSY (WELDED)
Ⓐ3 -9 ASSY
-13 ASSY (IDENT. TO -9 EXCEPT AS NOTED)
LDW280-17970-23

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. FABRICATION OF LDW280-28760-1 & -3 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011 LEVEL 'C'.
3. SEAMWELD PER LSP14-6102 EXCEPT THAT SPOTS SHALL BE TANGENT +1/32, -0
4. PERMISSIBLE IRREGULARITIES IN WELDED ASSEMBLIES ARE AS FOLLOWS:
   a. HOLES IN THE SEAMWELD ROWS UP TO 1/8" MAX. AND AT LEAST 1 INCH APART
   b. CRACKS IN THE FREE EDGE OF WELDED JOINTS NO CLOSER TOGETHER THAN 1/8" AND NOT EXTENDING PAST THE WELD LINE
   c. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF 4a & 4b ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQUARE INCHES AND SHALL NOT HAVE A MAX. DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND THE ENTIRE PERIPHERY.
5. WELDED ASSEMBLIES MAY HAVE RANDOM WRINKLED APPEARANCE.
6. FINISH IN ACCORDANCE WITH LSP280-5 NEAR SIDE ONLY.


$\frac{3}{4}$ (TYP)
$\frac{1}{8}$ (TYP)
SEAMWELD (TYP FOR ALL GT15B TAPES)

DETAIL A
SCALE: FULL

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED
~~[illegible]~~

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
D	26512	LDW280-28760	A

MODEL OR END ITEM
SCALE 1/4 & NOTED
SHEET 3.00

LDW280-28760A

011 NAS 9-1100

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EM-A

DWG. NO. LEO 280 | EO NO. 421
CONTROL INFO NO. LDW280A-4411

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM6	B 2	
LDW 280-28734	"	A 8	
LDW 280-28735	"	C 3	
LDW 280-28746	LTA8 (18) LM-1 (31) THRU LM-15 (45)	B 3	
LDW280-28747	LTA8 (18) LM-1, (31) THRU LM-6 (36)	B 1	
LDW280-28749	"	A 7	
LDW280-28750	"	B 3	
LDW280-28752	"	B 2	
LDW280-28753	"	A 3	
LDW280-28755	LTA 8 (18) LM-1 (31)	A 7	
LDW280-28756	LTA8 (18) LM-1 (31) THRU LM-15 (45)	A 6	
LDW280-28759	LTA8 (18) LM-1 (31) THRU LM-6 (36)	B 2	
LDW280-28760	"	B 1	
LDW280-28768	LM-1 (31)	B 2	
LDW280-28769	LM-1 (31)	B 1	
LDW280-28771	LTA8 (18) LM-1 (31) THRU LM-6 (36)	B 2	
LDW 280-28772	"	B 1	
LDW280-28774	"	A 7	
LDW280-28775	"	B 2	
LDW 280-28803	"	A 2	
LDW 280-28805	"	A 1	
LDW280-51824	LM-1 (31) THRU LM-15 (45)	A 1	
LDW280-51825	"	A 2	
LDW280-51829	"	A 1	
LDW280-51830	"	A 1	
LDW280-51834	"	A 1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO	ADDED NOTE *	① E 12/20

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LM		NOTED		✓		NOT	REQ'D

APPROVED BY	GAF	AB		JAS					
DATE	12/16/66	12/16/66		12/16/66	12/16/66		12/20	12-20-66	
1	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	421

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01
NAS 9-1100

B

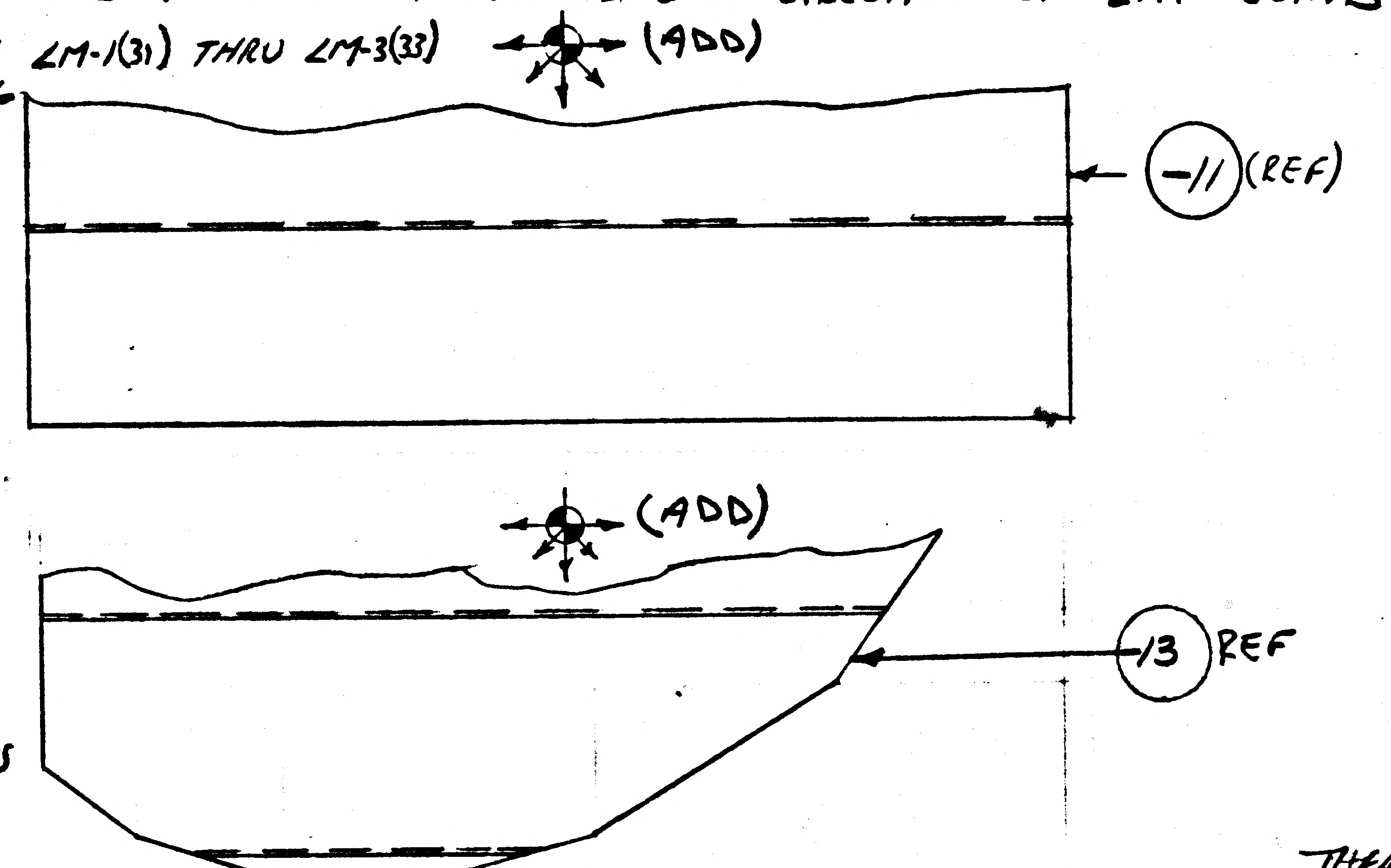
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG NO. LDW280-28760
EO NO. B2
CONTROL INFO NO. LDW280A4572

ON-11&-13 ADD SYMBOL INDICATING PERMISSIBLE DIRECTION OF LAP JOINTS
REVISE EFF:
ON-11 & -13 EFF LM-1(31) THRU LM-3(33)
WAS LM-1(31) THRU LM-6



* THIS CHANGE HAS BEEN INCORPORATED ON LM-1(31)

THERMAL SHLD (2)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: PROVIDE COMPLETE FABRICATION AND INSPECTION INFO

DESCRIPTION OF EO: ON-11&-13: ADDED SYMBOL FOR LAP [illegible] DIRECTIONS & EFF WAS LM-1(31) THRU LM-6(36)

GAEC EO RELEASE: KE 1/4/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-1(31)	
LM		THRU	
LM		LM-3(33)	

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
✓		✓	

APPROVED BY									
DATE	1/3/67	1/3/67		1/3/67	1/3/67		1-4-67	1/5/67
5	VDI	SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONF~~

PRIORITY: C
DRAWING TITLE: SKIN ASSY D/S QUAD I REMOVABLE PLUME IMPINGEMENT
DRAWING NO.: LDW280-28760
EO NO.: B2

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION V. D. I. GROUP NO. 335 PL 35

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-28760
EO NO. B3
CONTROL INFO NO. LDW-280A-5957

ON-11 & -13 REMOVE EFF LM-2 (33), THRU LM-6 (36)

ADD -15 & -17 IDENT TO -11 & -13 RESP. EXCEPT: -15 & -17 TO BE MADE FROM INCONEL 600 FOIL 12" WIDE THICKNESS .00125 PER AMS 5540E WAS MADE FROM LDW280-28760-5 & -7; EFF LM-2(32) & LM-3(33)

ON-15 & -17 REMOVE GH11W-34 HOLES AND GT15B-34 TABS

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: LCR-928 To IMPROVE PAINT ADHESION

DESCRIPTION OF EO: ON-11 & -13 REMOVE EFF LM-2(32) THRU LM-6(36) ADDED -15 & -17

GAEC EO RELEASE: FR 2/23/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36)	
LM		THRU	
LM		LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			-11 -13

APPROVED BY									
DATE	2/14/67				2/13/67	2/14/67		2/17/67	2-20-67
5	VD1	SUPPORT	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: SKIN ASS'Y D/S QUAD I REMOVABLE PLUME IMPINGEMENT

DRAWING NO.: LDW280-28760

EO NO.: B3

ISSUED BY T. AMBROSIO/STRAKOSCH X 1392 SECTION VD1 GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

A

DWG. NO. LDW280-28760
EO NO. B4
CONTROL INFO NO. LDW280A-5676

THIS IS A REVISION OF EO B3 LDW280-28760

IU F/D & L/M REMOVE -11 & -13 (WAS OU -11 & -13 REMOVE EFF LM-2 THRU LM-6)

ADD -15 & -17 EFF LM-1(31) THRU LM-3(33) (WAS ADD -15 & -17 EFF LM-2(32) & LM-3(33))

U/A FOR -15 & -17 LDW280-28758 (REF)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCR 928 2

REASON FOR EO: LCR 928 IMPROVE PAINT ADHESION

DESCRIPTION OF EO: REVISED EO B3. REMOVED -11 & -13. ADDED LM-1 EFF FOR -15 & -17

GAEC EO RELEASE: (R) JK 3/7/7 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	LM-6(36)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK; SCRAP -11 -13

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
	[illegible]			[illegible]	[illegible]		Dann	[illegible]
DATE	3/4/67			3/4/67	3/6/67		3/7/67	3/10/67
5	VDI							

PRIORITY: C
DRAWING TITLE: SKIN ASSY DES STAGE QUAD I SIDE REMOVABLE
DRAWING NO.: LDW280-28760
EO NO.: B4

ISSUED BY G ZEMAN/J STRAKOSCH SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

01

NAS 9-1100

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280	EO NO. 559
CONTROL INFO NO. LDW280A 6306	

ENG 32.2 REV 3-65

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW· REMOVE LDW280-17970· ALL DASH NUMBERS AND ADD "SEE NOTE *"

IN F/D REMOVE LDW280-17970-ALL DASH NUMBERS

REVISE NOTE *
(REF) "MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19."
(ADD) PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

DRAWING No.	CHANGE #	SYMBOL	EFFECTIVITY	TITLE
LDW280-18130	A7	⬡	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW280-18141	A3	⬡	LM-1 THRU LM-15	
LDW 280-28730	B7	□	LTA-8 LM-1 THRU LM-3	
LDW 280-28734	B2	□	LTA-8 LM-1 THRU LM-3	
LDW 280-28738	A7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28740	B3	□	LTA-8 LM-1	
LDW 280-28741	A6	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28744	A7	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28747	B4	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28750	39	□	LTA-8 LM-1 THRU LM-15	
LDW280-28753	A5	□	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	□	LTA-8 LM-1 THRU LM-15	
LDW280-28760	B5	□	LTA-8 LM-1 THRU LM-3	
LDW280-28765	A7	⬡	LTA-8 LM-1 THRU LM-6	
LDW280-28769	B2	□	LM-1	
LDW 280-28772	B6	□	LM-1 THRU LM-15	
LDW 280-28775	B7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28805	A6	□	LM-1 THRU LM-15	
LDW 280-28806	A4	□	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW 280-51824	A3	□	LM-1 THRU LM-15	

NOTE △ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY WITH LPC 280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM □ REVISE NOTE *.
FOR SYM ⬡ ADD NOTE △ TO DWG

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☑	CL I ENGRG CHG ☐	DESCRIPTION OF EO: FROM B/M & F/D REMOVED LDW280-17970 (ALL DASH NO'S) FOR DWG'S □ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ⬡ ADDED NOTE △										GAEC EO RELEASE 5 C JS 4-19-7
REASON FOR EO: UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE													
			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY						
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.				DATE 4/10/67				4/10/67	4/11/67	4/13	4-18-67
				✓ REVISE DWG	RECORD EO	NOT REWORK	REQ SCRAP	6	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
LM		NOTED ABOVE		PRIORITY C	DRAWING TITLE: NOTED							DRAWING NO. LEO 280				EO NO. 559

ED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 325 PL 25

LDW280-28761

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51558	LEM-6 (36)	1
		LEM-5 (35)	1
		LEM-4 (34)	1
		LEM-3 (33)	1
		LEM-2 (32)	1
	LDW280-51558	LEM-1 (31)	1
LEM	LDW280-28558	LTA-B (18)	1
PART NO. LDW280-28761-1		GAEC SCH NO. 52-15 SH-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00							
REV										
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED D

LAST DASH NO. USED -1

GRUMMAN REL INFO

PRIM NO. LE(001)

207 mp 7-4-6x

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .010 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	E. WALLACE 6-23-66	THERMO	
LAYOUT BY	E. WALLACE	MATLS	6/27/66
CHECKED BY			
SR LEADER	6/21/66		
VEH DES INT	7/8		
STRUCTURES	7/5/66	PROJ ENGR	13 July
STRUCTURES	7/8	REL GROUP	Botti 7-18-66
WEIGHTS	7-12		

®
GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

JAMB ASSY - D/S
QUADI-PLSS ACCESS DOOR

SIZE B
CODE IDENT NO. 26512
LDW280-28761
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1		LDW280P17535-13	E	BRACKET	SEE DETAIL DWG						
3		LDW280P17535-11	E	BRACKET							
4		LDW280P17516-13	E	STRUT							
12		LDW280P17516-11	E	STRUT							
4		LDW280P17514-15	E	ROD							
4		LDW280P17514-11	E	ROD							
4		LDW280P17465-15	E	ELBOW							
4		LDW280P17465-11	E	ELBOW							
		LDW280-28761-1	E	JAMB ASSY	SEE DETAIL DWG.						

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

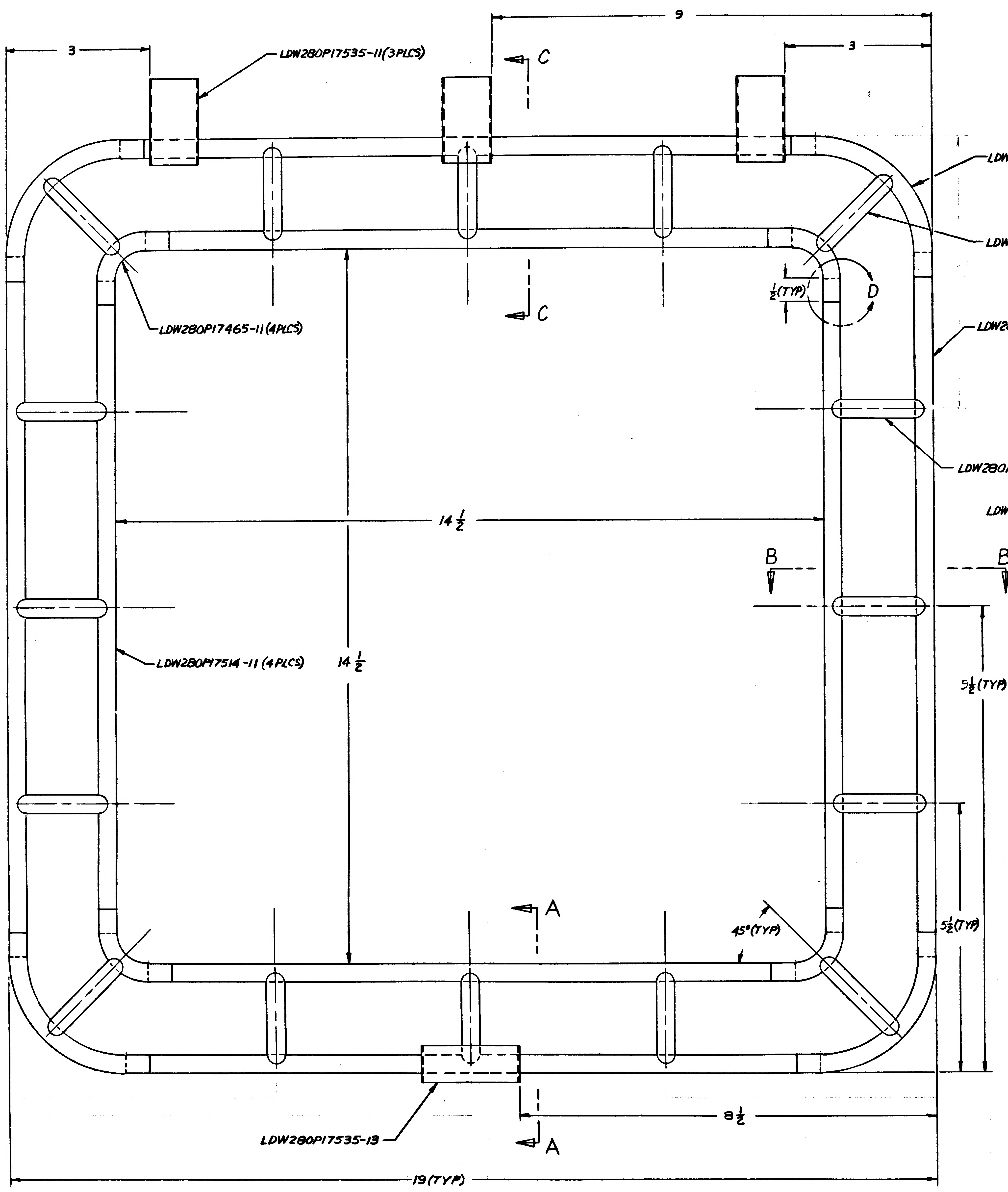
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28761
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

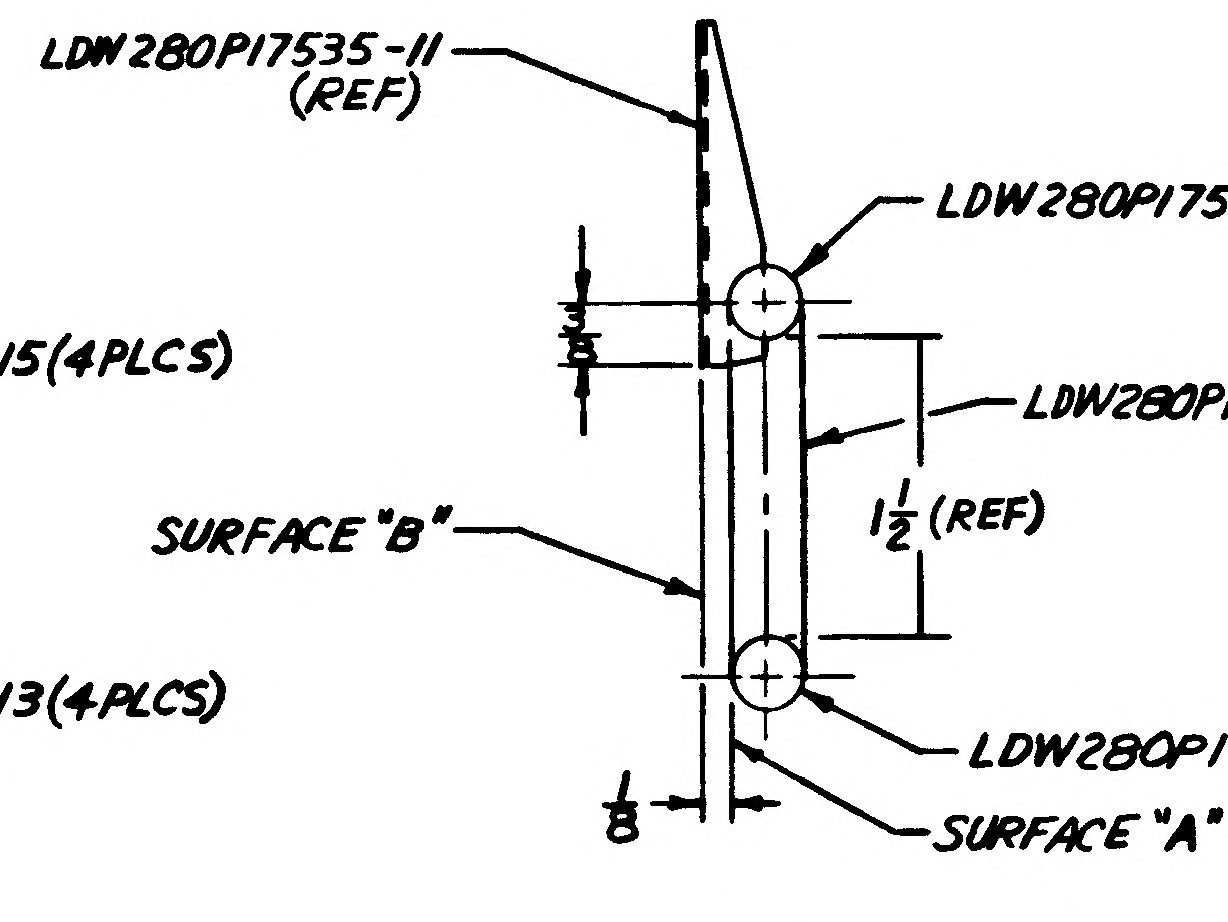
01

NAS 9-1100



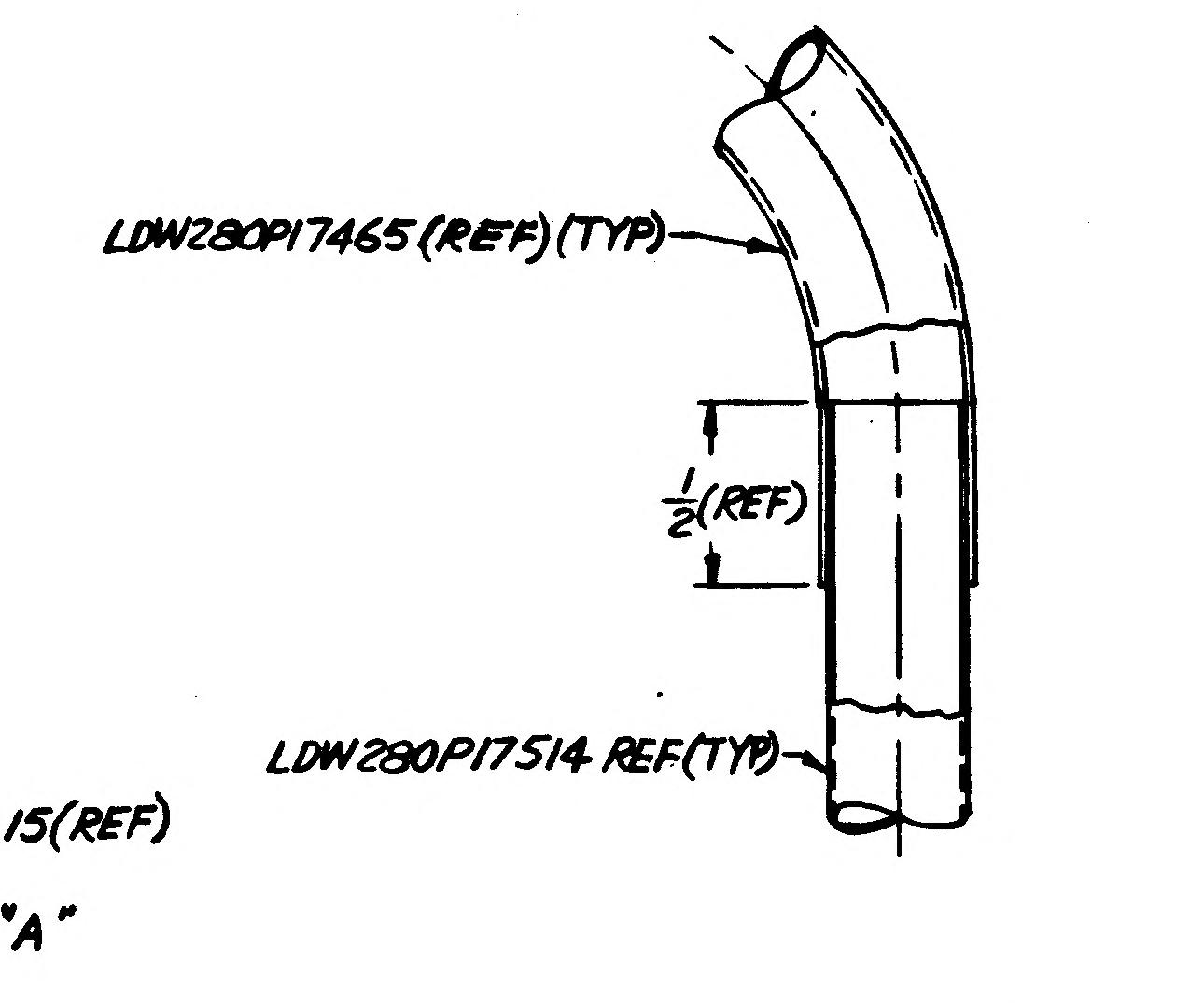
3
9
3
C
C
LDW280P17535-11(3PLCS)
LDW280P17465-15(4PLCS)
LDW280P17516-13(4PLCS)
LDW280P17465-11(4PLCS)
1/2(TYP)
D
LDW280P17514-15(4PLCS)
LDW280P17516-11(12PLCS)
14 1/2
14 1/2
B
B
LDW280P17514-11 (4PLCS)
5 1/2(TYP)
5 1/2(TYP)
A
A
45°(TYP)
8 1/2
LDW280P17535-13
19(TYP)

LDW280-28776-1



LDW280P17535-11 (REF)
LDW280P17514-15 (REF)
LDW280P17516-11 (REF)
SURFACE "B"
1 1/2 (REF)
LDW280P17514-11 (REF)
SURFACE "A"
1/8

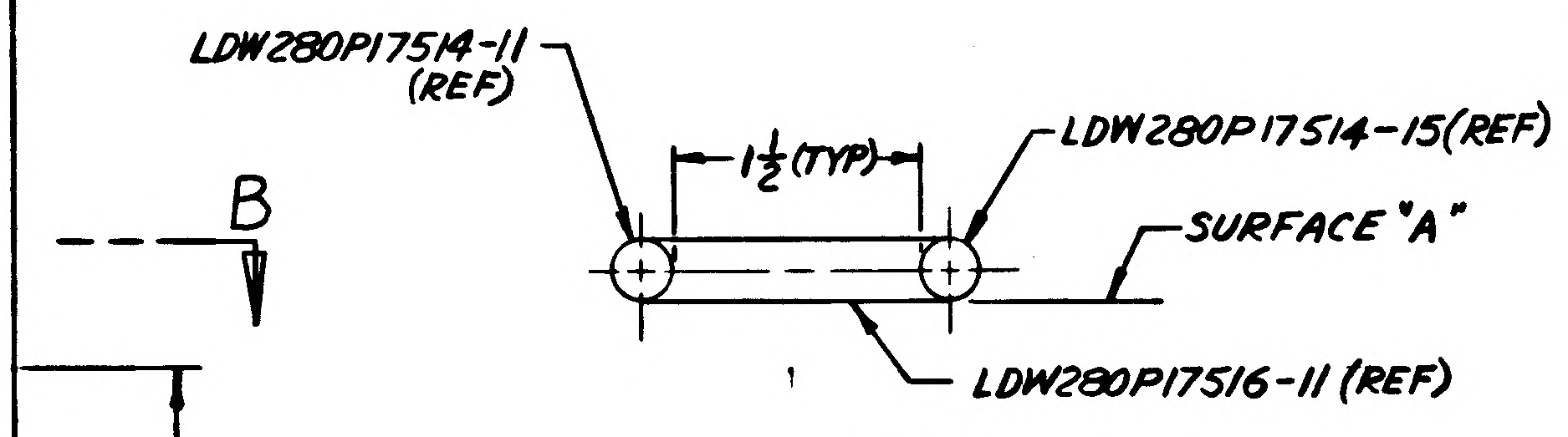
SECT. C-C



LDW280P17465 (REF) (TYP)
1/2(REF)
LDW280P17514 REF(TYP)

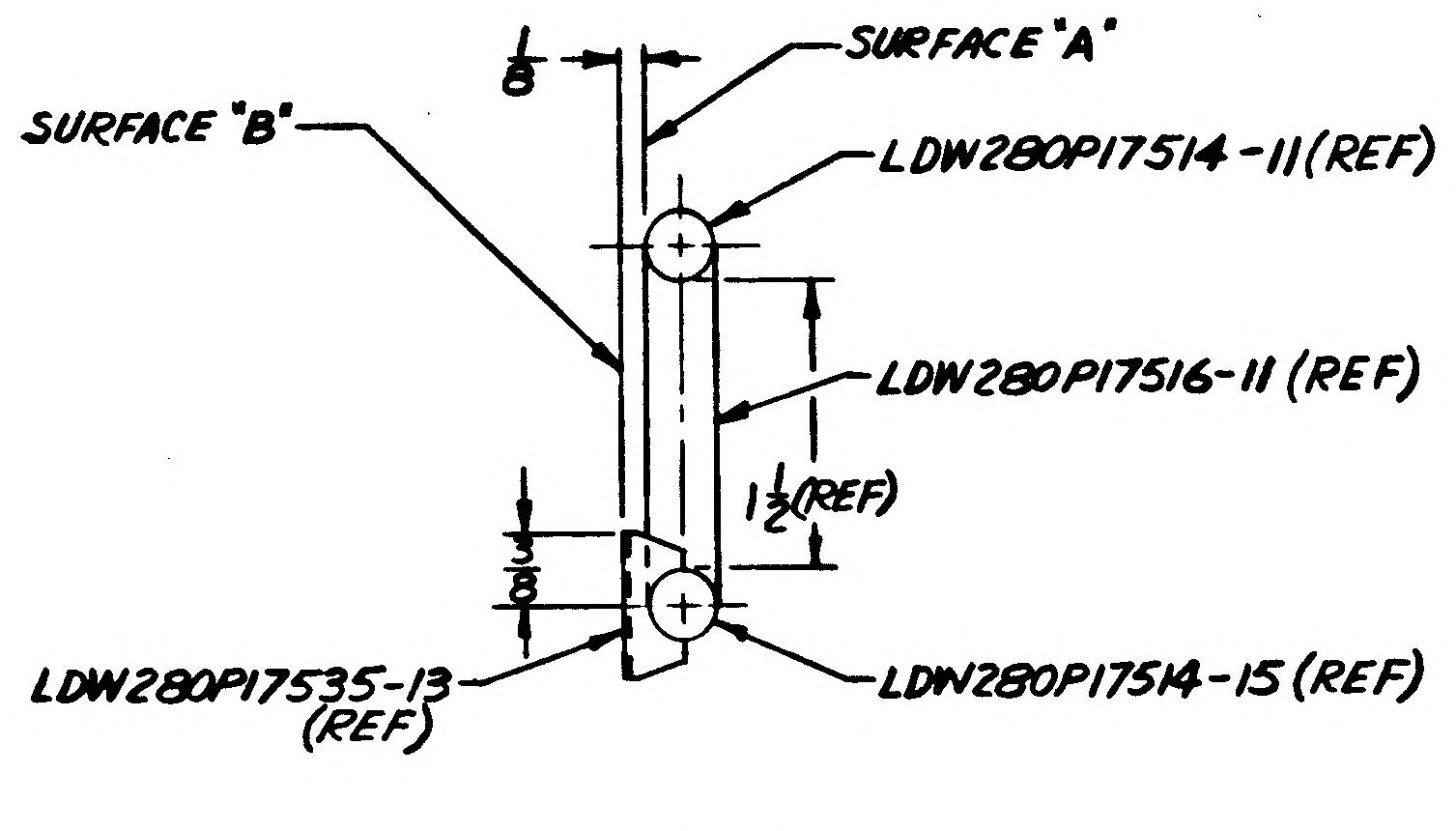
DETAIL D
(NO SCALE)

TYPICAL ASSEMBLED JOINT FOR LDW280P17514 ROD TO LDW280P17465 ELBOW.



LDW280P17514-11 (REF)
1 1/2 (TYP)
LDW280P17514-15(REF)
SURFACE "A"
LDW280P17516-11 (REF)

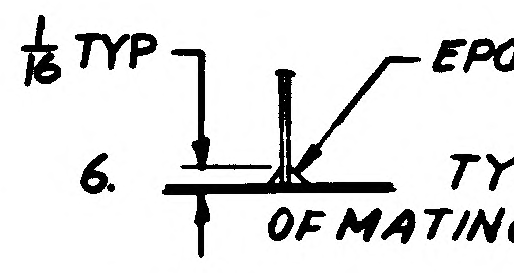
SECT. B-B



1/8
SURFACE "A"
SURFACE "B"
LDW280P17514-11(REF)
LDW280P17516-11 (REF)
1 1/2(REF)
LDW280P17535-13 (REF)
LDW280P17514-15 (REF)

SECT. A-A

6. TYPICAL FILLET FOR BONDING OF MATING JOINTS EXCEPT DETAIL "D".



1/16 TYP
EPON #934

5. REMOVE ALL SHARP CORNERS, EDGES & BURRS. SURFACES SHALL BE SMOOTH TO THE TOUCH.

4. TOOLING HOLES NOT PERMITTED IN PARTS.

3. SURFACE "A" TO BE FLAT WITHIN ± 1/78. SURFACE "B" TO BE PARALLEL TO "A" WITHIN ± 1/78.

2. ASSEMBLE ALL PARTS AS SHOWN AND BOND PER LSP14-22500 USING RESIN EPON 934. CURE RANGE I.

1. LAYOUT RELEASE – TO BE REDRAWN ON PRODUCTION FORMAT.

NOTES

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LEM	E	26512	LDW280-28761
	SCALE 1/1		SHEET 3.00

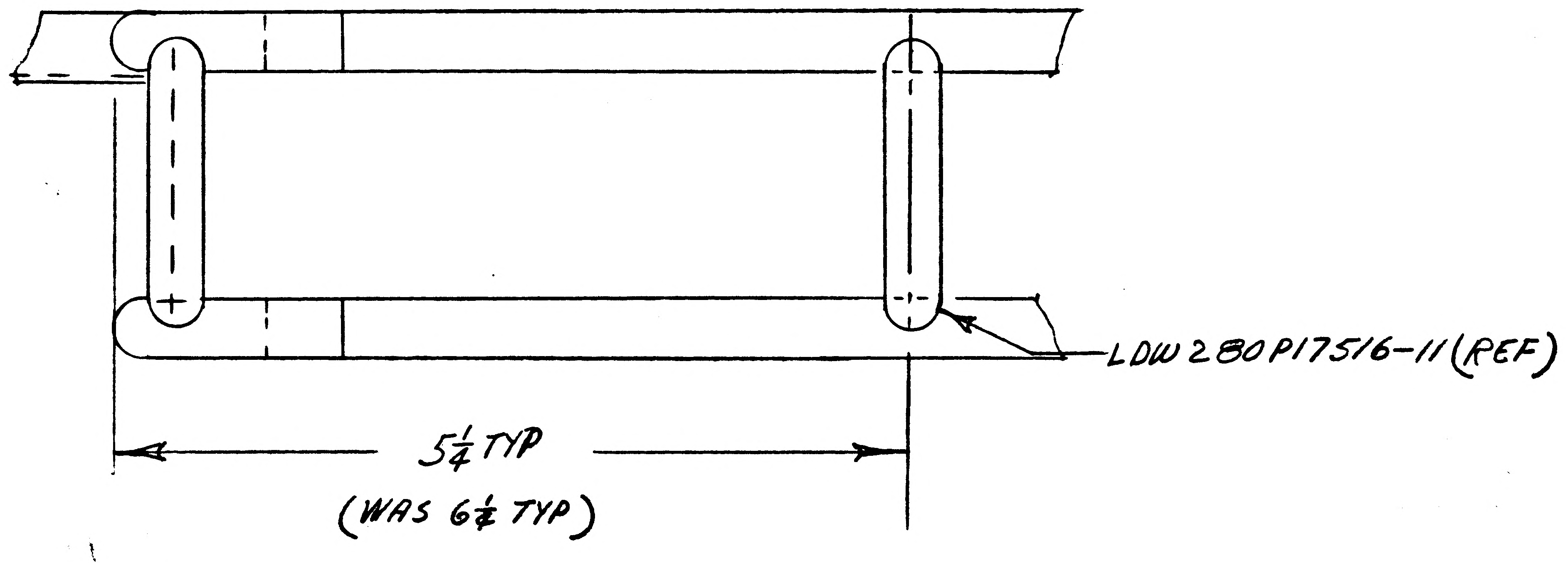
ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW28028761		EO NO. A✓
CONTROL INFO NO. LM-27-279		



LDW 280-28761-3 ASSY

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		27

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
DRAWING ERROR	REF E.O. A I REVISED DIMENSION IN -3 ASSY S/B 5¼ (WAS 6¼)	FR 27-020

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	— —	— —	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT	REQD	DATE	11/5				11-5-66	11-8-66	11-7-66	11-5-66
REVISE DWG	RECORD EO	REWORK	SCRAP	/	VD1	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

Approvals: J. Tobin, RMC (EW), Bott.

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E 27	JAMB ASSY DESCENT STAGE QUAD-1 DOOR	LDW280-28 761	A✓

ISSUED BY LIAISON B WALLACE 1921 9043 11-4-66 SECTION V.D.1. GROUP NO. 335 PL 35

01 NAS 9-1100

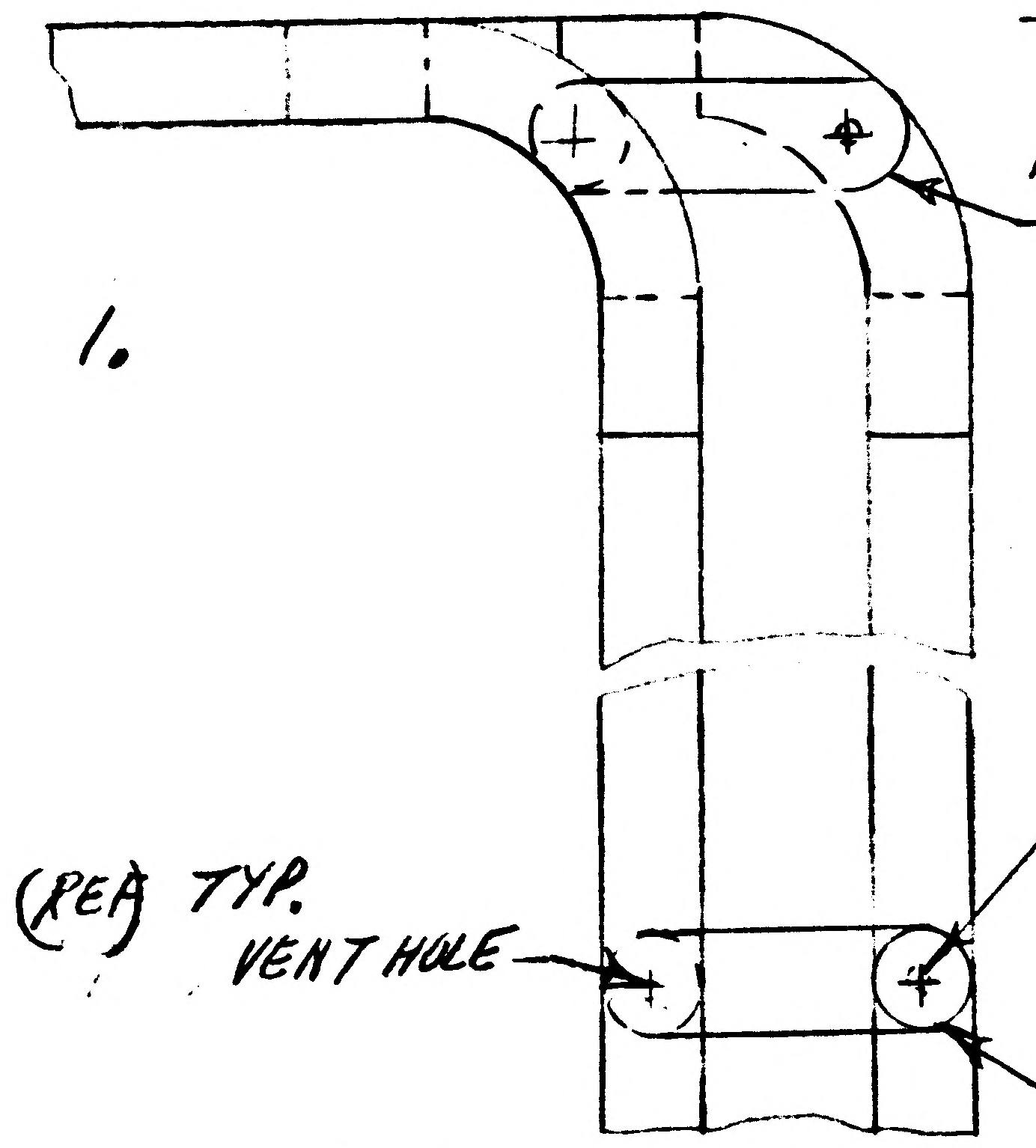
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28761 | EO NO. A3
CONTROL INFO NO. LM-27-298

ZONE 5-E

1.



RE IDENTIFY AS SHN-
LDW280P17516-21 (2)
WAS LDW280P17516-13 (4)

ADD TO B/M SHEET 2.00
LDW280P17516-21 STRUT 2 REQD
LDW280P17516-13 STRUT 2 REQD
(WAS 4 REQ'D)

SHOW VENT HOLES (TYP) AS SHN IN ZONE 3-G.

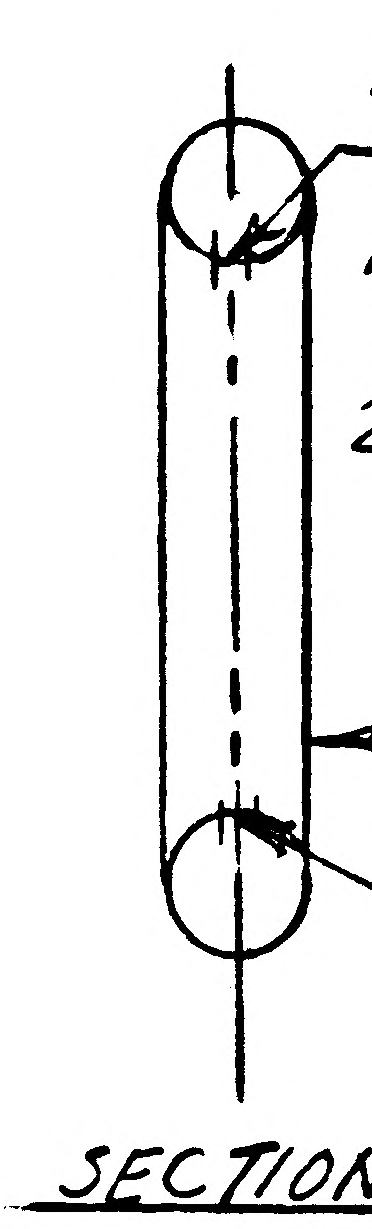
(REF) TYP. VENT HOLE

REVISE QUANTITY AS SHN.
LDW280P17516-13 (2)
WAS LDW280P17516-13 (4)

LDW 280-28761-3 ASSY

2.

ZONE 3-G



ADD-
DR. #30 (.127-.133) DIA VENT HOLE (12 PLCS) IN FRAME. LOCATE ON ℄ OF LDW 280P17516 STRUTS.

LDW280P17516-11 (REF)

VENT HOLE (REF)

SECTION A-A

27

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO
1. BETTER FIT OF MATING PARTS
2. ADDITIONAL VENT HOLES REQ'D FOR PROPER VENTING OF ASSY

DESCRIPTION OF EO
ADDED TO F/D & B/M -21 2 REQD. REVISED QUANTITY IN F/D & B/M -13 2 REQD (WAS 4 REQD). ADDED VENT HOLES IN FRAME.

GAEC EO RELEASE: ✓ C 27-6030

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	LM-1 THRU
		LM-6(31)	THRU(36)

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY	JMS					J. Tobin		
DATE	12/14/66				11-28-66	11-22-66	11-30-66	11-22-66
1	VDI	SUPPORT	RELIAB. GROUP	~~GROUP~~ LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C 27	JAMB ASSY DESCENT STAGE-QUAD I DOOR	LDW280-28761	A3

ISSUED BY LIAISON BWALLACE 1921 4043 11-22-66 SECTION VEH DES INT GROUP NO. 335 PL 35

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER EMP 4

DWG NO. LEO280

EO NO. 476

CONTROL INFO NO. LDW280 A 5542

* TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45). QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280 - 25703 ✓	A6	SEE DRAWING
-25704 ✓	B1	↑
-25706 ✓	B1	
-25707 ✓	B4	
-25708 ✓	B6	
-28647 ✓	C1	
-28652 ✓	B8	
-28669 ✓	A3	
-28672 ✓	C1	
-28721 ✓	A2	
-28727 ✓	B2	
-28752 ✓	B3	
-28761 ✓	A4	
-28762	A1	
-28771	B5	
-28774	A8	
-28776	A1	
-28778	A1	
-28779	A4	
-28803	A3	
-28816	A2	
-28819	A2	
-51560	C1	
-51818	A3	
-51823	A1	
-52723	A5	↓
LDW280		SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: FR 2/23/2

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQ'D: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D

APPROVED BY / DATE: V.D.I. 2/3/67; STRESS GROUP WJM 2/15/67; PROJ ENGRG RMC 2-16-67; GOVT 2-17-67

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO280

EO NO.: 476

ISSUED BY M.GREY/J.STRAKOSCH X-1453 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL. 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 EO NO. 810
CONTROL INFO NO. LDW280B0364

REMOVE LM-4(34) THRU LM-15(45) EFF FROM THE FOLLOWING DASH NO. *

DWG №	DASH №*	NEXT ASSY	TITLE	CHANGE NO.
LDW280-28761	-3	LDW280-54558	SEE DWG	A5
LDW280P17465	-11 -13, -15	LDW280-28761 LDW280-28778		B4
LDW280 P17514	-11 -15, -17, -19, -21	LDW280-28761 LDW280-28778		B2
LDW280P17516	-11	LDW280-28761		B5
LDW280P17531	-11	LDW280-28778		B3
LDW280P18087	-11	LDW280-28762		A3
LDW280-28645	-3	LDW280-54553		A4
LDW280P17535	-13, -15	LDW280-28778	SEE DWG	B4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCR 2011 CCA 663 (5)

REASON FOR EO: PARTS NOT USED BECAUSE OF MOD EQUIP STOWAGE

DESCRIPTION OF EO: REMOVED EFF LM-4(34) THRU LM-15(45) FROM DASH NO. *

GAEC EO RELEASE: JK 12/6/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	JAS							JP	Botti
DATE	11/28/67			11-27-67	12/1/67		11/30/67	12-6-67
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	[redacted]

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 810

12/5
ISSUED BY J. ANDERSEN / P. THORJUSEN SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-28762

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51645	LEM-6 (36)	1
		LEM-5 (35)	1
		LEM-4 (34)	1
		LEM-3 (33)	1
		LEM-2 (32)	1
	LDW280-51645	LEM-1 (31)	1
LEM	LDW280-28645	LTA-8 (18)	1
PART NO. LDW280-28762-1		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

✓

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00						
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED C

LAST DASH NO. USED -1

GRUMMAN REL INFO

PRIM NO. 207

FR(001) MP 7/28/66

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES

± 1/16 ± .010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY E. WALLACE 7/6/66

LAYOUT BY E. WALLACE

CHECKED BY

GR LEADER 7/21/66

VEH DES INT 7/21

STRUCTURES 7/22

STRUCTURES 7/22

WEIGHTS 7-28

THERMO

MATLS 7/21/66

PROJ ENGR 7-29

REL GROUP 8-1-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FRAME ASSY - D/S
QUAD I-PLSS ACCESS DOOR

SIZE B

CODE IDENT NO. 26512

LDW280-28762

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						-1											
						5		LDW280P18087-11	E	BRACKET	SEE DETAIL DWG						
						2		LDW280P17514-33	E	ROD							
						2		LDW280P17514-15	E	ROD							
						4		LDW280P17465-13	E	ELBOW							
								LDW280-28762-1	E	FRAME ASSY	SEE DETAIL DWG						

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28762

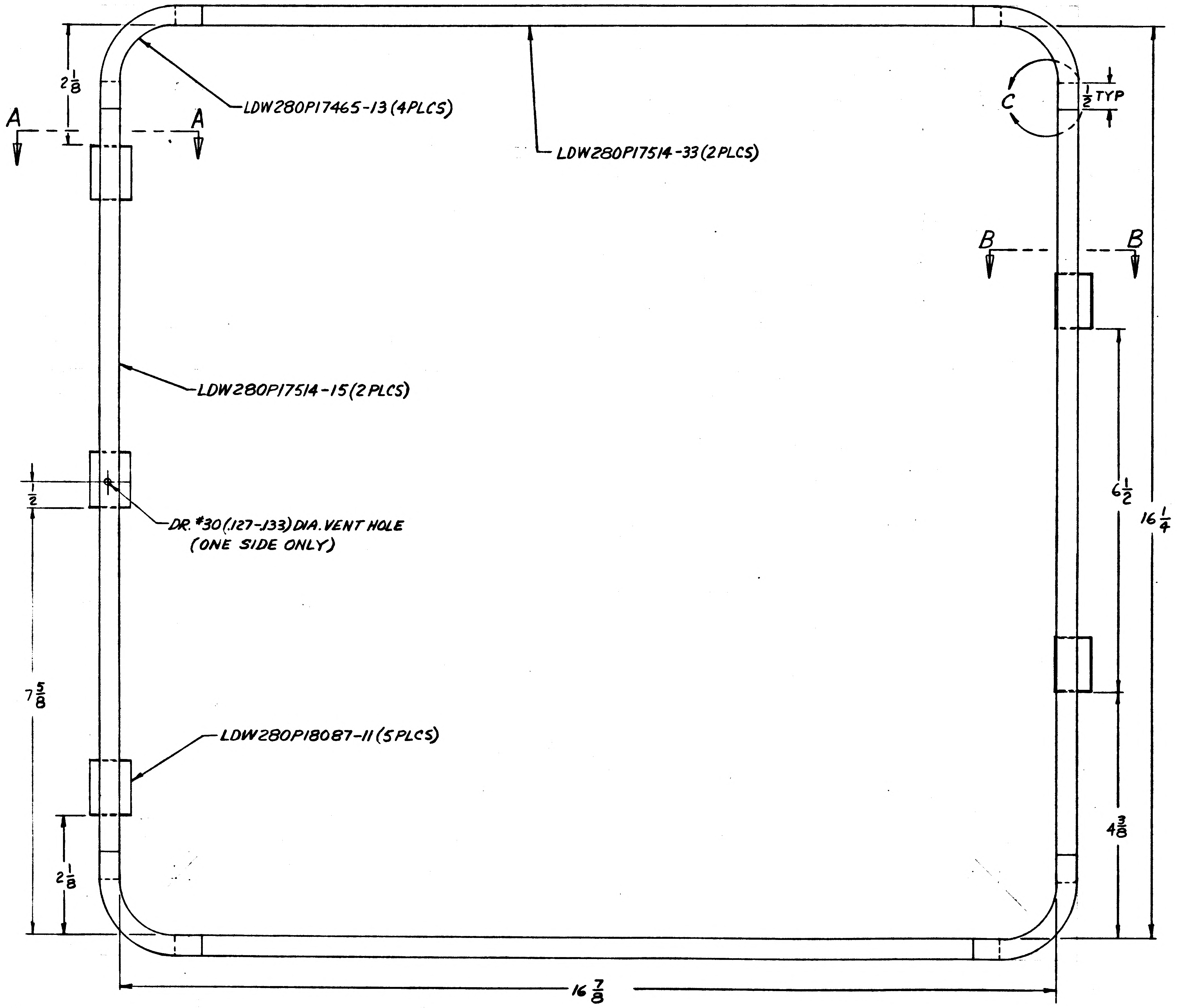
SCALE NONE

SHEET 2.00

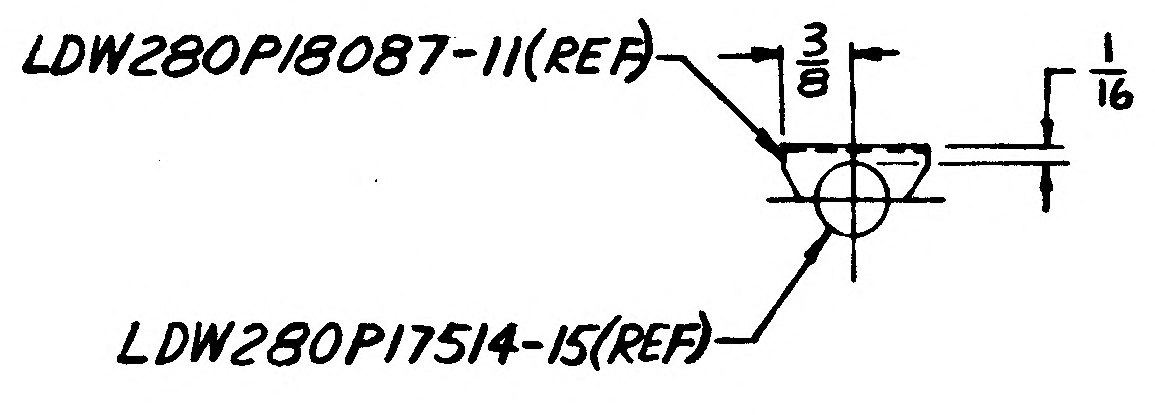
ENG 77.2 7-65

01

NAS 9-1100

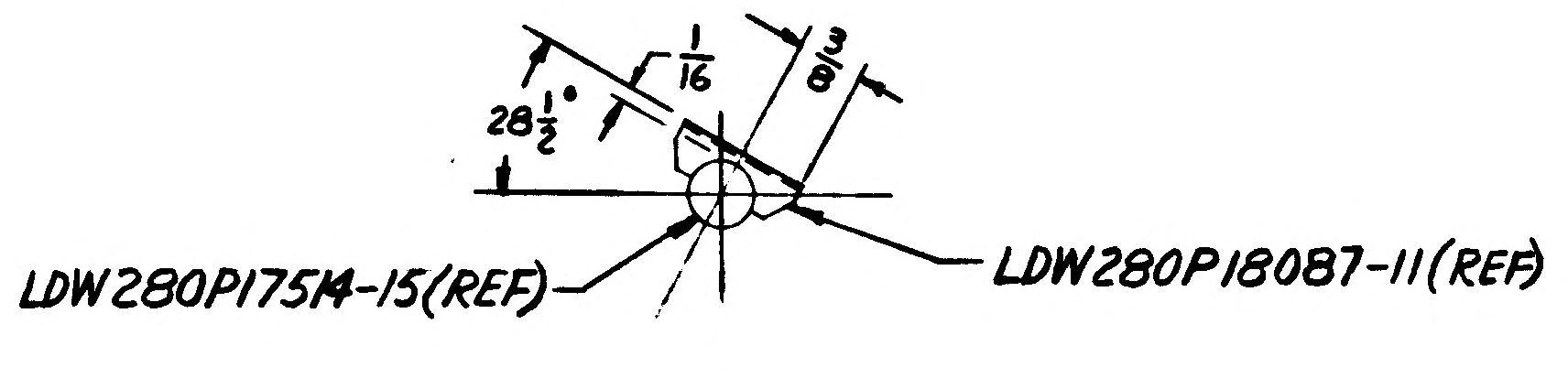


LDW280P17465-13(4PLCS)
LDW280P17514-33(2PLCS)
A
A
B
B
C
$\frac{1}{2}$ TYP
$2\frac{1}{8}$
LDW280P17514-15(2PLCS)
$\frac{1}{2}$
DR. #30(.127-.133)DIA. VENT HOLE (ONE SIDE ONLY)
$6\frac{1}{2}$
$16\frac{1}{4}$
$7\frac{5}{8}$
LDW280P18087-11(5PLCS)
$4\frac{3}{8}$
$2\frac{1}{8}$
$16\frac{7}{8}$



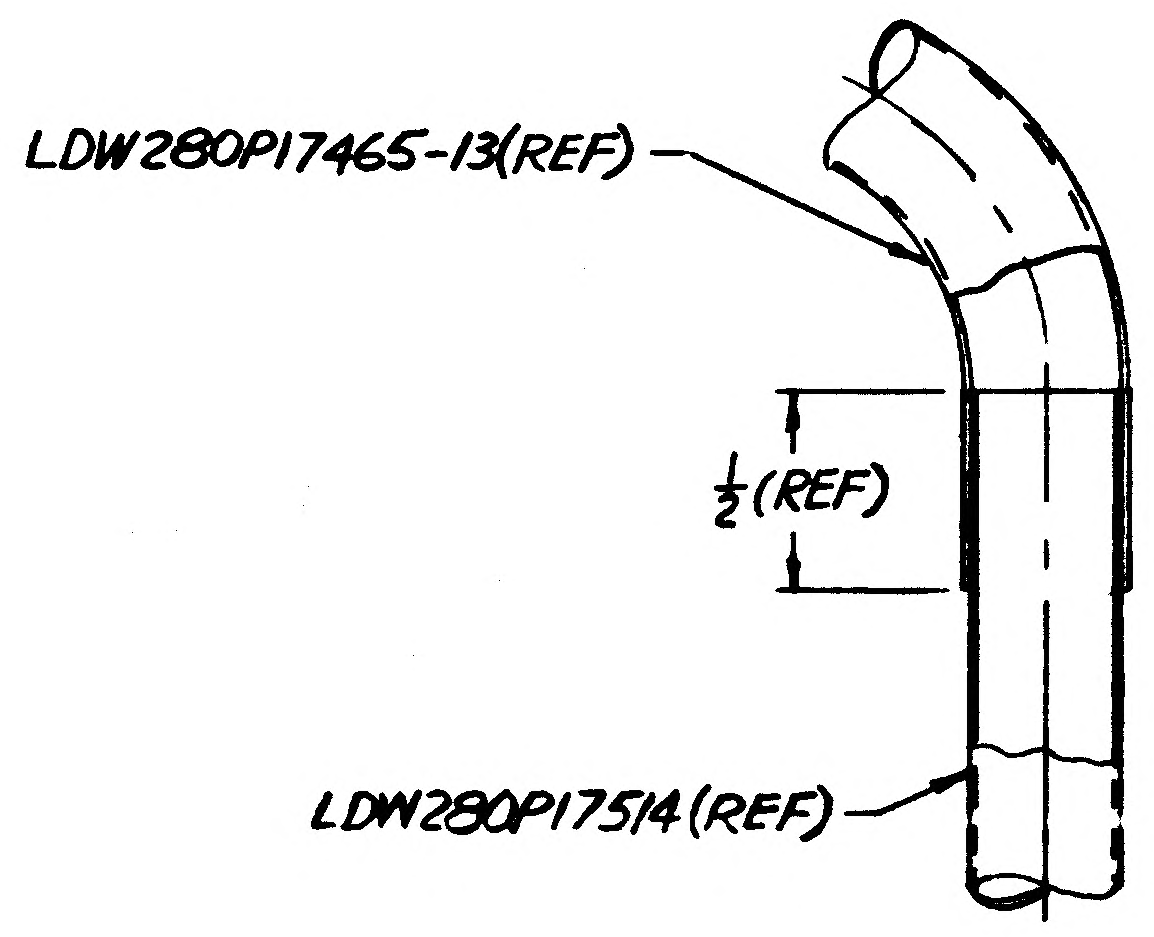
LDW280P18087-11(REF)
$\frac{3}{8}$
$\frac{1}{16}$
LDW280P17514-15(REF)

SECT. A-A



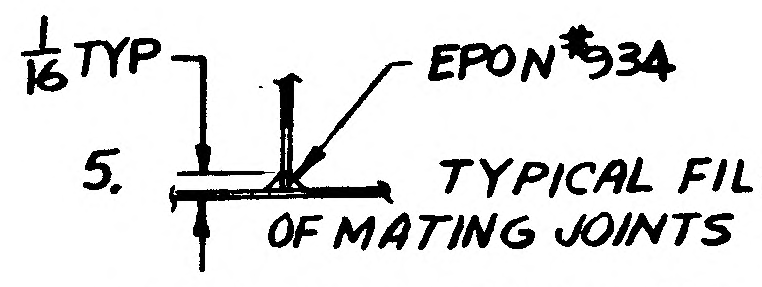
$28\frac{1}{2}°$
$\frac{1}{16}$
$\frac{3}{8}$
LDW280P17514-15(REF)
LDW280P18087-11(REF)

SECT. B-B



LDW280P17465-13(REF)
$\frac{1}{2}$(REF)
LDW280P17514(REF)

DETAIL C
(NO SCALE)
TYPICAL ASSEMBLED JOINT
FOR LDW280P17514 ROD TO
LDW280P17465 ELBOW



$\frac{1}{16}$ TYP
EPON #934

5. TYPICAL FILLET FOR BONDING OF MATING JOINTS EXCEPT DETAIL "C".

4. REMOVE ALL SHARP CORNES, EDGES & BURRS. SURFACES SHALL BE SMOOTH TO THE TOUCH.

3. TOOLING HOLES NOT PERMITTED IN PARTS.

2. ASSEMBLE ALL PARTS AS SHOWN AND BOND PER LSP 14-22500 USING RESIN EPON 934. CURE RANGE I.

1. LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT.

NOTES.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LEM	SIZE E	CODE IDENT NO. 26512	LDW280-28762	
MODEL OR END ITEM	SCALE 1/1		SHEET 3	

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER LMP-4

DWG. NO. LE0280
ED NO. 476
CONTROL INFO NO. LDW280 L 5542

*

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45) - QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280 - 25703 ✓	A6	SEE DRAWING
-25704 ✓	B7	
-25706 ✓	B1	
-25707 ✓	B4	
-25708 ✓	B6	
-28647 ✓	C1	
-28652 ✓	B8	
-28669 ✓	A3	
-28672 ✓	C1	
-28721 ✓	A2	
-28727 ✓	B2	
-28752 ✓	B3	
-28761 ✓	A4	
-28762 ✓	A1	
-28771	B5	
-28774	A8	
-28776	A1	
-28778	A1	
-28779	A4	
-28803	A3	
-28816	A2	
-28819	A2	
-51560	C1	
-51818	A3	
-51823	A1	
-52723	A5	
LDW280		SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

2

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: FR 2/23/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK / SCRAP
PRIORITY: C
APPROVED BY: V.D.I. — WJH (STRESS GROUP) 2/15/67 — RMS (PROJ ENGRG) 2-16-67 — GOVT 2-17-67
DATE: 0
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 476

ISSUED BY M. GREY / J. STRAKOSCH X-1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL. 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28762		EO NO. A2
CONTROL INFO NO. LDW280B1473		

IN MB ON -1 ASSY
N/A LDW280-28645 (WAS) LDW280-51645 EFF: LM-1(31) THRU LM-3(33)
ALL QUANTITIES REMAIN THE SAME

REMOVE LM-4(34) THRU LM-15(45) REQUIREMENTS

5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCR 2011

REASON FOR EO
FOR LM-1(31)-LM-3(33) TO AGREE WITH N/A
FOR LM-4(34) - LM-15(45) LCR 2011

DESCRIPTION OF EO
IN MB ON -1 ASSY
N/A LDW280-28645 (WAS) LDW280-51645 EFF: LM-1(31)-LM-3(33)
REMOVED LM-4(34) THRU LM-15(45) REQUIREMENTS

GAEC EO RELEASE: H.F 2/9/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	gap						gap	
DATE	1/18/68			1-18-68			1/18/68	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	FRAME ASSY - D/S QUAD I ~ PLSS ACCESS DOOR	LDW280-28762	A2

ISSUED BY D.SHAPIRO/P.THORTUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28763

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51559	LEM-6 (36)	1
↕	↕	LEM-5 (35)	1
		LEM-4 (34)	1
		LEM-3 (33)	1
		LEM-2 (32)	1
	LDW280-51559	LEM-1 (31)	1
LEM	LDW280-28559	LTA-8 (18)	1

PART NO. LDW280-28763-1

GAEC SCH NO. 52

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED

GRUMMAN REL INFO

PRIM NO.	FS(001)	MP	X
207	7-18-6		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/16 ±.030 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	R.VAN COTT	RELIABILITY	
LAYOUT BY		THERMO	Ra. Aslett
CHECKED BY			
GRP LDR	7/15/66		
UDI	7/16		
STRUCTURE	FEB 7/16	PROJ ENGR	7-26
STRUCTURE	Hilderman 7/16	REL GROUP	Botti 8-3-66
WEIGHTS	7-25		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSY
DESCENT STAGE-QUAD II - P.I. SHIELD-SIDE REMOVABLE

SIZE B
CODE IDENT NO. 26512
LDW280-28763
SCALE 1/2 NONE
SHEET 1 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
12		LDW280-17932-11	E	WASHER	SEE DWG						
12		LDW280-23720-1	E	STAPLE ASSY	SEE DWG						
1		LDW280-28765-1	E	SKIN ASSY	SEE DWG						
1		LDW280-28764-1	E	SKIN ASSY	SEE DWG						
		LDW280-28763-1	E	SKIN ASSY							

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28763

SCALE 1/2 NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

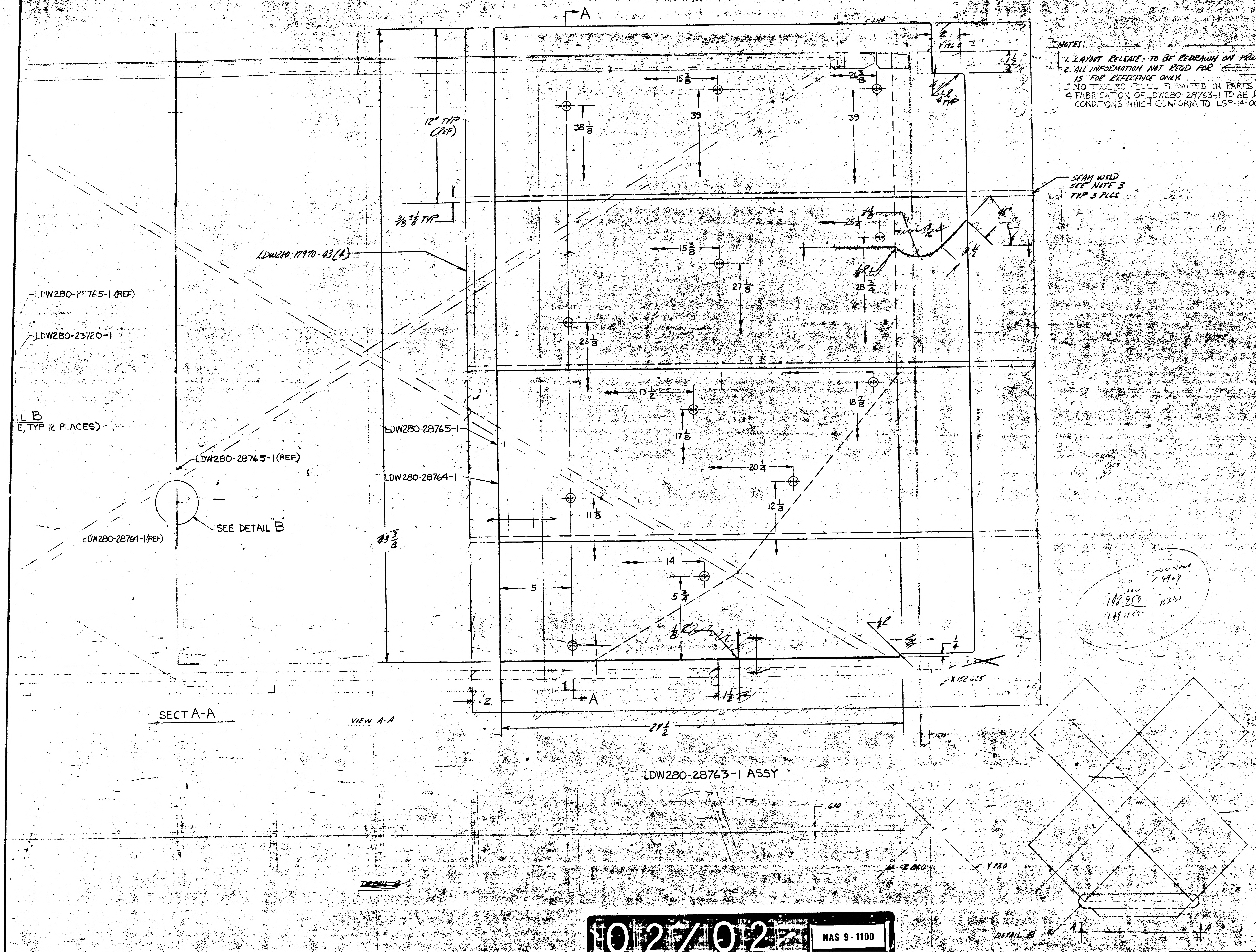
A
12" TYP (REF)
3/8 ± 1/8 TYP
15 3/8
26 3/8
39
38 1/8
39
2
1/2
1/2 TYP
SEAM WELD SEE NOTE 3 TYP 3 PLCS
45°
25 3/4
2 1/8
3/16
2 1/2
LDW280-17970-43 (4)
15 3/8
27 1/8
28 3/4
23 1/8
13 1/2
13 7/8
17 1/8
20 1/4
12 1/8
11 1/8
LDW280-28765-1
LDW280-28764-1
43 3/8
14
5 3/4
5
1/8
1/4
X 152.25
1/2
1 1/2
27 1/2
A
LDW280-28764-1(REF)
LDW280-28765-1 (REF)
LDW280-17932-11
LDW280-23720-1
SQUEEZE FOIL & MESH FIRMLY TOGETHER & CLINCH STAPLE AS SHOWN.
DETAIL B
(NO SCALE, TYP 12 PLACES)
LDW280-28765-1(REF)
SEE DETAIL "B"
LDW280-28764-1(REF)
SECT A-A
VIEW A-A
LDW280-28763-1 ASSY
.610
Z 81.0
Y 27.0
DETAIL B
X 131.14
DETAIL B

NOTES:

1. LAYOUT RELEASE - TO
2. ALL INFORMATION NOT
IS FOR REFERENCE

01/02

NAS 9-1100


A
A
SECT A-A
VIEW A-A
LDW280-28763-1 ASSY
12" TYP (REF)
3/8 ±1/8 TYP
LDW280-17970-43(4)
LDW280-28765-1 (REF)
LDW280-23720-1
DETAIL B (TYP 12 PLACES)
LDW280-28765-1 (REF)
SEE DETAIL "B"
LDW280-28764-1(REF)
LDW280-28765-1
LDW280-28764-1
SEAM WELD SEE NOTE 3 TYP 3 PLCS
15 3/8
26 3/8
39
38 1/8
39
25 1/4
27 1/8
28 3/4
23 1/8
13 1/2
18 7/8
17 1/8
20 1/4
11 1/8
12 1/8
14
5 3/4
5
43 3/8
27 1/2
1/2
1 1/2
1/4
45°
DETAIL B

NOTES:
1. LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT.
2. ALL INFORMATION NOT REQD FOR ~~[illegible]~~ IS FOR REFERENCE ONLY.
3. NO TOOLING HOLES PERMITTED IN PARTS
4 FABRICATION OF LDW280-28763-1 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP-14-0011 LEVEL "C"

02/02 NAS 9-1100

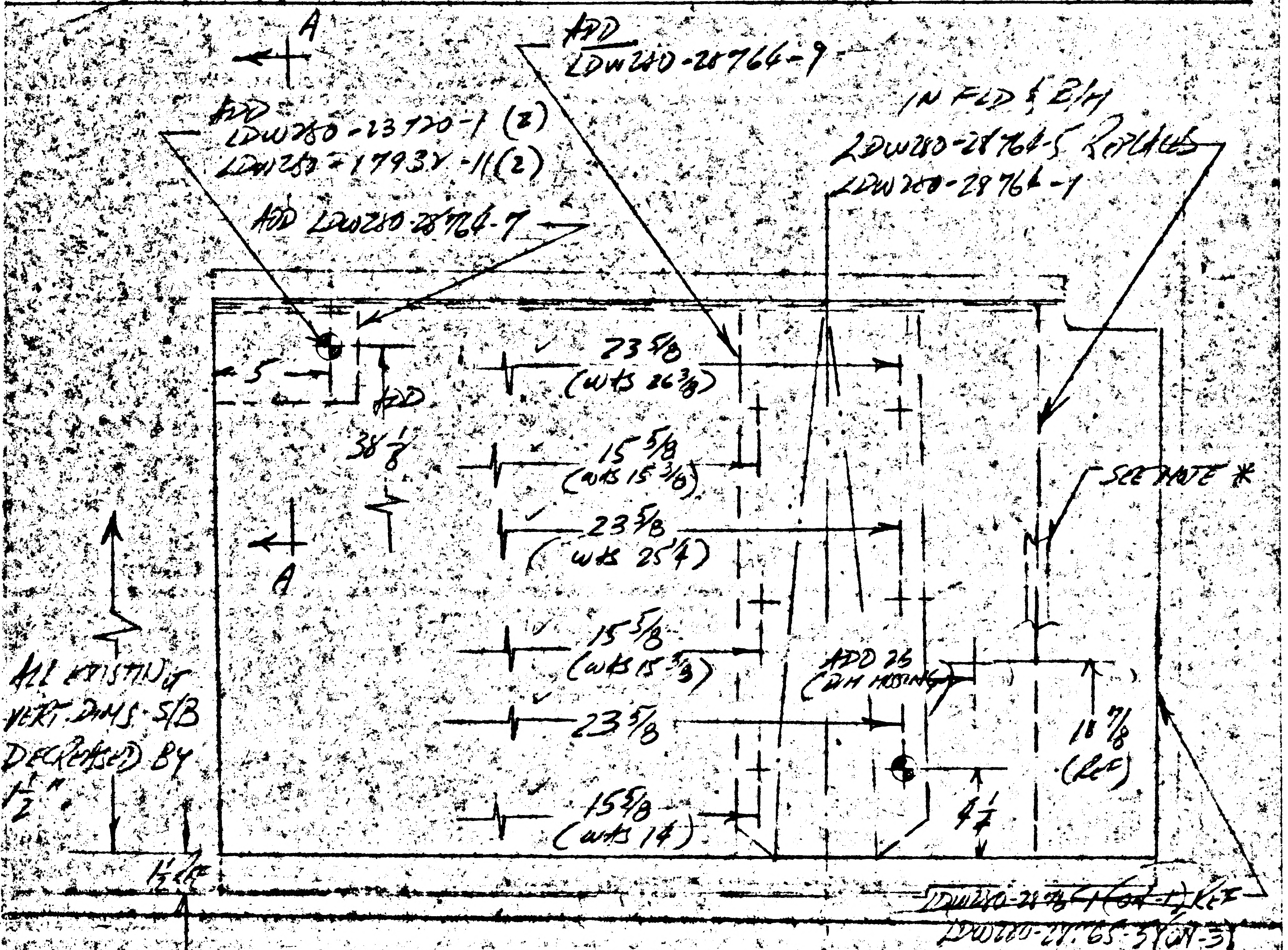
GRUMMAN AIRCRAFT ENG CORP, BETHPAGE, L.I., NEW YORK
LEM
SIZE J
26512
LDW280-28763
SHEET 1 OF 1

THIS IS AN ORIG DWG

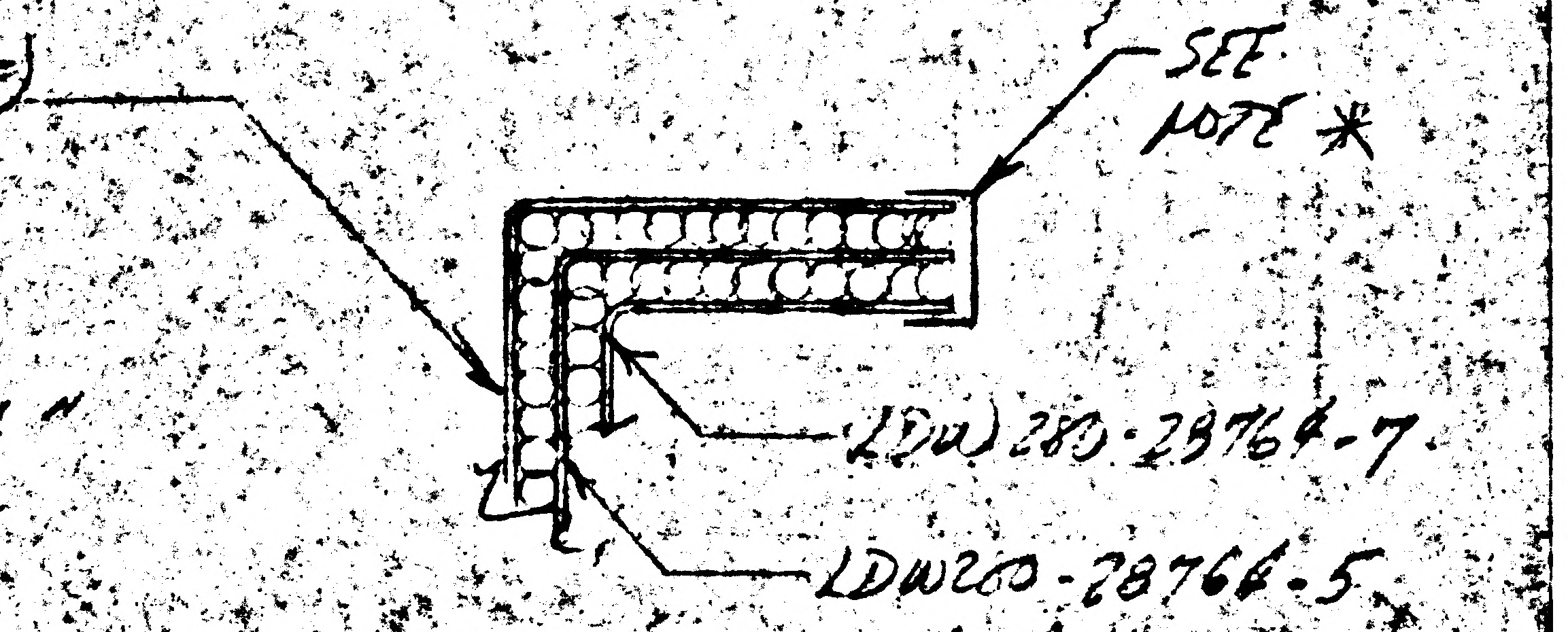
ENG 32.3 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28763		EO NO. A1
CONTROL INFO NO. LDW280-9317		


A
ADD
LDW280-28766-9
IN FLD & B/H
LDW280-28766-5 REPLACES
LDW280-28766-1
ADD
LDW280-23720-1 (2)
LDW280-17937-11(2)
ADD LDW280-28764-7
5
ADD
3 1/8
23 5/8
(WAS 26 3/8)
15 5/8
(WAS 15 3/8)
23 5/8
(WAS 25 7/8)
15 5/8
(WAS 15 3/8)
23 5/8
15 3/8
(WAS 14)
SEE NOTE *
ADD 25
(B/H HOUSING)
18 7/8
(REF)
4 1/4
A
ALL EXISTING
VERT. DIMS. 5/8
DECREASED BY
1/2"
1/2 REF
LDW280-28765-1(DN-1) REF
LDW280-28765-3(DN-3)
LDW280-28765-7(DN-5)

1. ADD LDW280-28763-3 (EFF LTA-8)
& LDW280-28763-5 (EFF LEM-4 THRU LEM-6)
TO REPLACE LDW280-28763-1 (BOTH IDENTICAL
TO -1 EXCEPT AS SHN.)


LDW280-28765 (REF)
SEE NOTE *
LDW280-28764-7
LDW280-28766-5

SECTION A-A

2. ADD NOTE *:
"TAPE EDGES OF FOIL
LAYERS ON ASSY PER LPC 280-4"

3. IN DETAIL B ADD:
"DIRECTION OF STAPLES OPTIONAL

* NEXT AVAILABLE NOTE NO. 2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PARTS REDESIGNED TO SATISFY THERMAL REQMTS	REMOVED -1 ASSY, ADD -3 & -5 ASSY, NOTE * & "DIRECTION OF STAPLES OPTIONAL"	LE 9-29

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD REVISE DWG	RECORD EO	DISPOSITION OF PARTS REWORK	SCRAP	APPROVED BY / DATE		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
LEM		LTA-8 (18)		✓			✓	DATE	9/16 VDI				8-11-66		9-23-66	9/21/66
		LEM-1 (31) THRU LEM-6 (36)														

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY DESCENT STAGE QUAD II - P.I. SHIELD - SIDE	LDW280-28763	A1

ISSUED BY R. VAN COTT SECTION VDI GROUP NO. 331 PL. 35

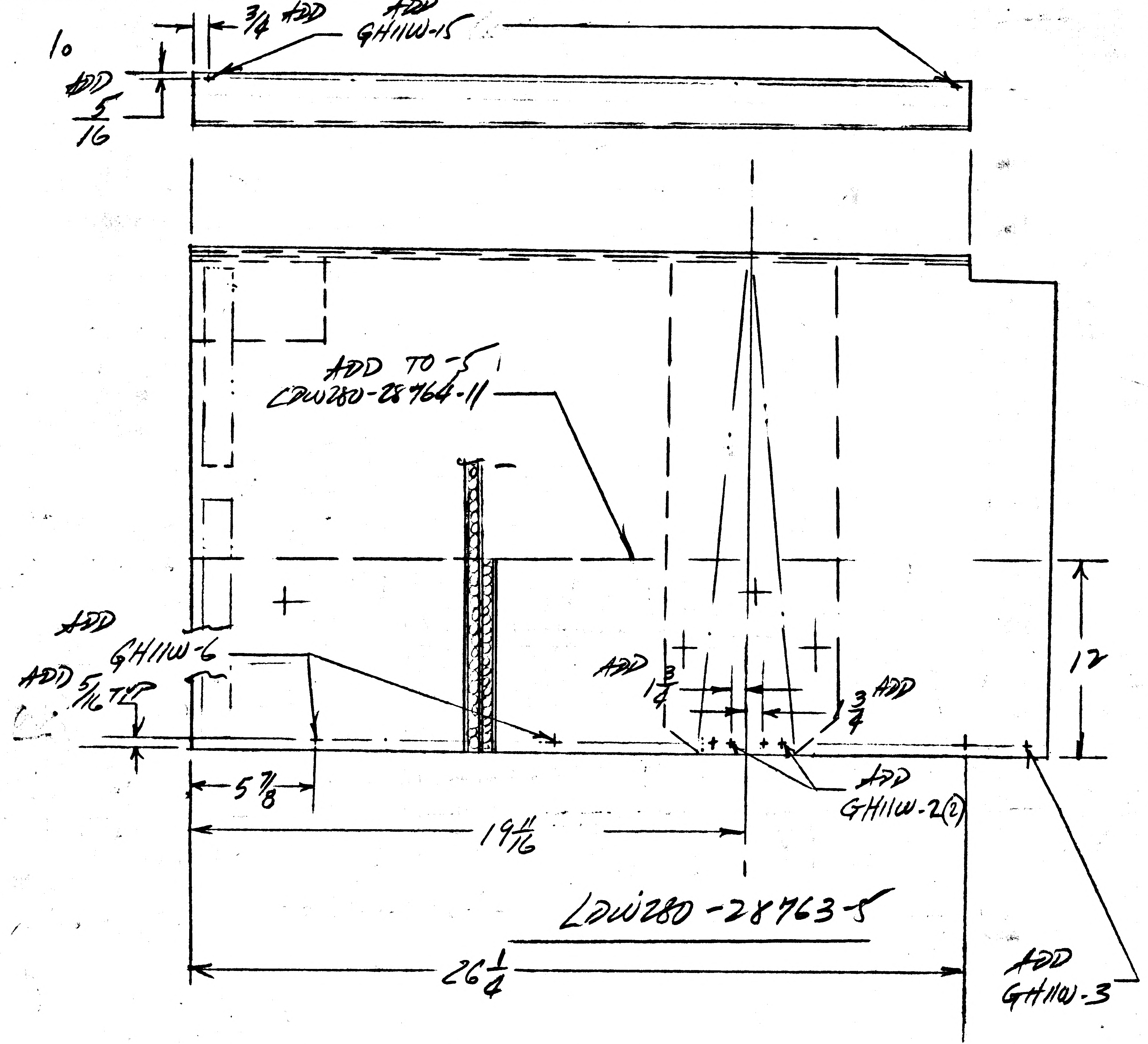
345

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28763	EO NO. A2
CONTROL INFO NO. LDW280A3747	



10
ADD 5/16
3/4 ADD
ADD GH11W-15
ADD TO -5
LDW280-28764-11
ADD GH11W-6
ADD 5/16 TYP
5 7/8
19 11/16
ADD 1 3/4
1 3/4 ADD
ADD GH11W-2(2)
12
LDW280-28763-5
26 1/4
ADD GH11W-3

1. ADD LDW280-28764-11 TO -5 ASSY.

2. FOR -5
   REMOVE LM-2 THRU LM-6 REQMTS.

3. ADD GH11W-6, GH11W2(2), GH11W-3, GH11W-15 & LOCATING DIMS TO -3 & -5

4. FOR -5 N/A S/B LDW280-28665 WAS LDW280-51665

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
RESTRICT PARTS & ADD INSULATION LAYER	1. ADDED LDW280-28764-11 TO -5 ASSY. 2. REMOVED LM-2 THRU LM-6 REQMTS FOR -5 ASSY. 3. ADDED GH11W-6, GH11W-2(2), GH11W-3, GH11W15 & LOC. DIMS TO -3 & -5	Ⓔ FR 12/5/6 -

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SDB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-4 (31) THRU	
		LM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	✓

APPROVED BY	JAP	MS		JRS	NM		Dam		
DATE	12/2/66	12/2/66		12/2/66	12-2-66		12/2/66	12-3-66	
5	VD1	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY DESCENT STAGE QUAD II - PI SHIELD - SIDE - REMOVEABLE	LDW280-28763	A2

ISSUED BY R. VAN COTT X1153 SECTION VDI GROUP NO. 335 PL 35

Q1 NAS 9-1100

ENG 32.1 REV 3-65 C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-28763		EO NO. A3
CONTROL INFO NO. LDW280A-5808		

THIS IS A REVISION TO EO A.2

FOR -5 N/A S/B LDW280-28559 FOR LM-1
WAS LDW280-28665

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

2 C

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC EO RELEASE
N/A COMPATABILITY	REF; EO A-2 FOR-5 N/A WAS LDW280-28665	JK 3/11/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQ

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JAF			JAS	WJH			
DATE	3/4/67			3/4/67	3/6/67		3/7/67	3/10/67
6	VD1							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASS'Y D/S QUAD II PI SHIELD SIDE	LDW280-28763	A3

ISSUED BY J. STRAKOSCH 1153 SECTION VD1 GROUP NO. 335 PL 35

01 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28763
EO NO. A4
CONTROL INFO NO. LDW280A-6195

IN F/D & LM FOR-5 REMOVE LDW280-28765-7 SKIN ASSY & REPLACE WITH LDW280-28765-9 SKIN

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 928

2

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC EO RELEASE C
LCD.928 IMPROVE PAINT ADHESION	FOR-5 REMOVED LDW280-28765-7. ADDED LDW280-28765-9	JK 4/5/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	4/3/67			4/1/67	4/3/67		4/3/67	4-5-67
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY DES STAGE QUAD II SIDE REMOVABLE	LDW280-28763	A4

ISSUED BY G ZEMAN/J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

PJ B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG NO. LDW280-28763		EO NO.	A5
CONTROL INFO NO.	LM-2-3648		

FOR -3 & -5 ASSY'S
IN FLD/DWG & B/M
REPLACE LDW280-23720-1(14 EA) WITH LDW280-23720-3(14 EA)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
ADDITIONAL WASHER THICKNESS REQD FOR THERMAL CONTROL	FOR -3 & -5 ASSY'S, IN FLD/DWG & B/M, LDW280-23720-3(14) WAS LDW280-23720-1(14).	18 31 JL 02191

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY	Jat			~	MBS	Ctf		
DATE	7/6/67			~	6/14/67	6/14/67	7/6/67	7/6/67
-1-	UDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT.~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSEMBLY~DESCENT STAGE QUAD II~P.I. SHIELD~SIDE~REMOVABLE	LDW280-28763	A5

ISSUED BY LIAISON J. MALONEY 6/14/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-28764 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28763	LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
		LM-3(33)	1
		LM-2(32)	1
		LM-1 (31)	1
LM	LDW280-28763	LTA-8(18)	1
PART NO. LDW280-28764-5, -7 & -9		GAEC SCH NO. 52	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED B-B
LAST DASH NO. USED -9
GRUMMAN REL INFO A
PRIM NO. 207
EMF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/16 ±.030 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	R.VANCOTT	RELIABILITY	
LAYOUT BY		THERMO	R.A. HASLETT
CHECKED BY			
GR LEADER	STRAKOSCH 7/15/66		
VEH DES INT	BISCHOFF 7/16/66		
STRUCTURES	BUNCE 7/16/66	PROJ ENGR	F. DESENO 7/26/66
STRUCTURES	HILDERMAN 7/16/66	REL GROUP	BOTTI 8/3/66
WEIGHTS	POBESCH 7/25/66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL ASSY (WELDED)
DESCENT STAGE - QUAD II - PI SHIELD - REMOVABLE

SIZE B
CODE IDENT NO. 26512
LDW280-28764
A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDES LDW280-28764 NO CHANGE 8-3-66

01

NAS 9-1100

REVISIONS
FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE LAST REV NONE ADDED SH 1.10 MELMED 9-30-66						
A	1							LEO280-188	REWROTE SEAMWELD NOTE 3 & ADDED NOTE 4 A & B	LTA-8 LM-1 THRU -6	NOT	REQD	MELMED 9-30-66 EG		
	2							LEO280-240	REF LEO 280-188 ADDED PART "C" TO NOTE 4		✓				
	3							EO A3 ®	ADDED -7 & -9 ASSY. -5 ASSY REPLACES -1 ASSY IN FIELD & B/M LDW280-17764-35 S/B LDW280-17950-35			-1			

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	THERMO					
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28764	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

-9	-7	-5	-3	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AS REQD	AS REQD	AS REQD			SEE NOTE #5	E	INCONEL							
	1		4		LDW280-17950-55	E	SKIN (FOIL)	SEE DWG						
					LDW280-28764-9	E	TRIM ASSY			MAKE FROM	LDW280-28764-3	NONE	NONE	
					-7	E	TRIM ASSY					NONE	↕	
					-5	E	TRIM ASSY			MAKE FROM	LDW280-28764-3	NONE		
					LDW280-28764-3	E	FOIL ASSY (WELDED)					FLW	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	FOIL WELDING	LSP-14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28764	A

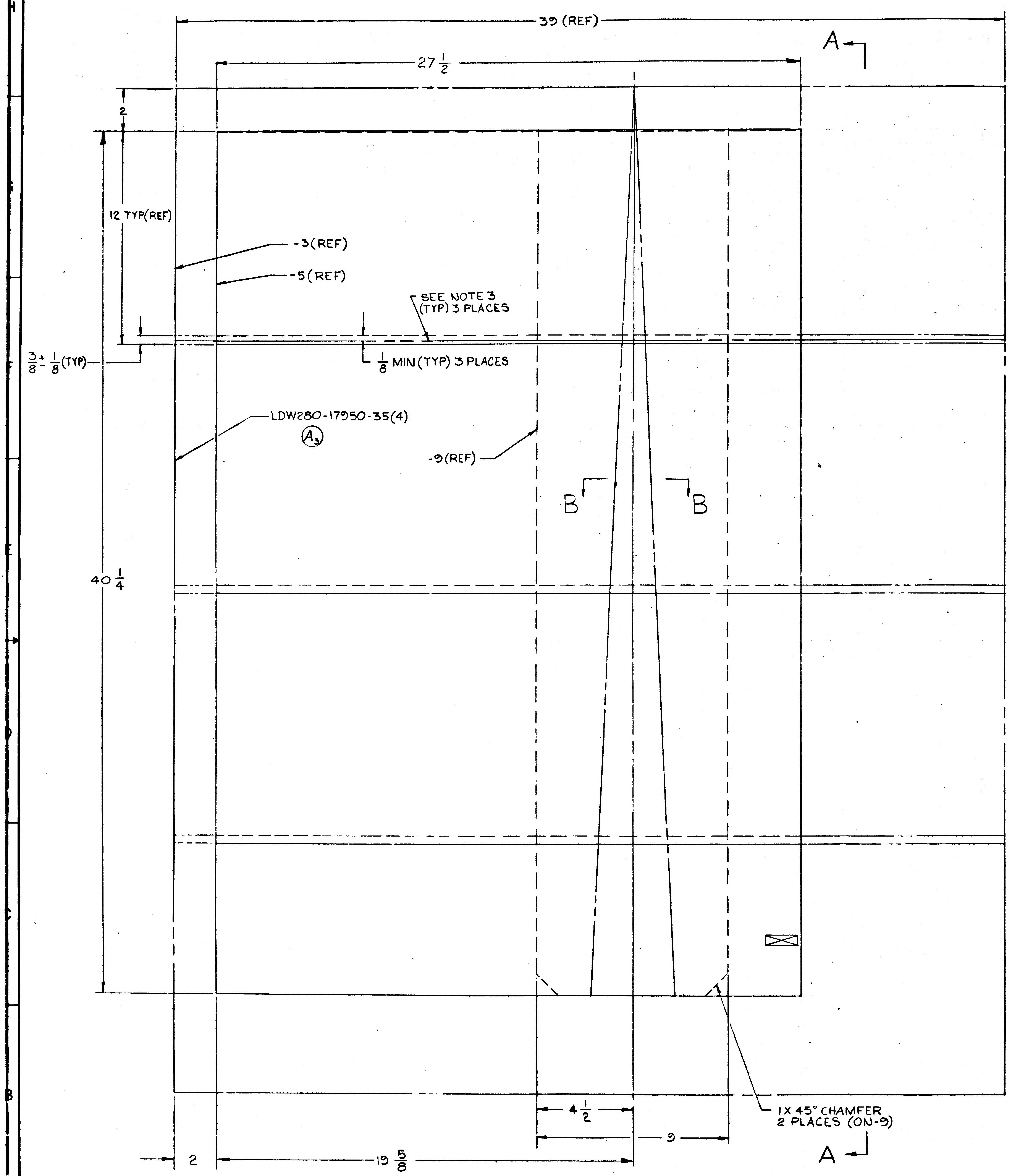
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

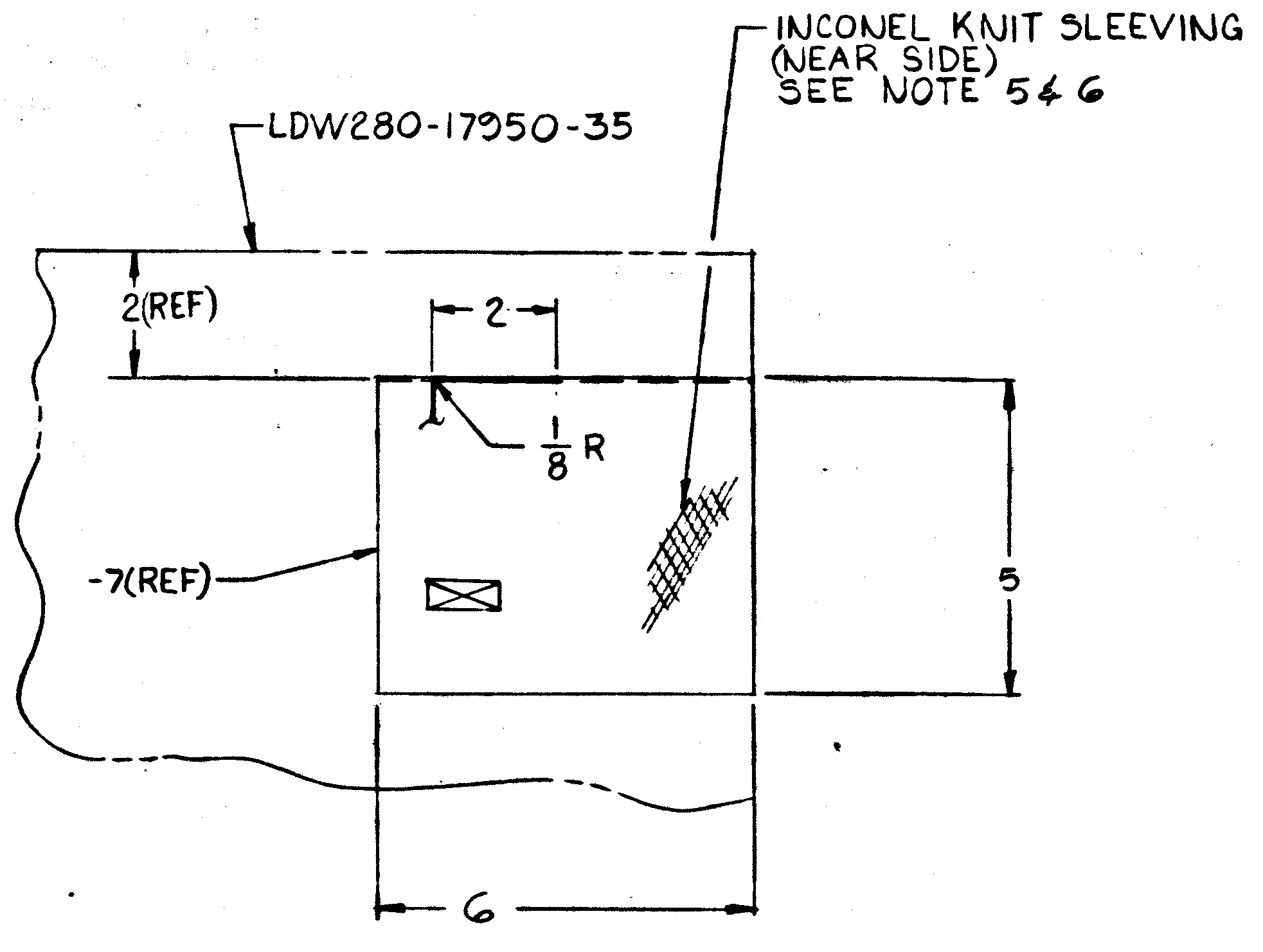
01

NAS 9-1100


39 (REF)
27 1/2
A
2
12 TYP (REF)
-3 (REF)
-5 (REF)
SEE NOTE 3 (TYP) 3 PLACES
3/8 ± 1/8 (TYP)
1/8 MIN (TYP) 3 PLACES
LDW280-17950-35 (4)
A3
-9 (REF)
B
B
40 1/4
1 X 45° CHAMFER 2 PLACES (ON-9)
4 1/2
9
2
19 5/8
A

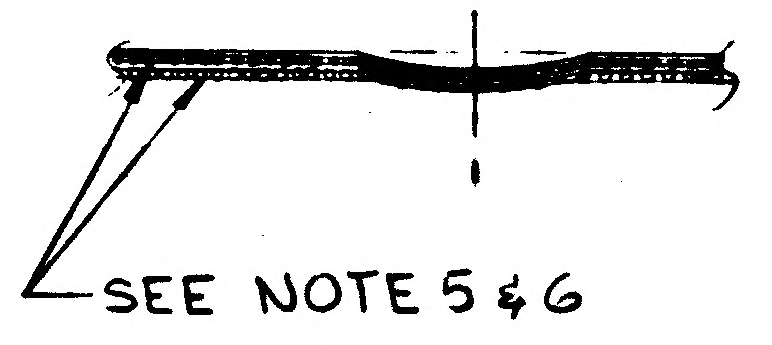
A6

LDW280-28764-5 (TRIM ASSY)
-3 (WELD ASSY)
-9 (TRIM ASSY)

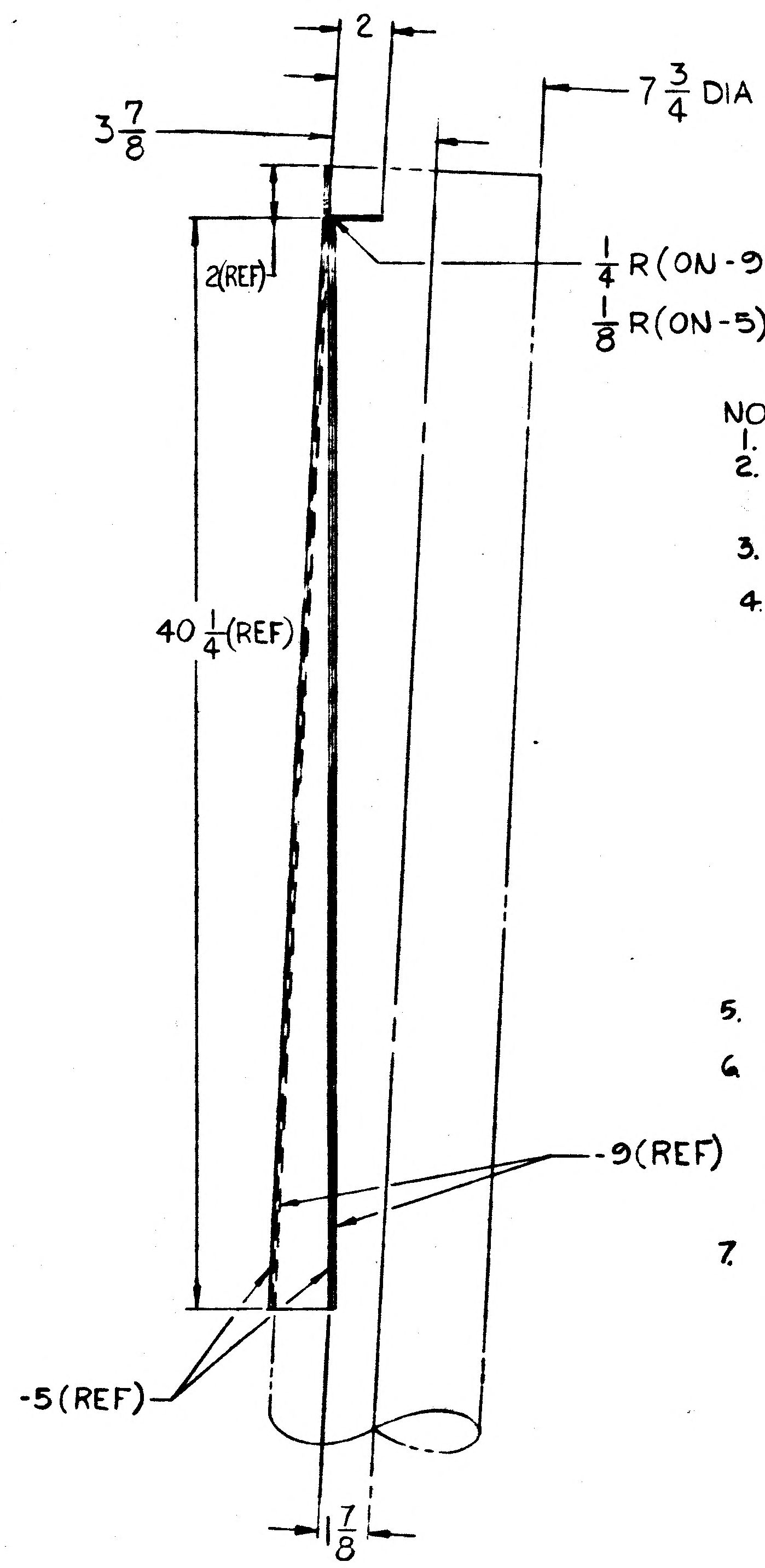

INCONEL KNIT SLEEVING (NEAR SIDE) SEE NOTE 5 & 6
LDW280-17950-35
2 (REF)
2
1/8 R
-7 (REF)
5
6

A3

LDW280-28764-7 (TRIM ASSY)



SECTION B-B


2
7 3/4 DIA
3 7/8
2 (REF)
1/4 R (ON-9)
1/8 R (ON-5)
40 1/4 (REF)
-9 (REF)
-5 (REF)
1 7/8

VIEW A-A
SCALE 1/4

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. FABRICATION OF LDW280-28764 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP-14-0011, LEVEL "C"
3. SEAM WELD PER LSP-14-6102 EXCEPT THAT SPOTS SHALL BE TANGENT +1/32 -0.
4. PERMISSIBLE IRREGULARITIES IN WELDED ASSY'S ARE AS FOLLOWS:
   - A. HOLES IN THE SEAMWELD ROWS UP TO 1/8 MAX. & AT LEAST 1" APART.
   - B. CRACKS IN THE FREE EDGE OF WELDED JOINTS NO CLOSER TOGETHER THAN 1/8 & NOT EXCEEDING PAST THE WELD LINE.
   - C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF A & B ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ. IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.
5. WELD INCONEL KNITTED SLEEVING TO FOIL SHEET PER LDW280-17522.
6. INCONEL KNITTED SLEEVING TO BE 6 TO 8 INCHES WHEN FLATTENED. WIRE TO BE .0035 TO .0040 INCH DIA ROUND INCONEL "600" ALLOY KNIT PATTERN SQUARE TYPE 5 TO 7 SQUARES PER LINEAR INCH MAY BE PURCHASED FROM MONTGOMERY METAL FABRIC CO. WINDSOR LOCKS CONN. 59 CANAL ST. (CODE IDENT. 94725)
7. WELDED ASSYS MAY HAVE RANDOM WRINKLED APPEARANCE.

MANUFACTURING OPERATION UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL STD 10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	E	26512	LDW280-28764	4
	SCALE		SHEET 3	

HG

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280		EO NO. 240	
CONTROL INFO NO.	LEM-2-2642		

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE ✳.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LDW 280-25703	A4	A5	✳, ✳✳, ✳✳✳
-25704	A3	A4	✳, ✳✳, ✳✳✳
-25705	B5	C2	✳, ✳✳
-25706	A3	A5	✳, ✳✳, ✳✳✳
-25707	B1	B2	✳, ✳✳, ✳✳✳
-28730	A1	A5	✳
-28734	A1	A4	✳
-28735	A1	B1	✳
-28737	A1	A2	✳
-28738	A1	A2	✳
-28740	A1	A2	✳
-28741	A1	A2	✳
-28743	A1	A2	✳
-28744	A1	A2	✳
-28746	A1	A2	✳
-28747	A1	A2	✳
-28749	A1	A2	✳
-28750	A1	A2	✳
-28755	A1	A3	△
-28756	A1	A3	△
-28759	A1	A3	✳
-28760	A1	A2	✳
-28764	A1	A2	✳
-28765	A1	A2	✳
-28771	A2	A3	✳
-28772	A2	A3	✳
-28774	A1	A2	✳
LDW 280 -28775	A1	A2	✳

EFFECTIVITY:

✳✳✳ - QUAL TEST (72)
✳✳ - LTA-5 (15)
✳ - LEM-1 (31) THRU -6 (36) & LTA-8 (18)

△ - LTA-8, LEM-1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG										GAEC EO RELEASE
REASON FOR EO: TO FACILITATE MANUFACTURING				DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE ✳.										
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JHS			CRW	CRW	RMC	BoH
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		✓		DATE	8/18/66			8/23/66	8/23/66	9-3	8/30/66
				REVISE DWG	RECORD EO	REWORK	SCRAP	8-20-66	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
LEM		SEE ABOVE		PRIORITY C2		DRAWING TITLE —					DRAWING NO. LEO-280			EO NO. 240

ISSUED BY LIAISON G. MARTELL x3604 SECTION VDI (DESCENT STAGE) GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 316
CONTROL INFO NO. LDW280A0936

ON THE FOLLOWING DRAWINGS ADD NOTE *:
*) INCONEL KNITTED SLEEVNG TO BE OXIDIZED BY EXPOSURE TO 1650 ±50°F IN AIR FOR FOUR (4) HOURS. FOR LTA5 (15) AND LTA 8 (18) OXIDIZATION IS OPTIONAL

DRAWING:	EFF	CHANGE NO.	TITLE
LDW280-25708	QUAL TEST LM1 THRU LM6 LTA5 & 8	B3	SEE DRAWING
LDW280-28735	LM1 THRU LM6 LTA8	C1	
LDW280-28737	"	A4	
LDW280-28740	"	B1	
LDW280-28743	"	A4	
LDW280-28746	"	B1	
LDW280-28749	"	A6	
LDW280-28752	"	B1	
LDW280-28755	LTA-8 & LM-1	A5	
LDW280-28759	LTA-8 LM-1 THRU LM-6	B1	
LDW280-28764	"	B1	
LDW280-28768	LM-1 &	B1	
LDW280-28771	LTA-8, LM-1 THRU LM-6	B1	
LDW280-28774	"	A6	
LDW280-28803	"	A1	SEE DRAWING
LDW280-28819	"	A1	SEE DRAWING

* - USE NEXT AVAILABLE NUMBER

3

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☐

REASON FOR EO: THERMO REQUIREMENT

DESCRIPTION OF EO: ADDED NOTE *

GAEC C EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	
LM			
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY / DATE: VD1 | SUPPORT | RELIAB. GROUP | ~~GROUP LEADER~~ RGM MAT'LS 10/7/66 | STRESS GROUP | LIAISON ENGRG | PROJ ENGRG 10/12/66 | GOVT 10/15/66

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 316

ISSUED BY AMBROSIO / STRAKOSCH X1153 SECTION V. D. 1 GROUP NO. 335 PL 35 EMF

01
NAS 9-1100

ENG 32.2 REV 3-65

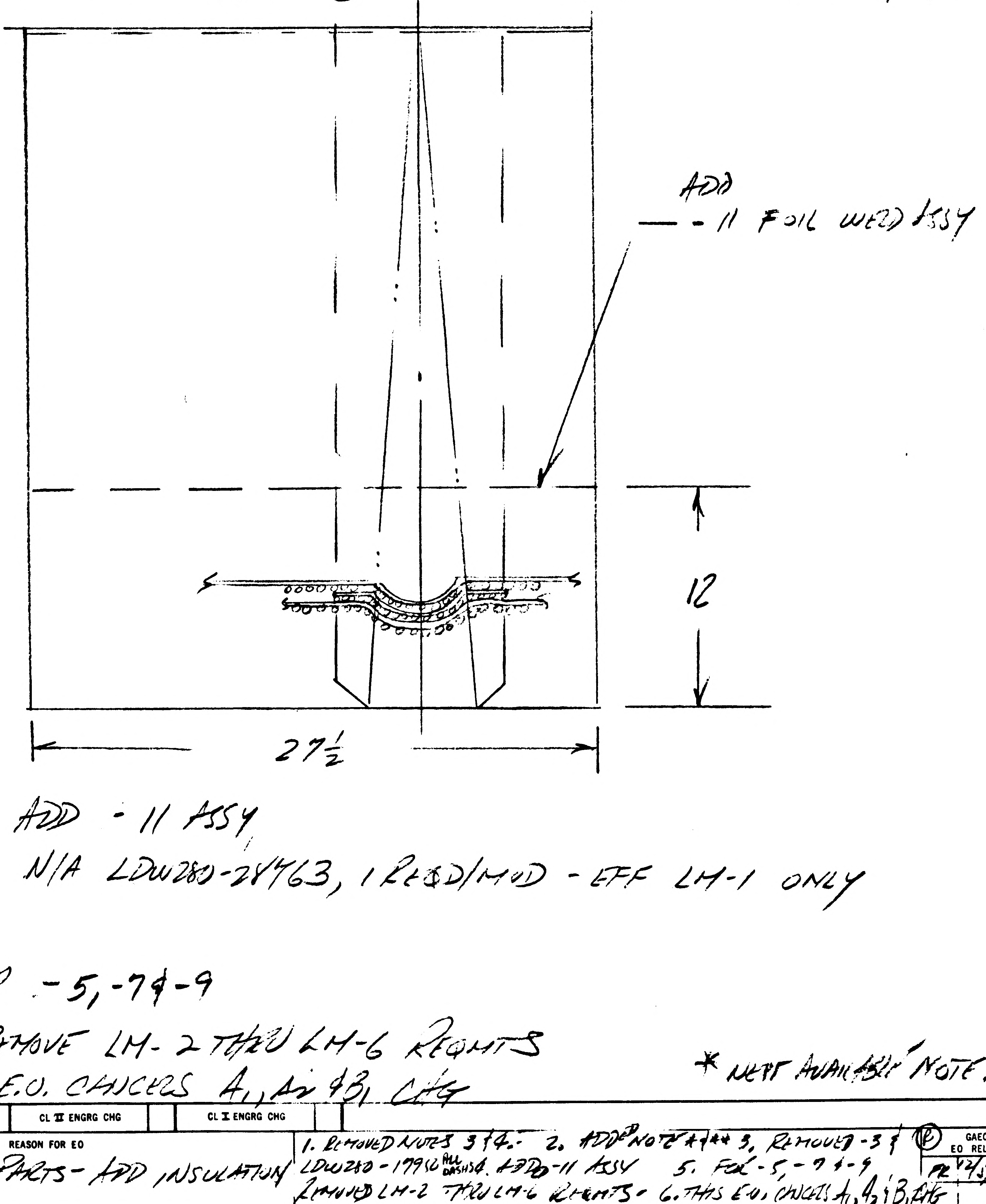
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28764 | EO NO. B2
CONTROL INFO NO. LDW280A3748

1. REMOVE NOTES 3 & 4

2. ADD NOTE * "MAKE -5, -7, -9 -11 FROM .0005 BRIGHT ROLLED NICKEL FOIL COMMERCIALLY PURE INCO 200 OR EQUIV 12" WIDE.
ADD NOTE ** FABRICATE -5, -7, -9 -11 - PER LPC280-19.

3. REMOVE LDW280-17950 (ALL DASH #S) & -3 FROM FLD & SH



4. ADD -11 ASSY
N/A LDW280-28763, 1 REQD/MOD - EFF LM-1 ONLY

5. FOR -5, -7 & -9
REMOVE LM-2 THRU LM-6 REQMTS

6. THIS E.O. CANCELS A1, A2 & B1 CHG

* NEXT AVAILABLE NOTE NO.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	2

REASON FOR EO		GAEC EO RELEASE
RESTRICT PARTS - ADD INSULATION	1. REMOVED NOTES 3 & 4. 2. ADDED NOTE * & ** 3. REMOVED -3 & LDW280-17950 ALL DASHES. 4. ADD -11 ASSY 5. FOR -5, -7 & -9 REMOVED LM-2 THRU LM-6 REQMTS. 6. THIS E.O. CANCELS A1, A2 & B1 CHG	ⓟ PR 12/5/66

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JAP	MS		JRD	NM		DAM	
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓			✓	DATE	12/2/66	12/2/66		12/2/66	12-2-66		12/2/66	12-3-66
LM		LTA-8 (16)		REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	THERMAL ~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
		LM-1 (31) THRU		PRIORITY	FOIL ASSY		DRAWING TITLE DESCENT STAGE					DRAWING NO.				EO NO.
		LM-6 (36)		C	QUAD II - PI SHIELD - REMOVEABLE							LDW280-28764				B2

ISSUED BY R. VAN OTT X1153 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

LDW280-28765 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28763	LM-1(31)	1
PART NO. LDW280-28765-9		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28763	LTA-8(18)	1
PART NO. LDW280-28765-5		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED C

LAST DASH NO. USED -9

GRUMMAN REL INFO 1A

PRIM NO. JK(00) 207 MP-1A-9/2/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/16 ±.030 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100

LINE ITEM #1

DOCUMENTATION TYPE II

DRAWN BY R. VAN COTT

RELIABILITY

LAYOUT BY

THERMO M. Solon 10/6/6

CHECKED BY

GRP LDR 7/26

VDI 7/20

STRUCT 7/21

STRUCT Hildeman 7/21

WEIGHTS 7-29

PROJ ENGR 8-8

REL GROUP 12/15/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ASSY
DESCENT STAGE - QUAD II - P.I. SHIELD - SIDE-REMOVEABLE

SIZE B | CODE IDENT NO. 26512 | LDW280-28765 A

SCALE 1/2 NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED SH 3.00 NC - LAST REV N C D. STELLABOTTE - 7-17-68						
A	1	1.10,						LE0280-188	CANCELLED BY EO Δ4 ADDED SH. NO. 1.10	LTA-8(18) LM-1(31) THRU LM-6(36)	NOT	REQ'D	D. STELLABOTTE 9-9-68		
	2							LE0280-240	CANCELLED BY EO Δ4	LTA-8(18) LM-1(31) THRU LM-6(36)	✓				
	3	1.00, 2.00, 3.00	3A					EOΔ3	REMOVE -1, ADD -5 & -7 & FINISH NOTE 5	LTA-8(18) LM-1(31) THRU LM-6(36)		-1			
	4	1.00, 2.00, 3.00	1C 4A					EOΔ4	1. ADD 1 11/16 DIM (REF.) 2. FOR -7 REMOVED LM-2 THRU LM-6 REQMTS. 3. REMOVED NOTE #3. 4 ADDED NOTE 6 & 7 5. REMOVED LDW280-1797043. THIS EO CANCELS Δ1 & Δ2 CHG. ADDED NOTE #10	LTA-8(18) LM-1(31) THRU LM-6(36)		-7			
	5	3.00						EOΔ5	ON -7 ADDED SYMBOL FOR LAP DIRECTION	LM-1(31)	✓				
	6	1.00, 2.00, 3.00	3A				✓	EOΔ6 LCD928	REMOVED -7 ADDED -9	LM-1(31)		✓			
	7	2.00, 3.00					✓	LE0280-559	FROM B/M & FLD REMOVED LDW280-17970 (ALL DASH NO'S) FOR LDW280-28765 REVISED EXISTING NOTE 7 BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS5540E.	LTA-8(18) LM-1(31)	NOT	REQ'D	E.C.G.		

APPROVED LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY	THERMO
A							

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28765	A
SCALE NONE		SHEET 1.10	

ENG 77.3 5-68

01

NAS 9-1100

						A/R		GT15B-13	E	TAPE	GRUMMAN STD						
						A/R		GT15B-12	E	TAPE	GRUMMAN STD						
								LDW280-28765-9	E	SKIN TRIM ASSY	NOTE 6 & 7				NONE	NOTE 5	
								LDW280-28765-5	E	SKIN TRIM ASSY	NOTE 6 & 7				NONE	NONE	
						-5	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
QTY PER ASSEMBLY																	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

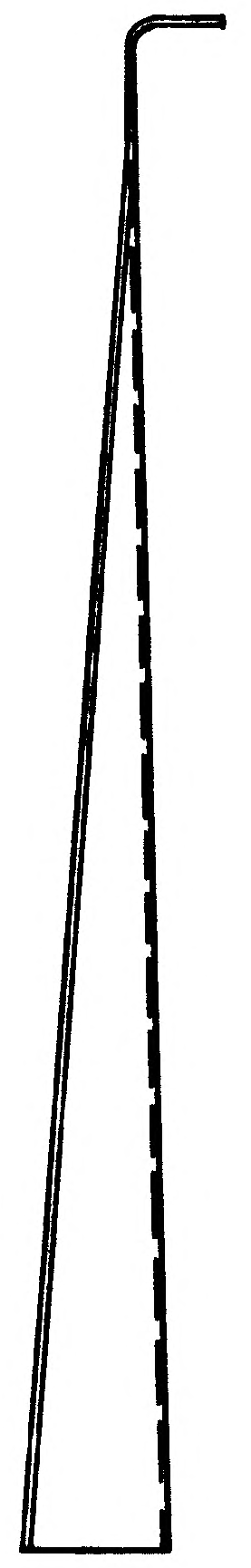
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28765	A Ⓐ
SCALE NONE		SHEET 2.00	

ENG 77.2 7-65

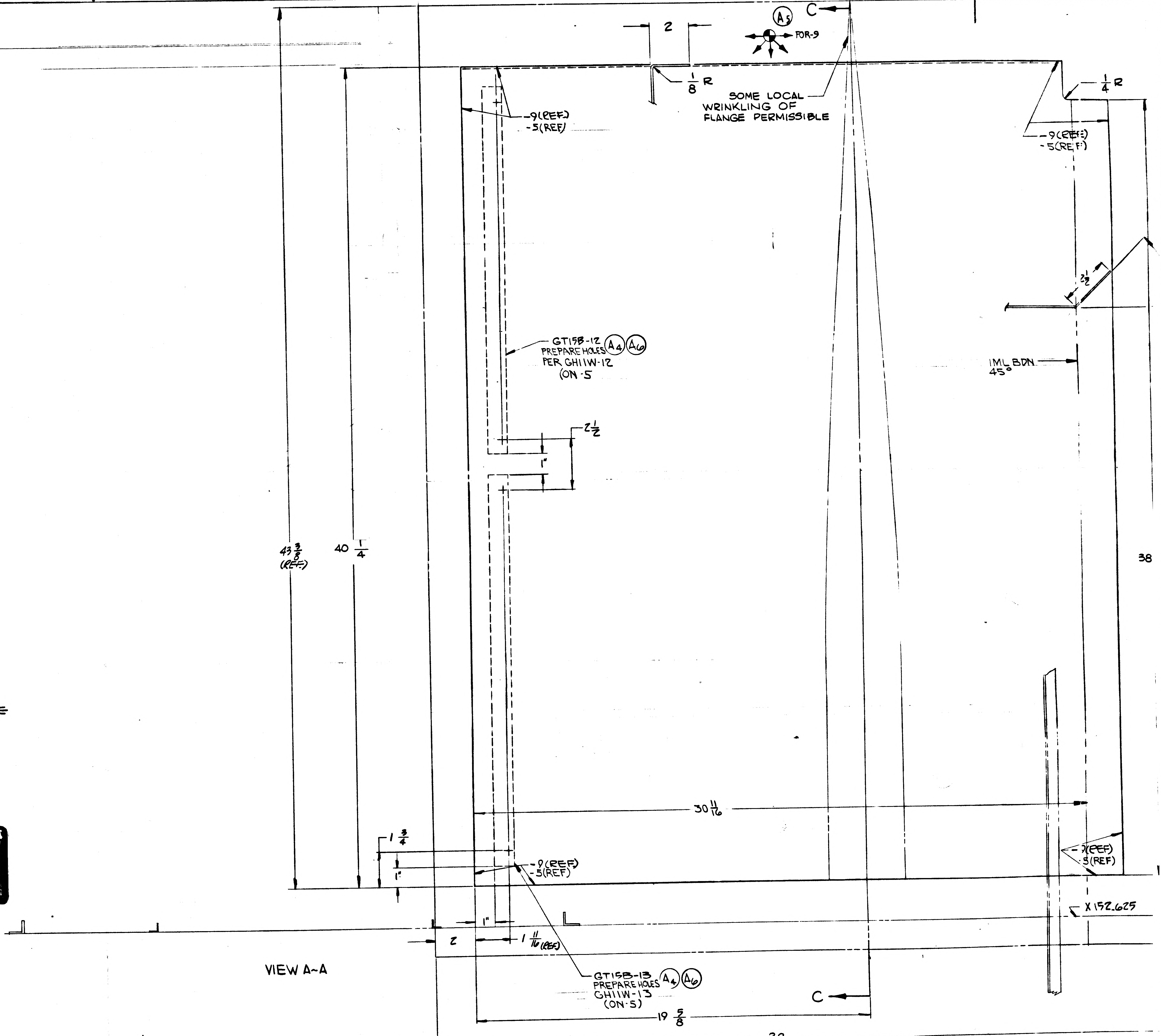
01

NAS 9-1100

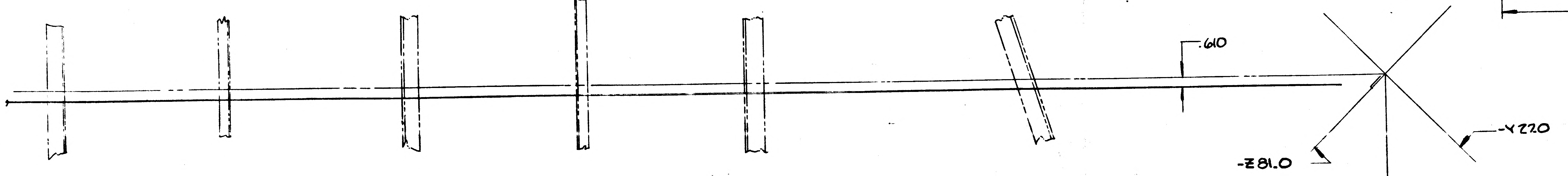


SECT. C~C
SCALE: 1/4 SIZE

01/02 NAS 9-1100


C
2
A5
FOR-9
1/8 R
SOME LOCAL WRINKLING OF FLANGE PERMISSIBLE
1/4 R
-9(REF)
-5(REF)
3 1/2
GT15B-12 PREPARE HOLES PER GH11W-12 (ON-5 A4 A6
IML BDN. 45°
2 1/2
1"
43 3/8 (REF)
40 1/4
38
30 11/16
1 3/4
1"
-9(REF)
-5(REF)
X 152.625
1"
2
1 11/16 (REF)
GT15B-13 PREPARE HOLES GH11W-13 (ON-5) A4 A6
C
19 5/8
39 (REF)

VIEW A~A


.610
-Y220
-Z81.0

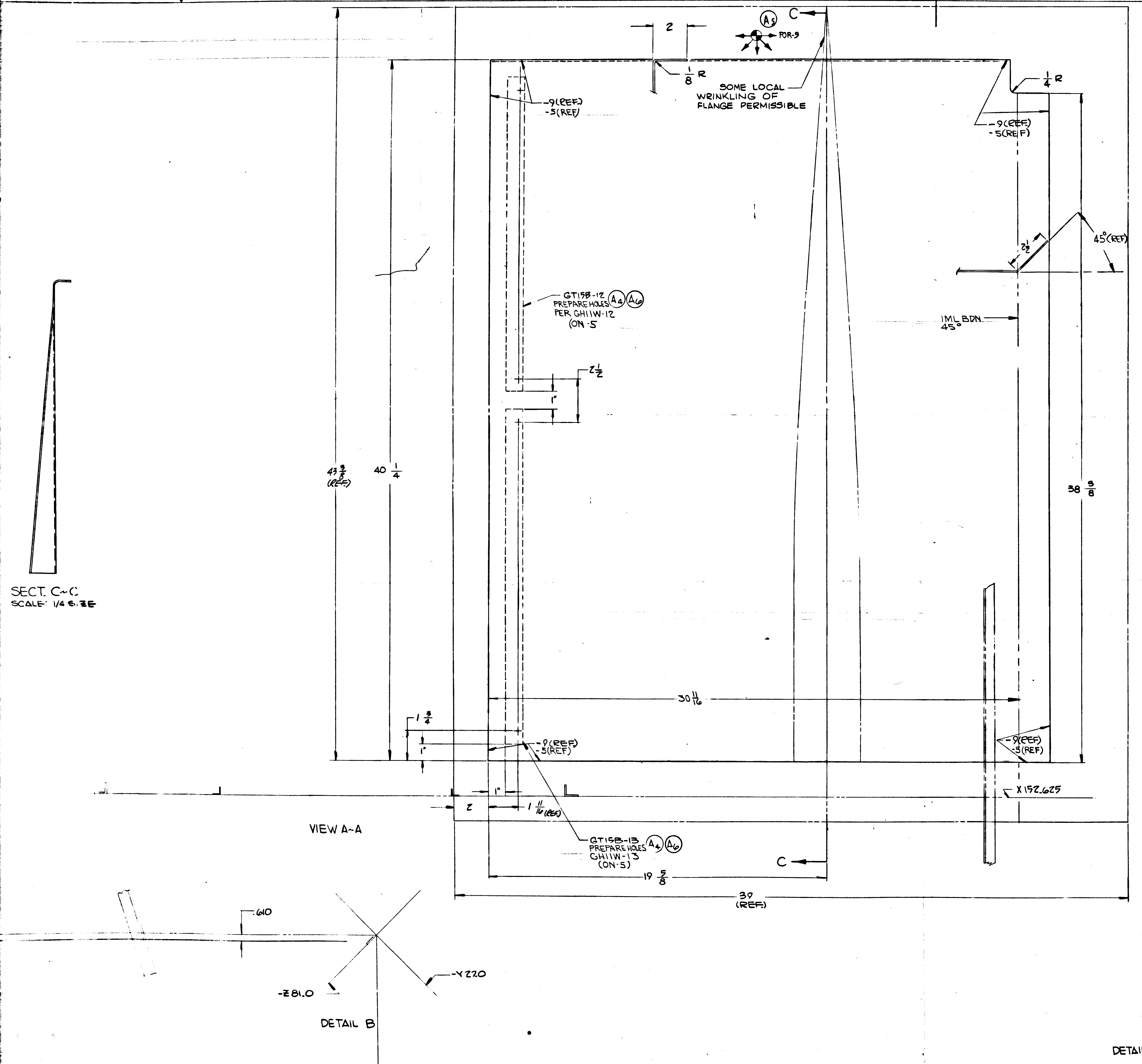
DETAIL B

A3
LDW280-28765-5 SKIN TRIM ASSY
-9 SKIN TRIM ASSY

X131.14

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-28765	3.00

FRAME ← | FRAME →


C
2
FOR-9
A5
1/8 R
SOME LOCAL WRINKLING OF FLANGE PERMISSIBLE
-9(REF)
-5(REF)
1/4 R
2 1/2
45°(REF)
GT158-12 PREPARE HOLES PER GH11W-12 (ON -5)
A4
A6
IML BDN. 45°
2 1/2
1"
43 3/8 (REF)
40 1/4
38 3/8
30 11/16
1 3/4
1"
X 152.625
2
1"
1 11/16 (REF)
GT158-13 PREPARE HOLES GH11W-13 (ON -5)
19 5/8
39 (REF)
SECT. C~C
SCALE 1/4 SIZE
VIEW A~A
.610
-Y220
-Z81.0
DETAIL B
X131.14

A3
LDW280-28765-5 SKIN TRIM ASSY
-9 SKIN TRIM ASSY

NOTES:

~~1. LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT.~~

~~2. ALL INFORMATION NOT REQ'D FOR -1 & -3 IS FOR REFERENCE ONLY.~~

~~3. SEAMWELD PER LSP-14-6102 EXCEPT THAT SPOTS SHALL BE TANGENT + 1/32 - 0.~~

4. FABRICATION OF LDW280-28765-1 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011 LEVEL "C".

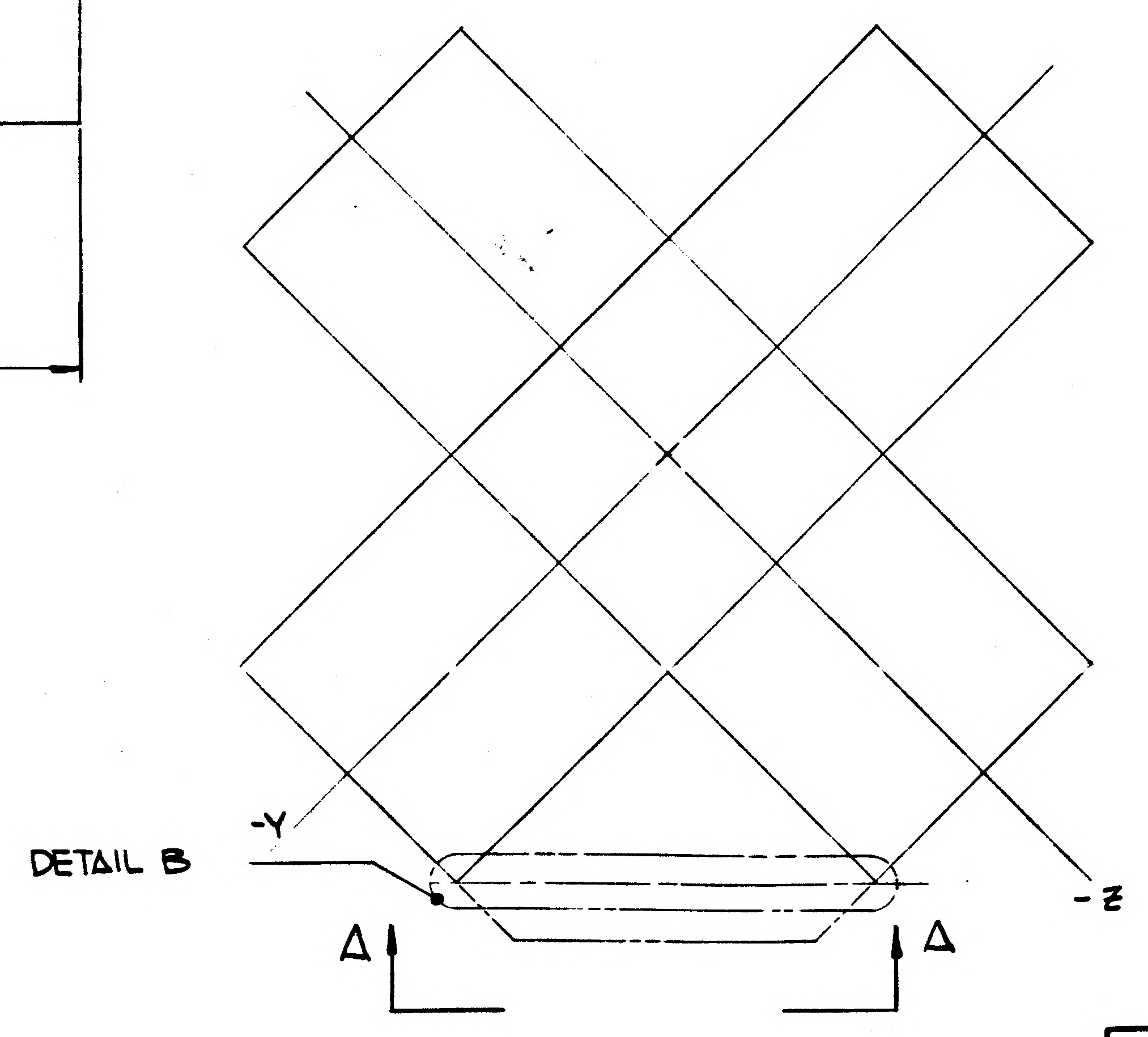
5.- FINISH IN ACCORDANCE WITH LPC 280-5.

6.- MAKE -5 & -9 FROM .00125 INCONEL 600 FOIL PER AMS 5540E.

7.- MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

8.- DIMENSIONAL INFORMATION IS FOR REFERENCE PURPOSES ONLY. APPROVED MASTER TEMPLATES SHALL BE UTILIZED TO VERIFY BLANKET OUTLINES.

02702 NAS 9-1100


DETAIL B
-Y
-Z
A
A

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28765	A
MODEL	SCALE 1/2 & NOTED		SHEET 3.00	

SUPERSEDES LDW280-28765 REV N/C
12-15-66

2 FRAMES

CODE IDENT NO. 26512 DWG NO. LDW280-28765 SHEET 3.00

LDW280-28765 A

01 NAS 9-1100

HC

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280	EO NO. 240
CONTROL INFO NO. LEM-2-2642	

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE ✱.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LDW 280-25703	A4	A5	✱, ✱✱, ✱✱✱
-25704	A3	A4	✱, ✱✱, ✱✱✱
-25705	B5	C2	✱, ✱✱
-25706	A3	A5	✱, ✱✱, ✱✱✱
-25707	B1	B2	✱, ✱✱, ✱✱✱
-28730	A1	A5	✱
-28734	A1	A4	✱
-28735	A1	B1	✱
-28737	A1	A2	✱
-28738	A1	A2	✱
-28740	A1	A2	✱
-28741	A1	A2	✱
-28743	A1	A2	✱
-28744	A1	A2	✱
-28746	A1	A2	✱
-28747	A1	A2	✱
-28749	A1	A2	✱
-28750	A1	A2	✱
-28755	A1	A3	△
-28756	A1	A3	△
-28759	A1	A3	✱
-28760	A1	A2	✱
-28764	A1	A2	✱
-28765	A1	A2	✱
-28771	A2	A3	✱
-28772	A2	A3	✱
-28774	A1	A2	✱
LDW 280 -28775	A1	A2	✱

EFFECTIVITY:
✱✱✱ - QUAL TEST (72)
✱✱ - LTA-5 (15)
✱ - LEM-1 (31) THRU -6 (36) & LTA-8 (18)
△ - LTA-8, LEM-1

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG		ⓟ GAEC C EO RELEASE	2

REASON FOR EO: TO FACILITATE MANUFACTURING

DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE ✱.

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		SEE ABOVE	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	JMB				CAW	CAW	RMC	B.H.
DATE	8/18/66				8/23/66	8/23/66	9-3	8-30-66
8-20-66		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C_2

DRAWING TITLE: —

DRAWING NO.: LEO - 280

EO NO.: 240

ISSUED BY: LIAISON G. MARTELL x3604 SECTION: VD1 (DESCENT STAGE) GROUP NO. 335 PL 35

ENG 32.2 REV 3-65

*

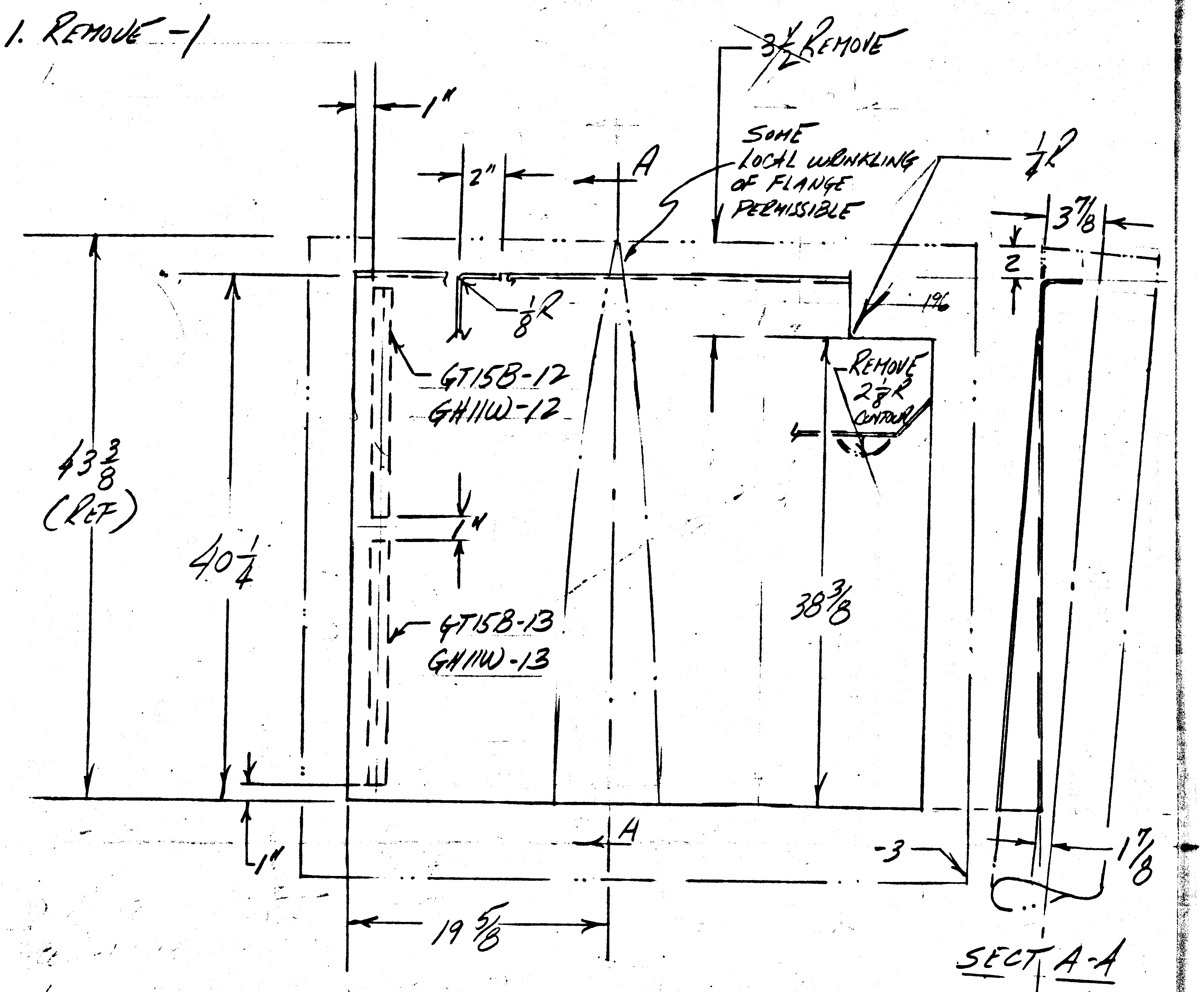
GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

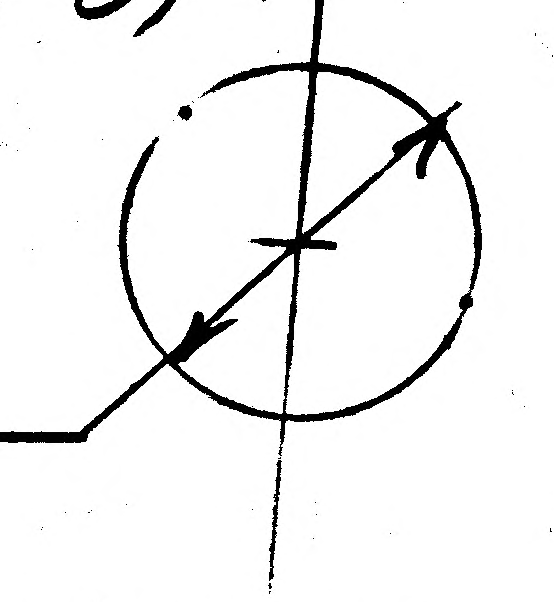
DWG. NO. LDW280-28765	EO NO. A3	CONTROL INFO NO. LDW280-9971	

1. REMOVE -1



1"
2"
A
3½ REMOVE
SOME LOCAL WRINKLING OF FLANGE PERMISSIBLE
½R
3⅞
2
1/16
⅛R
GT15B-12
GH11W-12
REMOVE 2⅛R CONTOUR
4⅜ (REF)
40¼
1"
GT15B-13
GH11W-13
38⅜
1"
A
-3
1⅞
19⅝
SECT A-A

2. ADD LDW280-28765-5 (EFF LTA-8) REPLACES -1 (IDENTICAL TO -1 EXCEPT AS SHN



2. ADD LDW280-28765-7 (EFF LEM-1 THRU LEM-6) IDENTICAL TO -5 EXCEPT FOR FINISH. ADD FINISH NOTE: *
"FINISH IN ACCORDANCE WITH LPC280-5"

* NEXT AVAILABLE NOTE NO.

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PARTS REDESIGNED TO SATISFY THERMAL REQMTS.	REMOVE -1, ADD -5 & -7, & FINISH NOTE*	Ⓡ 16 9.29

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8 (18)	
		LEM-1 (31) THRU	
		LEM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		-	-1

APPROVED BY								
DATE	9/8/66	11/7/66	10-4		9/9/66		9-23-66	9/28/66
	VDI	~~SUBCONT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY DESCENT STAGE QUAD II - PI SHIELD-SIDE REMOVEABLE	LDW280-28765	A3

ISSUED BY R. VAN COTT X1153 SECTION VDI GROUP NO. 335 PL 31

01

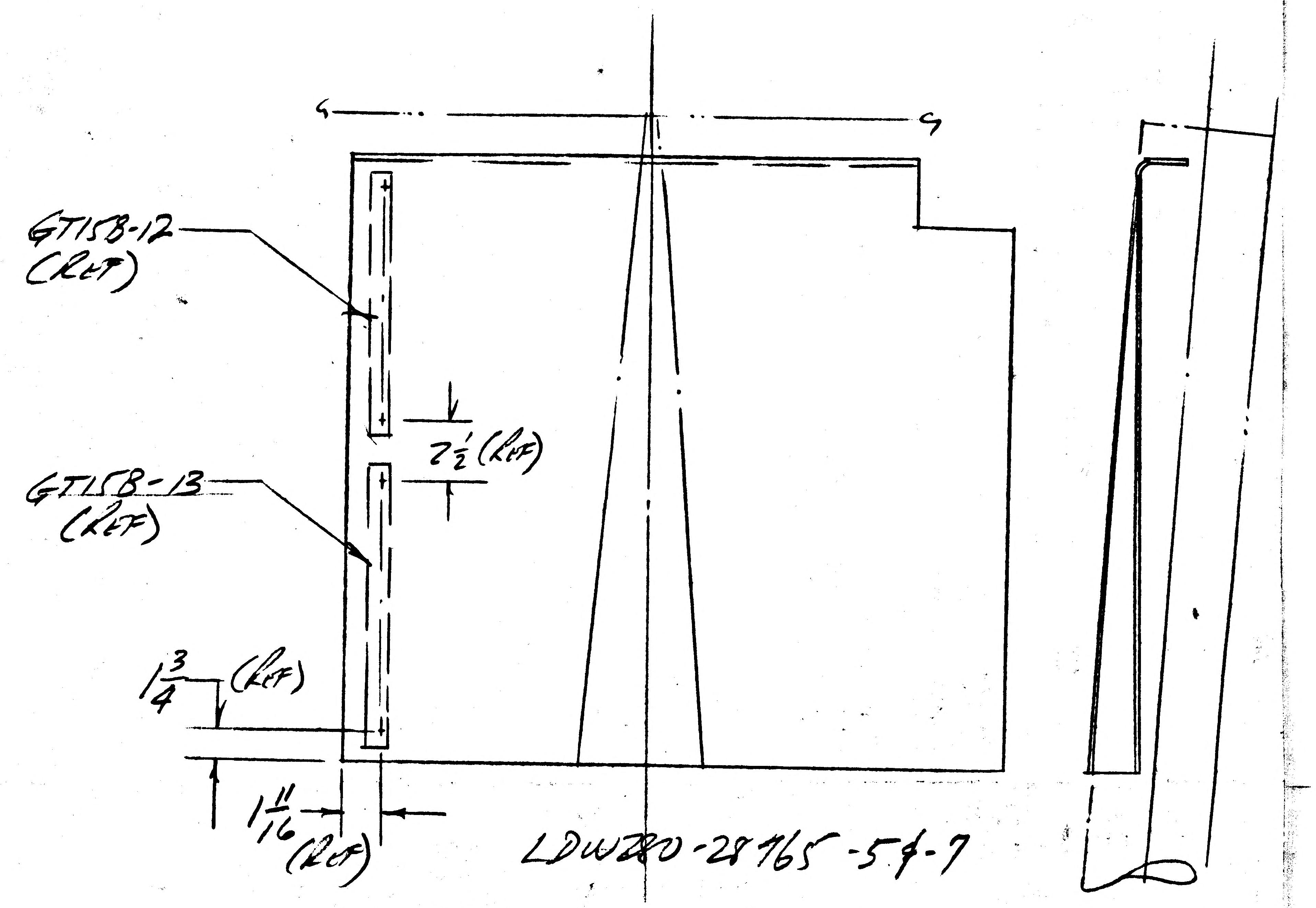
NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28765 | EO NO. A4
CONTROL INFO NO. LDW280A 3749



1. ADD 1 11/16 DIM (REF.)

2. FOR -7 REMOVE LM-2 THRU LM-6 REQMTS

3. REMOVE NOTE #3

4. ADD NOTE NO.* "MAKE -5 & -7 FROM .00125 INCONEL 600 FOIL PER AMS 5540E.
ADD NOTE ** "FABRICATE -5 & -7 PER LPC280-19

5. REMOVE LDW280-17970 (ALL DASH #'S) & -3 FROM FLD & B/M

* & ** NEXT AVAILABLE NOTE NO.

6. THIS E.O. CANCELS E.O. A1 & A2

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG											2
REASON FOR EO: RESTRICT PARTS - ADD LOCATING DIMS & NOTES			DESCRIPTION OF EO: 1. ADD 1 11/16 DIM (REF) 2. FOR -7 REMOVE LM-2 THRU LM-6 REQMTS 3. REMOVED NOTE #3 4. ADDED NOTE * & ** 5. REMOVED LDW280-17970 6. THIS E.O. CANCELS A1 & A2 CHG										GAEC EO RELEASE (R) FR 12/5/66
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JAP	MS	JAS	NM	DAM
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓			-7	DATE	12/2/66	12/2/66	12/2/66	12-2-66	12/2/66 12-3-66
LM		LTA-8 (18)		REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	~~SUPPORT~~ THERMO / RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG / PROJ ENGRG / GOVT
		LM-7 (31) THRU		PRIORITY	SKIN ASSY	DRAWING TITLE DESCENT STAGE				DRAWING NO.			EO NO.
		LM-6 (36)			QUAD II - PI SHIELD - SIDE REMOVEABLE					LDW280-28765			A4

ISSUED BY R. VAN COTT X1153 SECTION VDI GROUP NO. 335 PL 35

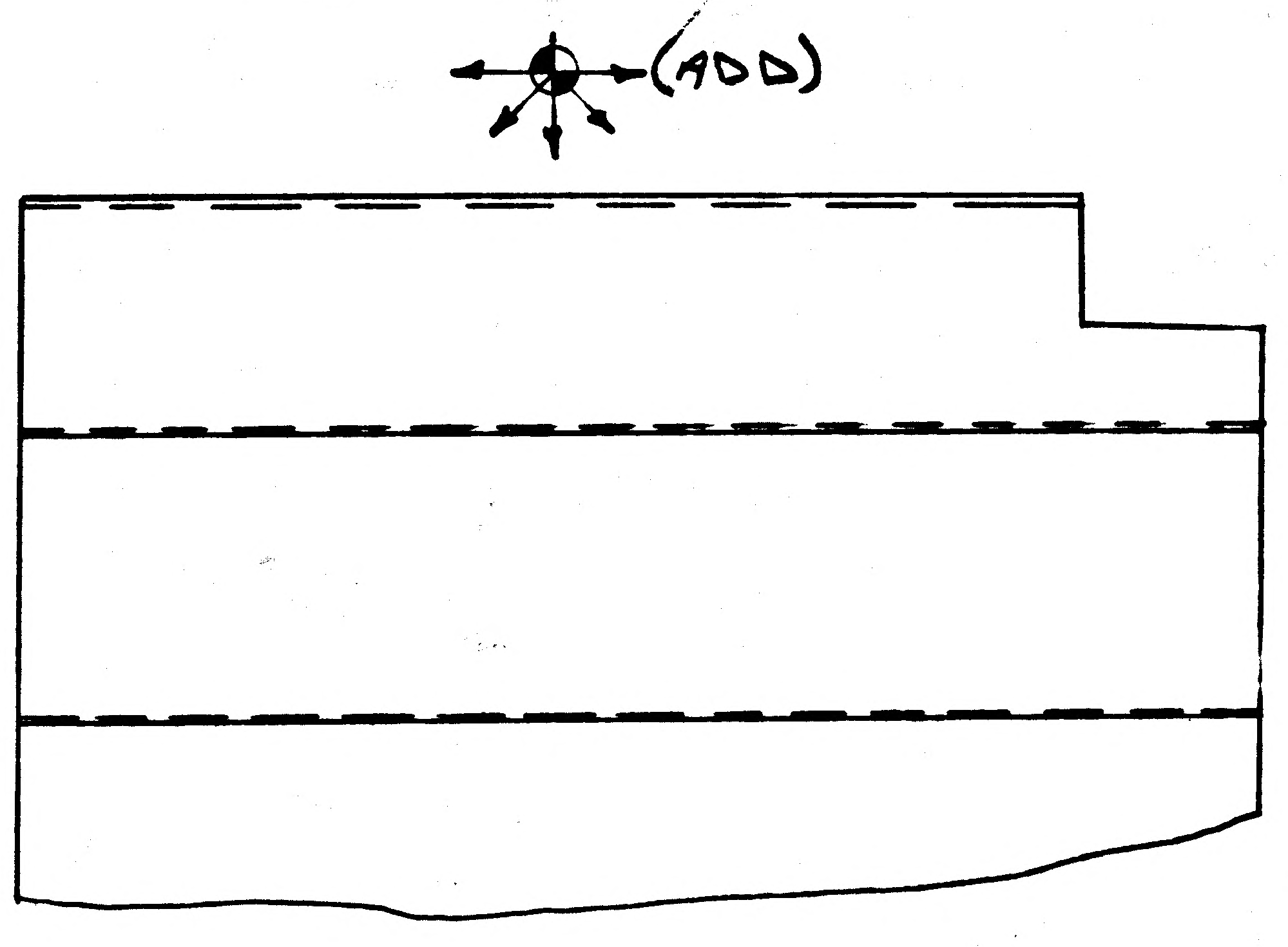
B

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28765		EO NO. A5
CONTROL INFO NO. LDW 280A 4573		

ON-7 ADD SYMBOL INDICATING PERMISSIBLE DIRECTION OF LAP JOINTS



* THIS CHANGE HAS BEEN INCORPORATED ON LM-1(31)

THERMAL SHLD

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE	
PROVIDE COMPLETE FABRICATION AND INSPECTION INFO	ON-7 ADDED SYMBOL FOR LAP DIRECTION	16	1/4/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	1/3/67	1/3/67		1/3/67	1/3/67		1-4-67	1/5/67
5	VD1	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY D/S QUAD II PI SHIELD - SIDE REMOVEABLE	LDW280-28765	A5

ISSUED BY T. AMBROSIO / STRAKOSCH X1153 SECTION VD1 GROUP NO. 335 PL 35

01

NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO.	LDW280-28765	EO NO.	A6
CONTROL INFO NO.	LDW280A-6193		

IN F/D & L/M REMOVE -7 SKIN ASSY. ADD -9 SKIN IDENTICAL TO -7
EXCEPT REMOVE ALL GT15B & GH11W
EFF FOR-9 LM-1(31) 1 REQD N/A FOR-9 LDW280-28763

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 928 2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE C
LCD 928 IMPROVE PAINT ADHESION	REMOVED -7 ADDED -9	JK 4/5/67

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-1(31)	

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
✓			✓

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	4/3/67			4/1/67	4/3/67		4/3/67	4-5-67
5	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY DES. STAGE QUAD II SIDE REMOVABLE	LDW280-28765	A6

ISSUED BY G. ZEMAN/ J. STRAHOSCH SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENO 32.2 REV 3-65

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 559	
CONTROL INFO NO. LDW 280A 6306			

*

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW·
REMOVE LDW280-17970· ALL DASH NUMBERS AND ADD
"SEE NOTE *"
IN F/D REMOVE LDW280-17970-ALL DASH NUMBERS

REVISE NOTE *
(REF) "MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19."
(ADD) PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

DRAWING No.	CHANGE#	SYMBOL	EFFECTIVITY	TITLE
LDW280-18130	A7	⬡	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW280-18141	A3	⬡	LM-1 THRU LM-15	
LDW 280-28730	B7	□	LTA-8 LM-1 THRU LM-3	
LDW 280-28734	B2	□	LTA-8 LM-1 THRU LM-3	
LDW280-28738	A7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28740	B3	□	LTA-8 LM-1	
LDW 280-28741	A6	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28744	A7	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28747	B4	□	LTA 8 LM-1 THRU LM-15	
LDW 280-28750	39	□	LTA-8 LM-1 THRU LM-15	
LDW280-28753	A5	□	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	□	LTA-8 LM-1 THRU LM-15	
LDW280-28760	B5	□	LTA-8 LM-1 THRU LM-3	
LDW280-28765	A7	⬡	LTA-8 LM-1 THRU LM-6	
LDW280-28769	B2	□	LM-1	
LDW 280-28772	B6	□	LM-1 THRU LM-15	
LDW 280-28775	B7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28805	A6	□	LM-1 THRU LM-15	
LDW 280-28806	A4	□	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW 280-51824	A3	□	LM-1 THRU LM-15	

NOTE △ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY WITH LPC 280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM □ REVISE NOTE *.
FOR SYM ⬡ ADD NOTE △ TO DWG

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	DESCRIPTION OF EO: FROM B/M & FLD (ALL DASH NO'S) FOR DWG'S □ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ⬡ ADDED NOTE △ REMOVED LDW280-17970							GAEC EO RELEASE 5 C
REASON FOR EO: UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE													JS 4-19-7
EFFECTIVITY				DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY							
MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	REVISE DWG ✓	RECORD EO	REWORK NOT	SCRAP REQ	DATE 4/10/67			4/10/67	4/11/67	4/12	4-18-67
LM		NOTED						6	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
		ABOVE		PRIORITY C	DRAWING TITLE NOTED						DRAWING NO. LEO 280			EO NO. 559

ISSUED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28767 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28648	LM1(31)	1
PART NO. LDW280-28767-3		GAEC SCH NO. 52	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	—	2.00	3.00					
REV	—	—	—	—					
SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									

LAST SECT LTR USED	B	GRUMMAN REL INFO A			
		PRIM NO.	FR(001)		
LAST DASH NO. USED	-3	207	MP-14	A10-13-6	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.030 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	O'CONNELL	RELIABILITY	—
LAYOUT BY	O'CONNELL/WINK	THERMO	
CHECKED BY			
GROUP LDR	7/20/66		
VEH DES. INT	7/21		
STRUCTURE	W/H FEB 7/21	PROJ ENGR	
STRUCTURE	Alderman 7/21	REL GROUP	
WEIGHTS	7-29		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSY
DES. STG~QUAD II~LAND. RDR. PLM. IMP.

SIZE	CODE IDENT NO.		
B	26512	LDW280-28767	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
A									RETRACED SHT 3 NO CHANGE. LAST REV. N.C. ADDED SHEET 1.10 SHEET 1 OF 4 WAS 1 OF 3.			-1	G KASS 1 OCT 66	RME 10-10	10/11/66
	1								REMOVED -1	LTA8, LM-1					
	2								ADDED -3	LM-1					

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	THERMO					
A		10/4/66	WJ PEP 10/5								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28767	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

C.L	QTY PER ASSEMBLY						CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					4			LDW280-17932-13	E	WASHER	SEE DWG						
					4			LDW280-23720-3	E	STAPLE ASSY	SEE DWG						
					1			LDW280 28769-13	E	SKIN	SEE DWG						
					1			LDW280-28768-3	E	FOIL ASSY	SEE DWG						
C								LDW280-28767-3	E	SKIN ASSY					NONE	NONE	
/////					-3												

C.L.= CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28767	A

SCALE NONE

SHEET 2.00

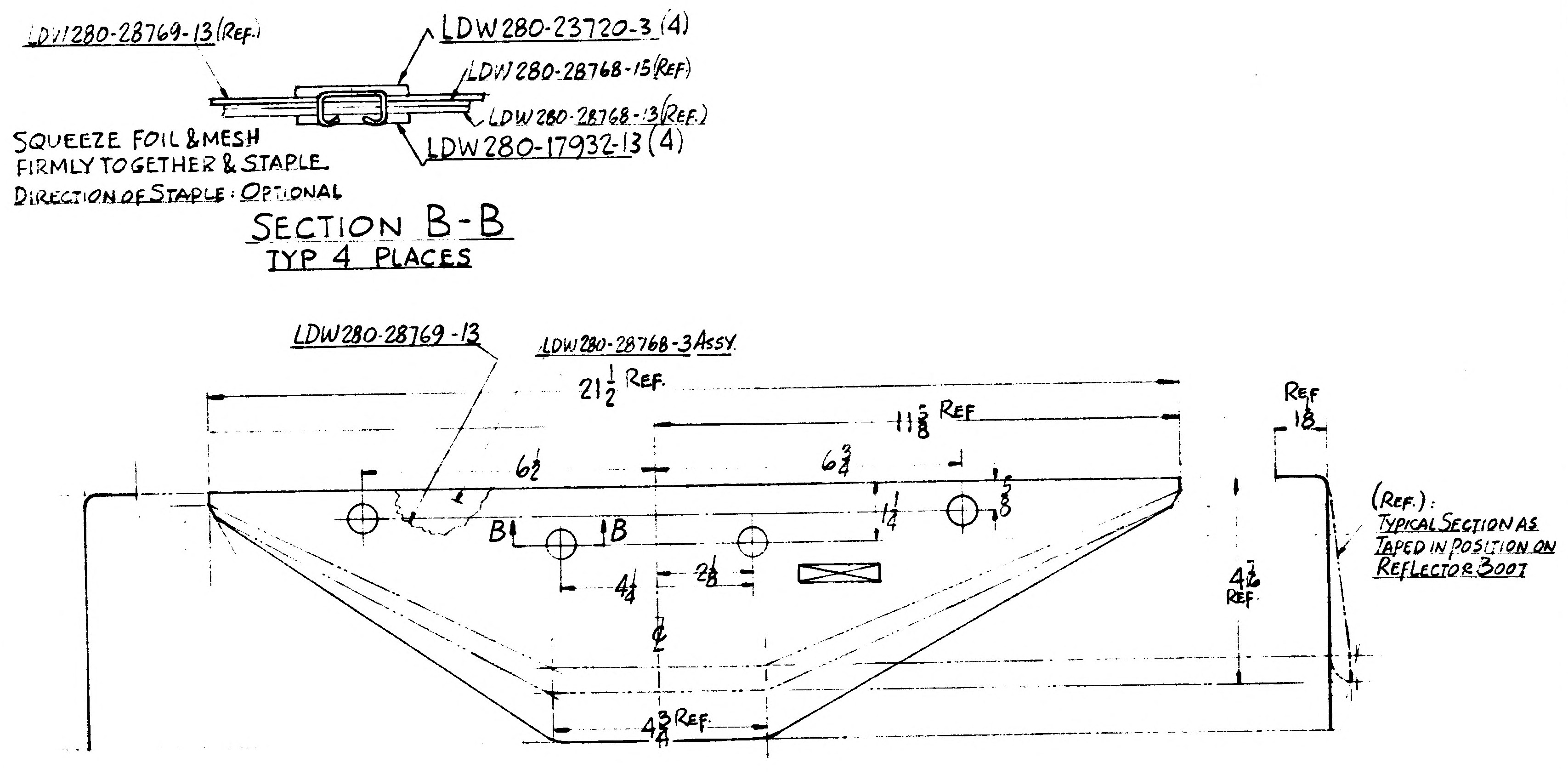
ENG 77.2 7-65

01

NAS 9-1100

NOTES:

1-NO TOOLING HOLES PERMITTED IN PARTS.


LDW280-28769-13 (REF.)
LDW280-23720-3 (4)
LDW280-28768-15 (REF.)
LDW280-28768-13 (REF.)
LDW280-17932-13 (4)
SQUEEZE FOIL & MESH FIRMLY TOGETHER & STAPLE.
DIRECTION OF STAPLE: OPTIONAL
SECTION B-B
TYP 4 PLACES
LDW280-28769-13
LDW280-28768-3 ASSY
21 1/2 REF.
11 5/8 REF
6 1/2
6 3/4
1 1/4
5/8
B
B
4 1/4
2 1/8
℄
4 3/4 REF.
4 7/16 REF.
REF 1/8
(REF.): TYPICAL SECTION AS TAPED IN POSITION ON REFLECTOR BOOT

LDW280-23767-3 ASSY

LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
C	26512	LDW280-28767	A

MODEL OR END ITEM
SCALE HALF
SHEET 3

SUPERSEDES LDW280-28767 NC 7/20

NAS 9-1100

HC

ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28767	EO NO. A1
CONTROL INFO NO. LM-2-2831	

ON-1 REVISE B/M. & F/D. TO AGREE WITH EO.

SHEET 2.00 B/M.

LDW280-28769-11 (WAS) LDW280-28769-1

SHEET 3.00 F/D

LDW280-28769-11 (WAS) LDW280-28769-1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO AGREE WITH:LDW280-28769 DETAIL DWG. CALLOUT	ON-1 IN F/D. & B/M. LDW280-28769-11 WAS -1	✓

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD REVISE DWG	RECORD EO	DISPOSITION OF PARTS REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					CAW	CAW	PM	
DATE	10-17-66				10-20-66	10-20-66	10-24-66	10-20-66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C2	SHIELD ASS'Y.~DES.STG.~QUAD II~ LAND.RDR.PLM.IMP.	LDW280-28767	A1

ISSUED BY LIAISON T.J.MARTIN -X3604 SECTION V.D.I. GROUP NO. 335 PL 35

01

NAS 9-1100

LDW280-28768 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28767	LM-1 (31)	1
PART NO. LDW280-28768 -3		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	~~1.00~~	—	~~2.00~~	~~3.00~~
REV				
SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				

LAST SECT LTR USED

LAST DASH NO. USED -15

GRUMMAN REL INFO A

PRIM NO. 207 FR(001) MP 7/22/66

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 ±.030 ±1/2

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM NO. 1

DOCUMENTATION TYPE II

DRAWN BY	O'CONNELL	RELIABILITY	—
LAYOUT BY	O'CONNELL/WINK	THERMAL	B FOR PD 9/17/66
CHECKED BY			
GROUP LDR	7/20/66		
VEH.DES INT	7/20		
STRUCTURE	W/H FED 7/21/66	PROJ ENGR	
STRUCTURE	Hillerman 7/	REL ® GROUP	9-20-66
WEIGHT	7-29		

®
GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL ASSY
DES.STG.~QUAD II~LAND.RDR.~PLM.IMP.SHLD.

SIZE B

CODE IDENT NO. 26512

LDW280-28768 A

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~[illegible]~~ APPD
A									RETRACED SHT 3. NO CHANGE - LAST REV N.C. ADDED SHEET 1.10 SHEET 1 OF 4 WAS 1 OF 3.	NOT REQ'D	NOT REQD		G KASS 1 OCT 66.	FWC 10-10	10/12/66
	1							A1	IN B/M REMOVED -3 ASSY CONSISTING OF LDW280-43(1) & ON -1 ASSY FOR -11 ADD "MAKE FROM LDW280-17950-43" INF/D LDW280-17950-43 (ON-11) S/B LDW280-28768-11						
	2								REF EO A1 REMOVED -3 ASSY - NOT APPLICABLE: NO -3 ON THE DWG.						
	3								REMOVED -1	LTA8, LM-1		-1			
	4								ADDED -3	LM-1					

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	THERMO.	PROJ ENGR	RELEASE GRP
A		JKS 10/4/66	10/5				R.M. Caiber 10-10	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28768.	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01 NAS 9-1100

C.L.	QTY PER ASSEMBLY -3	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	✓		MESH		INKONEL SLEEVING				SEE NOTE 2			
C	1		LDW280-28768-13	E	FOIL				MAKE FROM LDW 280-17950-45	NONE	NONE	
C			LDW280-28768-3	E	FOIL ASSY	(WELDED)			SEE NOTE 3.	FLW	NONE	

C.L. = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELDING	LSP14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AiRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28768
A
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

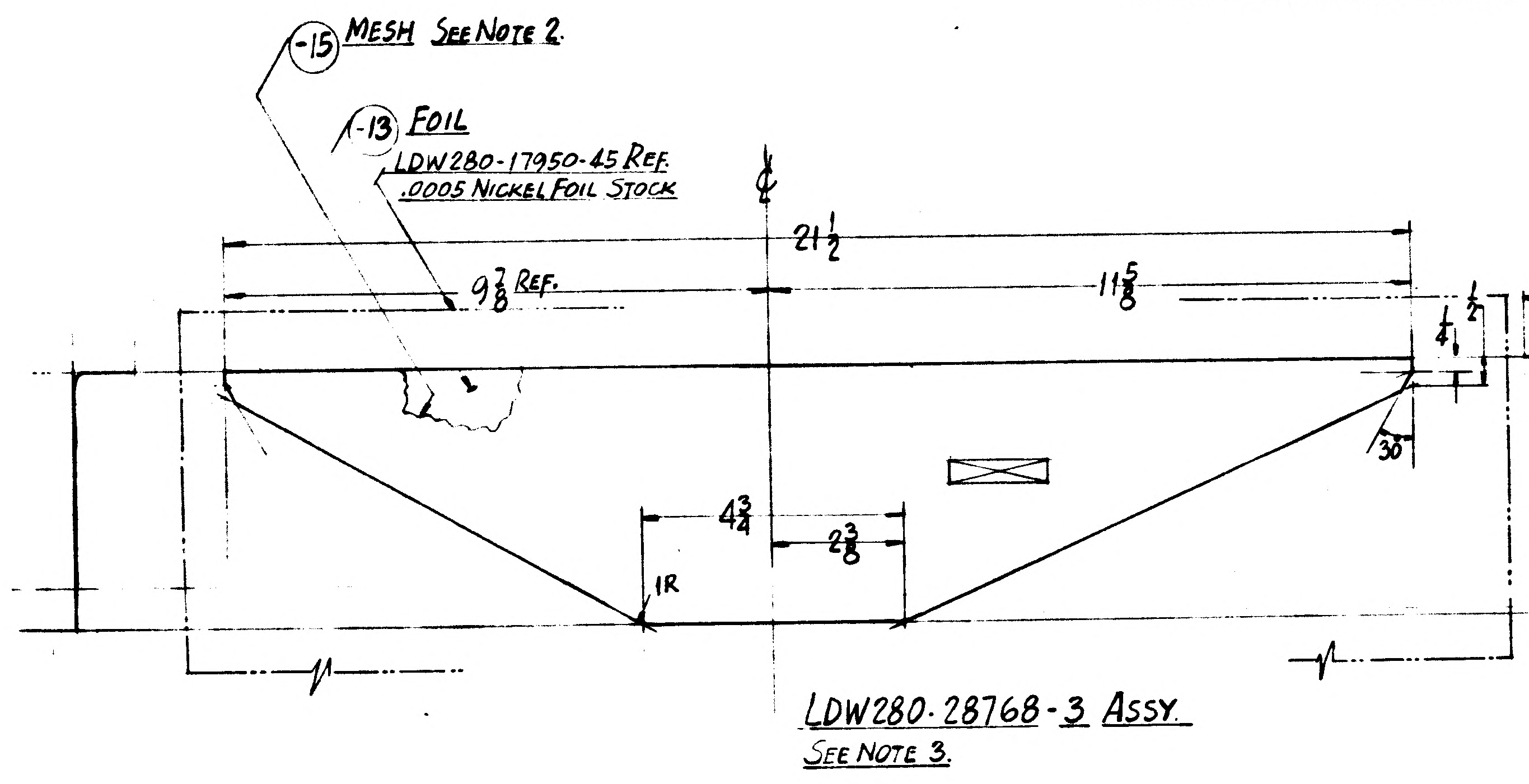
01

NAS 9-1100

NOTES :

1 NO TOOLING HOLES PERMITTED IN PART
2. INCONEL SLEEVING TO BE KNIT PATTERN 5 TO 7 SQUARES PER LINEAR INCH OF .0035 TO .0040 INCH DIAMETER INCONEL 600 ALLOY WIRE. SLIT FOR FLAT WIDTHS OF 6 TO 8 INCHES.

   MAY BE PURCHASED FROM MONTGOMERY METAL FABRIC CO
   54 CANAL ST. WINDSOR LOCKS. CONN.
   CODE IDENT NO. 94725
3. WELD KNITTED INCONEL MESH PER LDW 280-17522.



LDW280-28768-3 ASSY.
SEE NOTE 3.

LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
C	26512	LDW280-28768	A

MODEL OR END ITEM
SCALE HALF
SHEET 3.00

SUPERSEDES LDW 280-28768 NC 7-20-66.

LDW280-28768 A

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 316
CONTROL INFO NO. LDW280A 0936

ON THE FOLLOWING DRAWINGS ADD NOTE*:
*) INCONEL KNITTED SLEEVNG TO BE OXIDIZED BY EXPOSURE TO 1650 ±50°F IN AIR FOR FOUR(4) HOURS. FOR LTA5 (15) AND LTA 8 (18) OXIDIZATION IS OPTIONAL

DRAWING:	EFF	CHANGE NO.	TITLE
LDW280-25708	QUAL TEST LM1 THRU LM6 LTA5 & 8	B3	SEE DRAWING
LDW280-28735	LM1 THRU LM6 LTA8	C1	
LDW280-28737	"	A4	
LDW280-28740	"	B1	
LDW280-28743	"	A4	
LDW280-28746	"	B1	
LDW280-28749	"	A6	
LDW280-28752	"	B1	
LDW280-28755	LTA-8 & LM-1	A5	
LDW280-28759	LTA-8 LM-1 THRU LM-6	B1	
LDW280-28764	"	B1	
LDW280-28768	LM-1 &	B1	
LDW280-28771	LTA-8, LM-1 THRU LM-6	B1	
LDW280-28774	"	A6	
LDW280-28803	"	A1	SEE DRAWING
LDW280-28819	"	A1	SEE DRAWING

*-USE NEXT AVAILABLE NUMBER

3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC C EO RELEASE
THERMO REQUIREMENT	ADDED NOTE *	UE 10/18

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		NOTED ABOVE	
LM			
LM			

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
	JJS			KGM	WJH			
DATE				MAT'LS 10/7/66			10/12/66	10/15/66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	316

ISSUED BY AMBROSIO/STRACOSCH X1153 SECTION V.D.1 GROUP NO. 335 PL 35 EMF

01 NAS 9-1100

8

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LEO 280
EO NO. 421
CONTROL INFO NO. LDW280A-4411

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
LDW280-28730	LTA8 LM-1 THRU LM6	B 2	SEE DWG
LDW280-28734	"	A 8	
LDW280-28735	"	C 3	
LDW280-28746	LTA8 (18) LM-1 (31) THRU LM-15 (45)	B 3	
LDW280-28747	LTA8 (18) LM-1 (31) THRU LM-6 (36)	B 1	
LDW280-28749	"	A 7	
LDW280-28750	"	B 3	
LDW280-28752	"	B 2	
LDW280-28753	"	A 3	
LDW280-28755	LTA8 (18) LM-1 (31)	A 7	
LDW280-28756	LTA8 (18) LM-1 (31) THRU LM-15 (45)	A 6	
LDW280-28759	LTA8 (18) LM-1 (31) THRU LM-6 (36)	B 2	
LDW280-28760	"	B 1	
LDW280-28768	LM-1 (31)	B 2	
LDW280-28769	LM-1 (31)	B 1	
LDW280-28771	LTA8 (18) LM-1 (31) THRU LM-6 (36)	B 2	
LDW280-28772	"	B 1	
LDW280-28774	"	A 7	
LDW280-28775	"	B 2	
LDW280-28803	"	A 2	
LDW280-28805	"	A 1	
LDW280-51824	LM-1 (31) THRU LM-15 (45)	A 1	
LDW280-51825	"	A 2	
LDW280-51829	"	A 1	
LDW280-51830	"	A 1	
LDW280-51834	"	A 1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: 12/20

MODEL: LM

EFFECTIVITY — PROCURING ACTIVITY NO.: — GAEC UNIT NO.: NOTED — SUB CONTR UNIT NO.:

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT — SCRAP REQ'D

APPROVED BY:

DATE	12/16/66	12/16/66		12/19/66	12/19/66		12/20	12-20-66
/	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 421

ISSUED BY: T. AMBROSIO/STRAKOSCH X1153 SECTION: VEH DES INT GROUP NO. 335 PL 35

01
NAS 9-1100

LDW280-28769 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28767	LM-1(31)	1
PART NO. LDW280-28769-13		GAEC SCH NO. 52	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

~~SHEET~~	~~1.00~~	~~—~~	~~2.00~~	~~3.00~~
REV	—	—	—	—
SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				

LAST SECT LTR USED:
LAST DASH NO. USED: -13

GRUMMAN REL INFO

PRIM NO.	FR(001)		
207	MP-14	10-13-6	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
±1/16 ±.030 ±1/2

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM N01
DOCUMENTATION TYPE II

DRAWN BY	O'CONNEL	RELIABILITY	—
LAYOUT BY	WINK	THERMO	
CHECKED BY			
GROUP LDR	7/20/66		
VEH.DES.INT	7/21		
STRUCTURE	7/21/66	PROJ ENGR	
STRUCTURE	7/21	REL GROUP	
WEIGHT	7-29		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN
DESCENT STAGE - QUAD II ~ LAND. RDR. FLM. IMP. SHLD

SIZE	CODE IDENT NO.		
B	26512	LDW280-28769	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GSRT~~ APPD
A									RETRACED SHEET 3 NO CHANGE - LAST REV. N.C. ADDED SHEET 1.10 - SHEET 1 OF 4 WAS 1 OF 3.				GKASS 1 OCT 66	10-10	10/11/66
	1.								REMOVED -11	LTA8 LM-1		-11			
	2								(R) ADDED -13	LM-1					

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS	THERMO
A		10/4/66	10/5			

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28769	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

C.L.	QTY PER ASSEMBLY						CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C								LDW280-28769-13	E	SKIN		MAKE FROM LDW 280-17970-45.				SEE NOTE 2	

C.L. = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-28769 | A

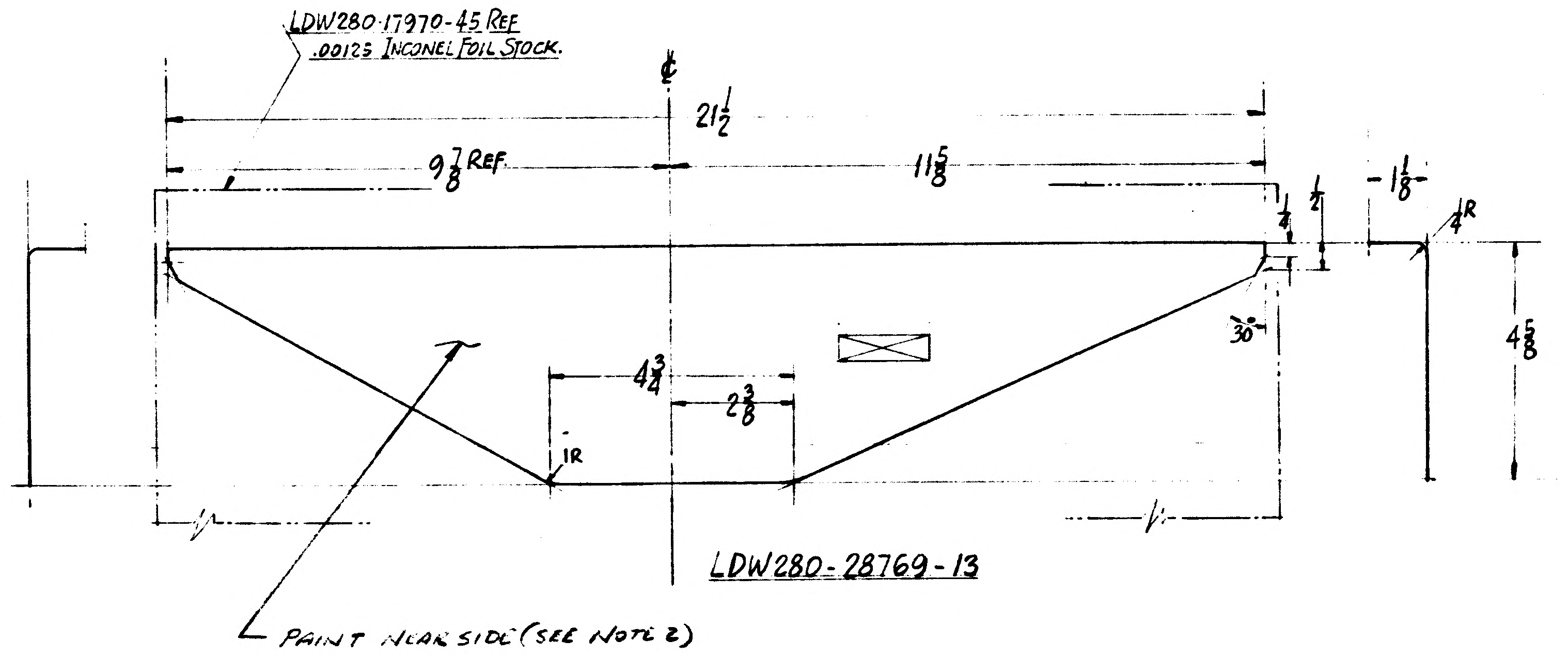
SCALE NONE | SHEET 200

ENG 77.2 7-65

01 NAS 9-1100

NOTES:

1. NO TOOLING HOLES PERMITTED IN PART.
2. FINISH PER LPC 280-5.



LDW280-28769-13

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE C	CODE IDENT NO. 26512	LDW280-28769	A
MODEL OR END ITEM	SCALE HALF		SHEET 3.00	

SUPERSEDES LDW280-28769 NC 7-25-66

LDW280-28769 A

LDW280-28769 A

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LEO 280	EO NO. 421
CONTROL INFO NO. LDW280A-4411	

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM6	B2	
LDW280-28734	"	A8	
LDW280-28735	"	C3	
LDW280-28746	LTA8(18) LM-1 (31) THRU LM-15(45)	B3	
LDW280-28747	LTA8 (18) LM-1 (31) THRU LM-6(36)	B1	
LDW280-28749	"	A7	
LDW280-28750	"	B3	
LDW280-28752	"	B2	
LDW280-28753	"	A3	
LDW280-28755	LTA8(18) LM-1(31)	A7	
LDW280-28756	LTA8(18) LM-1(31) THRU LM-15(45)	A6	
LDW280-28759	LTA8(18) LM-1(31) THRU LM-6(36)	B2	
LDW280-28760	"	B1	
LDW280-28768	LM-1(31)	B2	
LDW280-28769	LM-1(31)	B1	
LDW280-28771	LTA8(18) LM-1(31) THRU LM-6(36)	B2	
LDW280-28772	"	B1	
LDW280-28774	"	A7	
LDW280-28775	"	B2	
LDW280-28803	"	A2	
LDW280-28805	"	A1	
LDW280-51824	LM-1(31) THRU LM-15(45)	A1	
LDW280-51825	"	A2	
LDW280-51829	"	A1	
LDW280-51830	"	A1	
LDW280-51834	"	A1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC280-19

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		
REASON FOR EO: LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO			DESCRIPTION OF EO: ADDED NOTE *			GAEC EO RELEASE: K 12/20

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS
LM		NOTED		✓ REVISE DWG / RECORD EO	NOT REW'D: REWORK / SCRAP

APPROVED BY									
DATE	12/16/66	12/16/66		12/16/66	12/16/66		12/20	12-20-66
/	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 421

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01

NAS 9-1100

01 NAS 9-1100

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO.	LEO 280
EO NO.	559
CONTROL INFO NO.	LDW 280A 6306

ENG 32.2 REV 3-65

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW. REMOVE LDW280-17970- ALL DASH NUMBERS AND ADD "SEE NOTE *"

IN F/D REMOVE LDW280-17970-ALL DASH NUMBERS

REVISE NOTE *
(REF) "MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19."
(ADD) PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

DRAWING No.	CHANGE #	SYMBOL	EFFECTIVITY	TITLE
LDW280-18130	A7	⬡	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW280-18141	A3	⬡	LM-1 THRU LM-15	
LDW 280-28730	B7	☐	LTA-8 LM-1 THRU LM-3	
LDW 280-28734	B2	☐	LTA-8 LM-1 THRU LM-3	
LDW280-28738	A7	☐	LTA-8 LM-1 THRU LM-15	
LDW 280-28740	B3	☐	LTA-8 LM-1	
LDW 280-28741	A6	☐	LTA-8 LM-1 THRU LM-6	
LDW 280-28744	A7	☐	LTA-8 LM-1 THRU LM-6	
LDW 280-28747	B4	☐	LTA-8 LM-1 THRU LM-15	
LDW 280-28750	39	☐	LTA-8 LM-1 THRU LM-15	
LDW280-28753	A5	☐	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	☐	LTA-8 LM-1 THRU LM-15	
LDW280-28760	B5	☐	LTA-8 LM-1 THRU LM-3	
LDW280-28765	A7	⬡	LTA-8 LM-1 THRU LM-6	
LDW280-28769	B2	☐	LM-1	
LDW 280-28772	B6	☐	LM-1 THRU LM-15	
LDW280-28775	B7	☐	LTA-8 LM-1 THRU LM-15	
LDW 280-28805	A6	☐	LM-1 THRU LM-15	
LDW 280-28806	A4	☐	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW 280-51824	A3	☐	LM-1 THRU LM-15	

NOTE △ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY WITH LPC 280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM ☐ REVISE NOTE *.
FOR SYM ⬡ ADD NOTE △ TO DWG

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		DESCRIPTION OF EO				GAEC EO RELEASE 5 C
REASON FOR EO						REMOVED LDW280-17970 FROM B/M & F/D (ALL DASH NO'S) FOR DWG'S ☐ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ⬡ ADDED NOTE △				JS 4-19-7
UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE										
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY	DATE	
LM		NOTED ABOVE		✓		NOT	REQ		4/10/67	
								6	VD1	
								SUPPORT	RELIAB. GROUP	GROUP LEADER 4/10/67
								STRESS GROUP 4/11/67	LIAISON ENGRG	PROJ ENGRG 4/13
								GOVT 4-18-67		
				PRIORITY	C	DRAWING TITLE	NOTED	DRAWING NO.	LEO 280	EO NO. 559

ISSUED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
		3							RETRACED SHEET 3 N/C (LAST REVISION N/C				9-12-66		
A	1	1.00 1.10 2.00 3.00							ADDED SHEET 1.01, SHEET 1 OF 4, WAS SHEET 1 OF 3. ADDED -3 ASSY, ② REMOVED -1 ASSY.	NOTED		-1	9-12-66		10.6.66

CHG APPROVED LTR	~~GROUP LDR~~	VDI	STRUCT	STRUCT	WEIGHTS	THERMO					
A		9/13/66	9/15/66								

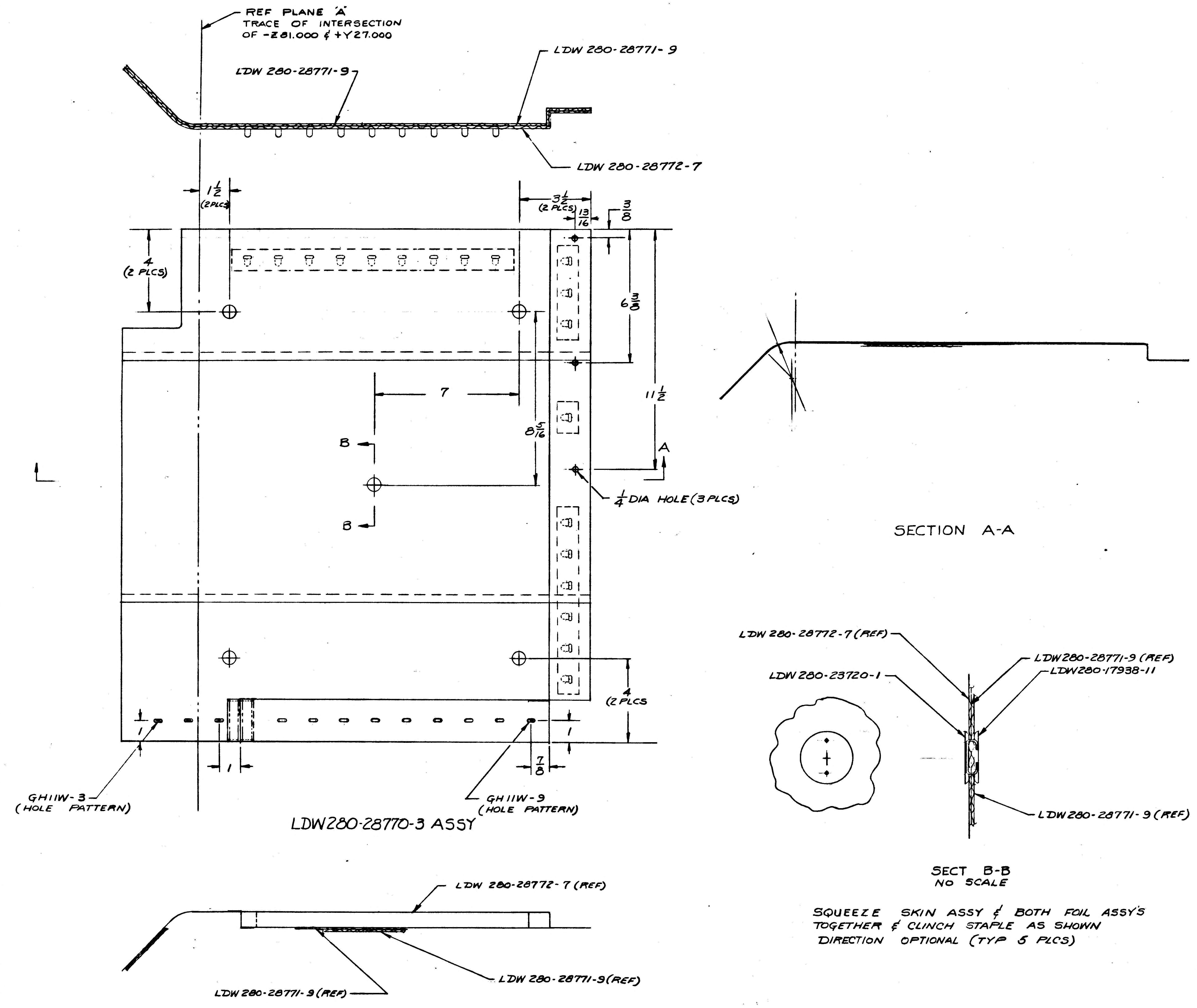
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28770	A
SCALE NONE		SHEET 1.01	

ENG 77.16 3-66

01

NAS 9-1100


REF PLANE 'A'
TRACE OF INTERSECTION
OF -Z81.000 & +Y27.000
LDW 280-28771-9
LDW 280-28771-9
LDW 280-28772-7
1 1/2 (2 PLCS)
3 1/2 (2 PLCS)
13/16
3/8
4 (2 PLCS)
6 3/8
7
8 5/16
11 1/2
B
B
A
1/4 DIA HOLE (3 PLCS)
4 (2 PLCS)
1
1
1
7/8
GH11W-3 (HOLE PATTERN)
GH11W-9 (HOLE PATTERN)
LDW280-28770-3 ASSY
LDW 280-28772-7 (REF)
LDW 280-28771-9 (REF)
LDW 280-28771-9 (REF)
SECTION A-A
LDW 280-28772-7 (REF)
LDW 280-23720-1
LDW280-28771-9 (REF)
LDW280-17938-11
LDW280-28771-9 (REF)
SECT B-B
NO SCALE

SQUEEZE SKIN ASSY & BOTH FOIL ASSY'S
TOGETHER & CLINCH STAPLE AS SHOWN
DIRECTION OPTIONAL (TYP 5 PLCS)

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. FABRICATION OF LDW280-28770-3 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011 LEVEL 'C'
3. SQUEEZE FOILS & MESH FIRMLY TOGETHER & CLINCH STAPLE AS SHOWN

LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

LEM	SIZE F	CODE IDENT NO. 26512	LDW280-28770	A
MODEL OR END ITEM	SCALE 1/2		SHEET 3.00	

SUPERSEDES LDW280-228770 N/C 7/26/66

ENG 73-5 6-64

01

NAS 9-1100

LDW280-28770 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28651	LM-3(33)	1
PART NO. LDW280-28770-7		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28651	LM-2(32)	1
LM	LDW280-28651	LM-1(31)	1
PART NO. LDW280-28770-5		GAEC SCH NO. 52	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00			
REV	B.	B	B		B			
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED D

LAST DASH NO. USED -17

GRUMMAN REL INFO B

PRIM NO. 207 VK(001) ME-18 4/19/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/16 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM NO 1

DOCUMENTATION TYPE II

DRAWN BY	O'CONNELL	RELIAB.	
LAYOUT BY		THERMO	9/29/66
CHECKED BY			
GP LDR			
V.D.I.			
STRUCT	7/4	PROJ ENGR	7-26
STRUCT	7/16	REL GROUP	Bolte 7-26-66
WEIGHT	7 25		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSY D.S.
Q3 LIQ OX. ACCESS
PLUME IMPINGEMENT SHIELD

SIZE B

CODE IDENT NO. 26512

LDW280-28770 B

SCALE NONE

SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
		3							RETRACED SHEET 3 N/C (LAST REVISION N/C)				Jm 9-12-66		
A	1	1.00 1.10 2.00 3.00							ADDED SHEET 1.01, SHEET 1 OF 4, WAS SHEET 1 OF 3. ADDED -3 ASSY, ② REMOVED -1 ASSY.	NOTED		-1	Jm 9-12-66	RMC	
B	1	1.00							INC E0-B1	LM-1 THRU LM-15			D. STELLA BOTTE 4-11-69		
	2	2.00,3.00							INC. E0-B2	LM-1 THRU LM-6					
	3	1.00,2.00 3.00		S					INC. E0-B3	LM-1 THRU LM-15					
	4	1.00		S					INC. E0-B4	LM-1 (31)					
	5	2.00,3.00							INC LEO280-589	LM-1 THRU LM-15					
	6	3.00							INC. E0-B6	LM-2 THRU LM-15					
	7	1.00,2.00 3.00		S				Ⓟ	INC. E0-B7	LM-3 THRU LM-15			E.C.G.		

CHG APPROVED

LTR	~~GROUP LDR~~	VDI	STRUCT	STRUCT	WEIGHTS	THERMO				
A		JRS 9/13/66	WJW 9/15/66							
B										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28770	B
SCALE NONE		SHEET 1.10	Ⓑ

ENG 77.16 3-66

01

NAS 9-1100

CL				-13	-7	-5	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					A/R			INCONEL 600	E	KNITTED SLEEVING							
					5			GB-13B-4		BEAD	GRUMMAN STD.						
					5			GB-13B-1		BEAD							
					1			GH11W-9		HOLE PREPARATION							
					1			GH11W-3		HOLE PREPARATION							
						1		GT835P-8		TAPE							
					A/R	A/R		GS517A-4		STAPLE							
						1		GS11K -3-144		STRIP							
						1		-3-024									
					1	1		-3-082									
					2	1		-3-036									
						1		-2-126									
						1		-2-036									
					1	1		-1-9									
					1	1		-1-6									
					1	1		-1-3									
					1	1		GS11K-1-1		STRIP	GRUMMAN STD.						
						1		LDW280-28772-11		SKIN ASSY	SEE DWG						
						1		LDW280-28771-9		FOIL ASSY.							
						5		LDW280-23720-3		STAPLE ASSY.							
						5		LDW280-17932-13		WASHER	SEE DWG						
				1				LDW280-28770-17		MESH	SEE NOTES 5&8						
				1				-15		FOIL	SEE NOTES 5&7						
					2			-13		FOIL ASSY	SEE NOTE 5						
					1			-11		SKIN	SEE NOTES 5&10						
								-7		SHIELD ASSY.	—					SEE NOTE 6&	9
								LDW280-28770-5	E	SHIELD ASSY.	—						

QTY PER ASSEMBLY

CL. CLEANLINESS LEVEL PER LSP-14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28770	B

SCALE NONE
SHEET 200

ENG 77.2 7-65

01

NAS 9-1100

A

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28770
EO NO. B1
CONTROL INFO NO. LDW280A4997

IN -3 MOD/BLK, REVISE N/A. LDW280-28651 WAS LDW280-51651 & ADD LM-7(37) THRU LM-15(45) 1 REQD/MOD N/A LDW280-28651

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: TO UPDATE N/A & ADD LM 7 THRU 15 REQUIREMENTS

DESCRIPTION OF EO: IN -3 MOD/BLK REVISED N/A FOR LM-1 THRU LM-6 LDW280-28651 (WAS) LDW280-51651 & ADDED LM-7(37) THRU LM-15(45) N/A LDW280-28651 1REQD/MOD

GAEC EO RELEASE: 1/19/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-1(31) THRU LM-15(45)		

DRAWING CHANGE REQD REVISE DWG	RECORD EO	DISPOSITION OF PARTS REWORK	SCRAP
✓		NOT REQD	

APPROVED BY								
DATE	1/16/67			1/16/67	1/17/67		1/18/67	1/19/67
6	VO1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: SHIELD ASSY DS Q3 LIQ OX ACCESS PLUME IMPINGEMENT SHIELD

DRAWING NO. LDW280-28770

EO NO. B1

ISSUED BY J. LANG / J. STRAKOSCH X1153 SECTION VO1 GROUP NO. 335 PL 35

01

NAS 9-1100

B

ENG 32.1 REV 3-65

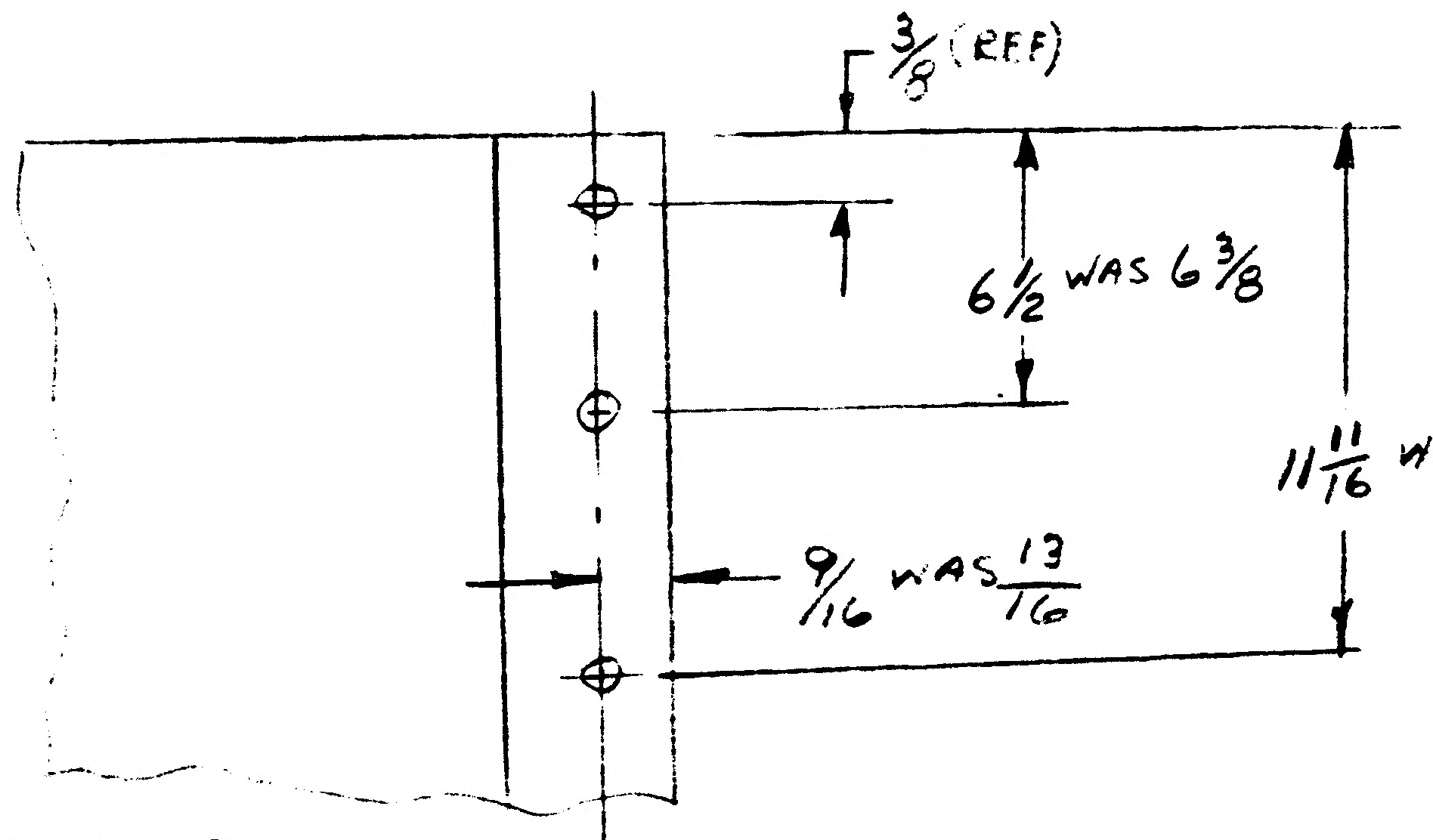
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER
EMI A

DWG. NO. LDW280-28770
EO NO. B2
CONTROL INFO NO. LM-29-1036

IN F/D ON-3

*USE PARTS WITH
EXISTING HOLES
AS IS,



IN F/D & 4/M LDW280-23720-3 WAS LD280-23720-1

IN 4/M LDW280-17932-13 WAS LDW280-17932-11

IN F/D LDW280-17932-13 WAS LDW280-17938-11

IN F/D IN SECT B-B REMOVE "DIRECTION OPTIONAL"

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO
CORRECTED HOLE PATTERN TO AGREE WITH N/A. REVISED DWG NUMBERS TO REFLECT NEW PARTS.

DESCRIPTION OF EO
ON-3, 6 1/2 WAS 6 3/8, 11 11/16 WAS 11 1/2 & 9/16 WAS 13/16. REMOVED "DIRECTION OPT" IN F/D & 4/M, LDW280-23720-3 WAS LDW280-23720-1. LDW280-17932-13 WAS LDW280-17932-11 IN 4/M & LDW280-17938-11 IN F/D

GAEC C EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	THRU
		LM-6 (36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	[illegible]				[illegible]	[illegible]	RMC	[illegible]
✓		✓ *		DATE	[illegible]				1/13/67	1-19-67	1-23-67	1-17
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VD	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY C27
DRAWING TITLE [illegible] QUAD II LIQUID [illegible] ACCESS PLUMB. [illegible]
DRAWING NO. LDW280-28770
EO NO. B2

ISSUED BY LIAISON # [illegible] X7332 SECTION [illegible] GROUP NO. 335 PL 35

01

NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28770		EO NO. B4
CONTROL INFO NO. LDW 280A 5837		

REMOVE -3 ASSY
FOR -5 ADD LM-1 (31) REQMTS, N/A LDW 280-28651,
1 REQD/MODULE.

5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCR-928

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
IMPROVE PAINT ADHESION LCR 928	REMOVED -3 ASSY ON-5 ADDED LM-1 (31) REQMTS.	C 3/14/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	EFFECTIVITY		
LM		LM-1 (31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-3

APPROVED BY / DATE		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
5	3/2/67 V.D.I.			3/7/67	3/8/67		3-14-67	3/14/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY ~ D.S. ~ QUAD III LIQ OX. ACCESS ~ PLUME IMP. SHIELD.	LDW280-28770	B4

ISSUED BY GUS HANSMANN X1153 SECTION V.D.I. GROUP NO. 280 PL 35

01 NAS 9-1100

B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 | EO NO. 589
CONTROL INFO NO. LDW280A6772

ON THE DWGS LISTED BELOW IN LM & F/D AT INSTL OF ALL GS11K-1--- TAB STRIPS REMOVE GS577A-1 & ADD GS577A-4 STAPLE

DWG No *	EFF	CHANGE No	TITLE
LDW280-28559-5	LM-1(31)	B3	
LDW280-28665-5	LM-1(31)	B10	
LDW280-28733-3	LM-1(31) THRU LM-3(33)	A4	
LDW280-28736-5 & -7	LM-1(31) THRU LM-15(45)	A5	
LDW280-28748-11, -13 & -15	LM-1(31) THRU LM-15(45)	A10	
LDW280-28754-7 & -9	LM-1(31) THRU LM-15(45)	A9	
LDW280-28758-5 & -7	LM-1(31) THRU LM-3(33)	B3	SEE
LDW280-28770-5	LM-1(31) THRU LM-15(45)	B5	
LDW280-28773-11 & -13	LM-1(31) THRU LM-3(33)	A8	
LDW280-28804-5	LM-1(31) THRU LM-15(45)	A6	
LDW280-28817-7	LM-1(31) THRU LM-15(45)	A4	DWG
LDW280-51742-3	LM-1(31)	A4	
LDW280-51831-1	LM-1(31) THRU LM-15(45)	A2	
LDW280-52739-3	LM-2(32) THRU LM-15(45)	A2	
LDW280-52742-1, -3, -5, -7, -9 & -11	LM-2(32) THRU LM-15(45)	A7	
LDW280-52763-9 & -11	LM-2(32) THRU LM-15(45)	A5	
LDW280-52767-1 & -3	LM-2(32) THRU LM-15(45)	B3	
LDW280-53600-3 & -5	LM-3(33)	A3	
LDW280-54605-1	LM-4(34) THRU LM-15(45)	A2	
LDW280-54714-1	LM-4(34) THRU LM-15(45) & DES. VER. 70	A5	
LDW280-54733-1	LM-4(34) THRU LM-15(45)	A2	
LDW280-54758-1 & -3	LM-4(34) THRU LM-15(45)	A1	
LDW280-54784-1	LM-4(34) THRU LM-15(45) & DES. VER. 70	A2	
LSK280-10993-17, -19 & -21	DES. VER. 70	A4	

CDR = 5/10/67

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☑	CL I ENGRG CHG ☐	LCD 928		2
REASON FOR EO		DESCRIPTION OF EO			GAEC EO RELEASE
TO PROVIDE CORRECT STAPLE CALLOUT		ON * REPLACED GS577A-1 WITH GS577A-4			JK 5/?/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	PRIORITY
LM	(NOTED ABOVE)			C

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓		✓		5	VDI 5/4/67			—	W 5/4/67		5/6/67	5/8/67

DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO. 589

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 28770		EO NO. B7
CONTROL INFO NO. LDW280 B-2750		

RESTRICT -5ASSY FOR USE ON LM-1(31) & LM-2(32)
ADD-7ASSY EFF LM-3 (33) ONLY (SEE NOTE ◐&⬡)
N/A LDW280-28651 1 REQU'D
ADD -11 SKIN (SEE NOTES ◧ & △)
ADD -15 FOIL (SEE NOTES ✱ & ◧)
ADD -17 MESH (SEE NOTE ☐ & ◧)
ADD -13 FOIL ASSY (SEE NOTE ◧) (2 REQD)

ADD NOTES

◧ PART TO BE FABRICATED ACCORDING TO REQUIREMENTS OF LPC 280-19

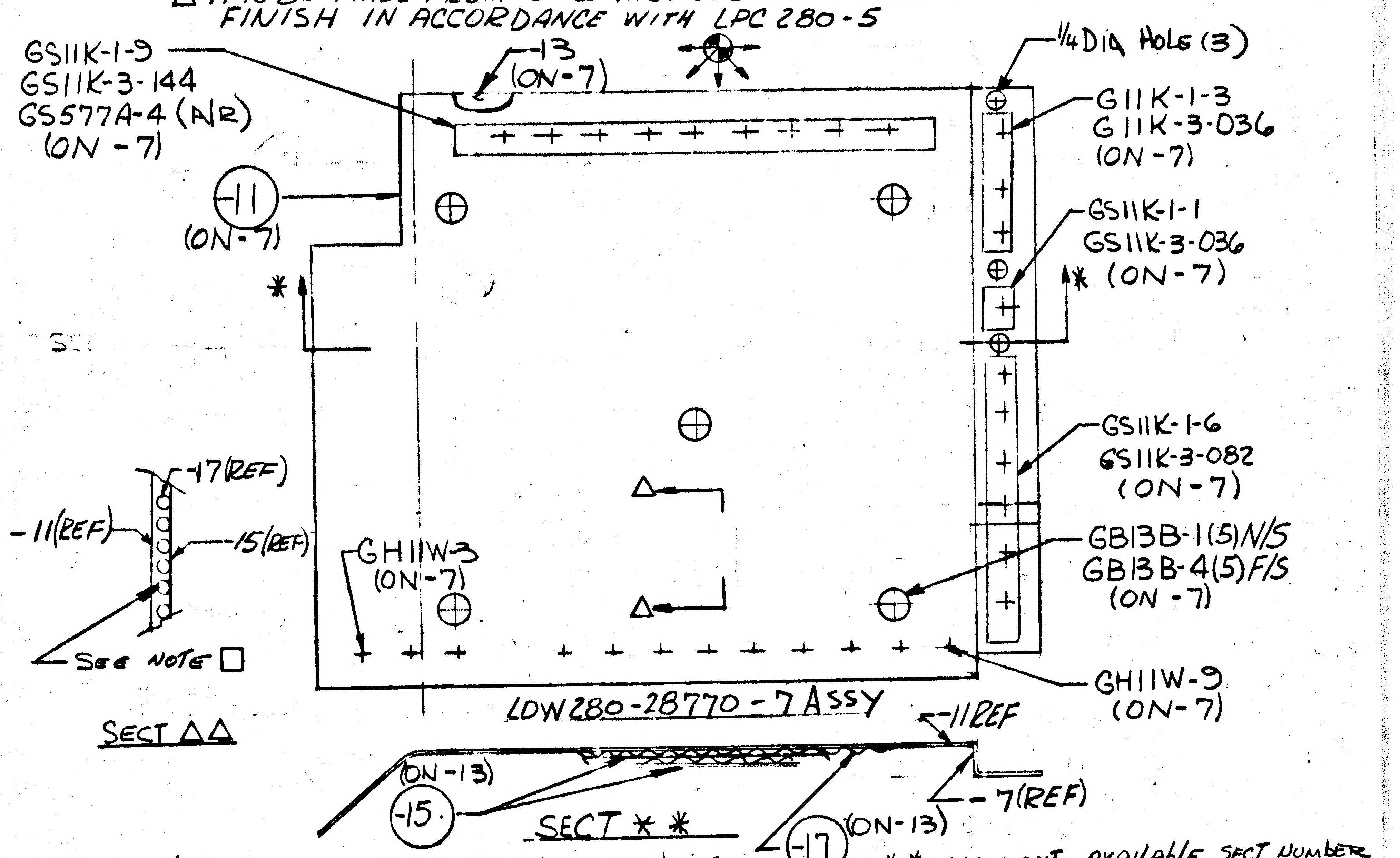
◐ FINAL CONFIGURATION OF ASSY'S SHALL BE DETERMINED FROM APPROVED MASTER TEMPLATE.

✱ PART TO BE MADE FROM ANNEALED BRIGHT ROLLED NICKEL FOIL .0005 COMMERICALLY PURE (INCO 200 OR EQUIVALENT)

☐ INCONEL KNITTED SLEEVING TO BE 6 TO 8 INCHES WHEN FLATTENED. WIRE TO BE .0035 TO .0040 inch DIA. ROUND "INCONEL 600" ALLOY KNIT. PATTERN SQUARE TYPE 5 TO 7 SQUARES PER LINEAR inch. MAY BE PURCHASED FROM MONTGOMERY METAL FABRIC CO. 59 CANAL ST. WINDSOR LOCKS, CONN. (CODE IDENT. 94725)

⬡ FABRICATE PER LPC 280-4 & -25

△ -11 TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 FINISH IN ACCORDANCE WITH LPC 280-5


GS11K-1-9
GS11K-3-144
GS577A-4 (A/R)
(ON -7)
-13
(ON-7)
1/4 DIA HOLE (3)
G11K-1-3
G11K-3-036
(ON-7)
-11
(ON-7)
✱
GS11K-1-1
GS11K-3-036
✱ (ON-7)
GS11K-1-6
GS11K-3-082
(ON-7)
GB13B-1(5)N/S
GB13B-4(5)F/S
(ON -7)
-17(REF)
-11(REF)
-15(REF)
SEE NOTE ☐
GH11W-3
(ON-7)
GH11W-9
(ON-7)
SECT △△
LDW280-28770-7 ASSY
-11REF
(ON-13)
-15
SECT ✱✱
-17
(ON-13)
-7(REF)

◐, ✱, ☐, △, ◧ & ⬡ USE NEXT AVAILABLE NOTE NUMBERS

✱✱ USE NEXT AVAILABLE SECT NUMBER

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2360	PKG 18	(5)

REASON FOR EO: PLUME HEATING PROTECTION

DESCRIPTION OF EO: RESTRICTED -5 EFF WAS LM-1 (31) THRU LM-15 (45) ADDED -7, -11, -13, -15 & -17 ADDED NOTES ◐, ✱, ☐, △, ◧ & ⬡ ADDED SECT. ✱✱, △△

GAEC EO RELEASE: JK 4/1/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	✓

APPROVED BY									
DATE	3/28/68	3/28/68		3/28/68	3/28/68			4-1-68
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: SHIELD ASSY ~ D/S QUAD III LIQ OR ACCESS PLUMP IMP SHIELD

DRAWING NO.: LDW280-28770

EO NO.: B7

G-2

ISSUED BY F. LANZARO/P THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25

CDR 040568

LDW280-28771 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28770	LTA8-(18)	2
PART NO. LDW280-28771-7		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28770	LEM6(36	2
		LEM5(35)	2
		LEM4(34)	2
		LEM3(33	2
		LEM2 (32)	2
LEM	LDW280-28770	LEM1(31)	2
PART NO. LDW280-28771-9		GAEC SCH NO. 52	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00			
REV	A	A	A		A			
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REL INFO

PRIM NO. 207 LE(001) MP-A 9-16-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM NO1
DOCUMENTATION TYPE II

DRAWN BY O'CONNELL
LAYOUT BY
CHECKED BY
GROUP LDR
VEH.DES.INT 7/16
STRUCTURES 7/16
STRUCTURES Hilderman 7/16
WEIGHT 7-25

RELIABILITY
THERMO
PROJ ENGR 7-26
REL GROUP 8-2-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL ASSY D.S.
Q3 LIQ OX. ACCESS
PLUME IMPINGEMENT SHIELD

SIZE B
CODE IDENT NO. 26512
LDW280-28771
A

SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDED LDW280-28771 N/C 8-2-66

01 NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
		3							RETRACED N/C (LAST REVISION N/C)				9-10-66		
A	1							A1	ADDED NOTE 5 & ADDED RADIUS FOR LOWER RIGHT HAND FILLET	NOTED	✓				
	2							LEO-280-188	REWROTE SEAM WELD NOTE 3 & ADDED NOTES 6 & 7	NOTED	NOT	REQD			
	3							LEO-280-240	REF LEO 280-118 ADDED PART "C" TO NOTE 6	NOTED	✓				
	4	1.00 1.10 3.00							ADDED SHEET 1.10 SHEET 1 OF 4 WAS SHEET 1 OF 3, REMOVED NOTES 5, 6, & 7. ADDED -7 & -9 ASSY, REMOVED -1, -3 & -5 ASSY	NOTED		-1 -3 -5	9/10/66	RMC	9-12-66

CHG APPROVED

LTR	~~GROUP~~ LDR	VDI	STRUCT	STRUCT	WEIGHTS	THERMO
A		9/10/66	9/12			9/10/66

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28771	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

C.L.			-13	-11	-9	-7	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				A/R				MESH	E	INCONEL KNIT	SLEEVING						
					1	1		LDW280-18125-13	E	ANGLE	SEE DWG						
					1	1		LDW280-18125-11	E	ZEE	SEE DWG						
			3					LDW280-17950-4	E	FOIL	SEE DWG						
				1.				LDW280-28771-13	E	FOIL ASSY (WELDED)					FLW	NONE	
					1	1		LDW280-28771-11	E	FOIL ASSY (WELDED)					FLW	NONE	
								LDW280-28771-9	E	FOIL ASSY					NONE	NONE	
								LDW280-28771-7	E	FOIL ASSY					NONE	NONE	

QTY PER ASSEMBLY

C.L. = CLEANLINESS LEVEL PER LSP 14-0011

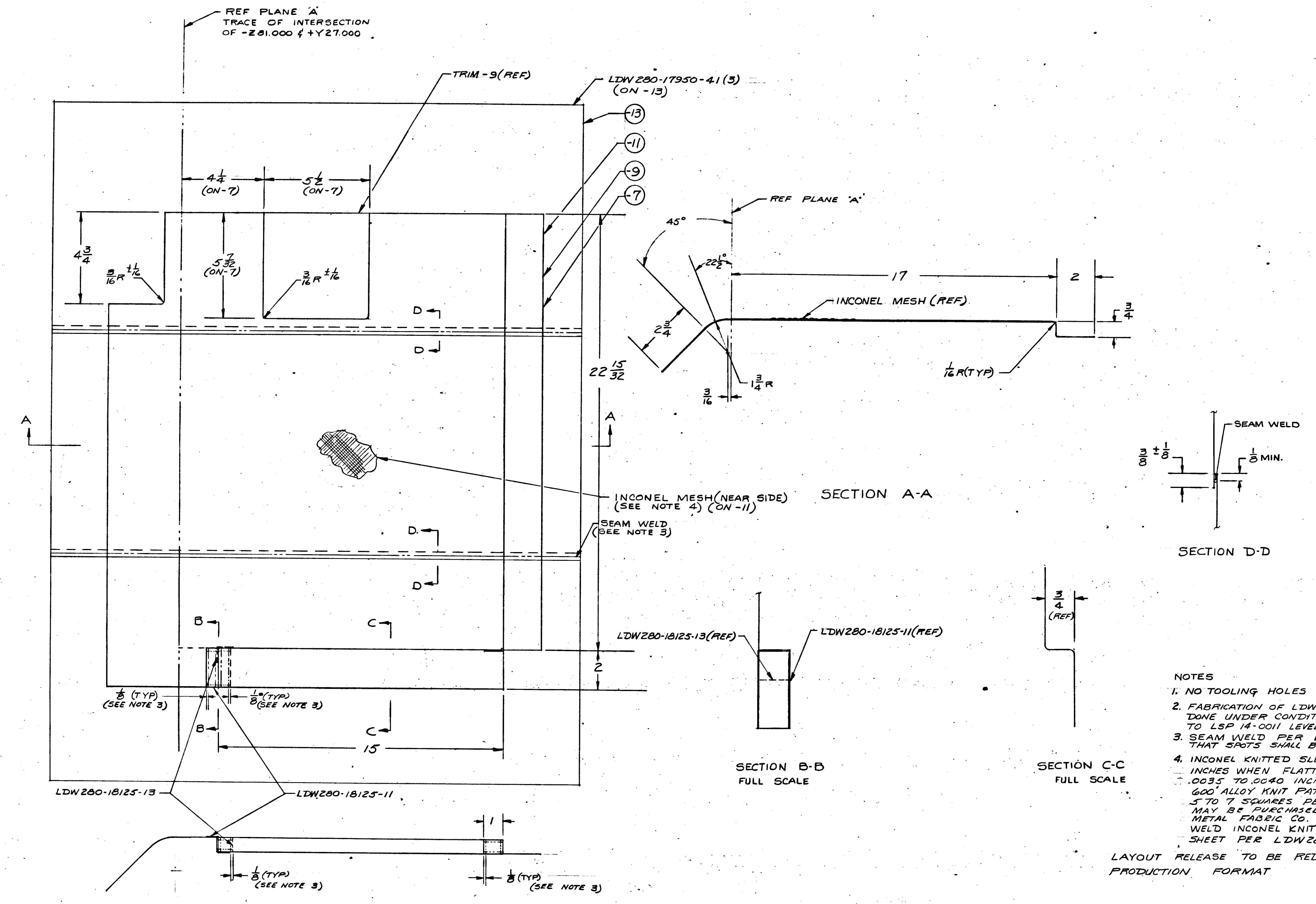
SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELDING	LSP14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28771	A
SCALE NONE		SHEET 2.00	

ENG 77.2 7-65


REF PLANE 'A'
TRACE OF INTERSECTION
OF -Z81.000 & +Y27.000
TRIM -9(REF)
LDW280-17950-41(3)
(ON -13)
-13
-11
-9
-7
4 1/4 (ON-7)
5 1/2 (ON-7)
4 3/4
3/16 R ±1/16
5 7/32 (ON-7)
3/16 R ±1/16
D
D
22 15/32
A
A
INCONEL MESH(NEAR SIDE)
(SEE NOTE 4) (ON -11)
SEAM WELD
(SEE NOTE 3)
D
D
B
C
1/8 (TYP)
(SEE NOTE 3)
1/8 (TYP)
(SEE NOTE 3)
B
C
2
15
LDW280-18125-13
LDW280-18125-11
1
1/8 (TYP)
(SEE NOTE 3)
1/8 (TYP)
(SEE NOTE 3)
REF PLANE 'A'
45°
22 1/2°
17
2
3/4
INCONEL MESH (REF)
2 3/4
3/16
1 1/4 R
1/16 R (TYP)
SECTION A-A
SEAM WELD
3/8 ±1/8
1/8 MIN.
SECTION D-D
LDW280-18125-13(REF)
LDW280-18125-11(REF)
SECTION B-B
FULL SCALE
3/4 (REF)
SECTION C-C
FULL SCALE

LDW280-28771- 7 ASSY
LDW280-28771- 9 ASSY
LDW280-28771- 11 ASSY(WELDED)
LDW280-28771- 13 ASSY(WELDED)

NOTES

1. NO TOOLING HOLES PERMITTED IN PARTS
2. FABRICATION OF LDW280-28771-7&-9 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP 14-0011 LEVEL "C"
3. SEAM WELD PER LSP 14-6102 EXCEPT THAT SPOTS SHALL BE TANGENT +1/32 -0
4. INCONEL KNITTED SLEEVING TO BE 6 TO 8 INCHES WHEN FLATTENED. WIRE TO BE .0035 TO .0040 INCH DIA, ROUND "INCONEL 600" ALLOY KNIT PATTERN SQUARE TYPE 5 TO 7 SQUARES PER LINEAR INCH. MAY BE PURCHASED FROM MONTGUMERY METAL FABRIC CO. WINDSOR LOCKS, CONN. WELD INCONEL KNITTED SLEEVING TO FOIL SHEET PER LDW280-17522

LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT

SUPERCEDES LDW280-28771 N/C 8/2/66

THIS IS AN ORIGINAL DRAWING

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LEM	SIZE F	CODE IDENT NO. 26512	LDW280-28771	A
MODEL OR END ITEM	SCALE 1/2		SHEET 3.00	

NAS 9-1100

HG

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280		EO NO. 240
CONTROL INFO NO. LEM-2-2642		

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE ✱.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a)+(b) ARE TO BE COVERED WITH A PATCH.

THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LDW 280-25703	A4	A5	✱, ✱✱, ✱✱✱
-25704	A3	A4	✱, ✱✱, ✱✱✱
-25705	B5	C2	✱, ✱✱
-25706	A3	A5	✱, ✱✱, ✱✱✱
-25707	B1	B2	✱, ✱✱, ✱✱✱
-28730	A1	A5	✱
-28734	A1	A4	✱
-28735	A1	B1	✱
-28737	A1	A2	✱
-28738	A1	A2	✱
-28740	A1	A2	✱
-28741	A1	A2	✱
-28743	A1	A2	✱
-28744	A1	A2	✱
-28746	A1	A2	✱
-28747	A1	A2	✱
-28749	A1	A2	✱
-28750	A1	A2	△
-28755	A1	A3	△
-28756	A1	A3	✱
-28759	A1	A3	✱
-28760	A1	A2	✱
-28764	A1	A2	✱
-28765	A1	A2	✱
-28771	A2	A3	✱
-28772	A2	A3	✱
-28774	A1	A2	✱
LDW 280 -28775	A1	A2	✱

EFFECTIVITY:
✱✱✱ - QUAL TEST (72)
✱✱ - LTA-5 (15)
✱ - LEM-1 (31) THRU-6 (36) & LTA-8 (18)
△ - LTA-8, LEM-1

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG

REASON FOR EO: TO FACILITATE MANUFACTURING

DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE ✱.

GAEC C EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		SEE ABOVE	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
					CCW	CCW	RMC	
DATE	8-20-66				8/23/66	8/23/66	9-3	8-30-66

PRIORITY: C_2

DRAWING TITLE: —

DRAWING NO.: LEO-280

EO NO.: 240

ISSUED BY LIAISON G. MARTELL x3604 SECTION VDI (DESCENT STAGE) GROUP NO. 335 PL 35

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NAS 9-1100

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 316
CONTROL INFO NO. LDW280A0936

ON THE FOLLOWING DRAWINGS ADD NOTE*:
*) INCONEL KNITTED SLEEVNG TO BE OXIDIZED BY EXPOSURE TO 1650 ±50°F IN AIR FOR FOUR (4) HOURS. FOR LTA5 (15) AND LTA 8 (18) OXIDIZATION IS OPTIONAL

DRAWING:	EFF	CHANGE NO.	TITLE
LDW280-25708	QUAL TEST LM1 THRU LM6 LTA5 & 8	B3	SEE DRAWING
LDW280-28735	LM1 THRU LM6 LTA8	C1	
LDW280-28737	"	A4	
LDW280-28740	"	B1	
LDW280-28743	"	A4	
LDW280-28746	"	B1	
LDW280-28749	"	A6	
LDW280-28752	"	B1	
LDW280-28755	LTA-8 & LM-1	A5	
LDW280-28759	LTA-8 LM-1 THRU LM-6	B1	
LDW280-28764	"	B1	
LDW280-28768	LM-1 &	B1	
LDW280-28771	LTA-8, LM-1 THRU LM-6	B1	
LDW280-28774	"	A6	
LDW280-28803	"	A1	SEE DRAWING
LDW280-28819	"	A1	SEE DRAWING

* - USE NEXT AVAILABLE NUMBER

3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: THERMO REQUIREMENT

DESCRIPTION OF EO: ADDED NOTE *

GAEC C EO RELEASE: 10/18

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	
LM			
LM			

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
				KGM				
DATE				MAT'LS 10/7/66	10/4/66		10/12/66	10/15/66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	316

ISSUED BY AMBROSIO / STRAKOSCH X1153 SECTION V.D.1 GROUP NO. 335 PL 35 EMF

8

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LEO 280 | EO NO. 421
CONTROL INFO NO. LDW280A-4411

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM6	B2	
LDW280-28734	"	A8	
LDW280-28735	"	C3	
LDW280-28746	LTA8(18) LM-1 (31) THRU LM-15(45)	B3	
LDW280-28747	LTA8(18) LM-1 (31) THRU LM-6(36)	B1	
LDW280-28749	"	A7	
LDW280-28750	"	B3	
LDW280-28752	"	B2	
LDW280-28753	"	A3	
LDW280-28755	LTA8(18) LM-1(31)	A7	
LDW280-28756	LTA8(18) LM-1(31) THRU LM-15(45)	A6	
LDW280-28759	LTA8(18) LM-1(31) THRU LM-6(36)	B2	
LDW280-28760	"	B1	
LDW280-28768	LM-1(31)	B2	
LDW280-28769	LM-1(31)	B1	
LDW280-28771	LTA8(18) LM-1(31) THRU LM-6(36)	B2	
LDW280-28772	"	B1	
LDW280-28774	"	A7	
LDW280-28775	"	B2	
LDW280-28803	"	A2	
LDW280-28805	"	A1	
LDW280-51824	LM-1(31) THRU LM-15(45)	A1	
LDW280-51825	"	A2	
LDW280-51829	"	A1	
LDW280-51830	"	A1	
LDW280-51834	"	A1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC280-19

2

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ☐									
REASON FOR EO: LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO			DESCRIPTION OF EO: ADDED NOTE *							GAEC EO RELEASE: K 12/20	
MODEL	EFFECTIVITY		DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY						
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓ REVISE DWG	RECORD EO	NOT REWORK	REQ'D SCRAP	DATE	12/16/66 VDI	12/16/66 ~~SUPPORT~~ THERMO	RELIAB. GROUP
LM		NOTED						1			
GROUP LEADER 12/19/66	STRESS GROUP 12/19/66	LIAISON ENGRG	PROJ ENGRG 12/20	~~GOVT~~ 12/20/66							
PRIORITY: C	DRAWING TITLE: NOTED	DRAWING NO.: LEO 280	EO NO.: 421								

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01 NAS 9-1100

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HG
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMI A

DWG. NO. LDW280-28771
EO NO. B3
CONTROL INFO NO. LM-29-1041

REVERSE PARTS FOR -9 & -11 AS FOLLOWS:
IN F/D & B/M FOR -9 ADD INCONEL KNIT SLEEVING AS REQ
REMOVE LDW280-18125-11 & -13
FOR -11 REMOVE INCONEL KNIT SLEEVING AS REQ.
ADD LDW 280-18125-11 & -13

DELETE -7 ASSY. (LIA B: REF)

✓

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO
CALLOUTS REVERSED
-7ASSY NOT REQD.

DESCRIPTION OF EO
IN B/M & F/D
ON -9, REMOVED LDW280-18125-11 & 13, ADDED "INCONEL KNIT SLEEVING, AS REQD. ON -11, REMOVED "INCONEL KNIT SLEEVING, AS REQD. ADDED LDW280-18125-11 & -13.
DELETED -7ASSY.

GAEC EO RELEASE C
LE
CH

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO
LM	LTA-8(10)	LM-1(31)	THRU
		LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	✓

APPROVED BY	JK				✓	UZ	RMC	LK
DATE	1/25				✓	1-19-67	1-23-67	1-[illegible]
1	VD1	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
629	FOIL [illegible] [illegible] LIQ OX ACCESS - PLUGGE [illegible] SHIELD	LDW280-28771	B3

ISSUED BY LIAISON H. PALLMEYER [illegible] ALTMAN [illegible] SECTION VD1 GROUP NO. 335 PL 35

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMI A

DWG. NO. LDW 280-28771
EO NO. B4
CONTROL INFO NO. LDW280A-5170

IN MODEL BLOCK, B/M & FIELD, REMOVE -7 ASSY,
ADD:- EFF:- -9 LM-7(37) THRU LM-15(45) SAME N/A & QUAN
AS LM-6(36)

v

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE C
ASSY NOT REQUIRED & ADDITIONAL VEHICLE REQUIREMENTS	IN MODEL BLOCK, B/M & FIELD REMOVED -7 ASSY. ADD:-EFF -9 LM-7(37) THRU LM-15(45)	1/28/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
LM		LM-7(37) THRU	
LM		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-7

					GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JAF				JMB	JW		dec	
DATE	1/26/67				1/26/67	1/26/67		1/27/67	
b	VDI	SUPPORT	RELIAB. GROUP						

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	FOIL ASSY~D/S~Q3~LIQ. OX. ACCESS-PLUME IMPINGEMENT SHLD	LDW280-28771	B4

ISSUED BY F. MADDEN/J. STRAKOSCH SECTION VEH. DES. INT GROUP NO. 335 PL 35

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMP-4

GAC 82.2 REV 3-65

DWG NO. LEO280
EO NO. 476
CONTROL INFO NO. LDW280-5542

* TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45). QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280 - 25703	A6	SEE DRAWING
-25704	B1	
-25706	B1	
-25707	B4	
-25708	B6	
-28647	C1	
-28652	B8	
-28669	A3	
-28672	C1	
-28721	A2	
-28727	B2	
-28752	B3	
-28761	A4	
-28762	A1	
-28771	B5	
-28774	A8	
-28776	A1	
-28778	A1	
-28779	A4	
-28803	A3	
-28816	A2	
-28819	A2	
-51560	C1	
-51818	A3	
-51823	A1	
-52723	A5	
LDW280		SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: FR 2/23/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY / DATE: 0

V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
				WJH 2/15/67		RMC 2-16-67	2-17-67

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO280

EO NO.: 476

ISSUED BY M. GREY / J. STRAKOSCH X.1453 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 912
CONTROL INFO NO. LDW280B2751

ON DASH NOS. NOTED * WITH N/A NOTED ** RESTRICT EFFECTIVITY REQUIREMENTS ON THE FOLLOWING DWG. TO LM-1(31) & LM-2(32). PARTS WERE USED ON LM-1(31) THRU LM-15(45)

DWG NO	DASH NO. *	TITLE	N/A **	CHANGE NO.
✓ LDW280-28803	-1	SEE DWG	LDW280-28804	A5
✓ -28805	-7		-28804	A7
✓ -28771	-9		-28770	B6
-28772	-11		-28770	B7
-18083	-15		-28772	A7
-18083	-17		-28772	
-18083	-15		-28805	
-18083	-17		-28805	
-18125	-11		-28771	B3
-18125	-13		-28771	
-18125	-11		-28803	
LDW280-18125	-13	SEE DWG	LDW280-28803	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2360 PKG 18 (5)

REASON FOR EO: PLUME IMPINGEMENT PROTECTION

DESCRIPTION OF EO: RESTRICTED - * WAS USED ON LM-1(31) THRU LM-15(45)

GAEC EO RELEASE: VC 4/8/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY									
DATE	4/3/68	4/3/68		4-4-68	4/3/68		4/3/68	4-8-68
P	VDI	THERMO SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO 280
EO NO.: 912

4.2
ISSUED BY FLANZARO/P. THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25
040568

01 NAS 9-1100

LDW280-28772 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28770	LEM-2(32)	1
LM	LDW280-28770	LEM-1(31)	1

PART NO. LDW280-28772-11

GAEC SCH NO. 52

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00	1.10	2.00		3.00				
REV	B	B	B		B				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED —11

GRUMMAN REL INFO B

PRIM NO. VC(001)

207 MP-16B-8/19/66

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100 LINE ITEM NO 1 DOCUMENTATION TYPE II

DRAWN BY	O'CONNELL	RELIABILITY	
LAYOUT BY			
CHECKED BY			
GROUP LDR	7/15/66		
VEH DES INT			
STRUCTURES	FCB 7/18	PROJ ENGR	7-26
STRUCTURES	Wilderman 7/16	REL GROUP	Bott. 7-26-66
WEIGHTS	7-25		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ASSY
DESCENT STAGE - Q III COMP.
ACCESS P.I. SHIELD - SIDE

SIZE B CODE IDENT NO. 26512 LDW280-28772 B

SCALE NONE SHEET 1.00 OF 4

77.1 12-65

SUPERSEDES LDW280-28772 N/C 7/26/66

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
		3.00							RETRACED N/C (LAST REVISION N/C)				JFM		
A	1							A 1	ADDED NOTE 5 & ADDED RADIUS FOR LOWER RIGHT HAND FILLET	NOTED	✓				
A	2							LEO 280-188	REWROTE SEAMWELD NOTE 4 & ADDED NOTES 6 & 7	NOTED	NOT REQD				
A	3							LEO 280-240	REF LEO 280-118 ADDED PART "C" TO NOTE 7	NOTED	✓				
A	4	1.00 1.10 2.00 3.00						Ⓡ	ADDED SHEET 1.10 SHEET 1 OF 4 WAS SHEET 1 OF 3 - ADDED -5, -7, & -9 ASSY, REMOVED -1 & -3 ASSY	NOTED		-1 -3	JFM 9-16-66	RMC	9-21-66
B	1	3.00						LEO280-421	ADDED NOTE #6 "MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19".	LTA-8, LM-1 THRU LM-6	NOT REQD		B. A[illegible] 7-16-68 H.D.		
	2	1.00, 3.00						EO B2	ON -7 ADDED SYMBOL FOR LAP DIRECTION. CORRECT DIRECTION OF SECT D-D(2). ADDED LM-7 THRU LM-15 EFF FOR -7.	LM-1(31) THRU LM-15(45)	NOT REQD				
	3	1.00, 2.00, 3.00						EO B3	FOR -7 REMOVED LM-2 THRU LM-15 EFF ADDED -11	LM-2 THRU LM-15		-7			
	4	1.00					✓	EO B4, LCD 928	REMOVED -7 ASSY. ON -11 ADDED LM-1(31) REQMTS.	LM-1(31)		-7			
	5	1, 2, 3.					✓	LEO 280-530	IN MODEL BLOCK FOR -5 DELETED LTA-8(18) EFF.	LTA-8(18)		-5			
	6	2.00 3.00					✓	LEO 280-559	REMOVED LDW 280-17970-47 FROM B/M & FLD. REVISED EXISTING NOTE #6 BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E".	LM-1(31) THRU LM-15(45)	NOT REQD				
	7	1.00		P		✓		LEO 280-912 LCD-2360	RESTRICTED -11 WITH N/A LDW 280-28770 TO LM-1(31) & LM-2(32) WAS USED ON LM-1(31) THRU LM-15(45).	LM-3 THRU LM-15		-11			
	8	1.00, 2.00, 3.00		②					REF EO B3 ADD -11 SKIN ASSY IDENT TO -9 S/B IDENT TO -7 H.D.	LM-2 THRU LM-15		-7 8-13-68	J. AVILES 8-6-68	8-7-68	8-14-68

CHG APPROVED

LTR	~~GROUP LDR~~	VDI	STRUCT	STRUCT	WEIGHTS	THERMO
A		9/9/66	9/12			9/10/66
B						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28772	B Ⓑ

SCALE NONE SHEET 1.10

ENG 77.16 3-66

0 1

NAS 9-1100

QTY PER ASSEMBLY					-9	-11	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					1			GT15B-6	E	TAPE	GRUMMAN STD						
					1			GT15B-3	E	TAPE	GRUMMAN STD						
					1			GT15B-1	E	TAPE	GRUMMAN STD						
						1		LDW280-18083-17	E	ANGLE	SEE DWG						
						1		LDW280-18083-15	E	ZEE	SEE DWG						
						1		LDW280-28772-9	E	SKIN ASSY	(WELDED)				FLW		
								LDW280-28772-11	E	SKIN ASSY					FLW		

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE	
							WELDING	LSP14-6102

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

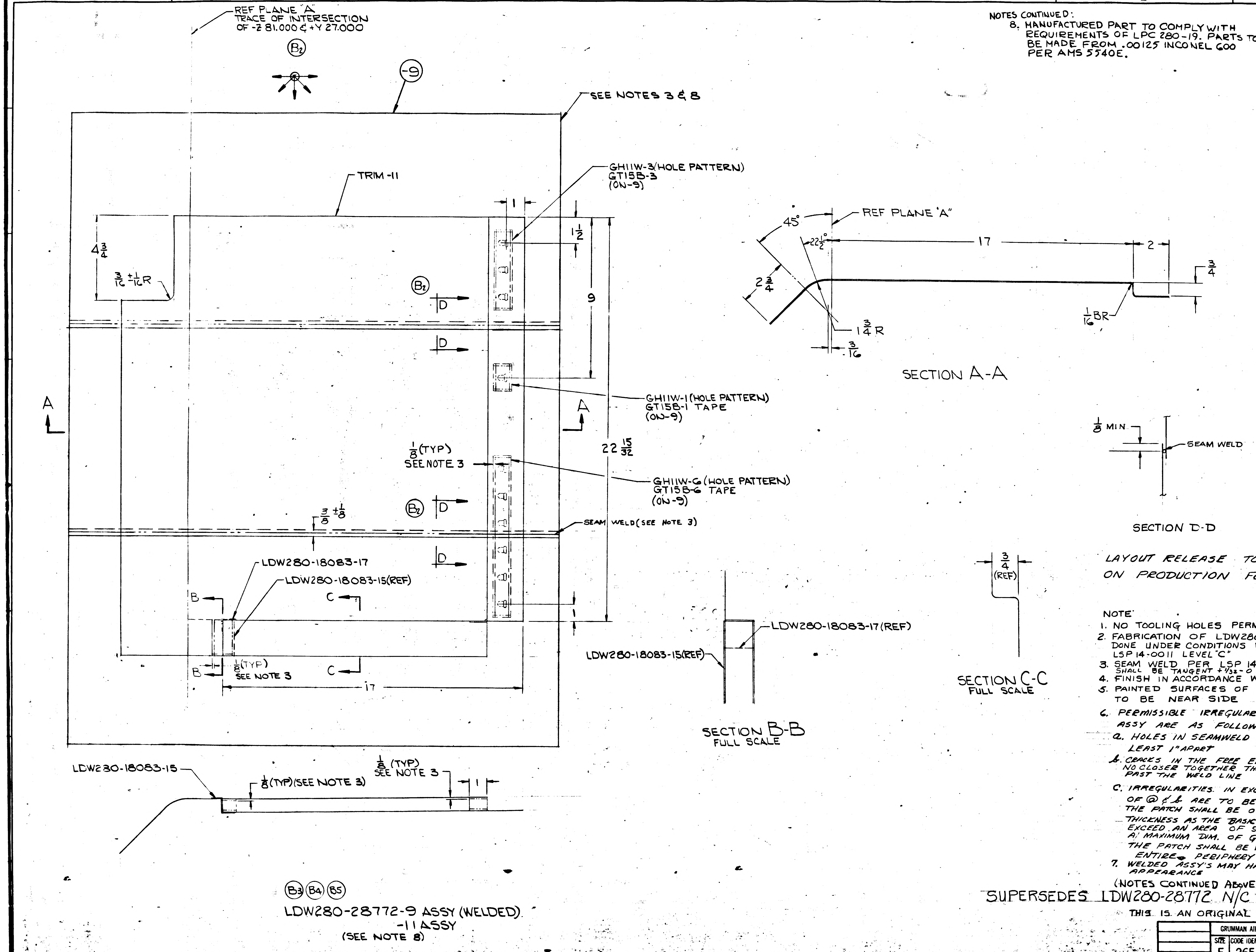
SIZE B | CODE IDENT NO. 26512 | LDW280-28772 | B

SCALE NONE | SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



REF PLANE 'A' TRACE OF INTERSECTION OF -Z 81.000 ℄ +Y 27.000
B2
-9
SEE NOTES 3 & 8
TRIM -11
GH11W-3 (HOLE PATTERN) GT15B-3 (ON-9)
1
1 1/2
4 3/4
3/16 +1/16 R
9
B2
D
D
A
A
GH11W-1 (HOLE PATTERN) GT15B-1 TAPE (ON-9)
22 15/32
1/8 (TYP) SEE NOTE 3
GH11W-6 (HOLE PATTERN) GT15B-6 TAPE (ON-9)
B2
D
3/8 ±1/8
SEAM WELD (SEE NOTE 3)
D
LDW280-18083-17
LDW280-18083-15(REF)
B
C
B
1/8 (TYP) SEE NOTE 3
C
17
1
LDW280-18083-15
1/8 (TYP) (SEE NOTE 3)
1/8 (TYP) SEE NOTE 3
1
45°
22 1/2°
REF PLANE "A"
17
2
3/4
2 3/4
1/16 BR
1 3/4 R
3/16
SECTION A-A
1/8 MIN.
SEAM WELD
SECTION D-D
3/4 (REF)
SECTION C-C
FULL SCALE
LDW280-18083-17(REF)
LDW280-18083-15(REF)
SECTION B-B
FULL SCALE
B3 B4 B5

LDW280-28772-9 ASSY (WELDED)
-11 ASSY
(SEE NOTE 8)

NOTES CONTINUED:

8. MANUFACTURED PART TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED

TOLERANCE ON LOFTED DELINEATIONS IS

LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT

NOTE

1. NO TOOLING HOLES PERMITTED IN PARTS
2. FABRICATION OF LDW280-28772-11 TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP 14-0011 LEVEL "C"
3. SEAM WELD PER LSP 14-6102 EXCEPT SPOTS SHALL BE TANGENT +1/32 -0
4. FINISH IN ACCORDANCE WITH LPC 280-5
5. PAINTED SURFACES OF LDW280-28772-11 TO BE NEAR SIDE
6. *PERMISSIBLE IRREGULARITIES IN WELDED ASSY ARE AS FOLLOWS*
   - *a. HOLES IN SEAMWELD ROWS UP TO 1/8 MAX & AT LEAST 1" APART*
   - *b. CRACKS IN THE FREE EDGE OF WELDED JOINTS NO CLOSER TOGETHER THAN 1/8 & NOT EXTENDING PAST THE WELD LINE*
   - *C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF ⓐ & ⓑ ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SA[illegible] MAT'L & THICKNESS AS THE BASIC SKIN. BU[illegible] SHALL NOT EXCEED AN AREA OF 9 SQ IN & SHALL NOT HAVE A MAXIMUM DIM. OF GREATER [illegible]N 5 INCHES. THE PATCH SHALL BE WELDED ([illegible]am) AROUND ENTIRE PERIPHERY*
7. *WELDED ASSY'S MAY HAVE RAND[illegible] WRINKLED APPEARANCE*

(NOTES CONTINUED ABOVE)

SUPERSEDES LDW280-28772 N/C OF 7/26/66

THIS IS AN ORIGINAL DW

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK		
	SIZE F	CODE IDENT NO. 26512	W280-28772 B
LM			
MODEL OR END ITEM	SCALE 1/2		SHEET 3.0

01

NAS 9-1100

01

NAS 9-1100

HG

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280		EO NO. 240	
CONTROL INFO NO. LEM-2-2642			

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE *.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LDW 280-25703	A4	A5	*, **, ***
-25704	A3	A4	*, **, ***
-25705	B5	C2	*, **
-25706	A3	A5	*, **, ***
-25707	B1	B2	*, **, ***
-28730	A1	A5	*
-28734	A1	A4	*
-28735	A1	B1	*
-28737	A1	A2	*
-28738	A1	A2	*
-28740	A1	A2	*
-28741	A1	A2	*
-28743	A1	A2	*
-28744	A1	A2	*
-28746	A1	A2	*
-28747	A1	A2	*
-28749	A1	A2	*
-28750	A1	A2	*
-28755	A1	A3	△
-28756	A1	A3	△
-28759	A1	A3	*
-28760	A1	A2	*
-28764	A1	A2	*
-28765	A1	A2	*
-28771	A2	A3	*
-28772	A2	A3	*
-28774	A1	A2	*
LDW 280 -28775	A1	A2	*

EFFECTIVITY:
*** - QUAL TEST (72)
** - LTA-5 (15)
* - LEM-1 (31) THRU -6 (36) & LTA-8 (18)
△ - LTA-8, LEM-1

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	
REASON FOR EO: TO FACILITATE MANUFACTURING			DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE *.		GAEC EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
LEM		SEE ABOVE		✓		✓	

APPROVED BY	JHS				CAW	CAW	RMC	
DATE	9/16/66				8/23/66	8/23/66	9-3	8-30-66
8-20-66	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C_2	—	LEO-280	240

ISSUED BY LIAISON G. MARTELL x3604 SECTION VDI (DESCENT STAGE) GROUP NO. 335 PL 35

8

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO.	LEO 280	EO NO.	421
CONTROL INFO NO.	LDW280A-4411		

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM6	B 2	
LDW 280-28734	"	A 8	
LDW 280-28735	"	C 3	
LDW 280-28746	LTA8(18) LM-1 (31) THRU LM-15(45)	B 3	
LDW280-28747	LTA8 (18) LM-1 (31) THRU LM-6(36)	B 1	
LDW280-28749	"	A 7	
LDW280-28750	"	B 3	
LDW280-28752	"	B 2	
LDW280-28753	"	A 3	
LDW280-28755	LTA 8 (18) LM-1 (31)	A 7	
LDW280-28756	LTA8(18) LM-1(31) THRU LM-15(45)	A 6	
LDW280-28759	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28760	"	B 1	
LDW280-28768	LM-1(31)	B 2	
LDW280-28769	LM-1(31)	B 1	
LDW280-28771	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW 280-28772	"	B 1	
LDW280-28774	"	A 7	
LDW280-28775	"	B 2	
LDW 280-28803	"	A 2	
LDW 280-28805	"	A 1	
LDW280-51824	LM-1(31) THRU LM-15(45)	A 1	
LDW280-51825	"	A 2	
LDW280-51829	"	A 1	
LDW280-51830	"	A 1	
LDW280-51834	"	A 1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: K 12/20

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	REQ'D
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	AB				JKS					
DATE	12/16/66	12/16/66			12/19/66	12/16/66		12/20	12-20-66
1	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	421

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01
NAS 9-1100

B

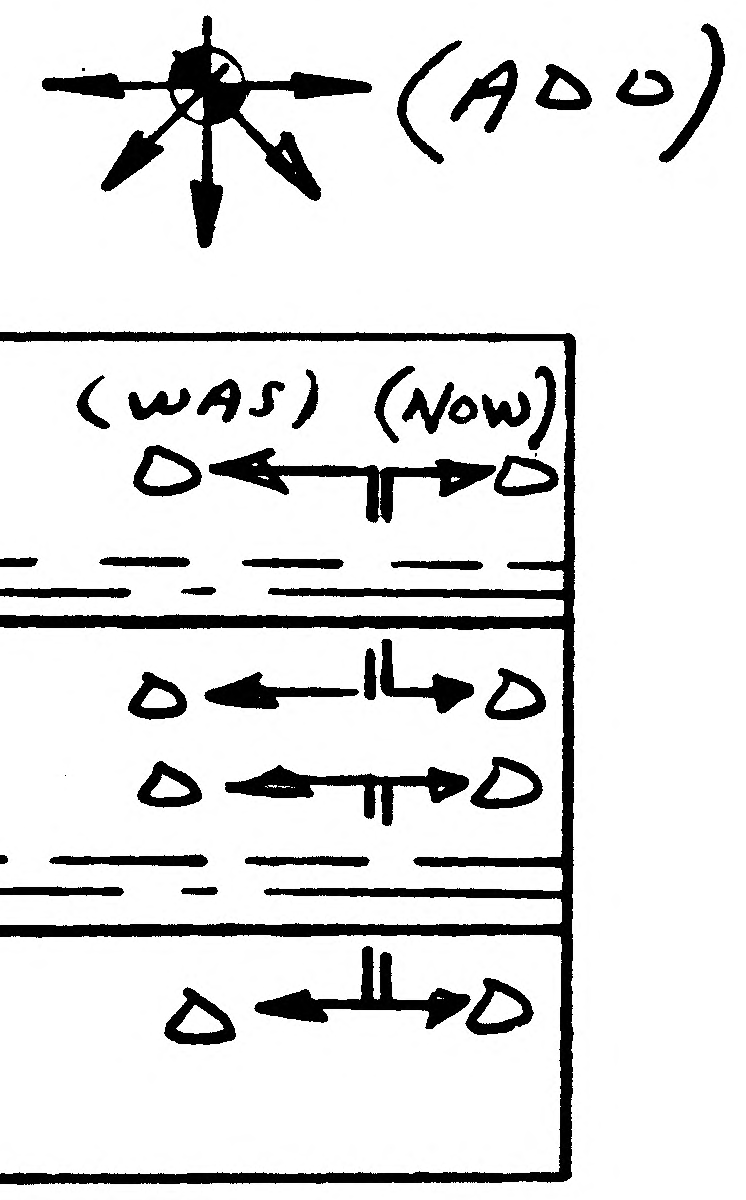
ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28772		EO NO.	B2
CONTROL INFO NO. LDW280A4561			



IN MODEL BLOCK,
MODULE EFFECTIVITY
FOR LDW-28772-7
(WAS) LM-1(31) THRU LM-6(36)
(NOW) LM-1(31) THRU LM-15(45)

(SAME) { LDW280-28772-7 ASSY
LDW280-28772-9 ASSY (WELDED)

* THIS CHANGE HAS BEEN INCORPORATED ON LM-1(31)

THERMAL SHLD
2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: TO PROVIDE COMPLETE FABRICATION & INSPECTION INFO.

DESCRIPTION OF EO: ADDED LM-7 THRU LM-15 EFF. ON -7
ADDED SYMBOL FOR LAP FOR -7
DIRECTION. CORRECT DIRECTION OF
SECT D-D (2)

GAEC EO RELEASE: 1/6/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		Not Reqd	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY									
DATE	1/3/67	1/3/67		1/3/67	1/3/67		1-4-67	1/5/67
5	VDI	SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY - D/S QUAD III COMP. ACCESS P. SHIELD - SIDE	LDW280-28772	B2

ISSUED BY E. ROESSLER x1153 12-21-66 SECTION VEH DES GROUP NO. 335 PL 35

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NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-28772		EO NO. B3
CONTROL INFO NO. LDW280A-5494		

IN F/D & L/M FOR-7 REMOVE LM-2(32) THRU LM-6(36) EFF
ADD-11 SKIN ASSY IDENTICAL TO -9 EXCEPT REMOVE ALL
GT15B--- & GH11W---. MATL FOR-11 - INCONEL 600 .00125 THICK
PER AMS 5540E

EFF FOR-11 LM-2(32) THRU LM-15(45)
N/A FOR-11 · LDW280-28770 1 REQD

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LCR 928 - IMPROVE PAINT ADHESION	FOR-7 REMOVED LM-2 THRU LM-15 EFF ADDED -11 (B)	C JK 3/3/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32) THRU	LM-15(45)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY		Jaf			—	[illegible]			Bott.
DATE		2/24/67			—	2/24/67		2/28/67	3-2-67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY DES STAGE QUAD III COMPONENT ACCESS	LDW280-28772	B3

ISSUED BY G. ZEMAN/ J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

c

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28772
EO NO. B4
CONTROL INFO NO. LDW280A5832

REMOVE -7 ASSY
ON-11 ADD LM-1(31) REQMTS, N/A LDW280-28770, 1 REQ'D PER MODULE.

5

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCR 928

REASON FOR EO: IMPROVE PAINT ADHESION. LCR 928

DESCRIPTION OF EO: REMOVED -7 ASSY ON-11 ADDED LM-1 (31) REQMTS.

GAEC EO RELEASE: c/ c LE 3/14/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE 5	3/7/67			3/7/67	3/8/67		3-14-67	3/14/67

PRIORITY: C

DRAWING TITLE: SKIN ASSY ~ D.S. ~ QUAD III COMPONENT ACCESS

DRAWING NO.: LDW280-28772

EO NO.: B4

ISSUED BY Gus HANSMANN X1153 SECTION V.D.I. GROUP NO. 280 PL 35

NAS 9-1100

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B P8.

ENG 22.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 530
CONTROL INFO NO. LM-2-3459

IN MODEL BLOCK, FOR DRAWINGS & DASH NUMBERS LISTED BELOW, DELETE LTA-8(18) EFFECTIVITY.

DRAWING NUMBER	DASH NUMBER	CHANGE NUMBER	TITLE
LDW280-28772 ✓	-5	B5	SEE DRAWING
LDW280-28803	-1	A4	↕
LDW280-28804	-1	A5	
LDW280-28805	-1	A5	SEE DRAWING

(*) ADD APPLICABLE DASH NUMBER IN DESCRIPTION OF CHANGE

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	2

REASON FOR EO: LTA-8(18) EFFECTIVITY NO LONGER REQUIRED

DESCRIPTION OF EO: IN MODEL BLOCK, FOR DASH (*), DELETED LTA-8(18) EFFECTIVITY.

GAEC EO RELEASE: R C JK 02131

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~DCMS~~
APPROVED BY				~	MSI	Ctf	RMC	
DATE	4/13/67			~	3/29/67	3/29/67	4-3-67	3/29/67
-1-	V.D.I.							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 530

ISSUED BY LIAISON J. MALONEY 3/28/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280		EO NO. 559	
CONTROL INFO NO. LDW 280A 6306			

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW·
REMOVE LDW280-17970·ALL DASH NUMBERS AND ADD
"SEE NOTE *"
IN F/D REMOVE LDW280-17970-ALL DASH NUMBERS

REVISE NOTE *
(REF) "MANUFACTURED PARTS TO COMPLY WITH
REQUIREMENTS OF LPC 280-19."
(ADD) PARTS TO BE MADE FROM .00125 INCONEL
600 PER AMS 5540 E.

DRAWING No.	CHANGE#	SYMBOL	EFFECTIVITY	TITLE
LDW280-18130	A7	⬡	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW280-18141	A3	⬡	LM-1 THRU LM-15	
LDW 280-28730	B7	□	LTA-8 LM-1 THRU LM-3	
LDW 280-28734	B2	□	LTA-8 LM-1 THRU LM-3	
LDW280-28738	A7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28740	B3	□	LTA-8 LM-1	
LDW 280-28741	A6	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28744	A7	□	LTA-8 LM-1 THRU LM-6	
LDW 280-28747	B4	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28750	39	□	LTA-8 LM-1 THRU LM-15	
LDW280-28753	A5	□	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	□	LTA-8 LM-1 THRU LM-15	
LDW280-28760	B5	□	LTA-8 LM-1 THRU LM-3	
LDW280-28765	A7	⬡	LTA-8 LM-1 THRU LM-6	
LDW280-28769	B2	□	LM-1	
LDW 280-28772	B6	□	LM-1 THRU LM-15	
LDW280-28775	B7	□	LTA-8 LM-1 THRU LM-15	
LDW 280-28805	A6	□	LM-1 THRU LM-15	
LDW 280-28806	A4	□	LTA-8 LM-1 THRU LM-15	
LDW 280-51824	A3	□	LM-1 THRU LM-15	SEE DWG

NOTE Δ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY WITH LPC 280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM □ REVISE NOTE *.
FOR SYM ⬡ ADD NOTE Δ TO DWG

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐							GAEC EO RELEASE 5 C	
REASON FOR EO: UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE				DESCRIPTION OF EO: REMOVED LDW280-17970 FROM B/M & F/D (ALL DASH NO'S) FOR DWG'S □ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ⬡ ADDED NOTE Δ								JS 4-14-7	
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY					
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓ REVISE DWG	RECORD EO	NOT REWORK	REQ SCRAP	DATE 4/10/67		4/10/67	4/10/67	4/13	4-18-67
LM		NOTED ABOVE						6	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP
												LIAISON ENGRG	PROJ ENGRG
				PRIORITY C	DRAWING TITLE NOTED							DRAWING NO. LEO 280	EO NO. 559

ISSUED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

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01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 912
CONTROL INFO NO. LDW280B2751

ON DASH NOS. NOTED * WITH N/A NOTED ** RESTRICT EFFECTIVITY REQUIREMENTS ON THE FOLLOWING DWG. TO LM-1(31) & LM-2(32). PARTS WERE USED ON LM-1(31) THRU LM-15(45)

DWG NO	DASH NO. *	TITLE	N/A * *	CHANGE NO.
✓ LDW280-28803	-1	SEE DWG	LDW280-28804	A5
✓ -28805	-7		-23804	A7
✓ -28771	-9		-28770	B6
✓ -28772	-11		-28770	B7
-18083	-15		-28772	A7
-18083	-17		-28772	
-18083	-15		-28805	
-18083	-17		-28805	
-18125	-11		-28771	B3
-18125	-13		-28771	
-18125	-11		-28803	
LDW280-18125	-13	SEE DWG	LDW280-28803	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2360 PKG 18 (5)

REASON FOR EO: PLUME IMPINGEMENT PROTECTION

DESCRIPTION OF EO: RESTRICTED - * WAS USED ON LM-1 (31) THRU LM-15(45)

GAEC EO RELEASE: VC 4/8/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY									
DATE	4/3/68	4/3/68		4-1-68	4/3/68		4/3/68	4-8-68
P	VDI	THERMAL SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO 280
EO NO.: 912

G.2
ISSUED BY F. LANZARO/P. THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25
040568

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NAS 9-1100

LDW280-28773 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW 280-28561	LM-3(33)	1 EA
↕	LDW 280-28561	LM-2(32)	1 EA
LM	LDW 280-28561	LM-1(31)	1 EA
PART NO. LDW280-28773-11 & 13		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28561	LTA-8(18)	1
PART NO. LDW280-28773-3 & 5		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED A

LAST DASH NO. USED -13

GRUMMAN REL INFO A

PRIM NO. 207 JK(001) MP-1A 8/1/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .030 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM I
DOCUMENTATION TYPE II

DRAWN BY	C.CASTELLANO 7-15-66	RELIABILITY	
LAYOUT BY	B. MAJUK C. CASTELLANO		
CHECKED BY	XXXX		
GR LEADER	7/15/66		
VEH DES INT	7/16		
STRUCTURES	7/16	PROJ ENGR	7-26
STRUCTURES	Hitterman 7/16	REL GROUP	
WEIGHTS	7-15		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSY
D/S-QUAD IV E.PS BATTERY-PLUME IMPINGEMENT-THERMAL

SIZE B CODE IDENT NO. 26512 LDW280-28773 A

SCALE NONE SHEET 1.00 OF 4

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	3.00,1.00 & 2.00						EO-A1	ADDED -5 ASSY. .ON-3 ADDED LDW 280-17932-13(8) & LDW 280-23720-3(8) REMOVED LDW 280-17932-11 (8), LDW280-23720-1(8) & LEM-1(31) THRU LEM-6(36) EFF. ADDED-7 & -9 ASSY. IN SECT "A A" ADDED DIRECTION OF STAPLE OPTIONAL. REMOVED-1 EFF. LTA-8(18), LEM-1 THRU LEM-6(36) ADDED SH. 1.10	LTA-8(18) LEM-1(31) THRU LEM-6(36)		-1,-3	W. MARS 7-26-68		
	2	3.00,200					✓	EO-A2	REVISED-3 ASSY & -5 ASSY TO CORRESPOND WITH LDW 280-28774 & LDW 280-28775	LTA-8(18)	✓				
	3	3.00,200					✓	EO-A3	ON-3 ASSY REMOVED LDW280-28774-3 & ADDED LDW 280-28774-17; ON-5 ASSY REMOVED LDW 280-28774-1 ADDED LDW 280-28774-15	LTA-8(18)	✓				
	4	3.00,200						EO-A4	REF. EO A1 ON-7 ADD LDW 280-28775-9 (WAS)-5 ON-9 ADD LDW280-28775-11 (WAS)-7	LM-1(31) THRU LM-6(36)	NOT	REQD			
	5	3.00,100 & 2.00					✓	EO-A5	FOR-7 & -9 REMOVED LM-2 THRU LM-6 EFF, ADDED NOTE #4, ADDED GS11K-1-46, GS11K-2-700, GS11K-3-700, GS577A-1 & GT835P-8, ADDED-11 & -13	LM-1(31) THRU LM-15(45)	✓	✓			
	6	3.00,200,						EO-A6	REFERENCE EO-A5: ON-11 & -13, LDW 280-28775-13 & -15 REPLACED LDW280-28775-9 & 11, WAS REPLACED LDW 280-28775-11 & -13	LM-2(32) THRU LM-15(45)	✓				
	7	3.00,1.00					✓	EO-A7	REVISED EOA5. REMOVED-7 & -9 WAS REMOVE LM-2 THRU LM-15 EFF. ADDED LM-1 EFF FOR-11 & -13	LM-1(31) THRU LM-6(36)	✓	✓			
	8	2.00					✓	LEO 280-589 LCD-928	ON LDW280-28773-11 & 13 REPLACED GS577A-1 WITH GS577A-4	LM-1(31) THRU LM-3(33)	✓				
	9	1.00				✓		LEO280-793 LCD 2011-CCA668	FOR LDW 280-28773-11 & -13, REMOVED LM-4 THRU LM-15 REQMTS.	LM-4(34) THRU-LM-15(45)		-11 -13	H.D.		

CHG APPD	LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS	RELIABILITY					
	A											

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28773	A
SCALE	NONE	SHEET	1.10

FOR CONTINUATION OF REVISIONS SEE SHEET ______

ENG 77.3 5-66

01

NAS 9-1100

QTY PER ASSEMBLY -13	-11	-5	-3	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AR	AR			GS577A-1	E		STAPLE	GRUMMAN STD.						
1	1			GS11K-3-700			TAB STRIP							
	1			GS11K-2-700			TAB STRIP							
1	1			GS11K-1-46			TAB STRIP	GRUMMAN STD.						
AR	AR			GT835P-8			TAPE	GRUMMAN STD						
8	12	12	8	LDW280-17932-13			WASHER	SEE DWG						
8	12	12	8	LDW280-23720-3			STAPLE ASSY							
1				LDW280-28775-15			SKIN ASSY							
	1			LDW280-28775-13										
			1	LDW280-28775-3										
		1		LDW280-28775-1			SKIN ASSY							
1			1	LDW280-28774-17			FOIL ASSY							
	1	1		LDW280-28774-15			FOIL ASSY							
				LDW280-28774-3			FOIL ASSY	SEE DWG						
				LDW280-28773-13			SHIELD ASSY					NONE	NONE	
				LDW280-28773-11										
				LDW280-28773-5										
				LDW280-28773-3	E		SHIELD ASSY					NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28773	A Ⓐ
SCALE NONE			SHEET 2.00

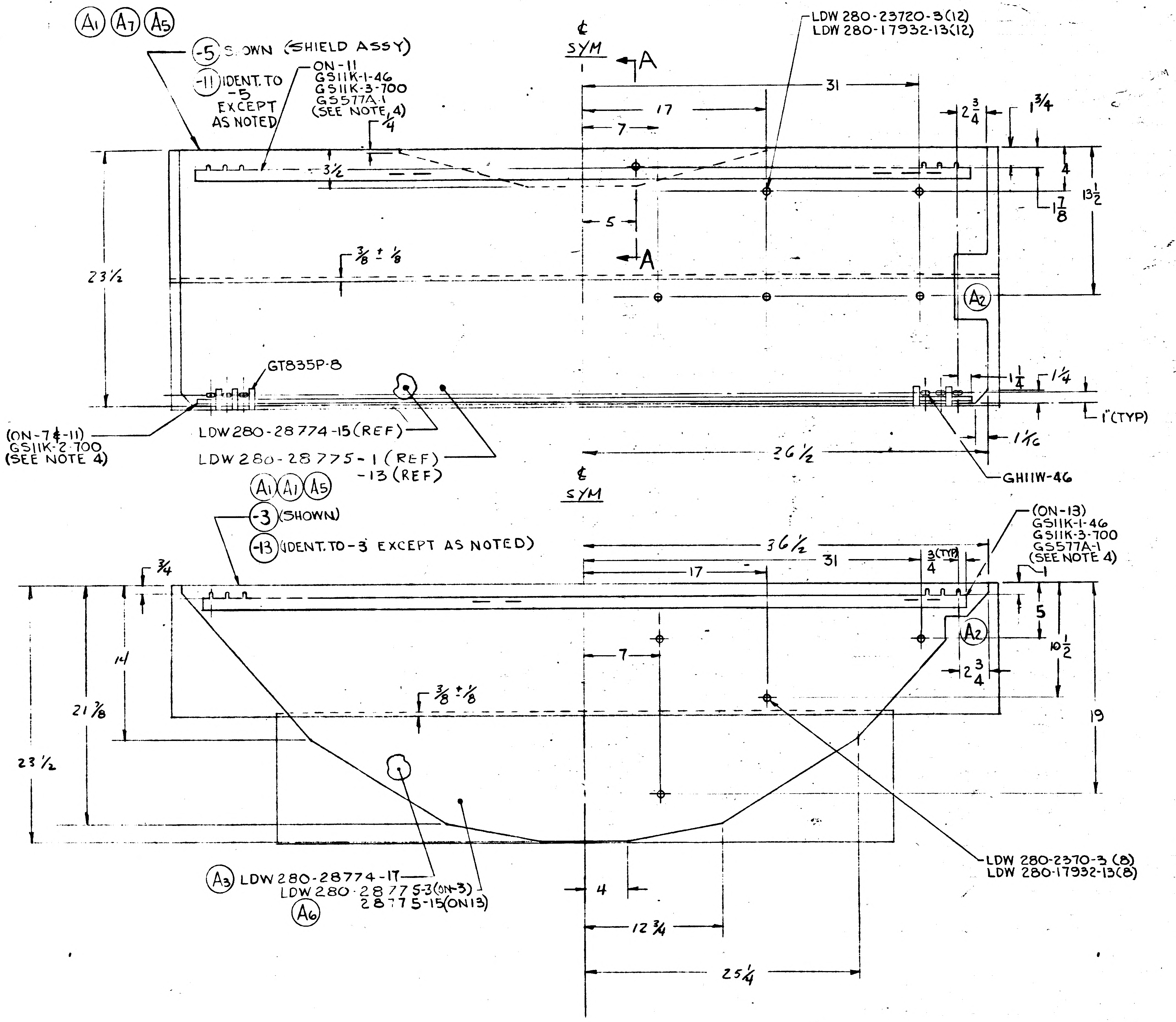
ENG 77.2 5-64

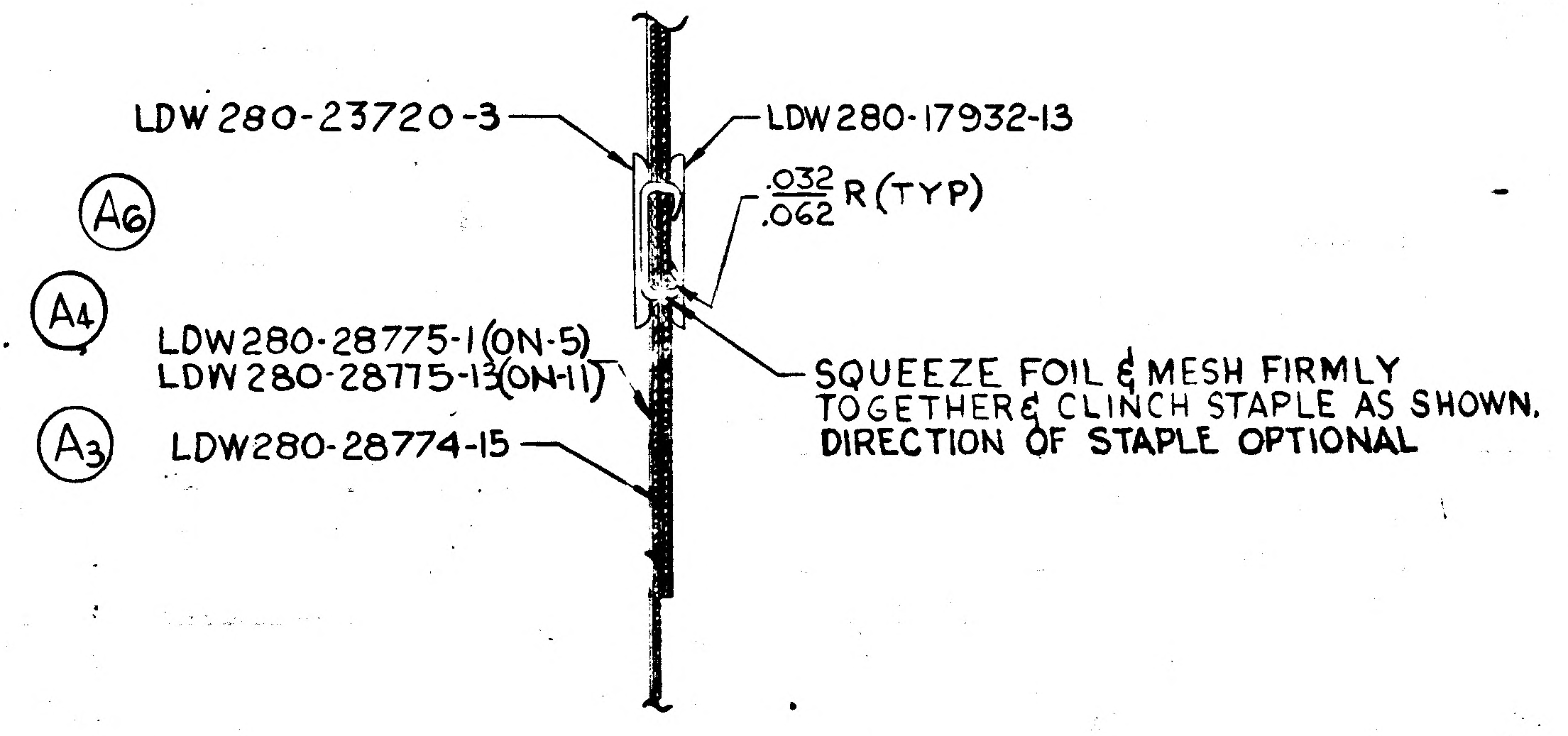
01

NAS 9-1100

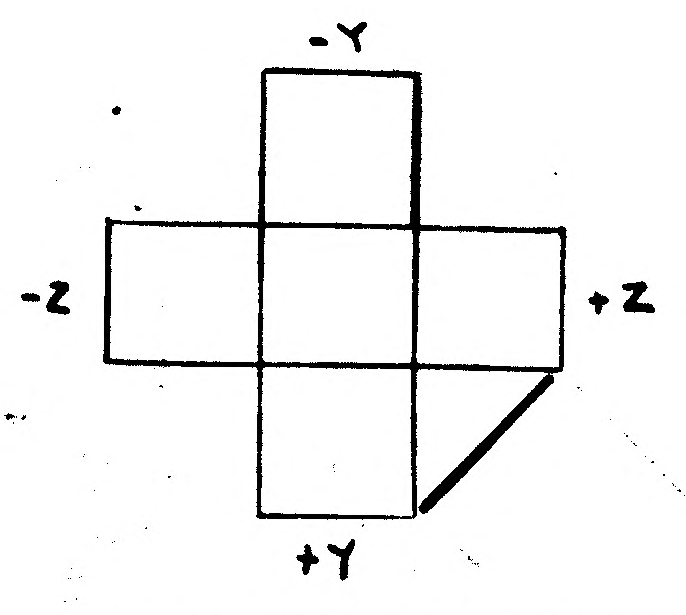
NOTE

1. THIS IS A LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT
2. ALL INFORMATION NOT REQ'D TO MANUFACTURE LDW280-28773-1 & -3 IS REF INFORMATION ONLY
3. FABRICATION OF SHIELD ASSY TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP-14-0011 LEVEL 'C'.
4. FABRICATE PER LPC 280-25


A1 A7 A5
-5 SHOWN (SHIELD ASSY)
-11 IDENT. TO -5 EXCEPT AS NOTED
ON-11
GS11K-1-46
GS11K-3-700
GS577A-1
(SEE NOTE 4)
1/4
3 1/2
23 1/2
3/8 ± 1/8
GT835P-8
(ON-7 & -11)
GS11K-2-700
(SEE NOTE 4)
LDW280-28774-15 (REF)
LDW280-28775-1 (REF)
-13 (REF)
℄ SYM
A
LDW 280-23720-3 (12)
LDW 280-17932-13 (12)
31
17
7
5
2 3/4
1 3/4
4
1 7/8
13 1/2
A2
1 1/4
1 1/4
1" (TYP)
1 1/16
26 1/2
GH11W-46
A1 A1 A5
-3 (SHOWN)
-13 (IDENT. TO -3 EXCEPT AS NOTED)
3/4
(ON-13)
GS11K-1-46
GS11K-3-700
GS577A-1
(SEE NOTE 4)
36 1/2
3/4 (TYP)
1
5
10 1/2
2 3/4
14
21 7/8
19
A3 LDW280-28774-17
LDW280-28775-3 (ON-3)
28775-15 (ON 13)
A6
LDW 280-2370-3 (8)
LDW 280-17932-13 (8)
4
12 3/4
25 1/4


LDW280-23720-3
LDW280-17932-13
.032/.062 R (TYP)
A6
A4
LDW280-28775-1 (ON-5)
LDW280-28775-13 (ON-11)
A3
LDW280-28774-15
SQUEEZE FOIL & MESH FIRMLY TOGETHER & CLINCH STAPLE AS SHOWN. DIRECTION OF STAPLE OPTIONAL

SECT A-A (A1)
(NO SCALE)
TYP (8) PLACES -3 & 13
TYP (12) PLACES -5 & 11



ENGINEERING REF ONLY
NO SCALE

01 NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

- PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.
- FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030
- DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.
- EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.
- DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.
- MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.
- DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING
- HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.
- ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES
- 125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10
- 200 √ FOR ALL DRILLED HOLES
- REMOVE ALL BURRS. BREAK ALL EDGES .015-.031
- INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS
- SYMBOL √ DENOTES SURFACE TO BE MACHINED
- UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32
- LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.
- TOLERANCE ON LOFTED DELINEATIONS IS

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	F	26512	LDW280-28773	A

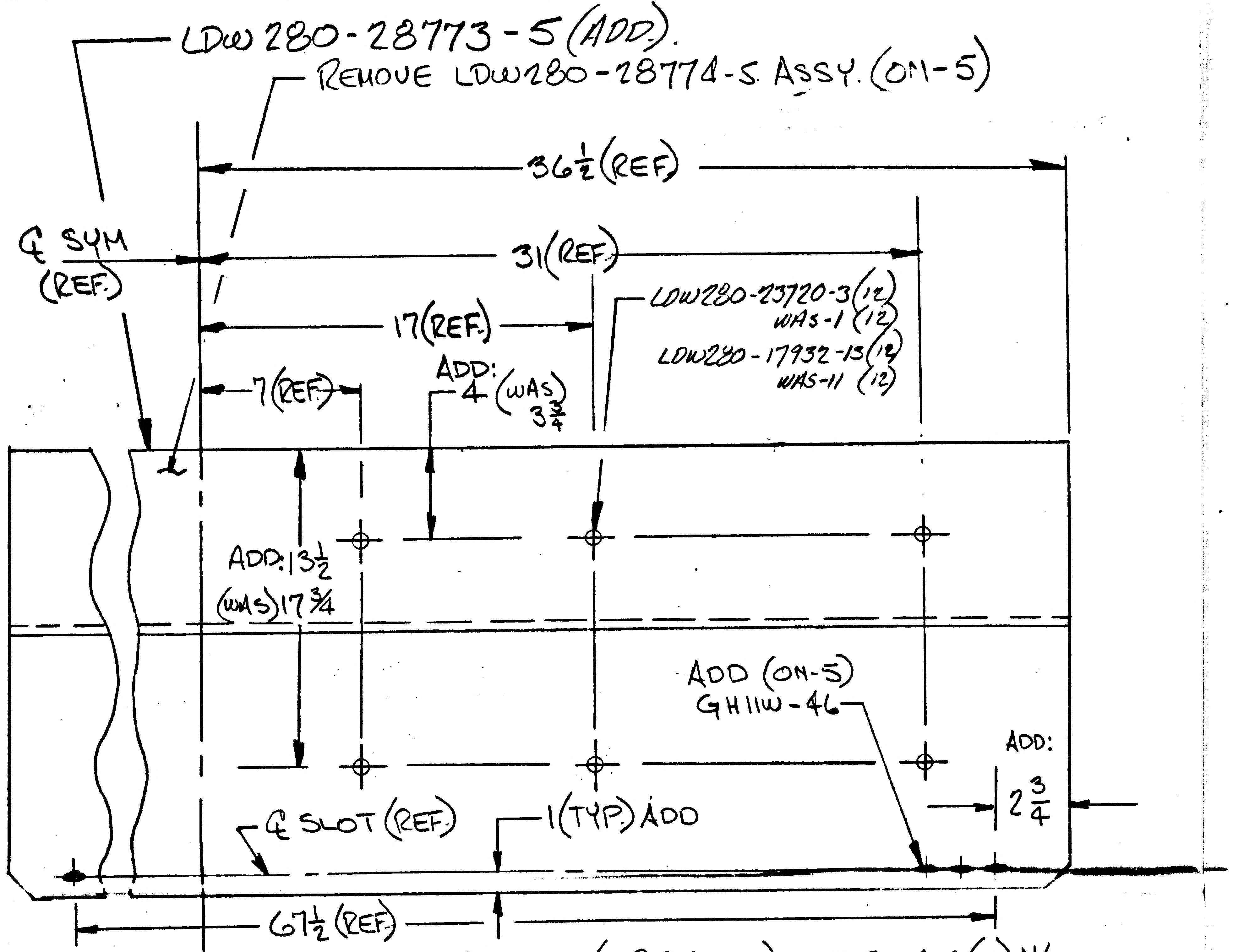
SCALE AS NOTED

SHEET

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28773
EO NO. A1
CONTROL INFO NO. LDW280A0363



LDW 280-28773-5 (ADD).
REMOVE LDW280-28774-5 ASSY. (ON-5)
36½ (REF.)
℄ SYM (REF.)
31 (REF.)
LDW280-23720-3 (12) WAS-1 (12)
LDW280-17932-13 (12) WAS-11 (12)
17 (REF.)
ADD: 4 (WAS) 3¾
7 (REF.)
ADD: 13½ (WAS) 17¾
ADD (ON-5) GH11W-46
ADD: 2¾
℄ SLOT (REF.)
1 (TYP.) ADD
67½ (REF.)

ADD-5 ASSY IDENTICAL TO -1 EXCEPT AS NOTED (-5 REPLACES -1). -5 EFF LTA-8 (18) N/A LDW 280-28561 ~ 1 REQ'D/MODULE (REMOVE -1 EFF LTA8 (18) LEM-1 (31) THRU LEM-6 (36).

ON-5 ADD LDW 280-17932-13 (12), LDW 280-23720-3 (12) & GH11W-46, REMOVE LDW 280-23720-1 (12) & LDW280-28774-5 (1) & LDW280-17932-11 (12).

ON-3 ADD LDW280-17932-13 (8) & LDW 280-23720-3 (8), REMOVE LDW280-17932-11 (8), LDW 280-23720-1 (8) & LEM-1 (31), LEM-2 (32) LEM-3 (33), LEM-4 (34), LEM-5 (35) & LEM-6 (36) EFF.

ADD -7 & -9 ASSY IDENTICAL TO -5 & -3 ASSY RESPECTIVELY EXCEPT AS NOTED.

ON-7 ADD LDW280-28775-5 (1) & REMOVE LDW 280-28775-1 (1).

ON-9 ADD LDW280-28775-7 (1) & REMOVE LDW 280-28775-3 (1).

-7 & -9 EFF LEM-1 (31), LEM-2 (32), LEM-3 (33), LEM-4 (34), LEM-5 (35), LEM-6 (36), N/A LDW 280-28561 ~ 1 EA REQD/MODULE.

IN SECTION A-A ADD: DIRECTION OF STAPLE OPTIONAL.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL THERMAL REQMTS.

DESCRIPTION OF EO: ADDED -5 ASSY. ON-3 ADDED LDW 280-17932-13 (8) & LDW 280-23720-3 (8) REMOVED LDW280-280-17932-11 (8) LDW 280-23720-1 (8) & LEM-1 (31) THRU LEM-6 (36) EFF. ADDED -7 & -9 ASSY. IN SECT A-A ADDED DIRECTION OF STAPLE OPTIONAL. REMOVED -1 EFF LTA-8 (18), LEM-1 THRU LEM-6 (36).

GAEC EO RELEASE: 2 FK 9/29/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LEM		LTA-8 (18) LEM-1 (31)	LEM-2 (32)
LEM		LEM-3 (33) LEM-4 (34)	LEM-5 (35)
LEM		LEM-6 (36).	

DRAWING CHANGE REQD: REVISE DWG ☐ RECORD EO ☐

DISPOSITION OF PARTS: REWORK ✓ SCRAP -1, -3

APPROVED BY	JRS	M.S.	SR		WJA		RMC (EW)	
DATE	11/15/66	10/25/66	10 4		11/16/66		9-29	9/28/66
	V.D.I.	~~SUPPORT~~ THERMO	RELIAB. GROUP	~~GROUP~~ LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: SHIELD ASSY ~ D.S. ~ QUAD IV ~ E.P.S. BATTERY ~ PLUME IMPINGEMENT ~ THERMAL

DRAWING NO. LDW280-28773

EO NO. A1

ISSUED BY Gus HANSMANN Y1153 SECTION V.D.I. GROUP NO. 280 PL 35 EMF

01

NAS 9-1100

B H.G.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMP-A

DWG. NO.	LDW280-28773	EO NO.	A6
CONTROL INFO NO.	LM-2-3388		

THIS IS A REVISION OF EO-A5

-11 & -13 ARE IDENTICAL TO -7 & -9 RESPECTIVELY
EXCEPT LDW280-28775-13 & -15 REPLACE LDW280-28775-11 & -13
SHOULD BE
EXCEPT LDW280-28775-13 & -15 REPLACE LDW280-28775-9 & -11

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

2 C

REASON FOR EO: LCR-928 TO IMPROVE PAINT ADHESION
INCORRECT DASH NUMBER

DESCRIPTION OF EO: REFERENCE EO-A5
ON -11 & -13, LDW280-28775-13 & -15 REPLACED
LDW280-28775-9 & -11, WAS REPLACED LDW280-28775-11 & -13

GAEC EO RELEASE: JK 02131

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	JAS				PBS	Ctf	RMC	
DATE	3/20/67				3/9/67	3/9/67	3-13-67	3-9-67
-5-	V01	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSEMBLY~DESCENT STAGE QUAD IV ECS BAT PLUME SHIELD	LDW280-28773	A6

ISSUED BY LIAISON J. MALONEY 3/7/67 x3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-28773		EO NO. A7
CONTROL INFO NO. LDW280A-5701		

THIS IS A REVISION OF EO AS LDW280-28773

REMOVE -7&-9 (WAS FOR-7&-9 REMOVE LM-2(32) THRU LM-6(36) EFF)
ADD -11&-13 EFF LM-1(31) THRU LM-15(45) (WAS EFF LM-2(32) THRU LM-15(45))

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LCR-928 IMPROVE PAINT ADHESION	REVISED EO AS. REMOVED-7&-9 WAS REMOVE LM-2 THRU LM-15 EFF. ADDED LM-1 EFF FOR-11&-13	C JK 3/13/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-1(31) THRU	
		LM-6(36)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP	APPROVED BY								
✓		✓	✓	DATE 3/6/67			3/4/67	3/6/67		3-11-67	3-13-67
				5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY DES STAGE QUAD III SIDE REMOVABLE	LDW280-28773	A7

ISSUED BY G. ZEMAN/J. STRAMOSCH SECTION VDI GROUP NO. 335 PL. 35

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NAS 9-1100

B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

ENG 32.2 REV 3-66

DWG. NO. LEO 280		EO NO. 589	
CONTROL INFO NO. LDW280A6772			

ON THE DWGS LISTED BELOW IN L/M & F/D AT INSTL OF ALL GS11K-1--- TAB STRIPS REMOVE GS577A-1 & ADD GS577A-4 STAPLE

DWG No *	EFF	CHANGE No	TITLE
LDW280-28559-5	LM-1(31)	B3	
LDW280-28665-5	LM-1(31)	B10	
LDW280-28733-3	LM-1(31) THRU LM-3(33)	A4	
LDW280-28736-5 & -7	LM-1(31) THRU LM-15(45)	A5	
LDW280-28748-11, -13 & -15	LM-1(31) THRU LM-15(45)	A10	
LDW280-28754-7 & -9	LM-1(31) THRU LM-15(45)	A9	
LDW280-28758-5 & -7	LM-1(31) THRU LM-3(33)	B3	SEE
LDW280-28770-5	LM-1(31) THRU LM-15(45)	B5	
LDW280-28773-11 & -13	LM-1(31) THRU LM-3(33)	A8	
LDW280-28804-5	LM-1(31) THRU LM-15(45)	A6	
LDW280-28817-7	LM-1(31) THRU LM-15(45)	A4	DWG
LDW280-51742-3	LM-1(31)	A4	
LDW280-51831-1	LM-1(31) THRU LM-15(45)	A2	
LDW280-52739-3	LM-2(32) THRU LM-15(45)	A2	
LDW280-52742-1, -3, -5, -7, -9 & -11	LM-2(32) THRU LM-15(45)	A7	
LDW280-52763-9 & -11	LM-2(32) THRU LM-15(45)	A5	
LDW280-52767-1 & -3	LM-2(32) THRU LM-15(45)	B3	
LDW280-53600-3 & -5	LM-3(33)	A3	
LDW280-54605-1	LM-4(34) THRU LM-15(45)	A2	
LDW280-54714-1	LM-4(34) THRU LM-15(45) & DES. VER. 70	A5	
LDW280-54733-1	LM-4(34) THRU LM-15(45)	A2	
LDW280-54758-1 & -3	LM-4(34) THRU LM-15(45)	A1	
LDW280-54784-1	LM-4(34) THRU LM-15(45) & DES. VER. 70	A2	
LSK280-10993-17, -19 & -21	DES. VER. 70	A4	

CDR = 5/10/67

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LED 928

REASON FOR EO: TO PROVIDE CORRECT STAPLE CALLOUT

DESCRIPTION OF EO: ON * REPLACED GS577A-1 WITH GS577A-4

Ⓡ GAEC EO RELEASE: JK 5/9/? 2 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		(NOTED ABOVE)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY						W		Dam	
DATE	5/4/67					5/4/67		5/6/67	5/8/67
	5	VDI							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 589

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280
EO NO. 793
CONTROL INFO NO. LDW280B0053

FOR THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS* THAT ARE EFF ON LM-4(34), REMOVE LM-4(34) THRU LM-15(45) REQMTS.

DRAWING NO. *	NEXT ASSY	TITLE	CHG NO.
LDW280-28561	LDW280-54553	SEE DWG	C5
-28773	-28561		A9
-28774	-28773		B1
-28775	-28773		B8
-28820	-28561		B2
-28819	-28820		A3
-18129	-28820		A4
-28776	-28561		A2
P17465	-28776		B3
P17514	-28776		B1
P17516	-28776		B4
P17535	-28776		B3
-28669	-54553		B1
-18239	-28561		A2
-54777			A2
P17496			A8
M17698			B7
P17479			A9
P17946			B3
P17967			B10
P18091			A3
-28757	-28561		B1
LDW280	LDW280	SEE DWG	

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG ✓ *LCD 2011 CCA668

(5)

REASON FOR EO: REDESIGN OF THERMAL SHIELDING FOR EQUIP STOWAGE.

DESCRIPTION OF EO: FOR *, REMOVED LM-4 THRU LM-15 REQMTS

B ® GAEC EO RELEASE C: JK 11/8/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY									
DATE	11/7/67			11-6-67	11/7/67		11/7/67	11-7-67
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO280

EO NO.: 793

11-10

ISSUED BY S.TAMRES/P.THORJUSEN x7033 SECTION VDI GROUP NO. 335 PL 25

LDW280-28774 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
	LDW280-28758	LM-15(45)	
	LDW280-28758	LM-14(44)	
	LDW280-28758	LM-13(43)	
	LDW280-28758	LM-12(42)	
	LDW280-28758	LM-11(41)	
	LDW280-28758	LM-10(40)	
	LDW280-28758	LM-9(39)	
	LDW280-28758	LM-8(38)	
	LDW280-28758	LM-7(37)	
	LDW280-28758	LM-6(36)	
	LDW280-28758	LM-5(35)	
	LDW280-28758	LM-4(34)	
LM	LDW280-28758	LM-3(33)	1
	LDW280-28758	LM-2(32)	1
	LDW280-28758	LM-1(31)	1
	LDW280-28758	LTA8(18)	1
	LDW280-28748	LM-2(32)	1
LM	LDW280-28748	LM-1(31)	1

PART NO. LDW280-28774-5

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28773	LTA8(18)	1EA

PART NO. LDW280-28774-15&-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28773	LM-3(33)	1EA
LM	LDW280-28773	LM-2(32)	1EA
LM	LDW280-28773	LM-1(31)	1EA
		52	

PART NO. LDW280-28774-1&-3

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00	1.10					
REV	B	B	B	B					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	B	GRUMMAN REL INFO B	
LAST DASH NO. USED	-21	PRIM NO. 207	7F. 001 MP-1B 12/7/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 ±.030 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	W MAJUK	RELIABILITY	
LAYOUT BY	W. MAJUK	THERMO	8/10/66
CHECKED BY			
GRP LD	7/14/66		
VDI	7/16		
STRUCT	7/16	PROJ ENGR	7-26
STRUCT	7/16	REL GROUP	7-29-66
WEIGHTS	7-25		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL ASSY-DS-QUAD IV-ECS BATTERY-PLUME IMPINGEMENT SHIELD-SIDE

SIZE B
CODE IDENT NO. 26512
LDW280-28774 B
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.10 & 3.00						LEO 280-188	REWROTE SEAMWELD NOTE & ADDED NOTE 6 (ADDED SH 1.10)	LTA-8, LM-1 THRU LM-6	NOT	REQD	I. SCOTT 11-29-67		
	2	3.00						LEO280-240	REF LEO 280-188, ADDED PART "C" TO NOTE 6		✓				
	3	1.00, 1.10, 2.00, 3.00					✓	EO A3	CREATED -15 & -17 ASSY IDENT TO -1 & -3 ASSY EXCEPT AS NOTED. REMOVED LTA-8(18) EFF FROM -1 & -3 ASSY, ADDED LTA-8 EFF ON -15 & -17 ONLY, CUTOUT DIM 15 3/4, 3, 4 3/4, 9 3/4 & 3.						
	4	1.00 3.00						EO A4	ON -1 ADDED 11 1/2 & 19 1/4 WAS 23 1/2. REMOVED -5 REQMT. FOR N/A LDW280-28773 & LDW280-28739 EFF LTA-8(18) LM-1(31) THRU LM-6(36).		✓	-5			
	5	1.00 2.00 3.00					✓	EO A5	REF EO A3, CREATED LDW280-28774-19, -21 IDENT TO -7 & -9 EXCEPT FOR CUTOUT ON RIGHT HAND SIDE.	LTA 8	NOT	REQD			
	6	3.00						LEO280-316	ADDED NOTE 7.	LTA-8 LM-1 THRU LM-6	✓				
	7	3.00						LEO280-421	ADDED NOTE 8.	LTA-8, LM-1 THRU LM-6	NOT	REQD			
	8	1.00						LEO280-476	FOR -1, -3, -15, -17 & -5 ADDED LM-7 THRU LM-15 EFF.	LM-7 THRU LM-15.					
B	1	1.00 1.10		S		✓		LCD 2011 CCA 668 LEO 280-793	FOR -1-3-15, & -17 REMOVED LM-4 THRU LM-15 REQMTS.	LM-4 THRU LM-15		✓			
	2	1.00		P		✓		LCD 1244 EO B2	IN M/B FOR -5 N/A LDW280-28748, RESTRICTED -5 TO LM-1 & LM-2. REMOVED LM-3 THRU -15 EFF.	LM-3 THRU LM-15		-5			
	3						✓	EO B3 A.B	CORRECTED CHANGE NUMBER FOR LEO 280-793 B2 WAS B1	LM-4 THRU LM-15	NOT	REQD	FZ CE		

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY
A						
B						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28774	B
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

-21	-19	-17	-15	-13	-11	-9	-7	-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								AS REQD.	AS REQD	AS REQD	94725	MESH	E	INCONEL KNITTED SLEEVING	SEE NOTE 4						
				2				1				LDW280-17950-31		FOIL SHEET	SEE DWG						
												LDW280-17950-37	E	FOIL SHEET	SEE DWG						
	1											LDW280-17950-11	E	FOIL SHEET	SEE DWG						
		1										LDW280-28774-21	E	FOIL ASSY	SEE DWG						
			1									-19	E	FOIL ASSY							
												-17	E	FOIL ASSY (WELD)							
												-15	E	FOIL ASSY (WELD)							
1						1						-13	E	FOIL SHEET ASSY					FLW		
	1						1					-11	E	FOIL SHEET ASSY					FLW		
									1			-9	E	FOIL ASSY							
										1		-7	E	FOIL ASSY							
												-5	E	FOIL ASSY (WELD)					FLW		
												-3	E	FOIL ASSY (WELD)					FLW		
												LDW280-28774-1	E	FOIL ASSY (WELD)					FLW		

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELD	LSP-14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28774	B

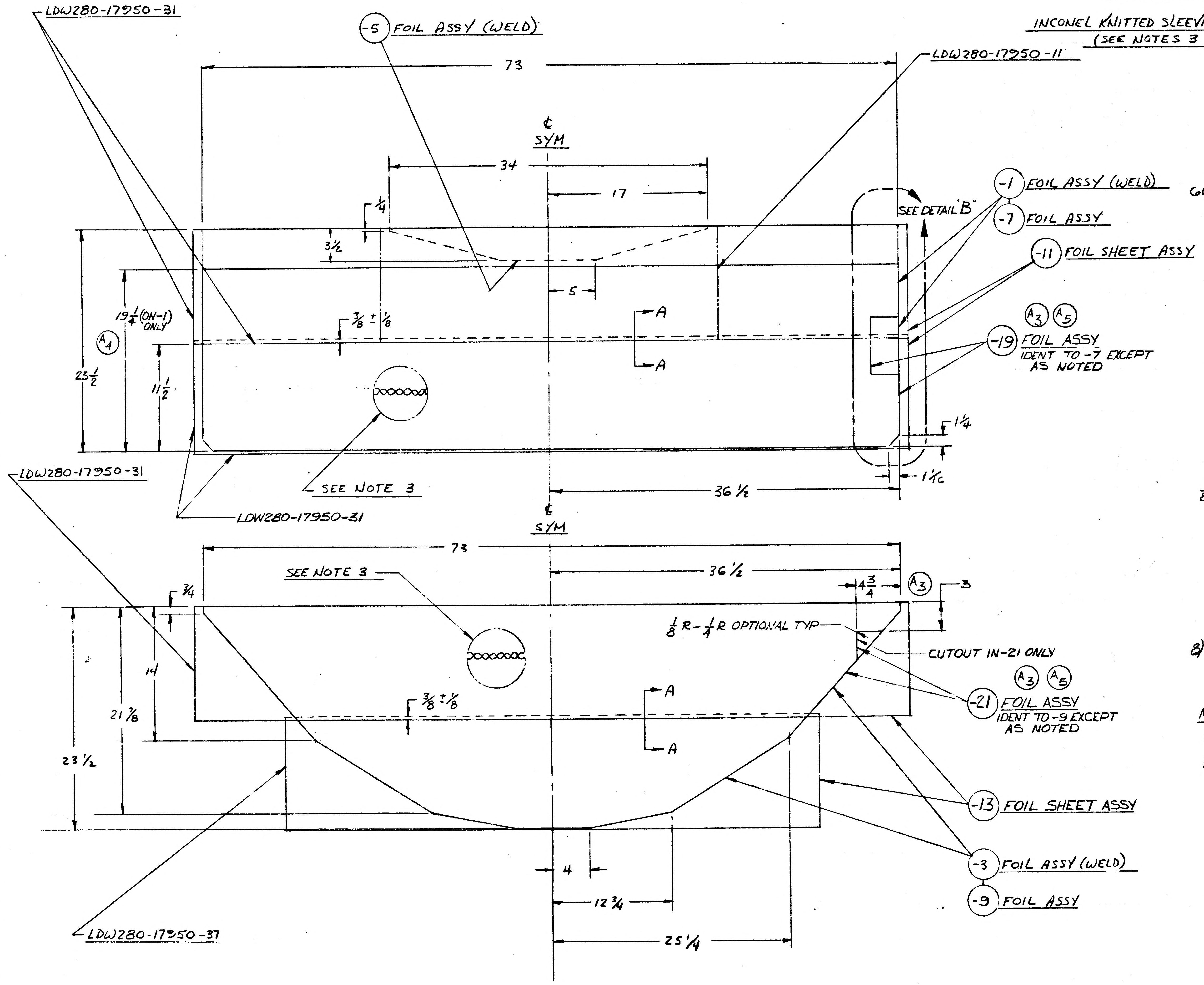
SCALE NONE

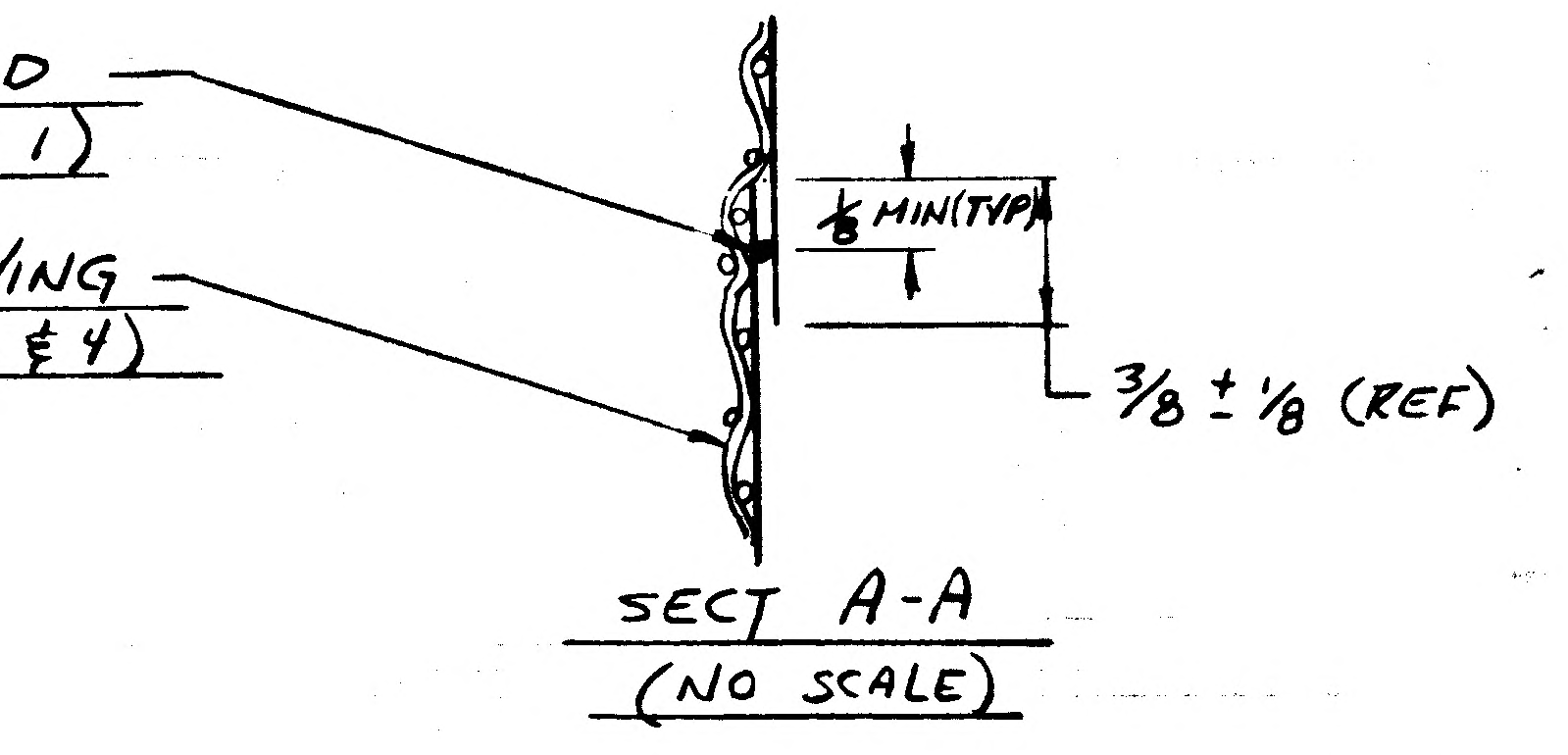
SHEET 2

Ⓑ

01

NAS 9-1100


LDW280-17950-31
-5 FOIL ASSY (WELD)
73
LDW280-17950-11
℄ SYM
34
17
1/4
3 1/2
5
SEE DETAIL "B"
-1 FOIL ASSY (WELD)
-7 FOIL ASSY
-11 FOIL SHEET ASSY
A3 A5
-19 FOIL ASSY
IDENT TO -7 EXCEPT AS NOTED
19 1/4 (ON-1) ONLY
A4
25 1/2
11 1/2
3/8 ± 1/8
A
A
1 1/4
1 1/16
LDW280-17950-31
SEE NOTE 3
36 1/2
LDW280-17950-31
℄ SYM
73
SEE NOTE 3
36 1/2
3/4
4 3/4
A3
3
1/8 R - 1/4 R OPTIONAL TYP
CUTOUT IN-21 ONLY
14
21 7/8
23 1/2
3/8 ± 1/8
A
A
A3 A5
-21 FOIL ASSY
IDENT TO -9 EXCEPT AS NOTED
-13 FOIL SHEET ASSY
-3 FOIL ASSY (WELD)
-9 FOIL ASSY
4
12 3/4
25 1/4
LDW280-17950-37

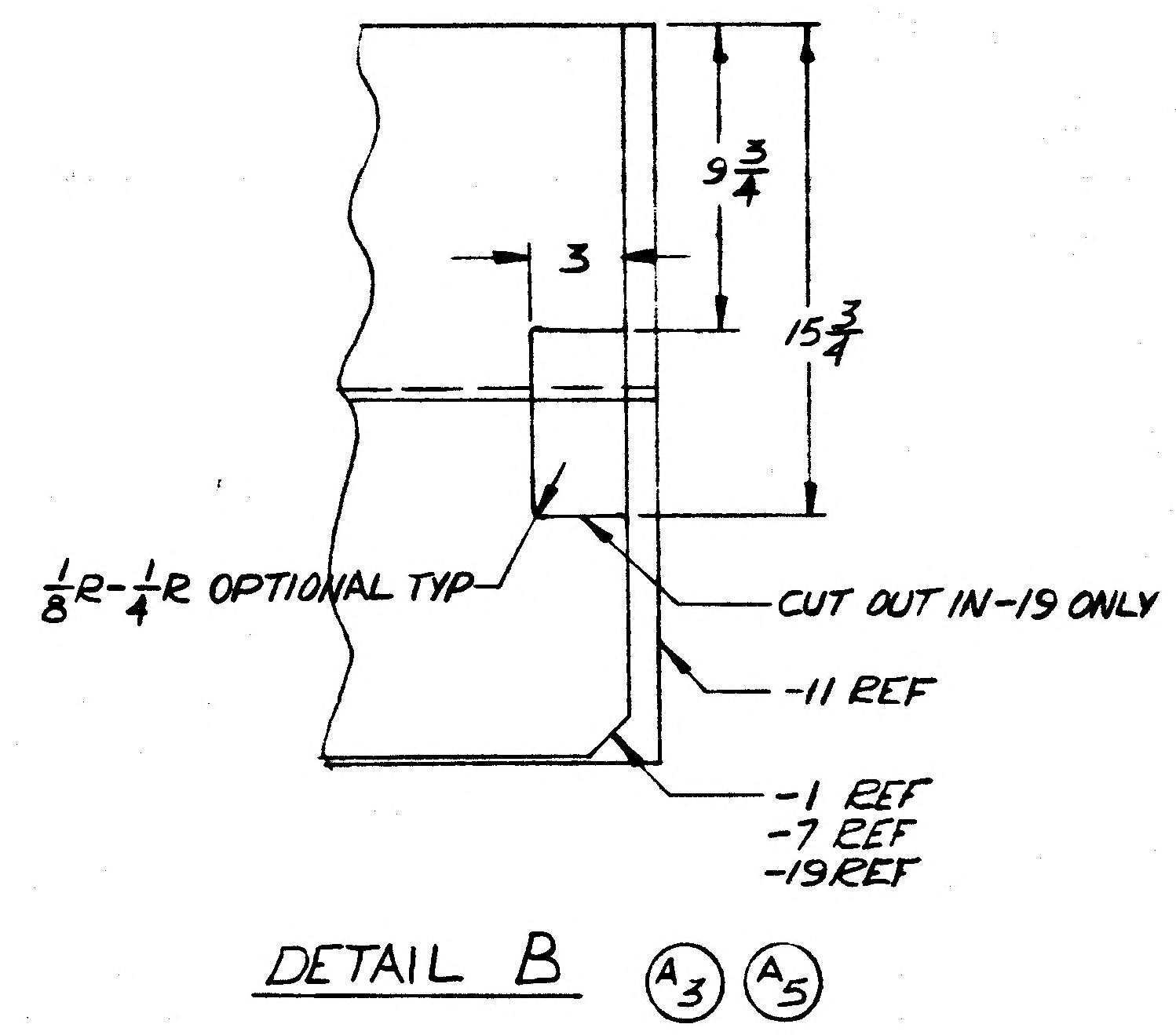

SEAM WELD (SEE NOTE 1)
INCONEL KNITTED SLEEVING (SEE NOTES 3 & 4)
1/8 MIN (TYP)
3/8 ± 1/8 (REF)

SECT A-A
(NO SCALE)

CONTINUATION OF NOTES:

6C: SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSON OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED(SEAM) AROUND ENTIRE PERIPHERY.

7) IN CONEL KNITTED SLEEVING TO BE OXIDIZED BY EXPOSURE TO 1650 ± 50° IN AIR FOR FOUR (4) HOURS. FOR LTA5(15) AND LTA-8(18) OXIDATION IS OPTIONAL.


9 3/4
3
15 3/4
1/8 R - 1/4 R OPTIONAL TYP
CUT OUT IN-19 ONLY
-11 REF
-1 REF
-7 REF
-19 REF

DETAIL B (A3) (A5)

8) MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19

NOTES:

1) SEAM WELD PER LSP-14-6102, EXCEPT THAT SPOTS SHALL BE TANGENT +1/32-0.

2) FABRICATION OF FOIL ASSY TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP-14-0011 LEVEL 'C'.

3) WELD INCONEL KNITTED SLEEVING TO FOIL SHEET PER LDW280-17522.

4) INCONEL KNITTED SLEEVING TO BE 6 TO 8 INCHES WHEN FLATTENED. WIRE TO BE .0035 TO .0040 INCH DIA. ROUND "INCONEL 600" ALLOY KNIT PATTERN SQUARE TYPE 5 TO 7 SQUARES PER LINEAR INCH. MAY BE PURCHASED FROM MONTGOMERY METAL FABRIC CO., WINDSOR LOCKS, CONN., 59 CANEL ST. (CODE IDENT 94725)

5) THIS IS A LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT.

6) PERMISSIBLE IRREGULARITIES IN WELDED ASSYS ARE AS FOLLOWS:
A. HOLES IN THE SEAMWELD ROW UP TO 1/8 MAX & AT LEAST 1" APART.
B. CRACKS IN THE FREE EDGE OF WELDED JOINTS NO CLOSER TOGETHER THAN 1/8" & NOT EXTENDING PAST THE WELD LINE.
C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (A) & (B) ARE TO BE COVERED WITH A PATCH THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC (FOR CONTINUATOIN SEE THE TOP OF THIS SHEET)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

011 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE F	CODE IDENT NO. 26512	LDW280-28774	B
LM				
MODEL OR END ITEM	SCALE 1/5 NOTED			SHEET 3

LDW280-28774

PART NO. LDW280-28774-5

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28758	LEM-6(36) LEM-5(35)	1 1
		LEM-4(34)	1
		LEM-3(33)	1
		LEM-2(32)	1
		LEM-1(31)	1
	LDW280-28758	LTA-8(18)	1
	LDW280-28748	LEM-6(36)	1
		LEM-5(35)	1
		LEM-4(34)	1
		LEM-3(33)	1
		LEM-2(32)	1
		LEM-1(31)	1
	LDW280-28748	LTA-8(18)	1
	LDW280-28739	LEM-6(36)	1
		LEM-5(35)	1
		LEM-4(34)	1
		LEM-3(33)	1
		LEM-2(32)	1
		LEM-1(31)	1
	LDW280-28739	LTA-8(18)	1
	LDW280-28773	LEM-6(36)	1
		LEM-5(35)	1
		LEM-4(34)	1
		LEM-3(33)	1
		LEM-2(32)	1
		LEM-1(31)	1
LEM	LDW280-28773	LTA-8(18)	1

PART NO. LDW280-28774-3

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28773	LEM-6(36)	1
		LEM-5(35)	1
		LEM-4(34)	1
		LEM-3(33)	1
		LEM-2(32)	1
		LEM-1(31)	1
LEM	LDW280-28773	LTA-8(18)	1

PART NO. LDW280-28774-1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO. 52	REQD PER MODULE OR END ITEM
LEM	LDW280-28773	LEM-6(36)	1
		LEM-5(35)	1
		LEM-4(34)	1
		LEM-3(33)	1
		LEM-2(32)	1
		LEM-1(31)	1
LEM	LDW280-28773	LTA-8(18)	1

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00						
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED: A

LAST DASH NO. USED: -13

GRUMMAN REL INFO

PRIM NO.	FS (001)	7-19-6
207	MP	x

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 ±.030 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	W. MAJUK	RELIABILITY	
LAYOUT BY	W. MAJUK	THERMO	5/16/66
CHECKED BY			
GRP LD	7/14/66		
VDI	7/16		
STRUCT	7/15	PROJ ENGR	7-26
STRUCT	7/16	REL GROUP	7-29-66
WEIGHTS	7-25		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL ASSY-DS-QUAD IV-ECS BATTERY-PLUME IMPINGEMENT SHIELD-SIDE

SIZE B
CODE IDENT NO. 26512
LDW280-28774
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

HG

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LEO-280	EO NO.	240
CONTROL INFO NO.	LEM-2-2642		

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE *.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LOW 280-25703	A4	A5	*,**,***
-25704	A3	A4	*,**,***
-25705	B5	C2	*, **
-25706	A3	A5	*,**, ***
-25707	B1	B2	*,**,***
-28730	A1	A5	*
-28734	A1	A4	*
-28735	A1	B1	*
-28737	A1	A2	*
-28738	A1	A2	*
28740	A1	A2	*
-28741	A1	A2	*
-28743	A1	A2	*
-28744	A1	A2	*
-28746	A1	A2	*
-28747	A1	A2	*
-28749	A1	A2	*
-28750	A1	A2	△
-28755	A1	A3	△
-28756	A1	A3	*
-28759	A1	A3	*
-28760	A1	A2	*
-28764	A1	A2	*
-28765	A1	A2	*
-28771	A2	A3	*
-28772	A2	A3	*
-28774	A1	A2	*
LOW 280 -28775	A1	A2	*

EFFECTIVITY:
*** - QUAL TEST (72)
** - LTA-5 (15)
* - LEM-1 (31) THRU -6 (36) & LTA-8 (18)
△ - LTA-8, LEM-1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO
TO FACILITATE MANUFACTURING

DESCRIPTION OF EO
REF LEO 280-118
ADDED PART "C" TO NOTE *.

GAEC C EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM 1		SEE ABOVE	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY					CAW	CAW	RMC	
DATE					8/23/66	8/23/66	9-3	8-30-66
8-20-66	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C₂

DRAWING TITLE: —

DRAWING NO.: LEO - 280

EO NO.: 240

ISSUED BY LIAISON G. MARTELL x3604 SECTION VDI (DESCENT STAGE) GROUP NO. 335 PL 35

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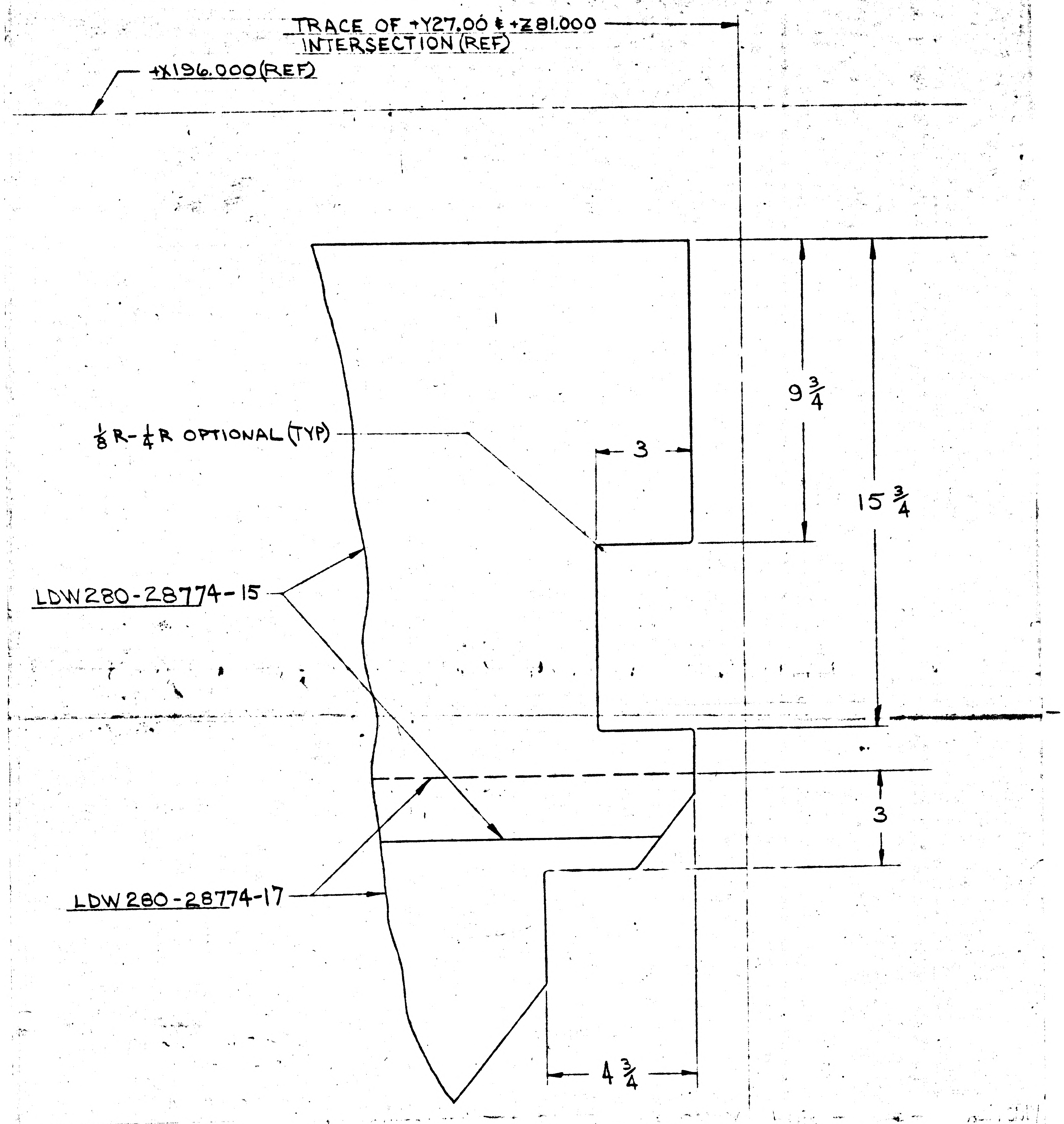
NAS 9-1100

ENG 32.2 REV 3-63

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28774 | EO NO. A3
CONTROL INFO NO. LDW280-A-0627



CREATE -15 ASSY & -17 ASSY IDENT TO -1 ASSY & -3 ASSY EXCEPT AS NOTED
REMOVE EFF OF LTA-8(18) FROM -1 & -3 ASSY
-15 & -17 ASSY EFF FOR LTA-8(18) ONLY,
CUTOUTS IN -15 & -17 ASSY ONLY, R.H. SIDE AS NOTED

2

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ✓ | CL I ENGRG CHG ☐

REASON FOR EO: CUTOUTS NEEDED FOR CLEARANCE OF BLANKET BOOTS

DESCRIPTION OF EO: CREATED -15 & -17 ASSY IDENT TO -1 & -3 ASSY EXCEPT AS NOTED. REMOVED LTA-8(18) EFF FROM -1 & -3 ASSY ADDED LTA-8 EFF ON -15 & -17 ONLY. CUTOUT DIM 15 3/4, 3, 4 3/4, 9 3/4, 3

② GAEC EO RELEASE: 66 | 9.24

MODEL	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LEM	LEM 6(36)	LTA-8 (18)	LEM-3(33)
		LEM-1(31)	LEM-4(34)
		LEM-2(32)	LEM-5(35)

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY	JHS	SMR		for 1/15	WJH		RMc	JRJ
DATE ✓	9/14/66	10-4		10/25	11-14-66		9-23-66	9/22/66
	VDI	~~SUPPORT~~	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: FOIL ASSY D/S QUAD IV PLUME IMPINGEMENT SHIELD
DRAWING NO. LDW280-28774
EO NO. A3

ISSUED BY V.A. CHRISTINA/J. STRAKOSCH x1153 SECTION LEM-VDI GROUP NO. 335 PL 35EMF

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NAS 9-1100

ENG 32.2 REV 3-65

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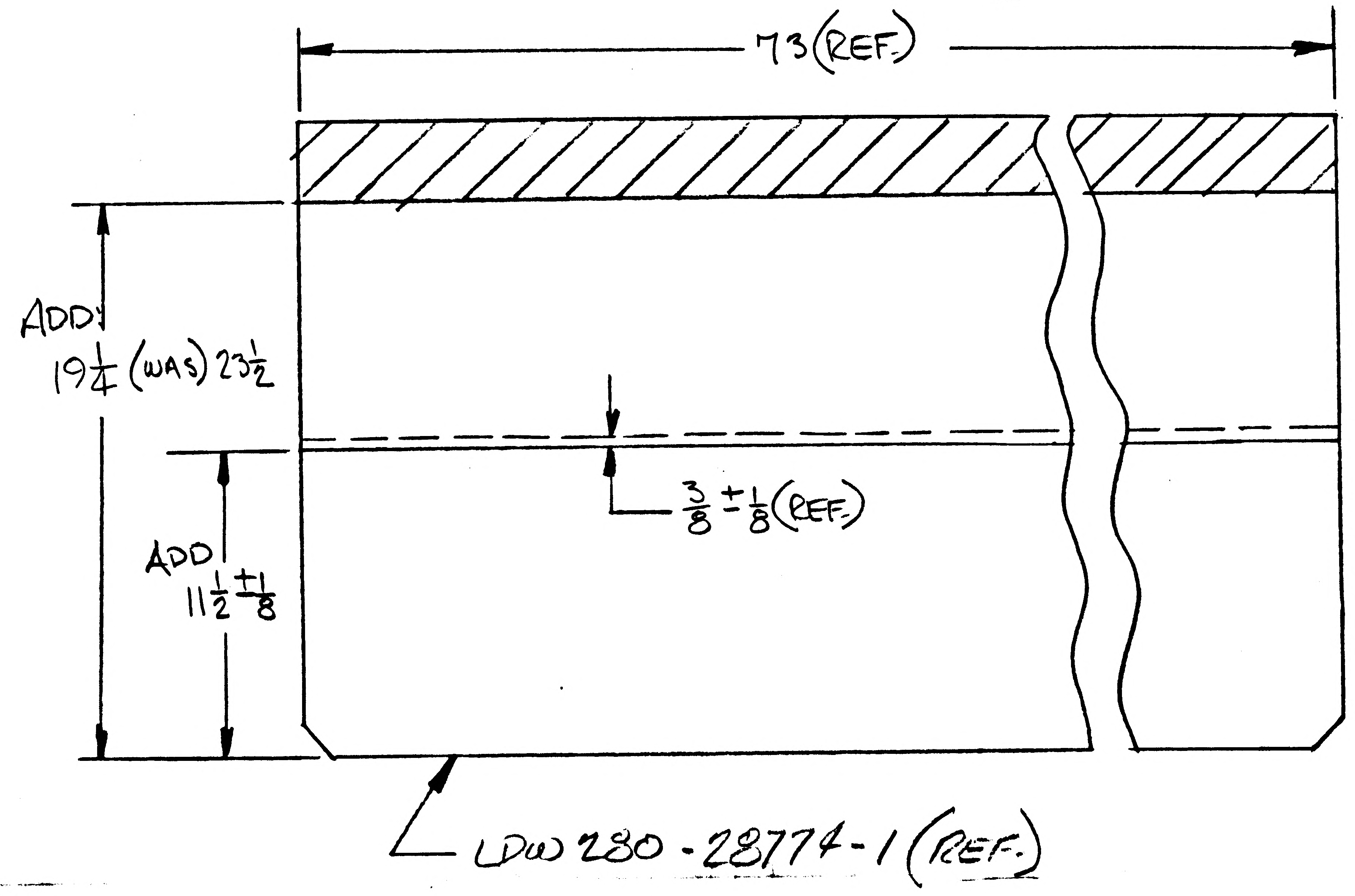
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28774	EO NO. A4
CONTROL INFO NO. LDW280A0412	

ON-1 REMOVE SHADED AREA, & ADD NOTED DIMS.



REMOVE -5 ASSY REQMTS FOR N/A LDW280-28773 & LDW280-28739. EFF LTA8 (18), LEM-1 (31) LEM-2 (32), LEM-3 (33), LEM-4 (34) LEM-5 (35) & LEM-6 (36).

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG			
REASON FOR EO: THERMAL REQMTS.			DESCRIPTION OF EO: ON-1 ADDED 11 1/2 & 19 1/4 WAS 23 1/2. REMOVED -5 REQMTS FOR N/A LDW280-28773 & LDW280-28739 EFF LTA-8 (18), LEM-1 (31) THRU LEM-6 (36).				Ⓡ GAEC EO RELEASE: 4 6 104
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~	DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO	DISPOSITION OF PARTS: REWORK -1 / SCRAP -5	APPROVED BY / DATE	
LEM		LTA 8 (18) LEM-1 (31) LEM-2 (32)				APPROVED BY: JHS, DATE: 9/15/66, V.D.I.; ~~SUPPORT~~ THERMO; RELIAB GROUP; GROUP LEADER; STRESS GROUP: WJH 9/14/66; LIAISON ENGRG; PROJ ENGRG: RMC Ⓔ 9-30; ~~GOVT~~ 9/29/66	
LEM		LEM-3 (33) LEM-4 (34) LEM-5 (35)		PRIORITY: C	DRAWING TITLE: FOIL ASSY ~ D.S. ~ QUAD IV ~ E.C.S. BATTERY ~ PLUME IMPINGMENT SHIELD ~ SIDE	DRAWING NO.: LDW280-28774	EO NO.: A4
LEM		LEM-6 (36)					

ISSUED BY Gus HANSMANN X1153 SECTION V.D.I. GROUP NO. 280 PL. 35

EMF

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28774
EO NO. A5
CONTROL INFO NO. LDW280 A-0797

CREATE -19, -21. EFF: LTA-8(18) ONLY — THIS IS A REVISION OF E.O. A3

(ADD)	1				LDW280-28774 -13	E	FOIL ASSY SHEET	
(ADD)		1			-11	E	FOIL ASSY SHEET	
(ADD)			1		-21	E	FOIL ASSY	IDENT TO -9 EXCEPT FOR R.H. CUTOUT IN -21
(ADD)				1	-19	E	FOIL ASSY	IDENT TO -7 EXCEPT FOR R.H. CUTOUT IN -19
					-17	E	FOIL ASSY (WELD)	(REF)
					LDW280-28774- 15	E	FOIL ASSY (WELD)	(REF)
	-21	-19	-17	-15	PART NO.	1ST	DESCRIPTION	
	QTY/ASSY							

DIMENSIONS SHOWN ON EO A_3 FOR -15 & -17 5/8 FOR -19 & -21

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ✓ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL PARTS NEEDED FOR FABRICATION OF SHIELD

DESCRIPTION OF EO: REF EO. A3 CREATED LDW280-28774 -19, -21. IDENT TO -7, -9 EXCEPT FOR CUTOUT ON R.H. SIDE

GAEC EO RELEASE: LE 10.5

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD

APPROVED BY								
	JJS				WJH		RMC	Batt
DATE	9/29/66				10/1/66		10-3-66	10-1-66
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: FOIL ASSY - D.S. QUAD IV - ECS BATTERY PLUME IMPINGMENT SHIELD SIDE
DRAWING NO.: LDW280-28774
EO NO.: A5

ISSUED BY V.A.CHRISTINA/J. STRAKOSCH X1153 SECTION LM-VDI GROUP NO. 335 PL 35
EMF

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NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 316
CONTROL INFO NO. LDW280A0936

ON THE FOLLOWING DRAWINGS ADD NOTE*:
*)INCONEL KNITTED SLEEVNG TO BE OXIDIZED BY EXPOSURE TO 1650 ±50°F IN AIR FOR FOUR(4) HOURS. FOR LTA5(15) AND LTA8(18) OXIDIZATION IS OPTIONAL

DRAWING:	EFF	CHANGE NO.	TITLE
LDW280-25708	QUAL TEST LM1 THRU LM6 LTA5 & 8	B3	SEE DRAWING
LDW280-28735	LM1 THRU LM6 LTA8	C1	
LDW280-28737	"	A4	
LDW280-28740	"	B1	
LDW280-28743	"	A4	
LDW280-28746	"	B1	
LDW280-28749	"	A6	
LDW280-28752	"	B1	
LDW280-28755	LTA-8 & LM-1	A5	
LDW280-28759	LTA-8 LM-1 THRU LM-6	B1	
LDW280-28764	"	B1	
LDW280-28768	LM-1 &	B1	
LDW280-28771	LTA-8, LM-1 THRU LM-6	B1	
LDW280-28774	"	A6	
LDW280-28803	"	A1	SEE DRAWING
LDW280-28819	"	A1	SEE DRAWING

* - USE NEXT AVAILABLE NUMBER

3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: THERMO REQUIREMENT

DESCRIPTION OF EO: ADDED NOTE *

GAEC C EO RELEASE: 10/18

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	
LM			
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY				RGM	WH			
DATE				MAT'LS 10/7/66			10/12/66	10/15/66
	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C | DRAWING TITLE: NOTED | DRAWING NO.: LEO 280 | EO NO.: 316

ISSUED BY AMBROSIO/STRAKOSCH X1153 SECTION V.D.1 GROUP NO. 335 PL 35 EMF

01 NAS 9-1100

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NAS 9-1100

8

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMP-A

DWG. NO. LEO 280
EO NO. 421
CONTROL INFO NO. LDW280A-4411

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM-6	B 2	
LDW 280-28734	"	A 8	
LDW 280-28735	"	C 3	
LDW 280-28746	LTA8 (18) LM-1 (31) THRU LM-15(45)	B 3	
LDW280-28747	LTA8 (18) LM-1 (31) THRU LM-6(36)	B 1	
LDW280-28749	"	A 7	
LDW280-28750	"	B 3	
LDW280-28752	"	B 2	
LDW280-28753	"	A 3	
LDW280-28755	LTA 8 (18) LM-1 (31)	A 7	
LDW280-28756	LTA8(18) LM-1(31) THRU LM-15(45)	A 6	
LDW280-28759	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28760	"	B 1	
LDW280-28768	LM-1(31)	B 2	
LDW280-28769	LM-1(31)	B 1	
LDW280-28771	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW 280-28772	"	B 1	
LDW280-28774	"	A 7	
LDW280-28775	"	B 2	
LDW 280-28803	"	A 2	
LDW 280-28805	"	A 1	
LDW280-51824	LM-1(31) THRU LM-15(45)	A 1	
LDW280-51825	"	A 2	
LDW280-51829	"	A 1	
LDW280-51830	"	A 1	
LDW280-51834	"	A 1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG			
REASON FOR EO	LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO	DESCRIPTION OF EO	ADDED NOTE *	GAEC EO RELEASE	E 12/20		

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS
LM		NOTED		✓ REVISE DWG / RECORD EO	NOT REWORK / REQ'D SCRAP
PRIORITY	C	DRAWING TITLE	NOTED	DRAWING NO. LEO 280	EO NO. 421

APPROVED BY	AB							
DATE	12/16/66	12/16/66		12/19/66	12/19/66		12/20	12-20-66
1	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

ISSUED BY T. AMBROSIO / STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. Z LEO280
EO NO. 476
CONTROL INFO NO. LDW280 A 5542

ENG 90.2 REV 3-65

*
TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH* NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45). QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280 - 25703 ✓	A6	SEE DRAWING
-25704 ✓	B1	
-25706 ✓	B1	
-25707 ✓	B4	
-25708 ✓	B6	
-28647 ✓	C1	
-28652 ✓	B8	
-28669 ✓	A3	
-28672 ✓	C1	
-28721 ✓	A2	
-28727 ✓	B2	
-28752 ✓	B3	
-28761 ✓	A4	
-28762 ✓	A1	
-28771 ✓	B5	
-28774 ✓	A8	
-28776	A1	
-28778	A1	
-28779	A4	
-28803	A3	
-28816	A2	
-28819	A2	
-51560	C1	
-51818	A3	
-51823	A1	
-52723	A5	
LDW280		SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: FR 2/23/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQ'D: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)
APPROVED BY: VDI 2/16/67 · STRESS GROUP WJH 2/15/67 · PROJ ENGRG RAME 2-16-67 · GOVT 2-17-67
SUPPORT · RELIAB. GROUP · GROUP LEADER · LIAISON ENGRG
GROUP TY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 476

ISSUED BY M. GREY / J. STRAKOSCH X-1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL 35

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NAS 9-1100

ENG 22.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO.	LDW280	EO NO.	793
CONTROL INFO NO.	LDW280B0053		

FOR THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS* THAT ARE EFF ON LM-4(34), REMOVE LM-4(34) THRU LM-15(45) REQMTS.

DRAWING NO. *	NEXT ASSY	TITLE	CHG NO.
✓ LDW280-28561	LDW280-54553	SEE DWG	C5
✓ -28773	-28561		A9
✓ -28774	-28773		B1
-28775	-28773		B8
-28820	-28561		B2
-28819	-28820		A3
-18129	-28820		A4
-28776	-28561		A2
P17465	-28776		B3
P17514	-28776		B1
P17516	-28776		B4
P17535	-28776		B3
-28669	-54553		B1
-18239	-28561		A2
-54777			A2
P17496			A8
M17698			B7
P17479			A9
P17946			B3
P17967			B10
P18091			A3
-28757	-28561		B1
LDW280	LDW280	SEE DWG	

01

NAS 9-1100

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2011 CCA668 ⑤

REASON FOR EO
REDESIGN OF THERMAL SHIELDING FOR EQUIP STOWAGE.

DESCRIPTION OF EO
FOR *, REMOVED LM-4 THRU LM-15 REQMTS

Ⓡ GAEC C EO RELEASE
JK 11/8/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY								
DATE	11/7/67			11-6-67	11/7/67		11/7/67	11-7-67
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO280	793

11-10
ISSUED BY S. TAMRES/P. THORJUSEN x7033 SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28774		EO NO. B1	
CONTROL INFO NO. LDW280A9703			

IN M/B, RESTRICT -5 TO , LM-1 & LM-2
FOR N/A LDW 280-28748
(EFFECTIVITY WAS , LM-1 THRU LM-15)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1244

REASON FOR EO: TO PROVIDE FOR F.I.T.H. SHIELD

DESCRIPTION OF EO: IN M/B FOR -5 N/A LDW280-28748 RESTRICTED -5 TO LM-1 & LM-2. (REMOVED LM-3 THRU LM-15 EFF.) ® 5

GAEC EO RELEASE: C JK 11/6/6

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓			-5	DATE	11/2/67	11/3/67		11-2-67	11/2/67		WKB 11/2/67	11-4-67
REVISE DWG	RECORD EO	REWORK	SCRAP	P	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

APPROVED BY

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	FOIL ASSY QUAD ~~IV~~ D/S ECS BATTERY PLUME IMPINGEMENT SHIELD-SIDE	LDW280-28774	B1

11-3-67 ISSUED BY E. ROESSLER/J. STRAKOSCH x1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28774
EO NO. B3
CONTROL INFO NO. LM5-17291

CHANGE NUMBER B2 WAS B1
REF. LDW LDW 280-28774
ON LEO 280-793.

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: INCORRECT CHANGE No. ISSUED ON LEO 280-793

DESCRIPTION OF EO: CORRECTED CHANGE NUMBER FOR LEO 280-793 B2 WAS B1

GAEC EO RELEASE: 3 JM

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

APPROVED BY								
DATE	12/2/67			—	—	11-6-67	12/2/67	11/10/67
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~QUAL~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E	FOIL ASSY	LDW 280-28774	B3

ISSUED BY LIAISON, D. VALENZA SECTION VD1 GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28774 EO NO. C1
CONTROL INFO NO. LDW 280 B1202

IN M/B FOR N/A LDW280-28758 RESTRICT-5 FOR USE ON LTA-8(18), LM-1(31) & LM-2(32).

FITH

(5)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD1244										PG 46
REASON FOR EO					DESCRIPTION OF EO										GAEC C EO RELEASE
PROVISION FOR FITH SHIELD					RESTRICTED-5 WAS USED ON LTA-8(18) & LM-1(31). THRU LM-15(45)										1/16/68
MODEL	EFFECTIVITY				DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY						
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.		✓			✓	DATE	1/12/68			1-12-68	1-13-68	1/12/68
LM		LM-3 THRU	LM-15		REVISE DWG	RECORD EO	REWORK	SCRAP	P	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG / PROJ ENGRG
		(33 THRU	45)		PRIORITY C	DRAWING TITLE FOILASSY D/S QD II ECS BATTERY SIDE						DRAWING NO. LDW280-28774			EO NO. C1

CDR 011968
ISSUED BY G. ZEMAN / P. THORJUSEN SECTION VD1 GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-28775 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28773	LM-3(33)	1EA
LM	LDW280-28773	LM-2 (32)	1EA
LM	LDW280-28773	LM-1 (31)	1EA
PART NO. LDW280-28775-13 & 15		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28773	LTA-8(18)	1EA
PART NO. LDW280-28775 -1 & -3		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	B	B	B	B					
SHEET		1.11							
REV		B							
SHEET									
REV									

LAST SECT LTR USED	B	GRUMMAN REL INFO	Ⓐ ⒸB	
LAST DASH NO. USED	-15	PRIM NO.	K(001)	ZMF
		207	MP-163 9/21/	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED

FRACTIONS	DECIMALS	ANGLES
± 1/32	±.020	± 1/2

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100 LINE ITEM #1 DOCUMENTATION TYPE II

DRAWN BY	W. MAJUK 7-12-66	RELIABILITY	
LAYOUT BY	W. MAJUK 7-12-66	THERMO	HASLET MW
CHECKED BY			
GR LEADER	STRAKOSCH 7/14/66		
VEH DES INT	BISCHOFF 7/16		
STRUCTURES	F. BUNCE 7/16	PROJ ENGR	F. DEFINE 7/26
STRUCTURES	HILDERMAN 7/16	REL GROUP	BOTTI 8-2-66
WEIGHTS	ROBESCH 7/25		

(1) GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ASSY
DESCENT STAGE-QUAD IV-ECS BATTERY-PLUME
IMPINGEMENT SHIELD - SIDE

SIZE	CODE IDENT NO.		
B	26512	LDW280-28775	B (B)
SCALE NONE		SHEET 1.00 OF 5	

ENG 77.1 12-65

SUPERSEDES LDW280-28775 NO CHANGE 7-12-66

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
									RETRACED NO CHANGE LAST REV NONE MELMED 10-4-66 ADDED SH 1.10						
A	1							LEO280-188	REWROTE SEAMWELD NOTE & ADDED NOTES 3 & 4	LTA-8 LM-1 THRU LM-6	NOT	REQD	MELMED 10-11-66		
	2							LEO280-240	REF LEO 280-188 ADDED PART "C" TO NOTE *3		✓				
	3							EO A3	ON-1 & -3 ADDED GT15B-46 GH11W-46 & FLW TO PROCESS SYM BLOCK, REMOVED LM-1 THRU LM-6 EFFECTIVITY. ADDED -5 & -6 ASSY, NOTE 5 & DETAIL B. ON-1 ADDED 11½ & 19¼ WAS 23½		✓	-1 & -3			
	4							EO A4	REF EO A3 LDW280-28775-9 & -11 WAS -5 & -7 RESPECTIVELY		NOT	REQD			
	5							①	REF EO A3 -6 ASSY SHOULD BE -7 ASSY				LR.	RMC 11-5-66	
B	1	3.00					✓	EOB1	REVISED TRIM OF -1 & -3, ADDED THE FOLLOWING DIMS: 15¾, 4¾, 3, 3 & 9¾	LTA-8(18)	✓		R TAYLOR 9-11-68		
	2	3.00						LEO280-421	ADDED NOTE 6	LTA-8(18) LM-1(31) THRU LM-6(36)	NOT	REQD			
	3	1.00 3.00						EOB3	ON -9 & -11 ADDED SYMBOL FOR LAP DIRECTION, ADDED LM-7(37) THRU LM-15(45) EFF	LM-1(31) THRU LM-15(45)	NOT	REQD			
	4	1.00 2.00 3.00						EOB4	IN FLD & B/M FOR -9 & -11 ADDED GT15B-46 & GH11W-46. FOR -9 & -11 REMOVED LM-2(32) THRU LM-6 EFF. ADDED -13 & -15	LM-1(31) THRU LM-15(45)	✓	-9 -11			
	5	1.00						EOB5	REF EOB4: FOR -9 & -11, REMOVED LM-2(32) THRU LM-15(45). WAS REMOVED LM-2(32) THRU LM-6(36)	LM-2(32) THRU LM-15(45)		-9 & -11			
	6	1.00 2.00 3.00					✓	EOB6	REVISED EOB4: REMOVED -9 & -11 (WAS REMOVE LM-2(32) THRU LM-15(45) EFF. ADDED LM-1(31) EFF FOR -13 & -15	LM-1(31) THRU LM-15(45)		-9 -11	L.D.		

CHG APPROVED

LTR	~~GROUP LDR~~	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	THERMO				
A		11/3/66	11/4			9/20/68				
B										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28775	B
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
B	7	2.00 3.00					✓	LEO280-559	FROM B/M & FLD REMOVED LDW280-17970 (ALL DASH NO'S) REVISED EXISTING NOTE 6 BY ADDING " PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E" ADDED SH 1.11	LTA-8 LM-1(31) THRU LM-15(45)	NOT	REQ	R TAYLOR 9-11-68		
	8	1.00		S		✓		LEO280-793 LCD 2011 CCA 668	FOR -13 & -15, REMOVED LM-4(34) THRU LM-15(45) REQ.	LM-4(34) THRU LM-15(45)		-13 & -15			
	9	1.00 3.00		S		✓		LCD 2011 CCA 668	REF EOB8, DESCRIPTION SHOULD INCLUDE, REMOVED SECTION A-A, NOTE 1, -5 & -7 WELD ASSY & 11 1/2 ± 1/8 DIM.	LM-4 THRU LM-15		-13 & -15	L.D.	F. Zubias 9-16-68	

CHG APPD	LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	THERMO
	B	9/13/68	Jap 9/18		9/20/68	9/20/68

FOR CONTINUATION OF REVISIONS SEE SHEET ______

ENG 77.3 5-65

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28775	B
SCALE NONE			SHEET 1.11

01

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								SEE NOTE6										
					1	1		GT15B-46	E	TAPE	GRUMMAN STD							
								LDW280-28775-15		TRIM ASSY				SEE NOTE 6	NONE	NOTE 5		
								-13		TRIM ASSY				SEE NOTE 6	NONE	NOTE 5		
								-3		TRIM ASSY				SEE NOTE 6	FLW	NONE		
								LDW280-28775-1	E	TRIM ASSY				SEE NOTE 6	FLW	NONE		
					-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE	
QTY PER ASSEMBLY																		

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	FLOW WELDING	LSP-14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

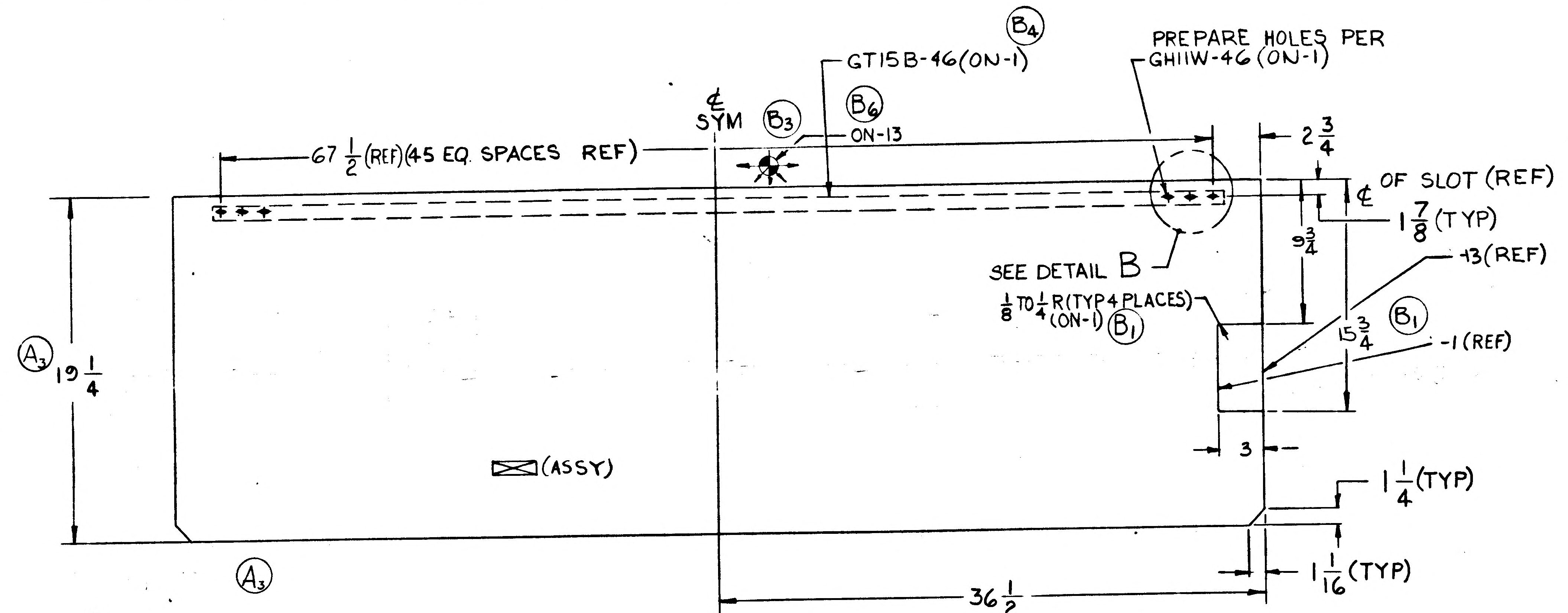
SIZE	CODE IDENT NO.		
B	26512	LDW280-28775	B ⑬

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

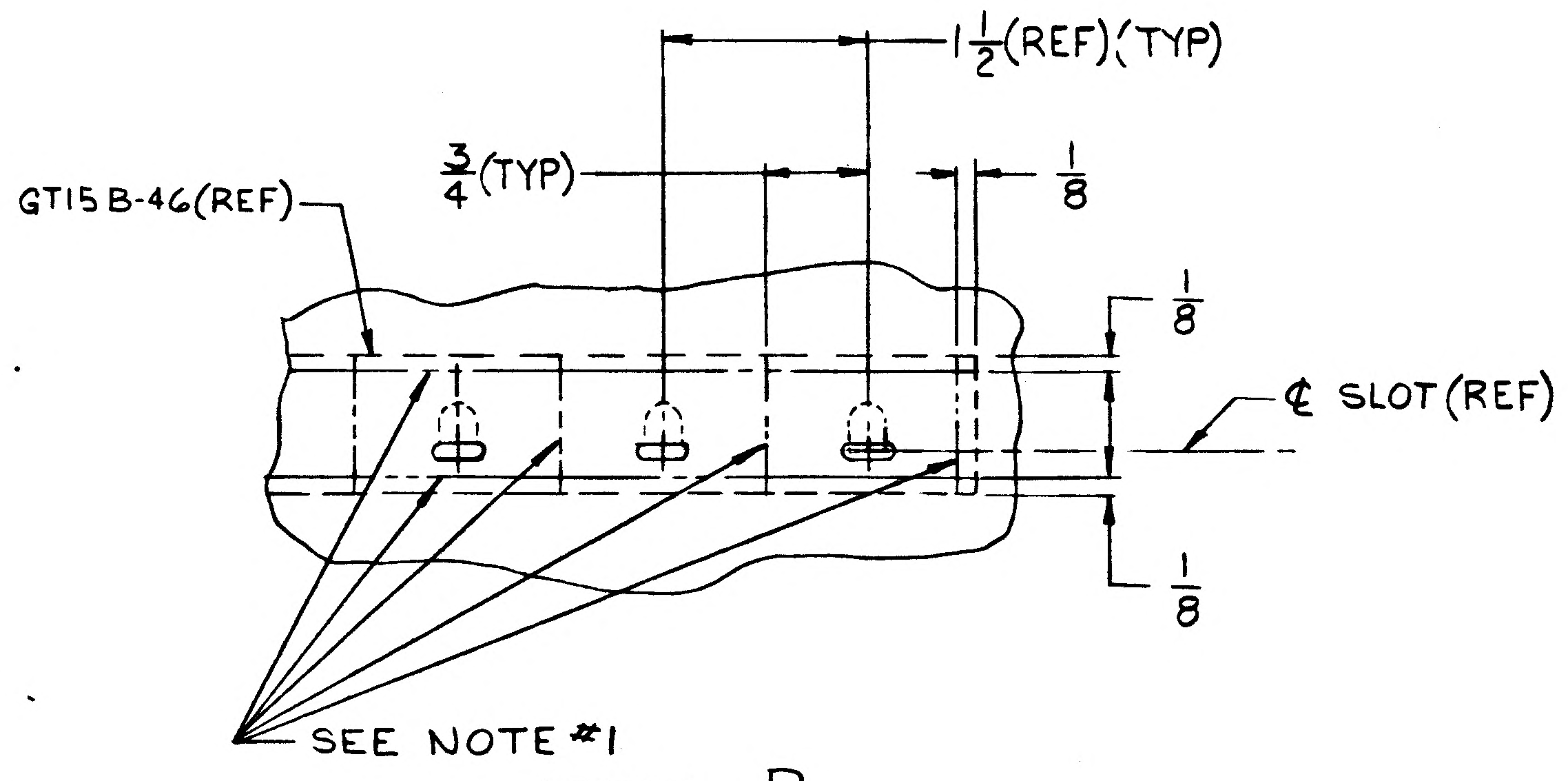


(B4)
GT15B-46(ON-1)
PREPARE HOLES PER
GH11W-46 (ON-1)
¢ SYM (B3)
(B6)
ON-13
67 1/2 (REF)(45 EQ. SPACES REF)
2 3/4
¢ OF SLOT (REF)
1 7/8 (TYP)
9 3/4
SEE DETAIL B
-13 (REF)
1/8 TO 1/4 R (TYP 4 PLACES) (ON-1) (B1)
(B1)
15 3/4
-1 (REF)
(A3) 19 1/4
(ASSY)
3
1 1/4 (TYP)
1 1/16 (TYP)
(A3)
36 1/2

(B7)

LDW280-28775-1 TRIM ASSY

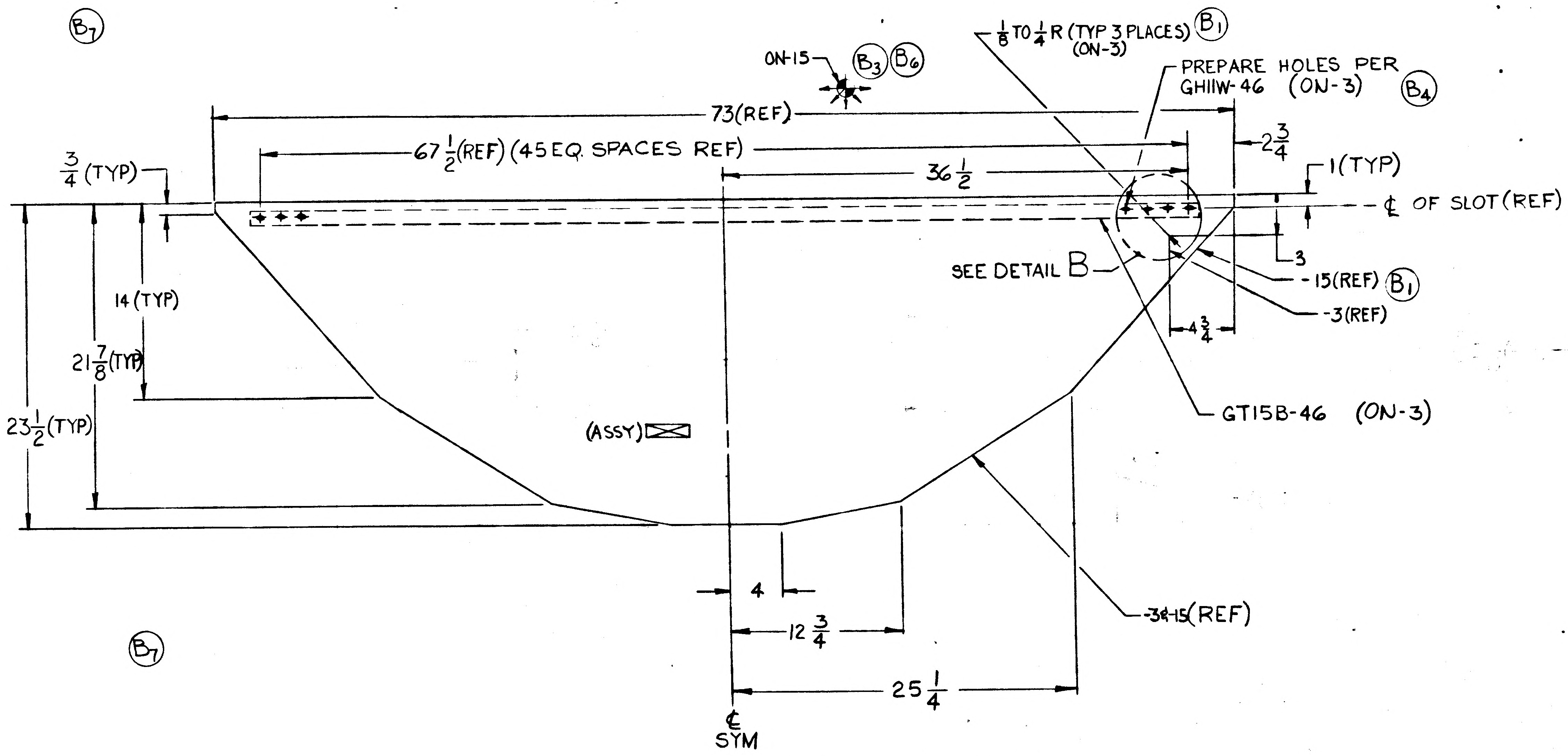
(B9)(B6)(B4) -13 TRIM ASSY (FINISH NEAR SIDE ONLY
(A3)(A4) SEE NOTE 5)



1 1/2 (REF)(TYP)
3/4 (TYP)
1/8
GT15B-46(REF)
1/8
¢ SLOT (REF)
1/8
SEE NOTE #1

DETAIL B
SCALE 1/1

(B7)



1/8 TO 1/4 R (TYP 3 PLACES) (ON-3) (B1)
ON-15 (B3)(B6)
PREPARE HOLES PER
GH11W-46 (ON-3) (B4)
73(REF)
67 1/2 (REF) (45 EQ. SPACES REF)
2 3/4
36 1/2
3/4 (TYP)
1 (TYP)
¢ OF SLOT (REF)
3
SEE DETAIL B
-15 (REF) (B1)
-3 (REF)
14 (TYP)
4 3/4
21 7/8 (TYP)
23 1/2 (TYP)
GT15B-46 (ON-3)
(ASSY)
4
12 3/4
25 1/4
-3 & -15 (REF)
¢ SYM

(B7)

LDW280-28775-3 TRIM ASSY

(B9)(B4)(B6) -15 TRIM ASSY (FINISH NEAR SIDE ONLY
(A3)(A4) SEE NOTE 5)

(B9)

1. ~~SEAMWELD PER LSP-14-6102 EXCEPT THAT SPOTS SHALL BE TANGENT + 1/32 - 0.~~
2. FABRICATION OF SKIN ASSY TO BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP-14-0011 LEVEL "C".
3. PERMISSIBLE IRREGULARITIES IN WELDED ASSYS ARE AS FOLLOWS:
   - A. HOLES IN SEAMWELD ROWS UP TO 1/8 MAX & AT LEAST 1" APART.
   - B. CRACKS IN THE FREE EDGE OF WELDED JOINTS NO CLOSER TOGETHER THAN 1/8" & NOT EXTENDING PAST THE WELD LINE.
   - C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF A & B ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.
4. WELDED ASSYS MAY HAVE RANDOM WRINKLED APPEARANCE.
5. FINISH PER LPC 280-5.
6. MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

01 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE F	CODE IDENT NO. 26512	LDW280-28775	
MODEL OR END ITEM	SCALE 1/54 NOTED		SHEET [illegible]	

HC

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LEO-280	EO NO.	240
CONTROL INFO NO.	LEM-2-2642		

THIS IS A REVISION OF LEO 280-188

IN "B" ADD PART "C" TO NOTE *.

C. IRREGULARITIES IN EXCESS OF THE LIMITATIONS OF (a) + (b) ARE TO BE COVERED WITH A PATCH. THE PATCH SHALL BE OF THE SAME MATERIAL AND THICKNESS AS THE BASIC SKIN BUT SHALL NOT EXCEED AN AREA OF 9 SQ IN. AND SHALL NOT HAVE A MAXIMUM DIMENSION OF GREATER THAN 5 INCHES. THE PATCH SHALL BE WELDED (SEAM) AROUND ENTIRE PERIPHERY.

DRAWING NO	LEO280-188 CHANGE NO	REVISED CHANGE NO.	EFF
LOW 280-25703	A4	A5	*,**,***
-25704	A3	A4	*,**,***
-25705	B5	C2	*, **
-25706	A3	A5	*,**,***
-25707	B1	B2	*,**,***
-28730	A1	A5	*
-28734	A1	A4	*
-28735	A1	B1	*
-28737	A1	A2	*
-28738	A1	A2	*
-28740	A1	A2	*
-28741	A1	A2	*
-28743	A1	A2	*
-28744	A1	A2	*
-28746	A1	A2	*
-28747	A1	A2	*
-28749	A1	A2	*
-28750	A1	A2	*
-28755	A1	A2	*
-28756	A1	A3	Δ
-28759	A1	A3	Δ
-28760	A1	A3	*
-28764	A1	A2	*
-28765	A1	A2	*
-28771	A2	A2	*
-28772	A2	A3	*
-28774	A1	A3	*
LOW 280-28775	A1	A2	*
		A2	*

EFFECTIVITY:
*** - QUAL TEST (72)
** - LTA-5 (15)
* - LEM-1 (31) THRU -6 (36) & LTA-8 (18)
Δ - LTA-8, LEM-1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		
REASON FOR EO: TO FACILITATE MANUFACTURING			DESCRIPTION OF EO: REF LEO 280-118 ADDED PART "C" TO NOTE *.			GAEC C EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM-1		SEE ABOVE	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

PRIORITY: C_2

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					CAW	CAW	RMC	
DATE	8-20-66				8/23/66	8/23/66	9-3	8-30-66

DRAWING TITLE: —
DRAWING NO.: LEO-280
EO NO.: 240

ISSUED BY LIAISON G. MARTELL x3604 SECTION VDI (DESCENT STAGE) GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-28775
EO NO. A4
CONTROL INFO NO. LDW 280A0898

REFERENCE E.O. A_3.
LDW 280-28775-5 & -7 ASSY S/B -9 & -11
RESPECTIVELY.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		2

REASON FOR EO: CORRECT PART NO. IDENTIFICATION.

DESCRIPTION OF EO: REF E.O. A_3. LDW280-28775-9 & -11 WAS -5 & -7 RESPECTIVELY.

GAEC EO RELEASE: FR 10/11/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8 (10) LM-1 (31)	LM-2 (32)
LEM		LM-3 (33) LM-4 (34)	LM-5 (35)
LEM		LM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY	WAS				WJH		RMC	
DATE ✓	10/4/66				10/4/66		10-11-66	10/7/66
	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: SKIN ASSY ~ D.S. ~ QUAD IV ~ E.C.S. BATTERY ~ PLUME IMP

DRAWING NO. LDW280-28775

EO NO. A4

ISSUED BY Gus HANSMANN X1153 SECTION V.D.I. GROUP NO. 280 PL 35

EMF

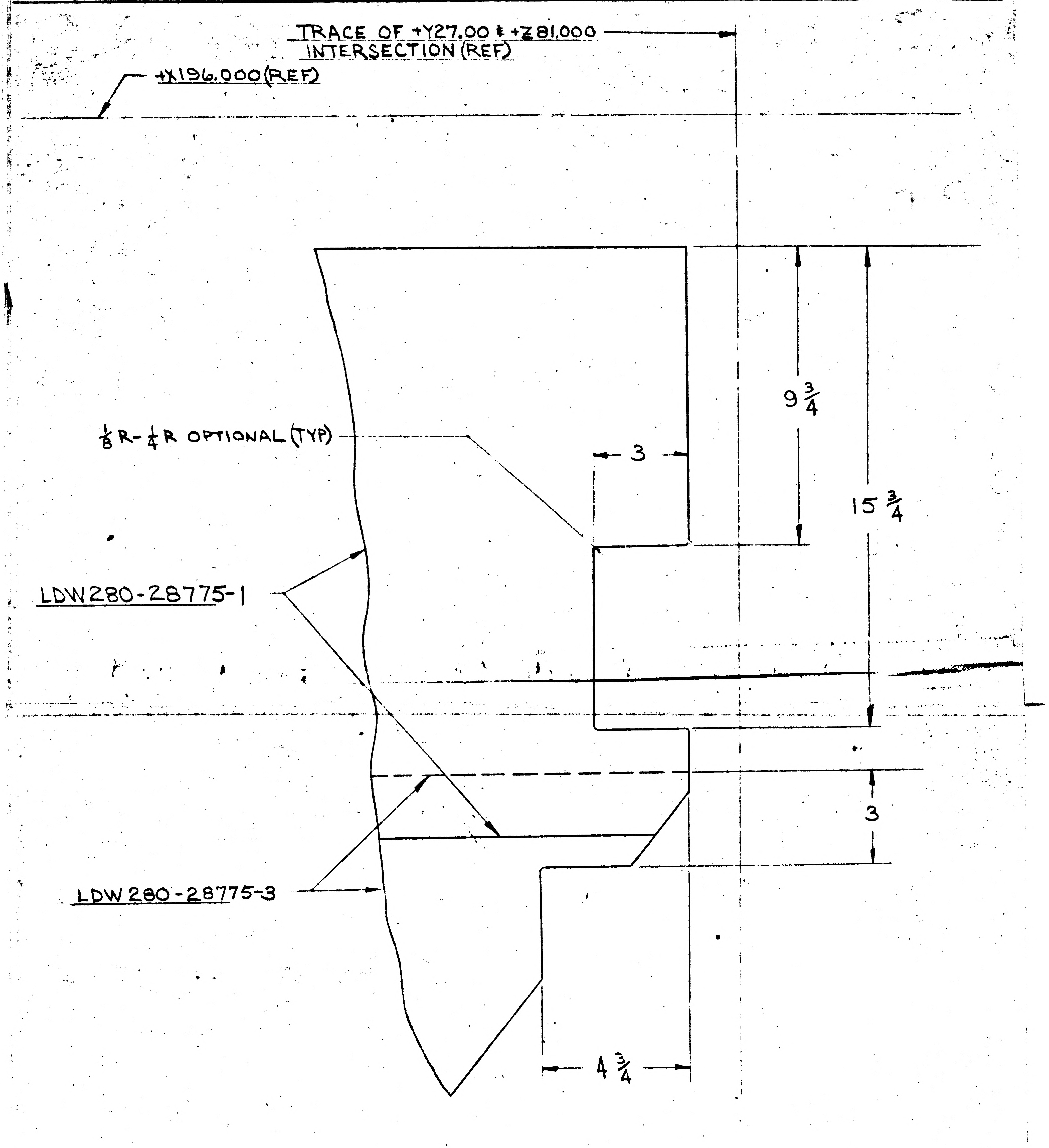
01

NAS 9-1100

ENG 32.2 REV 3-65 *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-28775	EO NO.	B1
CONTROL INFO NO.	LDW280-A-0628		


TRACE OF +Y27.00 & +Z81,000 INTERSECTION (REF)
+X196.000(REF)
1/8R-1/4R OPTIONAL (TYP)
LDW280-28775-1
LDW280-28775-3
9 3/4
15 3/4
3
3
4 3/4

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG									✓
REASON FOR EO: CUTOUTS NEEDED FOR CLEARANCE OF BLANKET BOOTS				DESCRIPTION OF EO: REVISED TRIM OF -1 & -3 ADDED THE FOLLOWING DIM. 15 3/4, 4 3/4, 3, 3, 9 3/4									GAEC EO RELEASE C 16 10 5
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE	JKJ 7/1/66 VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP: WJW 11-1-66
LEM		LTA-8 (18)		✓		✓		✓					
				PRIORITY C	DRAWING: SKIN ASSY D/S QUAD IV PLUME IMPINGEMENT SHIELD						DRAWING NO. LDW280-28775		EO NO. B1

LIAISON ENGRG	
PROJ ENGRG	RMC 10-5-66
GOVT	10/14/66

ISSUED BY V.A.CHRISTINA/J.STRAKOSCH X1153 SECTION LEM-VDI GROUP NO. 335 PL 35

01

NAS 9-1100

8

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMP-A

DWG. NO. LEO 280
EO NO. 421
CONTROL INFO NO. LDW280A-4411

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
— —			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM6	B 2	
LDW280-28734	"	A 8	
LDW280-28735	"	C 3	
LDW280-28796	LTA8(18) LM-1(31) THRU LM-15(45)	B 3	
LDW280-28747	LTA8 (18) LM-1 (31) THRU LM-6(36)	B 1	
LDW280-28749	"	A 7	
LDW280-28750	"	B 3	
LDW280-28752	"	B 2	
LDW280-28753	"	A 3	
LDW280-28755	LTA8 (18) LM-1 (31)	A 7	
LDW280-28756	LTA8(18) LM-1(31) THRU LM-15(45)	A 6	
LDW280-28759	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28760	"	B 1	
LDW280-28768	LM-1(31)	B 2	
LDW280-28769	LM-1(31)	B 1	
LDW280-28771	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28772	"	B 1	
LDW280-28774	"	A 7	
LDW280-28775	"	B 2	
LDW280-28803	"	A 2	
LDW280-28805	"	A 1	
LDW280-51824	LM-1(31) THRU LM-15(45)	A 1	
LDW280-51825	"	A 2	
LDW280-51829	"	A 1	
LDW280-51830	"	A 1	
LDW280-51834	"	A 1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: K 12/20

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REQ'D / REWORK / SCRAP

APPROVED BY	Gaf	AB		JHS			Ihc	
DATE	12/16/66	12/16/66		12/16/66	12/16/66		12/20	12-20-66
/	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO. LEO 280
EO NO. 421

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01
NAS 9-1100

B *

ENG 32.1 REV 3-65

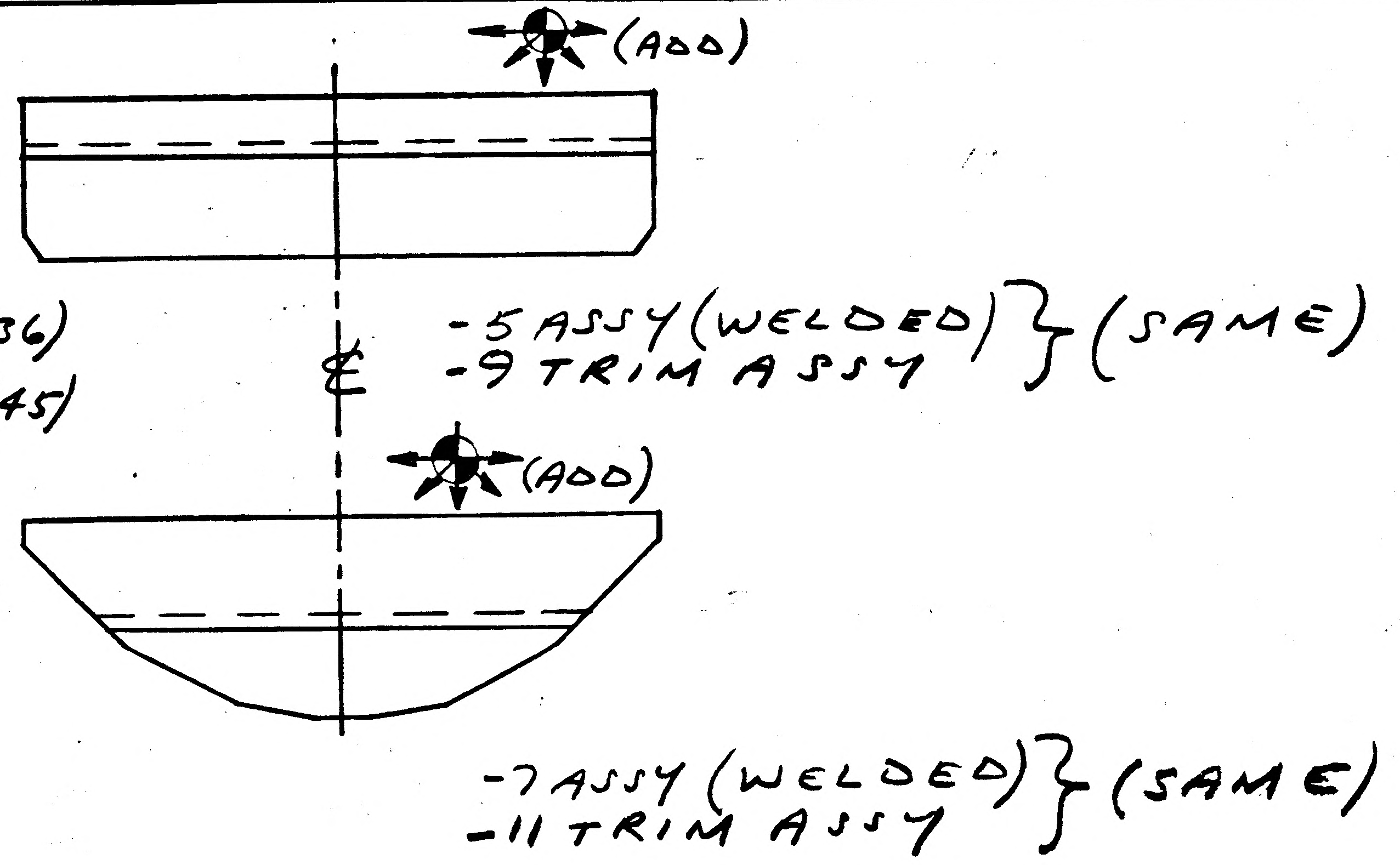
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28775 | EO NO. B3

CONTROL INFO NO. LDW280A45624

IN MODEL BLOCK:
MODULE EFF.
FOR LDW280-28775-9,-11
(WAS) LM-1 (31) THRU LM-6 (36)
(NOW) LM-1 (31) THRU LM-15 (45)



* THIS CHANGE HAS BEEN INCORPORATED ON LM-1 (31)

THERMAL SHLD
2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO PROVIDE COMPLETE FABRICATION & INSPECTION INFO.

DESCRIPTION OF EO: ON -9&-11 ADDED LM-7 THRU LM-15 EFF. ON -9&-11 ADDED SYMBOL FOR LAP DIRECTION

GAEC EO RELEASE: 1/6/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-1 (31) THRU LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		NOT	REQD

APPROVED BY									
DATE	1/3/67	1/3/67			1/3/67	1/3/67		1-4-67	1/5/67
5	VDI	SUPPORT THERMO	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY - D/S QUAD IV - ECS BATTERY - PLUME IMPINGEMENT SHIELD-SIDE	LDW280-28775	B3

ISSUED BY E. ROESSLER x1153 12-20-66 SECTION VEH DEV GROUP NO. 335 PL 35

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NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-28775
EO NO. B4
CONTROL INFO NO. LDW280A-5514

1) IN F/D & B/M FOR-9 & -11 ADD GT15B-46 & GH11W-46. LOCATION SAME AS FOR -1 & -3

2) FOR -9 & -11 REMOVE LM-2(32) THRU LM-6(36) EFF. ADD -13 & -15
SKINS IDENT TO -9 & -11 EXCEPT REMOVE GT15B-46 & GH11W-46. MATL FOR
-13 & -15 .00125 INCONEL 600 FOIL.
EFF FOR -13 & -15 LM-2(32) THRU LM-15(45) (1 EA)
N/A FOR -13 & -15 - LDW280-28773

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

2

REASON FOR EO
1) EO A3 - LDW280-28775 INCORPORATED INCORECTLY.
2) LCR-928 - TO IMPROVE PAINT ADHESION

DESCRIPTION OF EO
IN F/D & B/M FOR-9 & -11 ADDED GT15B-46 & GH11W-46
FOR-9 & -11 REMOVED LM-2 THRU LM-6 EFF, ADDED -13 & -15

Ⓔ GAEC EO RELEASE
FR 2/23/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		-9 & -11 FORLM	✓

APPROVED BY			~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	2/21/67				2/18/67	2/21/67		2-22-67	2-22-67
S	VDI								

PRIORITY C
DRAWING TITLE SKIN ASSY DES. STAGE EPS BATT. QUAD IV
DRAWING NO. LDW280-28775
EO NO. B4

ISSUED BY J. STRAKOSCH / G ZEMAN SECTION VDI GROUP NO. 335 PL 35

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NAS 9-1100

BHG

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

* EMF A

DWG. NO. LDW280-28775
EO NO. B5
CONTROL INFO NO. LM-2-3385

THIS IS A REVISION OF EO-B4

FOR -9 & -11, REMOVE LM-2(32) THRU LM-6(36)
SHOULD BE
FOR -9 & -11, REMOVE LM-2(32) THRU LM-15(45)

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓
CL I ENGRG CHG	☐		

REASON FOR EO: LCR-928 TO IMPROVE PAINT ADHESION. EO-B3 ADDED LM-7(37) THRU LM-15(45) EFF.

DESCRIPTION OF EO: REFERENCE EO-B4 FOR -9 & -11, REMOVED LM-2(32) THRU LM-15(45) WAS REMOVED LM-2(32) THRU LM-6(36).

GAEC EO RELEASE: C JK 02431

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY							Ctf	RWC	
DATE	3/20/67				3/9/67	3/9/67	3-13-67	3 9 67	
-5-	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY: C

DRAWING TITLE: SKIN ASSEMBLY~DESCENT STAGE EPS BATT. QUAD IV

DRAWING NO. LDW280-28775

EO NO. B5

ISSUED BY LIAISON J. MALONEY 3/7/67 X3604 SECTION V.D.I GROUP NO. 335 PL 25

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NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28775		EO NO. B6
CONTROL INFO NO. LDW280A-5695		

THIS IS A REVISION OF EO B4 - LDW280-28775

REMOVE -9 & -11 (WAS FOR -9 & -11 REMOVE LM-2(32) THRU LM-15(45) EFF)
EFF FOR -13 & -15 - LM-1(31) THRU LM-15(45) WAS LM-2(32) THRU LM-15(45).

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LCR 928 - IMPROVE PAINT ADHESION	REVISED EO B4. - REMOVED -9 & -11 (WAS REMOVE LM-2 THRU LM-15 EFF) ADDED LM-1 EFF FOR -13 & -15	② C JK 3/13/

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	THRU
		LM-15(45	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	REWORK	-9 -11 SCRAP

APPROVED BY								
DATE	3/6/67			3/1/67	3/6/67		3-11-67	3-13-67
5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY DES STAGE EPS BATT QUAD III	LDW280-28775	B6

ISSUED BY G. ZEMAN/ J. STRAKOSCH SECTION VD1 GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.2 REV 3-65

C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO.	LEO 280	EO NO.	559
CONTROL INFO NO.	LDW280A6306		

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW:
REMOVE LDW280-17970 - ALL DASH NUMBERS AND ADD
"SEE NOTE *"
IN F/D REMOVE LDW280-17970 - ALL DASH NUMBERS

REVISE NOTE *
(REF) "MANUFACTURED PARTS TO COMPLY WITH
REQUIREMENTS OF LPC 280-19."
(ADD) PARTS TO BE MADE FROM .00125 INCONEL
600 PER AMS 5540E.

DRAWING NO.	CHANGE #	SYMBOL	EFFECTIVITY	TITLE
LDW280-18130	A7	⬡	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW280-18141	A3	⬡	LM-1 THRU LM-15	
LDW280-28730	B7	□	LTA-8 LM-1 THRU LM-3	
LDW280-28734	B2	□	LTA-8 LM-1 THRU LM-3	
LDW280-28738	A7	□	LTA-8 LM-1 THRU LM-15	
LDW280-28740	B3	□	LTA-8 LM-1	
LDW280-28741	A6	□	LTA-8 LM-1 THRU LM-6	
LDW280-28744	A7	□	LTA-8 LM-1 THRU LM-6	
LDW280-28747	B4	□	LTA-8 LM-1 THRU LM-15	
LDW280-28750	39	□	LTA-8 LM-1 THRU LM-15	
LDW280-28753	A5	□	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	□	LTA-8 LM-1 THRU LM-15	
LDW280-28760	B5	□	LTA-8 LM-1 THRU LM-3	
LDW280-28765	A7	⬡	LTA-8 LM-1 THRU LM-6	
LDW280-28769	B2	□	LM-1	
LDW280-28772	B6	□	LM-1 THRU LM-15	
LDW280-28775	B7	□	LTA-8 LM-1 THRU LM-15	
LDW280-28805	A6	□	LM-1 THRU LM-15	
LDW280-28806	A4	□	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW280-51824	A3	□	LM-1 THRU LM-15	

NOTE Δ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY WITH LPC280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM □ REVISE NOTE *.
FOR SYM ⬡ ADD NOTE Δ TO DWG

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☑	CL I ENGRG CHG ☐		
REASON FOR EO: UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE	DESCRIPTION OF EO: REMOVED LDW280-17970 FROM B/M & F/D (ALL DASH NO'S) FOR DWG'S □ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ⬡ ADDED NOTE Δ			GAEC EO RELEASE: 5 C JS 4-19-7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY
LM		NOTED ABOVE		✓ REVISE DWG / RECORD EO	NOT REQ (REWORK / SCRAP)	DATE 4/10/67

	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
6	4/10/67			4/10/67	4/10/67		4/13	Bott 4-18-67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	559

ED BY H. PALLMEYER / J. STRAKOSCH SECTION VEH DES INT GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO.	LDW280	EO NO.	793
CONTROL INFO NO.	LDW280B0053		

FOR THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS* THAT ARE EFF ON LM-4(34), REMOVE LM-4(34) THRU LM-15(45) REQMTS.

DRAWING NO. *	NEXT ASSY	TITLE	CHG NO.
✓ LDW280-28561	LDW280-54553	SEE DWG	C5
/ -28773	-28561		A9
/ -28774	-28773		B1
/ -28775	-28773		B8
-28820	-28561		B2
-28819	-28820		A3
-18129	-28820		A4
-28776	-28561		A2
P17465	-28776		B3
P17514	-28776		B1
P17516	-28776		B4
P17535	-28776		B3
-28669	-54553		B1
-18239	-28561		A2
-54777			A2
P17496			A8
M17698			B7
P17479			A9
P17946			B3
P17967			B10
P18091			A3
-28757	-28561		B1
LDW280	LDW280	SEE DWG	

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2011 CCA668

(5)

REASON FOR EO: REDESIGN OF THERMAL SHIELDING FOR EQUIP STOWAGE.

DESCRIPTION OF EO: FOR *, REMOVED LM-4 THRU LM-15 REQMTS

Ⓡ GAEC C EO RELEASE: JK 11/8/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓

APPROVED BY								
DATE	11/7/67			11-6-67	11/7/67		11/7/67	11-7-67
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CUST~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO280	793

11-10
ISSUED BY S. TAMRES/P. THORJUSEN x7033 SECTION VDI GROUP NO. 335 PL 25

01
NAS 9-1100

LDW280-28776

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51561	LEM-6(36)	1
		LEM-5(35)	1
		LEM-4(34)	1
		LEM-3(33)	1
		LEM-2(32)	1
	LDW280-51561	LEM-1(31)	1
LEM	LDW280-28561	LTA-8(18)	1

PART NO. LDW280-28776-1

GAEC SCH NO. 52

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00						
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED D

LAST DASH NO. USED -1

GRUMMAN REL INFO

PRIM NO.	E(001)		
207	mp	7-8-6	X

ENG 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM 1

DOCUMENTATION TYPE II

DRAWN BY	E. WALLACE 6-23-66	THERMO	
LAYOUT BY	E. WALLACE	MATLS	G Kruger 6/27/66
CHECKED BY			
GR LEADER	[illegible]		
VEH DES INT	[illegible] 7/6		
STRUCTURES	[illegible] 7/7/66	PROJ ENGR	Plunkett 13 July 66
STRUCTURES	Hilderman 7/1	REL GROUP	Bott 7-14-66
WEIGHTS	[illegible] 7-1		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

JAMB ASSY-D/S,
QUAD IV, S-BAND CABLE
ACCESS DOOR

SIZE	CODE IDENT NO.	
B	26512	LDW280-28776

SCALE NONE

SHEET 1.00 OF 3

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						-1											
						1		LDW280P17535-13	E	BRACKET	SEE DETAIL DWG						
						3		LDW280P17535-11	E	BRACKET							
						4		LDW280P17516-13	E	STRUT							
						12		LDW280P17516-11	E	STRUT							
						2		LDW280P17514-17	E	ROD							
						2		LDW280P17514-15	E	ROD							
						2		LDW280P17514-13	E	ROD							
						2		LDW280P17514-11	E	ROD							
						4		LDW280P17465-15	E	ELBOW							
						4		LDW280P17465-11	E	ELBOW							
								LDW280-28776-1	E	JAMB ASSY	SEE DETAIL DWG						

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

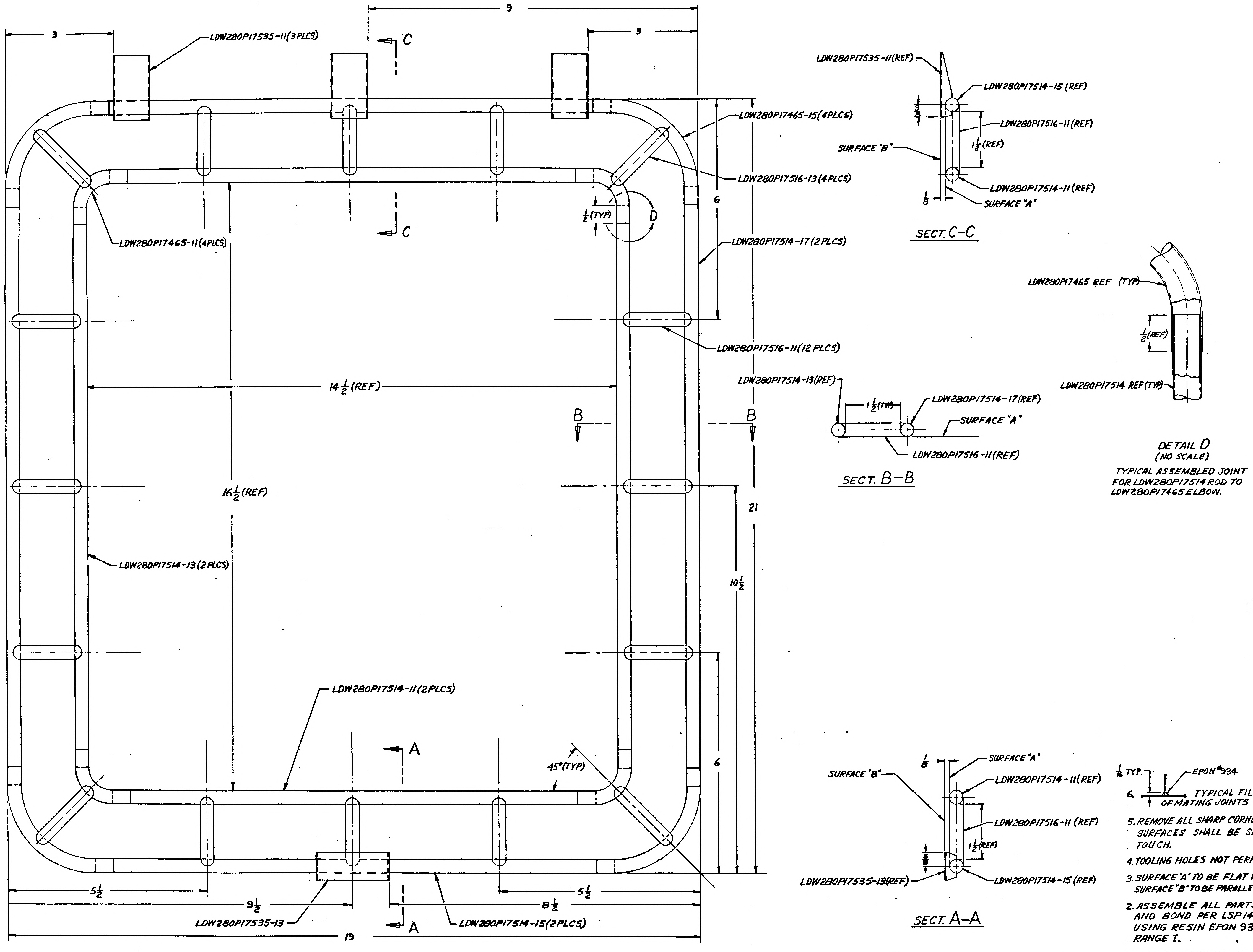
SIZE	CODE IDENT NO.	
B	26512	LDW280-28776

SCALE NONE SHEET 2.0

ENG 77.2 7-65

01

NAS 9-1100


9
3
3
LDW280P17535-11(3PLCS)
C
C
LDW280P17465-15(4PLCS)
LDW280P17516-13(4PLCS)
1/2(TYP)
D
LDW280P17465-11(4PLCS)
LDW280P17514-17(2PLCS)
6
LDW280P17516-11(12 PLCS)
14 1/2 (REF)
B
B
16 1/2 (REF)
21
10 1/2
LDW280P17514-13(2PLCS)
LDW280P17514-11(2PLCS)
A
A
45°(TYP)
6
5 1/2
9 1/2
8 1/2
5 1/2
19
LDW280P17535-13
LDW280P17514-15(2PLCS)
LDW280P17535-11(REF)
LDW280P17514-15 (REF)
LDW280P17516-11(REF)
SURFACE "B"
1 1/2(REF)
LDW280P17514-11(REF)
SURFACE "A"
1/8
LDW280P17514-13(REF)
1 1/2(TYP)
LDW280P17514-17(REF)
SURFACE "A"
LDW280P17516-11(REF)
LDW280P17465 REF (TYP)
1/2(REF)
LDW280P17514 REF(TYP)
SURFACE "A"
1/8
SURFACE "B"
LDW280P17514-11(REF)
LDW280P17516-11 (REF)
1 1/2(REF)
3/8
LDW280P17535-13(REF)
LDW280P17514-15 (REF)
1/16 TYP
EPON #934

SECT. C-C

SECT. B-B

DETAIL D
(NO SCALE)
TYPICAL ASSEMBLED JOINT
FOR LDW280P17514 ROD TO
LDW280P17465 ELBOW.

SECT. A-A

LDW280-28776-1

6. TYPICAL FILLET FOR BONDING OF MATING JOINTS EXCEPT DETAIL "D".

5. REMOVE ALL SHARP CORNES, EDGES, & BURRS. SURFACES SHALL BE SMOOTH TO THE TOUCH.

4. TOOLING HOLES NOT PERMITTED IN PARTS.

3. SURFACE "A" TO BE FLAT WITHIN ± 1/16
SURFACE "B" TO BE PARALLEL TO "A" WITHIN ± 1/16.

2. ASSEMBLE ALL PARTS AS SHOWN AND BOND PER LSP14-22500 USING RESIN EPON 934. CURE RANGE I.

1. LAYOUT RELEASE — TO BE REDRAWN ON PRODUCTION FORMAT.

NOTES

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

01 NAS 9-1130

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK
SIZE E
CODE IDENT NO. 26512
LDW280-28776
LEM
MODEL OR END ITEM
SCALE 1/1
SHEET 3.00

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO280 EO NO. 476
CONTROL INFO NO. LDW280A5542

ENG 22.7 REV 3-65

*TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45). QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280 - 25703	A6	SEE DRAWING
-25704	B7	
-25706	B1	
-25707	B4	
-25708	B6	
-28647	C1	
-28652	B8	
-28669	A3	
-28672	C1	
-28721	A2	
-28727	B2	
-28752	B3	
-28761	A4	
-28762	A1	
-28771	B5	
-28774	A8	
-28776	A1	
-28778	A1	
-28779	A4	
-28803	A3	
-28816	A2	
-28819	A2	
-51560	C1	
-51818	A3	
-51823	A1	
-52723	A5	
LDW280		SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: FR 2/23/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY		SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	2/16				2/15/67		2-16-67	2-17-67
0	V.D.I.				WJH		RMC	

GROUP IV: C
DRAWING TITLE: NOTED
DRAWING NO.: LEQ280
EO NO.: 476

ISSUED BY M. GREY / J. STRAKOSCH X1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL 35

01
NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO.	LDW280	EO NO.	793
CONTROL INFO NO.	LDW280B0053		

FOR THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS* THAT ARE EFF ON LM-4(34), REMOVE LM-4(34) THRU LM-15(45) REQMTS.

DRAWING NO. *	NEXT ASSY	TITLE	CHG NO.
LDW280-28561	LDW280-54553	SEE DWG	C5
-28773	-28561		A9
-28774	-28773		B1
-28775	-28773		B8
-28820	-28561		B2
-28819	-28820		A3
-18129	-28820		A4
-28776	-28561		A2
P17465	-28776		B3
P17514	-28776		B1
P17516	-28776		B4
P17535	-28776		B3
-28669	-54553		B1
-18239	-28561		A2
-54777			A2
P17496			A8
M17698			B7
P17479			A9
P17946			B3
P17967			B10
P18091			A3
-28757	-28561		B1
LDW280	LDW280	SEE DWG	

01 NAS 9-1100

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ *LCD 2011 CCA668 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REDESIGN OF THERMAL SHIELDING FOR EQUIP STOWAGE.	FOR *, REMOVED LM-4 THRU LM-15 REQMTS	Ⓡ C JK 11/8/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY								
DATE	11/7/67			11-6-67	11/7/67		11/7/67	11-7-67
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	793

11-10
ISSUED BY S. TAMRES/P. THORJUSEN x7033 SECTION VDI GROUP NO. 335 PL 25

LDW280-28777

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51561	LEM-6 (36)	1
↕	↕	LEM-5 (35)	1
		LEM-4 (34)	1
		LEM-3 (33)	1
		LEM-2 (32)	1
	LDW280-51561	LEM-1 (31)	1
LEM	LDW280-28561	LTA-8 (18)	1
PART NO. LDW280-28777-1		GAEC SCH NO. 52	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00						
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	B	GRUMMAN REC INFO		
LAST DASH NO. USED	-1	PRIM NO.	LE(001)	
		207	MP-	7-15-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	E.WALLACE 6-29-66	THERMO	
LAYOUT BY	E.WALLACE	MAT'LS	7/13/66
CHECKED BY			
GR. LEADER	7/12/66		
VEH DES INT			
STRUCTURES	7/14/66	PROJ ENGR	7-2-
STRUCTURES	Hilderman 7/15	REL GROUP	Bott 7-25-66
WEIGHTS	7/19		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

JAMB ASSY - D/S
QUAD IV - EXTERNAL PWR PLG
ACCESS DOOR

SIZE	CODE IDENT NO.	
B	26512	LDW280-28777

SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		LDW280-28777-1	E	JAMB ASSY							
7		LDW280P17465-17	E	ELBOW	SEE DETAIL DWG						
3		LDW280P17465-21	E	ELBOW							
2		LDW280P17514-23	E	ROD							
5		LDW280P17514-25	E	ROD							
2		LDW280P17514-29	E	ROD							
1		LDW280P17514-31	E	ROD							
5		LDW280P17516-11	E	STRUT							
3		LDW280P17516-15	E	STRUT							
2		LDW280P17516-17	E	STRUT							
2		LDW280P17535-11	E	BRACKET							
1		LDW280P17535-17	E	BRACKET	SEE DETAIL DWG						

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28777

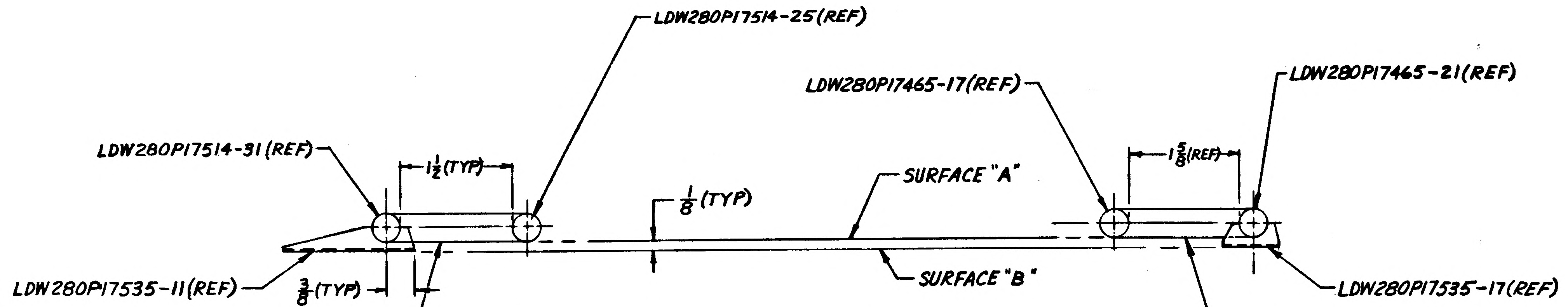
SCALE NONE

SHEET 2.00

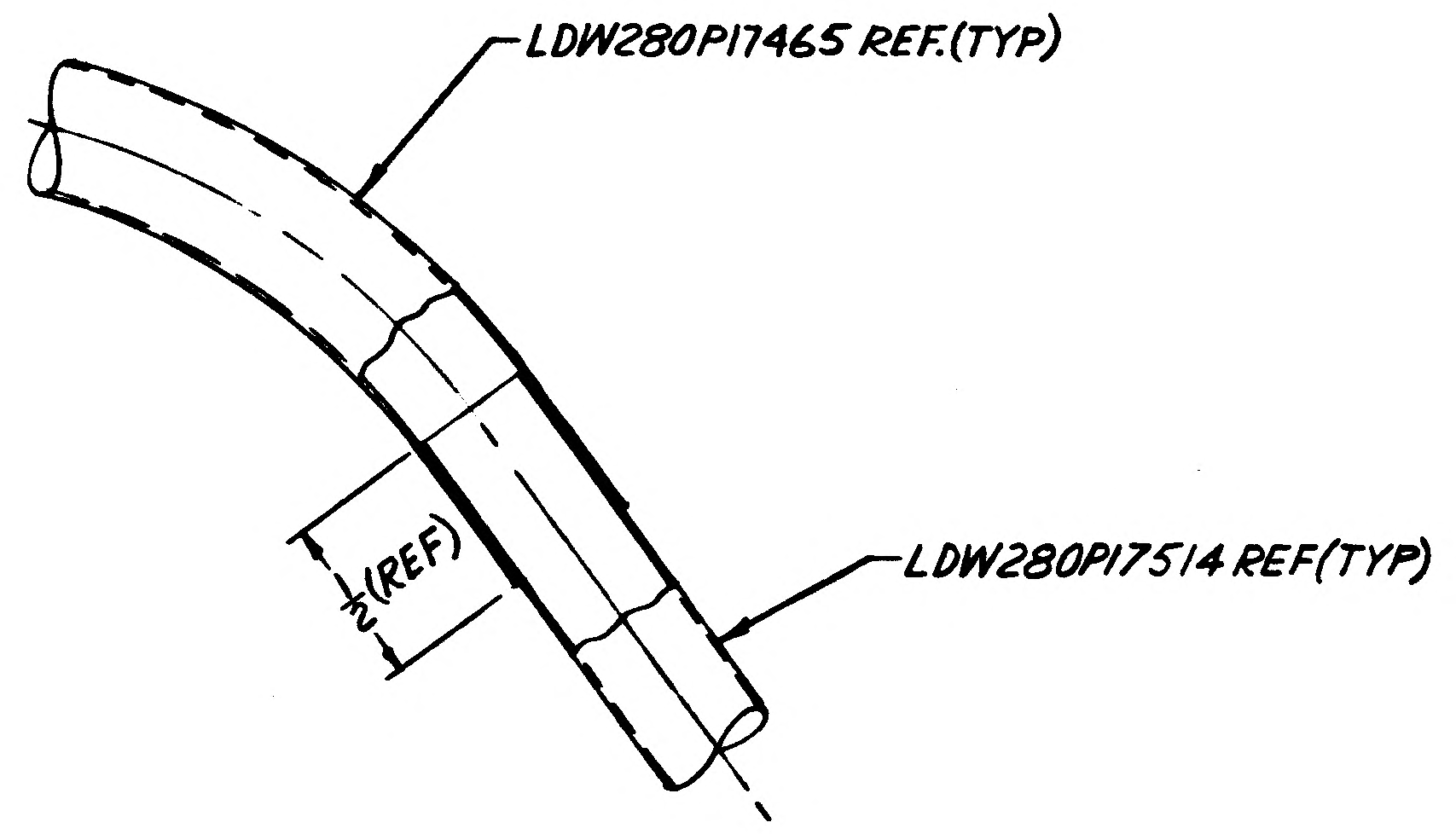
ENG 77.2 7-65

01

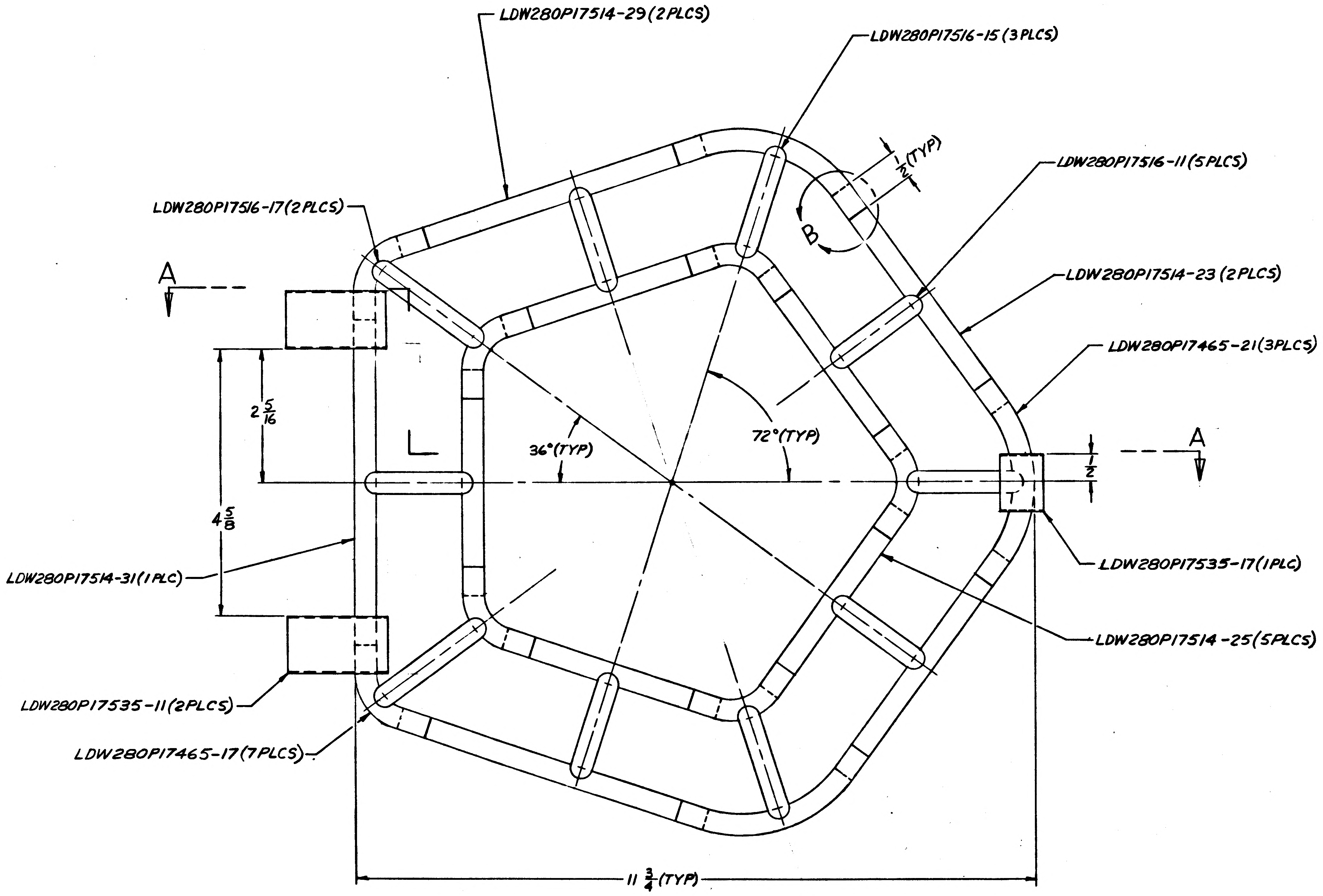
NAS 9-1100


LDW280P17514-25(REF)
LDW280P17465-17(REF)
LDW280P17465-21(REF)
LDW280P17514-31(REF)
1 1/2 (TYP)
1 5/8 (REF)
SURFACE "A"
1/8 (TYP)
LDW280P17535-11(REF)
3/8 (TYP)
SURFACE "B"
LDW280P17535-17(REF)
LDW280P17516-11(REF)
LDW280P17516-15(REF)

SECT. A–A


LDW280P17465 REF.(TYP)
1/2 (REF)
LDW280P17514 REF.(TYP)

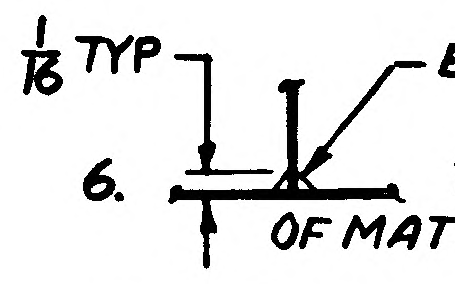
DETAIL B
(NO SCALE)
TYPICAL ASSEMBLED JOINT
FOR LDW280P17514 ROD TO
LDW280P17465 ELBOW.


LDW280P17514-29(2PLCS)
LDW280P17516-15(3PLCS)
1/2 (TYP)
B
LDW280P17516-11(5PLCS)
LDW280P17516-17(2PLCS)
A
LDW280P17514-23(2PLCS)
LDW280P17465-21(3PLCS)
2 5/16
72°(TYP)
36°(TYP)
A
1/2
4 5/8
LDW280P17535-17(1PLC)
LDW280P17514-31(1PLC)
LDW280P17514-25(5PLCS)
LDW280P17535-11(2PLCS)
LDW280P17465-17(7PLCS)
11 3/4 (TYP)

LDW280-28777-1

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	


1/16 TYP
EPON #934

6. TYPICAL FILLET FOR BONDING OF MATING JOINTS EXCEPT DETAIL "B".

5. REMOVE ALL SHARP CORNERS, EDGES & BURRS. SURFACES SHALL BE SMOOTH TO THE TOUCH.

4. TOOLING HOLES NOT PERMITTED IN PARTS.

3. SURFACE "A" TO BE FLAT WITHIN ± 1/32.
SURFACE "B" TO BE PARALLEL TO "A" WITHIN ± 1/32.

2. ASSEMBLE ALL PARTS AS SHOWN AND BOND PER LSP14-22500 USING RESIN EPON 934. CURE RANGE I.

1. LAYOUT RELEASE – TO BE REDRAWN ON PRODUCTION FORMAT.

NOTES

01 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
	SIZE E	CODE IDENT NO. 26512	LDW280-28777
LEM MODEL OR END ITEM	SCALE 1/1		SHEET 3.00

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28777
EO NO. A1
CONTROL INFO NO. LDW280A4851

IN MODEL BLOCK
REMOVE LM-4 THRU LM-6 FROM -1 EFF N/A LDW280-28561

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO PROVIDE PROPER CLEARANCE FOR ASTRONAUT ACCESS LCR 661

DESCRIPTION OF EO: IN MODEL BLOCK REMOVED LM-4 THRU LM-6 FROM -1 EFF N/A LDW280-28561

GAEC EO RELEASE: 1/27/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	
		THRU	
		LM-6 (36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	[illegible]				[illegible]		[illegible]	[illegible]
DATE	1/27/67				[illegible]		1-27-67	1-27-67
5								

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	JAMB ASSY D/S QUAD IV EXTERNAL PWR PLG ACCESS DOOR	LDW280-28777	A1

ISSUED BY R. CLARK/J STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-28777
EO NO. A2
CONTROL INFO NO. LM-27-351

REF EO A1
REVISE TO READ:
IN M/B FOR -1
N/A LDW280-51561 WAS LDW280-28561

THIS IS A REVISION OF EO A1

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐

REASON FOR EO: PROVIDE PROPER CLEARANCE FOR ASTRONAUT ACCESS LCR 661

DESCRIPTION OF EO: REF E.O. A1 REVISED N/A S/B LDW 280 51561 (WAS LDW280-28561)

GAEC EO RELEASE C
27-020

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	—	LM-4-(34)	
		THRU	
		LM 6 (36)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY							
DATE				3-1-67	3-1-67	3-3-67	3-2-67
5		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY C 67
DRAWING TITLE: JAMB ASSY D/S QUAD III EXTERNAL PWR PLG ACCESS DR.
DRAWING NO. LDW280-28777
EO NO. A2

ISSUED BY LIAISON B WALLACE 1921 4043 3-1-67 SECTION V.D.1 GROUP NO. 335 PL 35

01

NAS 9-1100

LDW280-28778

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51669	LEM-6(36)	1
		LEM-5(35)	1
		LEM-4(34)	1
		LEM-3(33)	1
		LEM-2(32)	1
	LDW280-51669	LEM-1(31)	1
LEM	LDW280-28669	LTA-8(18)	1
PART NO. LDW280-28778-1		GAEC SCH NO. 52	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00						
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED D

LAST DASH NO. USED -1

GRUMMAN REL INFO

PRIM NO. 207 | K(001) MP 7/25/66

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY E. WALLACE 7-6-66

LAYOUT BY E. WALLACE

CHECKED BY

GR. LEADER 7/19/66

VEH. DES INT 7/21

STRUCTURES 7/22

STRUCTURES 7/22

WEIGHTS 7-30

THERMO for MT 8/20/66

MATLS 7/20/66

PROJ ENGR

REL GROUP 8-24-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FRAME ASSY - D/S
QUAD IV, S-BAND CABLE
ACCESS DOOR

SIZE B | CODE IDENT NO. 26512 | LDW280-28778

SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY						-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						3		LDW280P17535-15	E	BRACKET	SEE DETAIL DWG						
						1		LDW280P17535-13	E	BRACKET	↕						
						4		LDW280P17531-13	E	STRUT	↕						
						12		LDW280P17531-11	E	STRUT	↕						
						2		LDW280P17514 -21	E	ROD	↕						
						2		↕ -19	E	↕	↕						
						2		↕ -17	E	↕	↕						
						2		LDW280P17514-15	E	ROD	↕						
						4		LDW280P17465-15	E	ELBOW	↕						
						4		LDW280P1,465-13	E	ELBOW	SEE DETAIL DWG						
								LDW280-28778-1	E	FRAME ASSY							

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

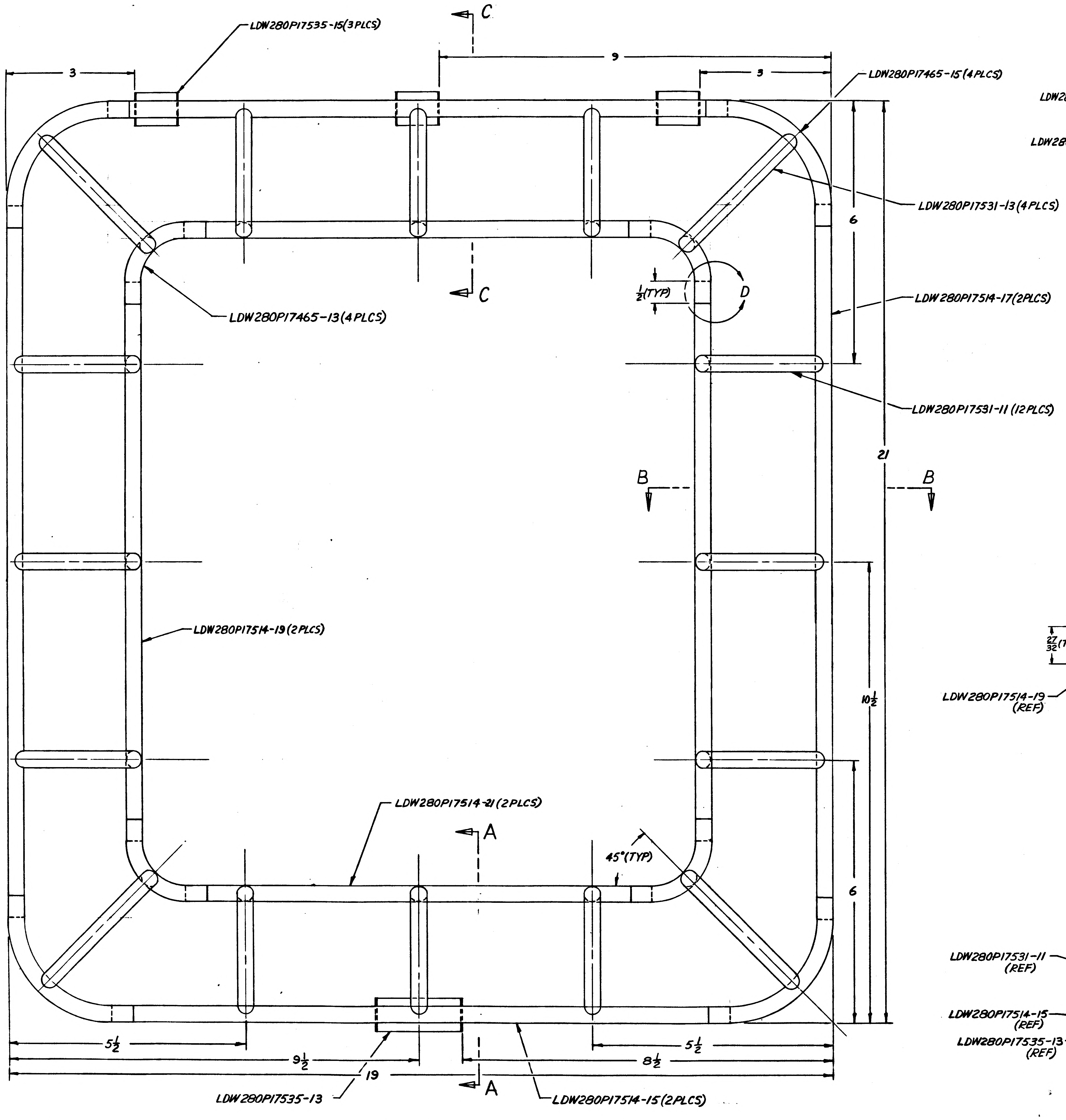
SIZE	CODE IDENT NO.	
B	26512	LDW280-28778

SCALE NONE SHEET 2.00

ENG 77.2 7-65

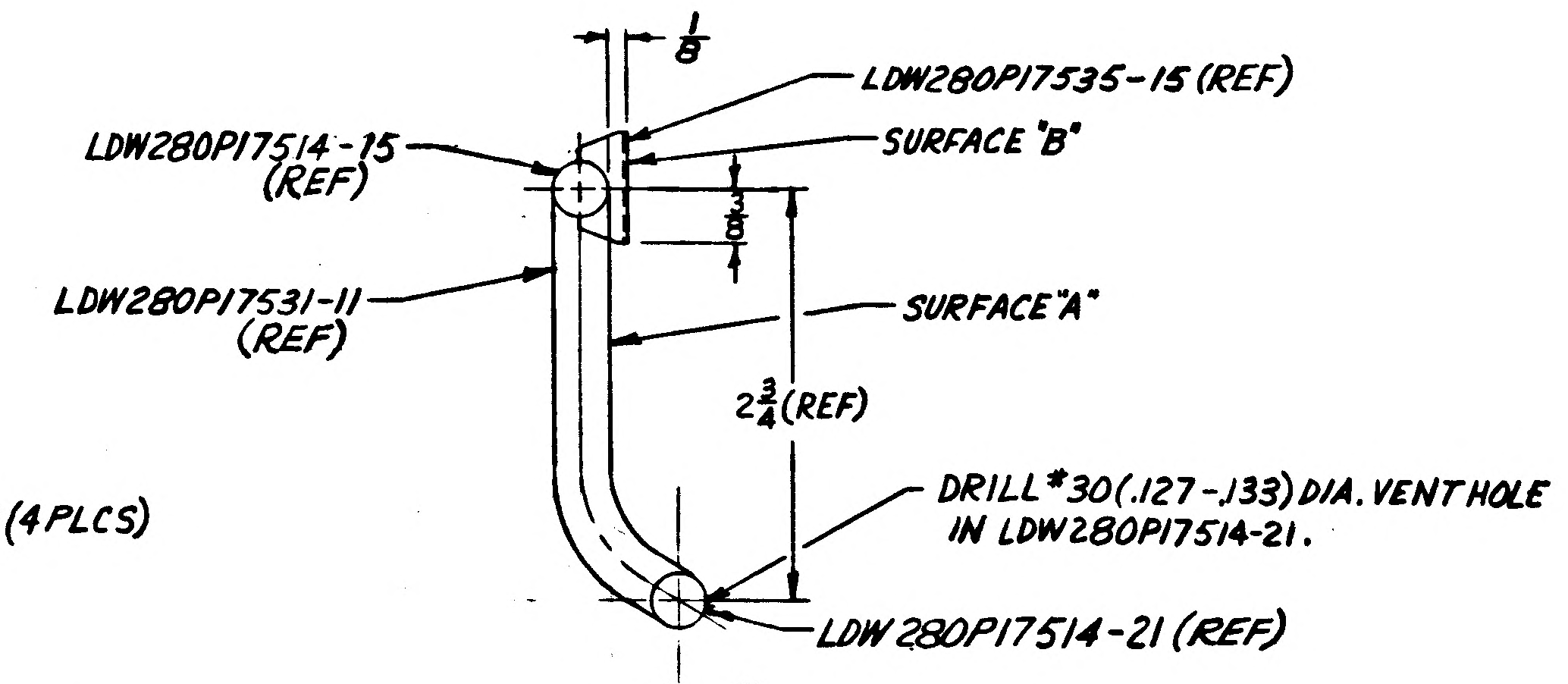
01

NAS 9-1100



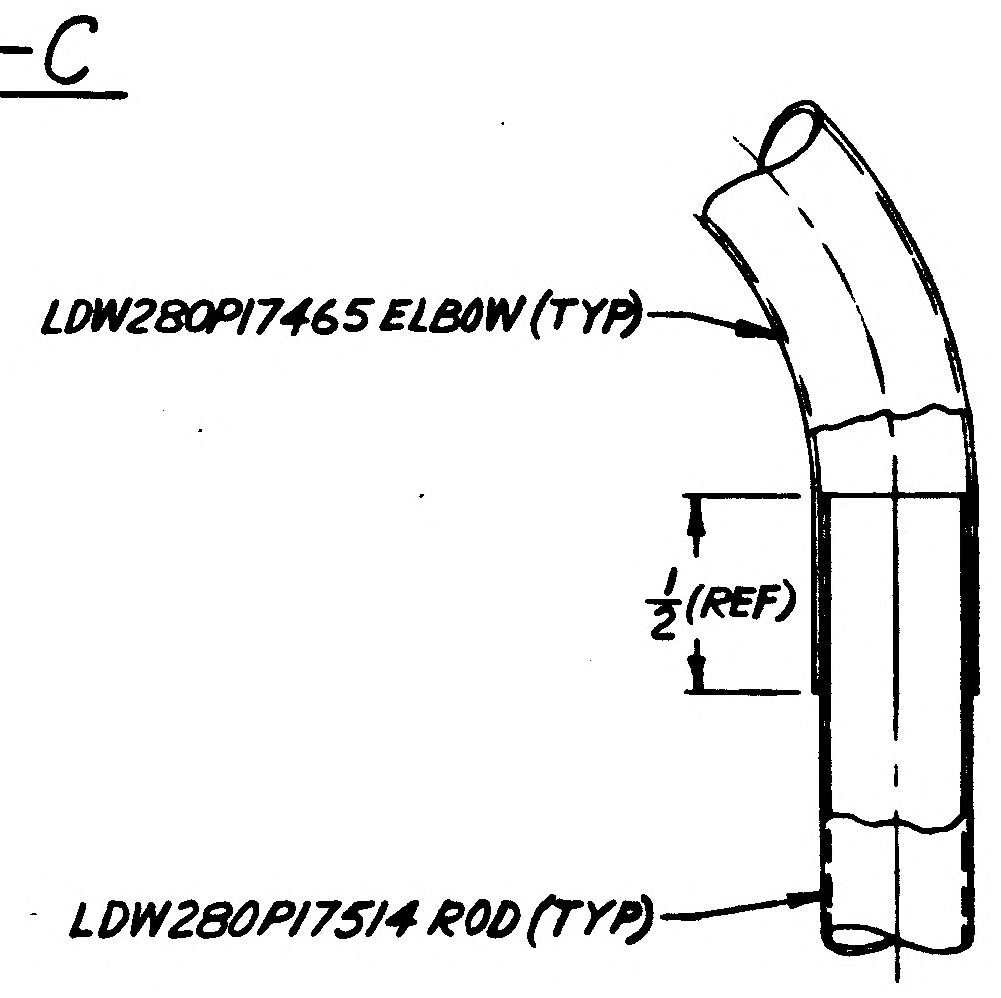
LDW280P17535-15(3PLCS)
C
3
9
3
LDW280P17465-15(4PLCS)
LDW280P17531-13(4PLCS)
6
LDW280P17465-13(4PLCS)
1/2(TYP)
D
C
LDW280P17514-17(2PLCS)
LDW280P17531-11 (12PLCS)
21
B
B
LDW280P17514-19(2PLCS)
10 1/2
LDW280P17514-21(2PLCS)
A
45°(TYP)
6
5 1/2
9 1/2
8 1/2
5 1/2
19
A
LDW280P17535-13
LDW280P17514-15(2PLCS)

LDW280-28778-1



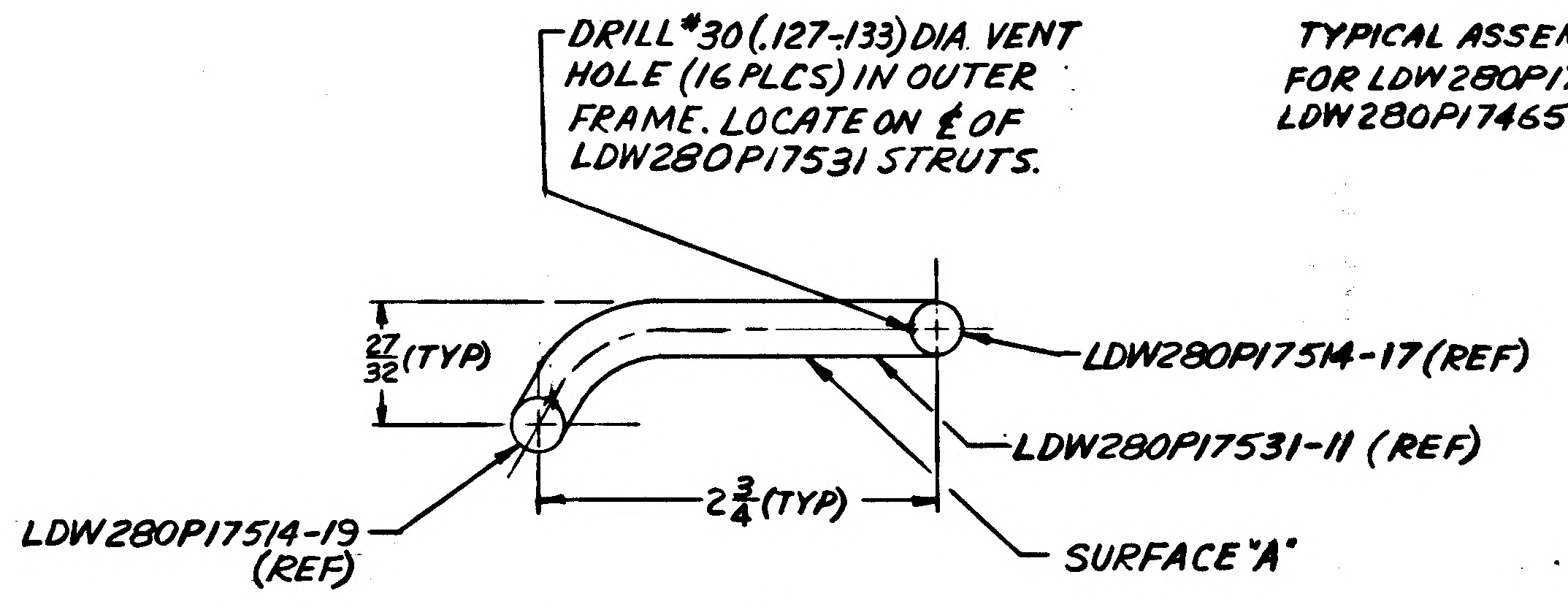
1/8
LDW280P17535-15 (REF)
LDW280P17514-15 (REF)
SURFACE "B"
3/8
LDW280P17531-11 (REF)
SURFACE "A"
2 3/4(REF)
DRILL #30(.127-.133) DIA. VENT HOLE IN LDW280P17514-21.
LDW280P17514-21 (REF)

SECT. C-C



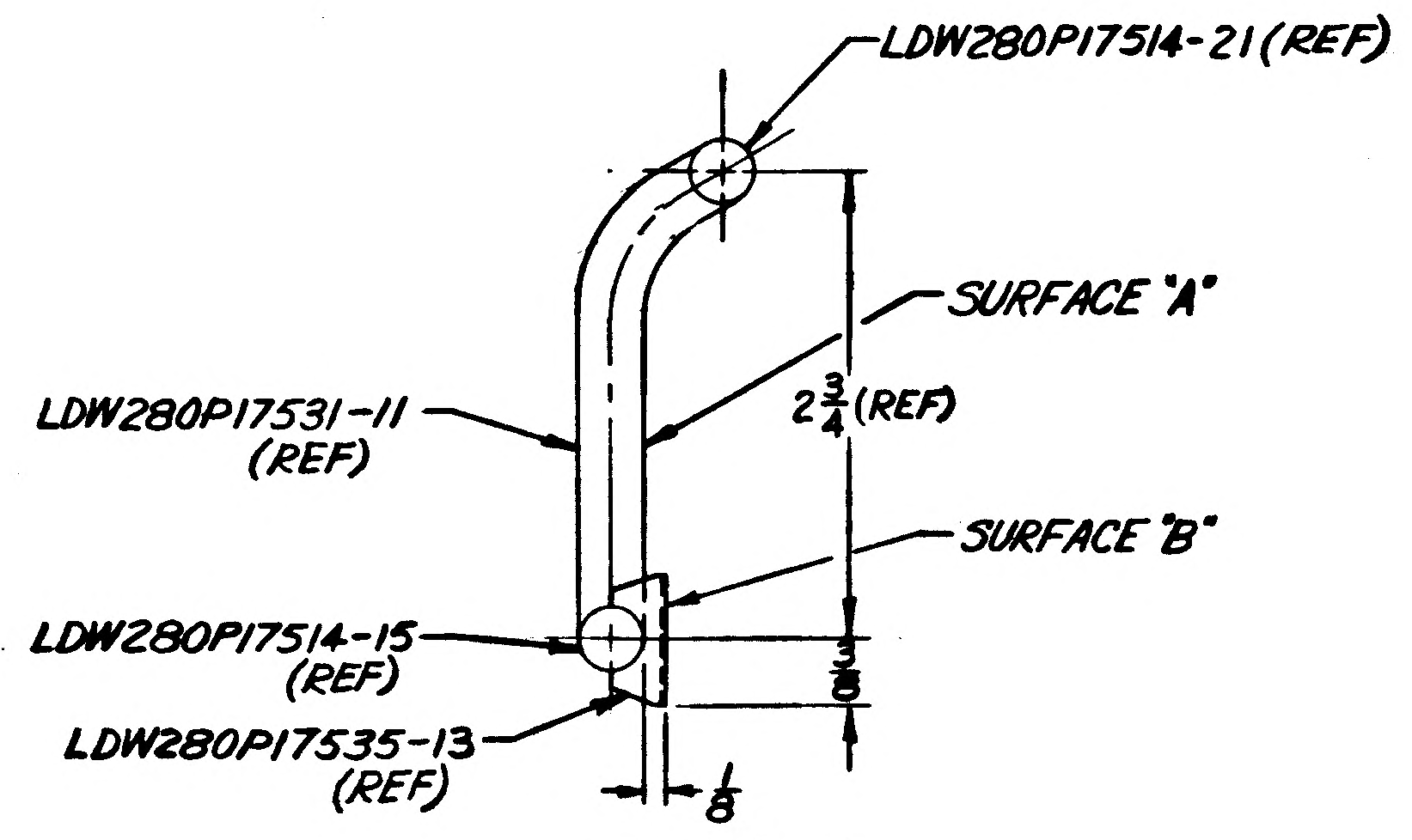
LDW280P17465 ELBOW (TYP)
1/2(REF)
LDW280P17514 ROD (TYP)

DETAIL D
(NO SCALE)
TYPICAL ASSEMBLED JOINT FOR LDW280P17514 ROD TO LDW280P17465 ELBOW.



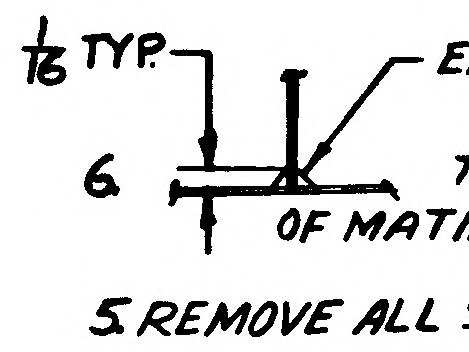
DRILL #30(.127-.133) DIA VENT HOLE (16 PLCS) IN OUTER FRAME. LOCATE ON ℄ OF LDW280P17531 STRUTS.
27/32(TYP)
LDW280P17514-17 (REF)
LDW280P17531-11 (REF)
LDW280P17514-19 (REF)
2 3/4(TYP)
SURFACE "A"

SECT. B-B



LDW280P17514-21 (REF)
SURFACE "A"
2 3/4(REF)
LDW280P17531-11 (REF)
SURFACE "B"
LDW280P17514-15 (REF)
3/8
LDW280P17535-13 (REF)
1/8

SECT. A-A



1/16 TYP.
EPON #934

6. TYPICAL FILLET FOR BONDING OF MATING JOINTS EXCEPT DETAIL "D".

5. REMOVE ALL SHARP CORNERS, EDGES & BURRS. SURFACES SHALL BE SMOOTH TO THE TOUCH.

4. TOOLING HOLES NOT PERMITTED IN PARTS.

3. SURFACE "A" TO BE FLAT WITHIN ± 1/32. SURFACE "B" TO BE PARALLEL TO "A" WITHIN ± 1/32.

2. ASSEMBLE ALL PARTS AS SHOWN AND BOND PER LSP14-22500 USING RESIN EPON 934. CURE RANGE I.

1. LAYOUT RELEASE – TO BE REDRAWN ON PRODUCTION FORMAT.

NOTES

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	-
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

01

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
	SIZE E	CODE IDENT NO. 26512	LDW280-28778
LEM MODEL OR END ITEM	SCALE 1/1		SHEET 3.00

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMP-4

DWG. NO. LEO280
EO NO. 476
CONTROL INFO NO. LDW280 A 5542

ENG 60.2 REV 3-65

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH* NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45). QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280 - 25703 ✓	A6	SEE DRAWING
-25704 ✓	B1	
-25706 ✓	B1	
-25707 ✓	B4	
-25708 ✓	B6	
-28647 ✓	C1	
-28652 ✓	B8	
-28669 ✓	A3	
-28672 ✓	C1	
-28721 ✓	A2	
-28727 ✓	B2	
-28752 ✓	B3	
-28761 ✓	A4	
-28762 ✓	A1	
-28771 ✓	B5	
-28774 ✓	A8	
-28776 ✓	A1	
-28778 ✓	A1	
-28779	A4	
-28803	A3	
-28816	A2	
-28819	A2	
-51560	C1	
-51818	A3	
-51823	A1	
-52723	A5	
LDW280		SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: FR 2/23/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D
PRIORITY: C
APPROVED BY / DATE: 6; V.D.I.; STRESS GROUP WJH 2/15/67; PROJ ENGRG 2-16-67; GOVT 2-17-67
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 476

ISSUED BY M. GREY / J. STRAKOSCH X-1453 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL 35

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28778		EO NO. A2
CONTROL INFO NO. LDW280-B-0722		

REMOVE LM-4(34) THRU LM-15(45) EFF. FOR -1

5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCR 2011 CCA668 Ⓡ

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PARTS NOT USED BECAUSE OF MOD. EQUIP. STOWAGE	REMOVED LM-4(34) THRU LM-15(45) EFF. FOR -1	12/7/67

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓			✓	DATE	12/4/67			12-4-67	12/5/67		12/1/67	12/6/67
LM		LM-4(34) THRU		REVISE DWG	RECORD EO	REWORK	SCRAP	D	V.D.I	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
		LM-15(45)		PRIORITY C												

DRAWING TITLE	DRAWING NO.	EO NO.
FRAME ASSY - D/S - QUAD IV S-BAND CABLE ACCESS DOOR	LDW280-28778	A2

CDR 12-16-67
ISSUED BY A. PROKOPETZ X7036 SECTION V.D.I GROUP NO. 335 PL 25

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NAS 9-1100

LDW280-28779

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51668	LEM-6 (36)	1
		LEM-5 (35)	1
		LEM-4 (34)	1
		LEM-3 (33)	1
		LEM-2 (32)	1
	LDW280-51668	LEM-1 (31)	1
LEM	LDW280-28668	LTA-8 (18)	1

PART NO. LDW280-28779-1

GAEC SCH NO. 52

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00	2.00	3.00						
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED D

LAST DASH NO. USED -1

GRUMMAN REL INFO
PRIM NO. 207
JK (001) MP 7/25/66

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.010 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY E WALLACE 7-7-66
LAYOUT BY E WALLACE
CHECKED BY
GR LEADER 7/19/66
VEH DES INT
STRUCTURES 7/22
STRUCTURES Biederman 7/22
WEIGHTS 7-30
THERMO 8/12/66
MATLS 7/20/66
PROJ ENGR
REL GROUP 8-17-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FRAME ASSY - D/S
QUAD IV - EXTERNAL PWR PLUG
ACCESS DOOR

SIZE B
CODE IDENT NO. 26512
LDW280-28779
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1		LDW280P17535-17	E	BRACKET	SEE DETAIL DWG						
2		LDW280P17535-15	E	BRACKET							
3		LDW280P17531-15	E	STRUT							
2		LDW280P17531-13	E	STRUT							
1		LDW280P17514-31	E	ROD							
2		-29	E								
4		-27	E								
1		LDW280P17514-23	E								
1		LDW280P17483-13	E								
1		LDW280P17483-11	E	ROD							
3		LDW280P17465-21	E	ELBOW							
5		LDW280P17465-19	E	ELBOW							
2		LDW280P17465-17	E	ELBOW	SEE DETAIL DWG						
		LDW280-28779-1	E	FRAME ASSY							

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

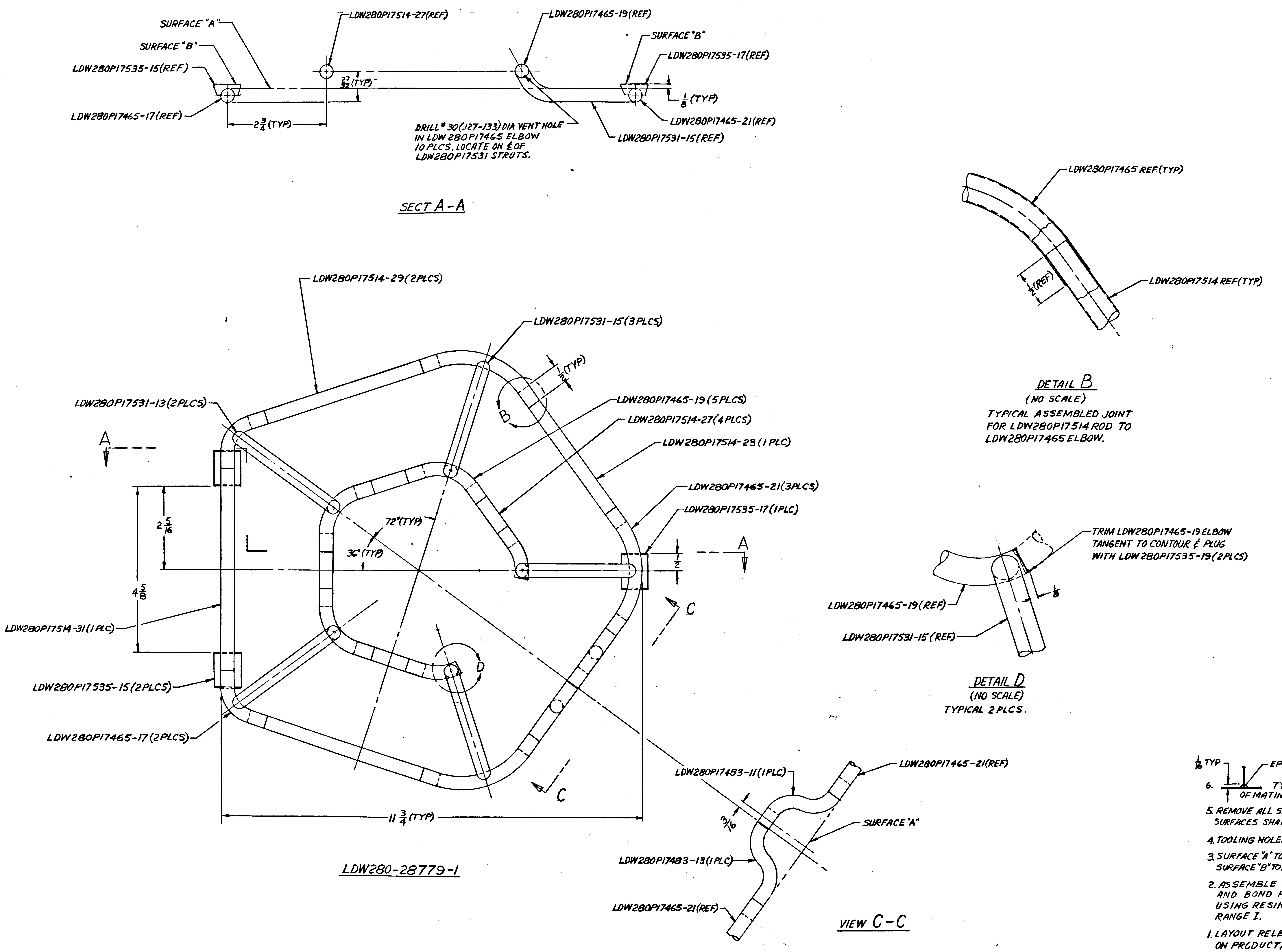
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28779
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


SURFACE "A"
SURFACE "B"
LDW280P17535-15(REF)
LDW280P17465-17(REF)
LDW280P17514-27(REF)
27/32 (TYP)
2 3/4 (TYP)
LDW280P17465-19(REF)
SURFACE "B"
LDW280P17535-17(REF)
1/8 (TYP)
LDW280P17465-21(REF)
LDW280P17531-15(REF)
DRILL # 30 (.127-.133) DIA VENT HOLE IN LDW 280P17465 ELBOW 10 PLCS. LOCATE ON ℄ OF LDW280P17531 STRUTS.
LDW280P17514-29 (2 PLCS)
LDW280P17531-15 (3 PLCS)
1/2 (TYP)
B
LDW280P17531-13 (2 PLCS)
LDW280P17465-19 (5 PLCS)
LDW280P17514-27 (4 PLCS)
LDW280P17514-23 (1 PLC)
LDW280P17465-21 (3 PLCS)
LDW280P17535-17 (1 PLC)
A
A
2 5/16
4 5/8
72° (TYP)
36° (TYP)
1/2
C
C
D
LDW280P17514-31 (1 PLC)
LDW280P17535-15 (2 PLCS)
LDW280P17465-17 (2 PLCS)
11 3/4 (TYP)
LDW280P17465 REF.(TYP)
1/2 (REF)
LDW280P17514 REF.(TYP)
TRIM LDW280P17465-19 ELBOW TANGENT TO CONTOUR & PLUG WITH LDW280P17535-19 (2 PLCS)
1/8
LDW280P17465-19 (REF)
LDW280P17531-15 (REF)
LDW280P17483-11 (1 PLC)
LDW280P17465-21 (REF)
3/16
SURFACE "A"
LDW280P17483-13 (1 PLC)
LDW280P17465-21 (REF)
1/16 TYP
EPON #934

SECT A-A

LDW280-28779-1

DETAIL B
(NO SCALE)
TYPICAL ASSEMBLED JOINT FOR LDW280P17514 ROD TO LDW280P17465 ELBOW.

DETAIL D
(NO SCALE)
TYPICAL 2 PLCS.

VIEW C-C

6. TYPICAL FILLET FOR BONDING OF MATING JOINTS EXCEPT DETAIL "B"

5. REMOVE ALL SHARP CORNERS, EDGES & BURRS. SURFACES SHALL BE SMOOTH TO THE TOUCH.

4. TOOLING HOLES NOT PERMITTED IN PARTS.

3. SURFACE "A" TO BE FLAT WITHIN ± 1/32
SURFACE "B" TO BE PARALLEL TO "A" WITHIN ± 1/32.

2. ASSEMBLE ALL PARTS AS SHOWN AND BOND PER LSP 14-22500 USING RESIN EPON 934. CURE RANGE I.

1. LAYOUT RELEASE – TO BE REDRAWN ON PRODUCTION FORMAT.

NOTES

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LEM	E	26512	LDW280-28779
	SCALE 1/1		SHEET 3.00

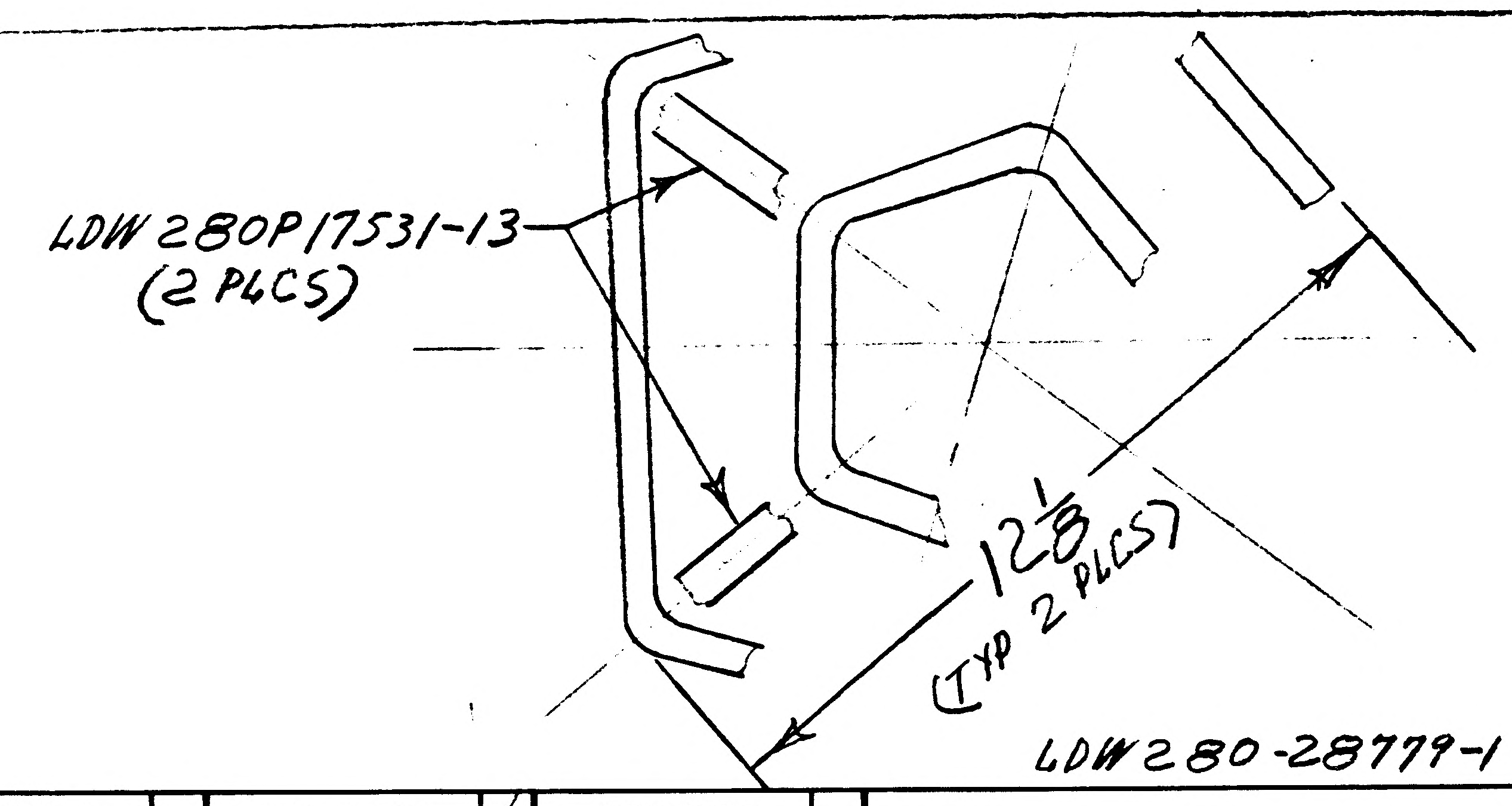
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28779	EO NO. A1
CONTROL INFO NO. LM-27-306	

1. REF TO SHEET #2.00
ADD TO B/M PT. NO. "LDW 280P17535-19"-QTY. PER -1 ASSEMBLY "2"-I&T "E" — NOMENCLATURE "BRACKET" — MATERIAL "SEE DETAIL DRAWING."

2.



ADD 12 1/8 DIMENSION AS SHN.

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: DETAIL PART LDW280P17535-19 REQ'D TO COMPLETE -1 ASSEM. 12 1/8 DIMENSION REQ'D TO MAKE ASSEM.

DESCRIPTION OF EO: 1 ADDED TO B/M, SHEET 2.00, PT. NO. LDW280P17535-19.
2 ADDED 12 1/8 DIMENSION FOR -1 ASSY.

GAEC EO RELEASE: 52 27-030

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	LM-1
		THRU 6. (31	THRU 36)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT	REQ'D.	DATE	12/20				12-5-66	12-3-66	12-6-66	12-5-66
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VD1	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

J. Tobey

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C 27	FRAME ASS'Y D/S QUAD IV EXTERNAL POWER PLUG	LDW280 28779	A1

ISSUED BY LIAISON B WALLACE 1921 4043 12-2-66 SECTION VD1/DS GROUP NO. 335 PL 35

01 NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER EMF A

DWG. NO. LDW280-28779	EO NO. A2
CONTROL INFO NO. LDW280A4852	

IN MODEL BLOCK
REMOVE EFF LM-1 THRU LM-6 FROM -1 . WITH N/A LDW280-51668
ONLY

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	CL EO	GAEC EO RELEASE C
TO PROVIDE PROPER CLEARANCE FOR ASTRONAUT ACCESS LCR 661	IN M/B REMOVED LM-1 THRU LM-6 FROM -1 EFF N/A LDW280-51668	E	1/27/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-1 (31)	
		THRU	
		LM-6 (36)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			✓

APPROVED BY								
DATE	1-1-67				1/25/67		1/26/67	1-27
5	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	FRAME ASSY D/S QUAD IV EXTERNAL PWR PLUG ACCESS DOOR	LDW280-28779	A2

ISSUED BY R CLARK/J STRAKOSCH X1153 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28779
EO NO. A3
CONTROL INFO NO. LDW280A 5099

THIS EO IS A REVISION OF EO A2

IN MODEL BLOCK
REMOVE EFF LM-4 THRU LM-6 FROM-1 WITH N/A LDW280-51668 ONLY WAS EFF LM-1 THRU LM-6 FROM-1 WITH N/A LDW280-51668 ONLY

ON-1 FOR LM-1 THRU LM-3 N/A LDW280-28668 WAS LDW280-51668

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO PROVIDE PROPER CLEARANCE FOR ASTRONAUT ACCESS LCR661

DESCRIPTION OF EO: REF EO A2 IN M/B REMOVED EFF LM-4 THRU LM-6 FROM-1 WITH N/A LDW280-51668 ONLY WAS EFF LM-1 THRU LM-6 FROM-1 WITH N/A LDW280-51668 ONLY ON-1 FOR LM-1 THRU LM-3 N/A LDW280-28668 WAS LDW280-51668

GAEC EO RELEASE: 2/6/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
		THRU	
		LM-6 (E6)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY							
DATE	1/31/67			1/31/67	2-1-67		2/3/67	2/4/67
6	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: FRAME ASSY D/S [illegible] IV EXTERNAL [illegible] ACCESS DOOR

DRAWING NO.: LDW280-28779

EO NO.: A3

ISSUED BY R. CLARK [illegible] X1153 SECTION VD1 GROUP NO. 335 PL 35

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMP-4

DWG. NO. LE0280
EO NO. 476
CONTROL INFO NO. LDW280 A 542 *

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45). QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280 - 25703	A6	SEE DRAWING
-25704	B1	
-25706	B1	
-25707	B4	
-25708	B6	
-28647	C1	
-28652	B8	
-28669	A3	
-28672	C1	
-28721	A2	
-28727	B2	
-28752	B3	
-28761	A4	
-28762	A1	
-28771	B5	
-28774	A8	
-28776	A1	
-28778	A1	
-28779	A4	
-28803	A3	
-28816	A2	
-28819	A2	
-51560	C1	
-51818	A3	
-51823	A1	
-52723	A5	
LDW280		SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: FR 2/23/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11	(41) LEM-12(42)
LEM		LEM-13(43) LEM-14	(44) LEM-15(45)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D
APPROVED BY / DATE: V.D.I. 2/15/67; STRESS GROUP WJH 2/15/67; PROJ ENGRG 2-16-67; GOVT 2-17-67
PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LE0280
EO NO.: 476

ISSUED BY M. GREY / J. STRAKOSCH · X-1153 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL 35

01
NAS 9-1100

LDW280-28780 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54509	LM-15 (45)	4 EA
		LM-14 (44)	4 EA
		LM-13 (43)	4 EA
		LM-12 (42)	4 EA
		LM-11 (41)	4 EA
		LM-10 (40)	4 EA
		LM-9 (39)	4 EA
		LM-8 (38)	4 EA
		LM-7 (37)	4 EA
		LM-6 (36)	4 EA
		LM-5 (35)	4 EA
	LDW280-54509	LM-4 (34)	4 EA
LM	LDW280-53509	LM-3 (33)	4 EA
PART NO. LDW280-28780-5,-6		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52509	LM-2 (32)	4 EA
LM	LDW280-51509	LM-1 (31)	4 EA
LM	LDW280-28509	LTA-8 (18)	4 EA
PART NO. LDW280-28780-1,-2		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET		1.11		
REV		A		
SHEET				
REV				

LAST SECT LTR USED	F
LAST DASH NO. USED	-6

GRUMMAN REL INFO 1A

PRIM NO.	1K(001)	
207	01-16	6/12/

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	R.J. DICK	MATERIALS	A. KENGER 6/21
LAYOUT BY	R.J. DICK		
CHECKED BY			
GP LEADER	J. STRAKOSCH 6/16/66		
VEH DES INT	W. BISCHOFF 6/20		
STRUCT	W/H FEB 6/21	PROJ ENGR	PLINKETT 22/Jun/66
STRUCT	P. HILDERMAN 6/21	REL GROUP	Pott, 6/27/66
WEIGHTS	W. MANDRAS 6/22		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FORMER INSTALLATION -
DESCENT STAGE - UPPER OUTRIGGER
STRUT PRESSURIZATION VENT

SIZE	CODE IDENT NO.		
B	26512	LDW280-28780	A
SCALE NONE		SHEET 1.00 OF 5	

ENG 77.1 12-65

THIS DWG SUPERSEDES LDW280-28780 NC. 6/27/66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED NO CHG-LAST REV N.C. H. BAREFOOT MAY-8-1968 ADDED SH 1.10, 2.00 & 3.00.-J SIZE WAS F SIZE.						
A	1	1.00					✓	EO-A1	ON-1 REMOVED LDW280-28780-1 REQMTS FROM N/A LDW280-28509 FOR LTA-8 (18)	LTA-8 (18)		-1	H. BAREFOOT MAY-16-1968		
	2						✓	EO-A2	ADDED PART NO. LDW280P17795-17(4) & -18 (1) TO B/M & NOTE 1. REMOVED LDW280P17795-15 FROM B/M & NOTE 1.	LTA-8, LM-1 THRU LM-6	NOT	REQD			
	3	1.00 1.10 2.00 3.00	4A				✓	EO-A3	IN FLD & B/M REMOVED -3 ASSY, LDW280P17795-11, -13, -17, & -18 & MS20470AD4, REVISED -1 INSTL & ADDED -2 INSTL, LDW280-18196-11, -13 & -14, LDW280-18197-11, -13, -15, -16, -17, & -18. GT535G-LAS0005, LDW280-18198-11, -13, & -15 (2), LDW280-18199-11, LDW280-18200-11 (2), -13, & -15, MS20470AD4, MS20426AD4 REMOVED NOTES 1 & 2 -1 WAS (8 REQD), ADDED N/A LDW280-28509 FOR LTA-8 (18), REMOVED N/A LDW280-55509 (LM-5), LDW280-56509 (LM-6), ADDED LDW280-54509 FOR LM-5 (35) THRU LM-15 (45)	LTA-8 (18) LM-1 (31) THRU LM-15 (45)	✓				
	4	1.10, 2.00, 3.00	4A 6B					EO-A4	IN FLD/DWG & B/M FOR -1 & -2 INSTL LDW280-18197-19 WAS -13, LDW280-18198-17 & -19 WAS -11 & -13, IN FLD/DWG DIM 13 7/8 ± 1/8 WAS 14 ± 1/8.		✓				
	5	1.10, 2.00 3.00	6A					EO-A5	FOR -1 & -2 INSTLS, IN FLD/DWG & B/M, MS27039DD0807(1) WAS MS27039DD0809(1)		✓				
	6	1.00, 1.10, 2.00, 3.00	4A	P		✓		EO A6 LCD 2360	RESTRICT -1 & -2 INSTL TO LTA-8, LM-1, & LM-2. ADD -5 & -6 INSTL (IDENT TO -1 & -2 RESP) LM-3 (33) - LM-15 (45) (-5 & -6 MAY BE REWORKED FROM -1 & -2)	LM-3 (33) THRU LM-15 (45)	NOTED				
	7	3.00		P		✓		EO-A7 LCD 2360	REF EO A6 ADDED SECT E-E REMOVED LDW280P18037-11 (2) ON -5 & -6. ON -5 & -6 INSTL GS26F-1-1 (7 REQD) WAS (8 REQD) CORRECTED SECT D-D ADDED GS26E-1 (2 REQD) ON -5 & -6	LM-3 (33) THRU LM-15 (45)	✓				
	8	3.00	1D				✓	EO-A8	ON-1 & -2, IN FLD: REVISED NOTE TO INCLUDE, AFTER BOND, "& OVERLAY 1/8 ON OUTER. EDGES OF".	LM-3 THRU LM-15	✓		H.D.		
	9	3.00	1D			✓		EOA9	REF EOA8: ON-5 & -6 INSTL WAS: ON-1 & -2 INSTL		✓		DUMITRESKU 6-2-68		
	10	3.00	1D				✓	EOA10	REF EOA8: ON-5 & -6 INSTL WAS ON-1 & -2 INSTL H.D.		✓				
	11	3.00	3A				✓		REF EOA3: ON VIEW A-A; DIM 5/8 TYP 5/8 3/8 TYP. ADDED NOTES 3 & 4. H.D	LTA-8, LM-1 THRU LM-15	✓			6-7-68	

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	MATLS
A						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28780	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	[redacted] APPD
A	12	3.00	1D				✓		REF EOA8: "REVISED NOTE" SHOULD BE "ADDED NOTE 5". Ⓟ ADDED SH 1.11 H.D.	LM-3 THRU LM-15	✓		DUMITRI 6-2-68	6-7-68	6-12-68

FOR CONTINUATION OF REVISIONS SEE SHEET ________

ENG 77.3 5-65

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-28780	A Ⓟ
SCALE NONE		SHEET 1.11	

01

NAS 9-1100

			QTY PER ASSEMBLY -6	-5	-2	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								MS20426AD4	E	RIVET	STD PART						
								MS20470AD4	↕	RIVET	↕						
								MS20470A3		RIVET							
			1	1	1	1		MS21042L08		NUT							
			1	1	1	1		MS27039DD0807		SCREW	STD PART						
			1	1	8	8		GT535G-LAS0005		TAPE	GRUMMAN STD						3B
			7	7				GS26F-1-1		STANDOFF	GRUMMAN STD						3B
			2	2				GS26E-1		STANDOFF	GRUMMAN STD						3C
			2	2	2	2		AN960D8L		WASHER	STD PART						
					2	2		LDW280P18037-11	E	STANDOFF	SEE DWG						7B
			1	1	1	1		LDW280-18200-15	↕	SHIM	↕						7C
			1	1	1	1		LDW280-18200-13		STRAP							7A
			2	2	2	2		LDW280-18200-11		SPLICE PLATE							3C
			1	1	1	1		LDW280-18199-11		SKIN							6B
			2	2	2	2		LDW280-18198-15		RING							3A
			1	1	1	1		LDW280-18198-19		CAP							3A
			1	1	1	1		LDW280-18198-17		CAP							4B
			1	1	1	1		LDW280-18197-18		BRACKET							3C
			1	1	1	1		↕ -17		BRACKET							3C
			1	1	1	1		-16		CLIP							4B
			1	1	1	1		-15		CLIP							3C
			1	1	1	1		-19		CLIP							3A
			1	1	1	1		LDW280-18197-11		BRACKET							3A
			1	1	1	1		LDW280-18196-14		ZEE							7B
			1	1	1	1		LDW280-18196-13		ZEE							7C
			1	1	1	1		LDW280-18196-11		ZEE	SEE DWG						7B
								LDW280-28780-6		FORMER INSTL					NONE	NONE	4A
								↕ -5	↕	↕					↕	↕	↕
								-2									
								LDW280-28780-1	E	FORMER INSTL					NONE	NONE	4A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

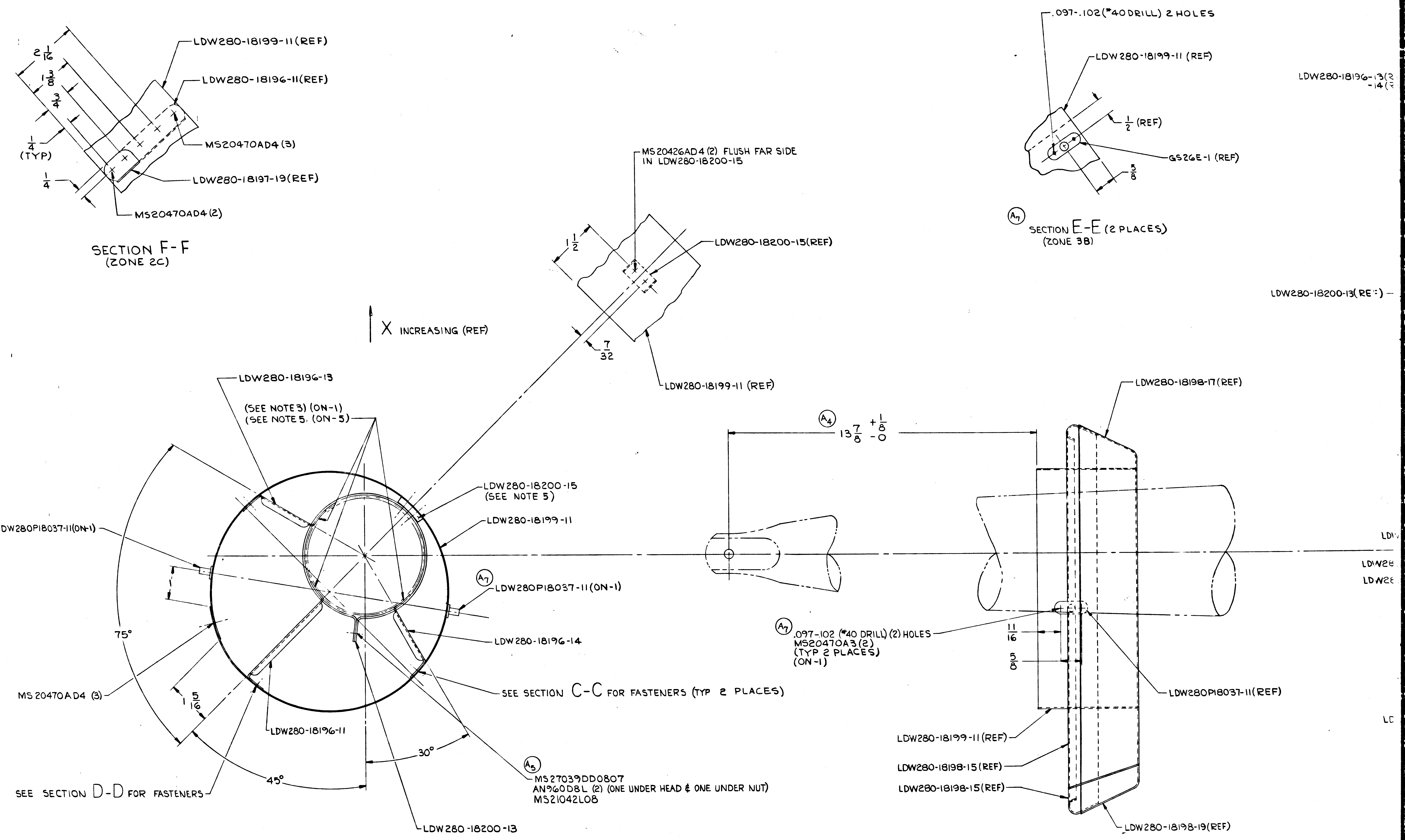
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28780	A
SCALE NONE		SHEET 2.00	

ENG 77.2 7-65

01

NAS 9-1100



LDW280-18199-11(REF)
LDW280-18196-11(REF)
$2\frac{1}{16}$
$1\frac{3}{8}$
$\frac{3}{4}$
$\frac{1}{4}$ (TYP)
$\frac{1}{4}$
MS20470AD4(3)
LDW280-18197-19(REF)
MS20470AD4(2)
SECTION F-F
(ZONE 2C)
.097-.102(#40 DRILL) 2 HOLES
LDW280-18199-11 (REF)
$\frac{1}{2}$ (REF)
GS26E-1 (REF)
$\frac{5}{8}$
A7
SECTION E-E (2 PLACES)
(ZONE 3B)
LDW280-18196-13(
-14(
MS20426AD4(2) FLUSH FAR SIDE
IN LDW280-18200-15
$1\frac{1}{2}$
LDW280-18200-15(REF)
$\frac{7}{32}$
LDW280-18199-11 (REF)
LDW280-18200-13(RE
X INCREASING (REF)
LDW280-18196-13
(SEE NOTE 3) (ON-1)
(SEE NOTE 5) (ON-5)
LDW280-18200-15
(SEE NOTE 5)
LDW280-18199-11
A7
LDW280P18037-11(ON-1)
A7
LDW280P18037-11(ON-1)
LDW280-18196-14
75°
MS20470AD4 (3)
$1\frac{5}{16}$
LDW280-18196-11
SEE SECTION C-C FOR FASTENERS (TYP 2 PLACES)
30°
45°
A5
MS27039DD0807
AN960D8L (2) (ONE UNDER HEAD & ONE UNDER NUT)
MS21042L08
SEE SECTION D-D FOR FASTENERS
LDW280-18200-13
A4
$13\frac{7}{8}$ $^{+\frac{1}{8}}_{-0}$
LDW280-18198-17(REF)
A7
.097-.102 (#40 DRILL) (2) HOLES
MS20470A3(2)
(TYP 2 PLACES)
(ON-1)
$\frac{11}{16}$
$\frac{5}{8}$
LDW280P18037-11(REF)
LDW280-18199-11(REF)
LDW280-18198-15(REF)
LDW280-18198-15(REF)
LDW280-18198-19(REF)
LDW
LDW28
LDW28
LD

LDWS80-S8780

01/02 NAS 9-1100

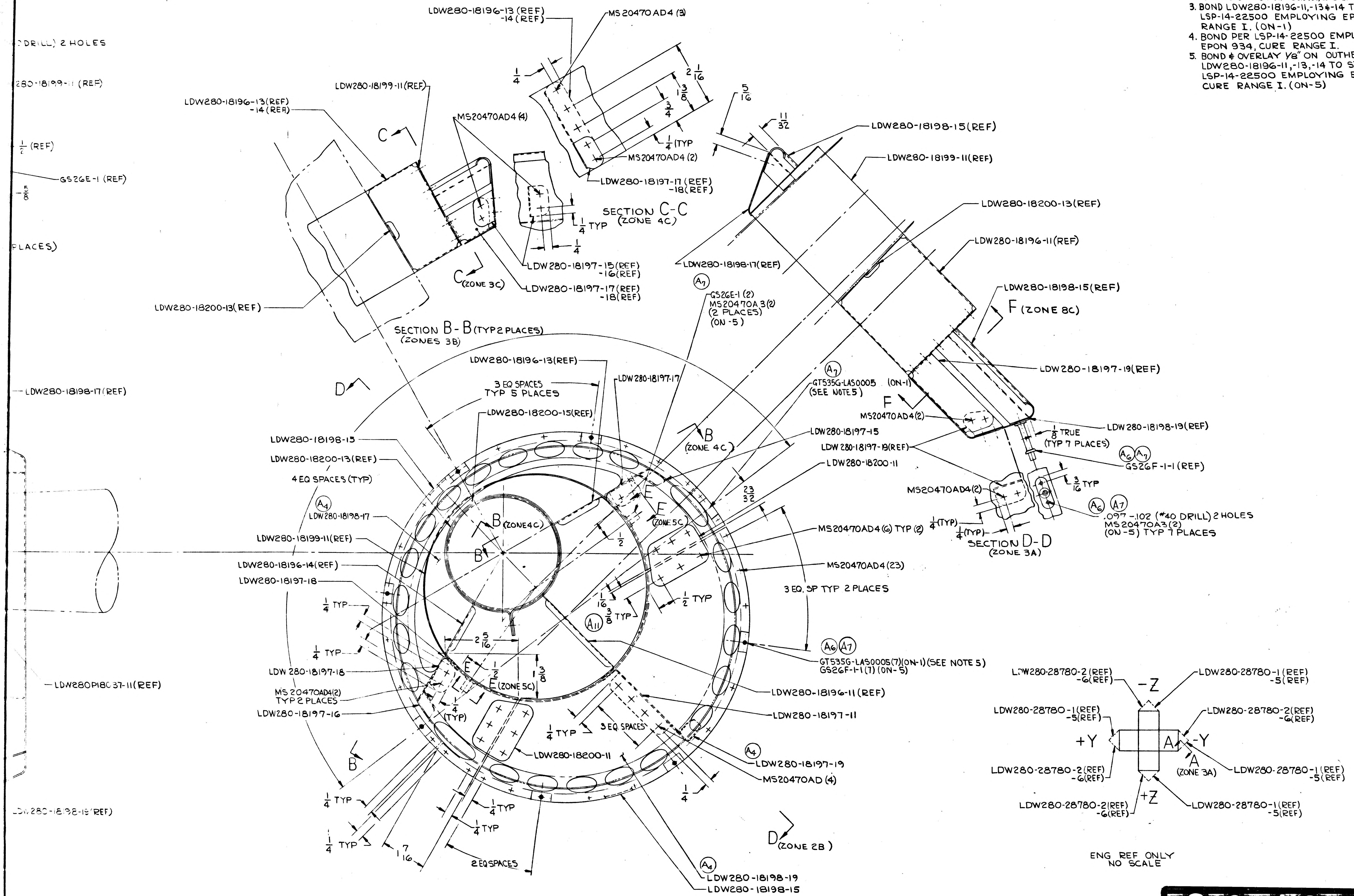
CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-28780	3

FRAME 1 FRAME 2

NOTES:
1. BOND LDW280P17975-11,-13 PER LSP-14-22500 EMPLOYING EPON 934, CURE RANGE I } ON-3 ASSY
2. BOND LDW280-28780-3 (2) TO LDW 280-23516 PER LSP-14-22500 EMPLOYING EPON 934, CURE RANGE I } ON-1 INSTL
3. BOND LDW280-18196-11,-13 & -14 TO STRUT PER LSP-14-22500 EMPLOYING EPON 934, CURE RANGE I. (ON-1)
4. BOND PER LSP-14-22500 EMPLOYING EPON 934, CURE RANGE I.
5. BOND & OVERLAY 1/8" ON OUTHER EDGE OF LDW280-18196-11,-13,-14 TO STRUT PER LSP-14-22500 EMPLOYING EPON 934, CURE RANGE I. (ON-5)

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
INSTALL RIVETS IN ACCORDANCE WITH LSP-14-5302	✓

DWG SIZE
PRINTING INFO ONLY
PRINT TRIM LINE
FULL SIZE SHEET AREA (36 x 88 — 22 SQ FT
½ SIZE SHEET AREA (¼ OF FULL — 5.5 SQ FT



(DRILL) 2 HOLES
280-18199-11 (REF)
1/2 (REF)
GS26E-1 (REF)
5/8
PLACES)
LDW280-18198-17 (REF)
LDW280P18037-11 (REF)
LDW280-18198-19 (REF)
LDW280-18196-13 (REF) -14 (REF)
LDW280-18199-11 (REF)
MS20470AD4 (4)
C
C (ZONE 3C)
LDW280-18200-13 (REF)
LDW280-18197-15 (REF) -16 (REF)
LDW280-18197-17 (REF) -18 (REF)
LDW280-18196-13 (REF) -14 (REF)
MS20470AD4 (3)
1/4
2 1/16
1 3/8
3/4
1/4 (TYP
MS20470AD4 (2)
LDW280-18197-17 (REF) -18 (REF)
1/4 TYP
1/4
5/16
11/32
LDW280-18198-15 (REF)
LDW280-18199-11 (REF)
LDW280-18200-13 (REF)
LDW280-18196-11 (REF)
LDW280-18198-17 (REF)
LDW280-18198-15 (REF)
F (ZONE 8C)
F
LDW280-18197-19 (REF)
A7
GS26E-1 (2)
MS20470A3 (2)
(2 PLACES)
(ON-5)
A7
GT535G-LAS0005 (ON-1)
(SEE NOTE 5)
MS20470AD4 (2)
LDW280-18198-19 (REF)
1/8 TRUE
(TYP 7 PLACES)
A6 A7
GS26F-1-1 (REF)
3/16 TYP
MS20470AD4 (2)
A6 A7
.097-.102 (#40 DRILL) 2 HOLES
MS20470A3 (2)
(ON-5) TYP 7 PLACES
1/4 (TYP)
1/4 (TYP)
D
LDW280-18196-13 (REF)
3 EQ SPACES
TYP 5 PLACES
LDW280-18197-17
LDW280-18200-15 (REF)
LDW280-18198-13
LDW280-18200-13 (REF)
4 EQ SPACES (TYP)
A4
LDW280-18198-17
LDW280-18199-11 (REF)
LDW280-18196-14 (REF)
LDW280-18197-18
1/4 TYP
1/4 TYP
LDW 280-18197-18
MS 20470AD4 (2)
TYP 2 PLACES
LDW280-18197-16
B
B (ZONE 4C)
B (ZONE4C)
B
LDW280-18197-15
LDW 280-18197-19 (REF)
LDW280-18200-11
E
E (ZONE 5C)
23/32
1/2
MS20470AD4 (6) TYP (2)
MS20470AD4 (23)
3 EQ. SP TYP 2 PLACES
1/2 TYP
1/16
A11 3/8 TYP
2 5/16
1/2
1 3/8
E
E (ZONE 5C)
1/4 (TYP)
A6 A7
GT535G-LAS0005 (7) (ON-1) (SEE NOTE 5)
GS26F-1-1 (7) (ON-5)
LDW280-18196-11 (REF)
LDW280-18197-11
1/4 TYP
3 EQ SPACES
LDW280-18200-11
A4
LDW280-18197-19
MS20470AD (4)
1/4
B
1/4 TYP
1/4 TYP
1/4 TYP
1/4 TYP
1 7/16
2 EQ SPACES
D (ZONE 2B)
A4
LDW280-18198-19
LDW280-18198-15

SECTION C-C (ZONE 4C)

SECTION B-B (TYP 2 PLACES) (ZONES 3B)

SECTION D-D (ZONE 3A)

VIEW A-A (ZONE 2A)

Ⓐ3 LDW280-28780-1 INSTL (SHN)
-2 INSTL (OPP)
-5 INSTL (SHN) (IDENTICAL TO -1 EXCEPT AS SHOWN) Ⓐ6
-6 INSTL (OPP)

LDW280-28780-2 (REF) -6 (REF)
-Z
LDW280-28780-1 (REF) -5 (REF)
LDW280-28780-1 (REF) -5 (REF)
LDW280-28780-2 (REF) -6 (REF)
+Y
A
-Y
A (ZONE 3A)
LDW280-28780-2 (REF) -6 (REF)
LDW280-28780-1 (REF) -5 (REF)
LDW280-28780-2 (REF) -6 (REF)
+Z
LDW280-28780-1 (REF) -5 (REF)

ENG REF ONLY
NO SCALE

02/02

NAS 9-1100

LDW280-28780 A

DWG NO. LDW280-28780	SHEET 3

FRAME | FRAME 2

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
SIZE J	CODE IDENT NO. 26512	LDW280-28780	A
SCALE FULL		SHEET 3.00	

5

2FR

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 10-63

DWG. NO. LEO 280		EO NO. 1088	
CONTROL INFO NO. LDW280 E4985			

IN M/B FOR THE FOLLOWING PARTS AND QUANTITIES NOTED
ADD TM-5/R (65) REQUIREMENTS.

* PART NO.	TITLE	QUANTITY	NEXT ASSY	CHANGE NO.
LDW280-28780-5	SEE DWG	3	LTM280-50644	B1
LDW280-28780-6		3	LTM280-50644	
LDW280-18196-11		6	LDW280-28780	B1
LDW280-18196-13		6		
LDW280-18196-14		6		
LDW280-18197-11		6		B2
LDW280-18197-15		6		
LDW280-18197-16		6		
LDW280-18197-17		6		
LDW280-18197-18		6		
LDW280-18197-19		6		
LDW280-18198-15		12		B1
LDW280-18198-17		6		
LDW280-18198-19		6		B1
LDW280-18199-11		6		B1
LDW280-18200-11		12		
LDW280-18200-13		6		
LDW280-18200-15		6	LDW280-28780	
LDW280-53672-1		1	LTM280-50644	B10
LDW280-53672-2		1		
LDW280-53672-3		2		
LDW280-53672-4		2		
LDW280-53672-7		3		
LDW280-53672-8		3	LTM280-50644	
LDW280-18607-11		6	LDW280-53672	A6
LDW280-18607-13		6		B6
LDW280-53584-51		3		
LDW280-53584-52		3		
LDW280-53584-53		3		
LDW280-53584-54		3	LDW280-53672	
LDW280-53731-1		6	LTM280-50644	B5
LDW280-53731-5	SEE DWG	6	LTM280-50644	

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD 3075 PKG 4 SHT 2 CCA 586						(5)	
REASON FOR EO					DESCRIPTION OF EO							GAEC EO RELEASE	
SHIELDING ON OUTRIGGER REQ'D					FOR * ADDED TM-5/R (65) EFFECTIVITY								
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS	APPROVED BY						
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓ REVISE DWG	RECORD EO	NOT REQD REWORK / SCRAP	DATE	VDI	RELIAB. GROUP	GROUP LEADER 8-2-68	STRESS GROUP NM 8-6-68	LIAISON ENGRG	PROJ ENGRG 8-15-68
LM		TM-5/R (65)		PRIORITY C		DRAWING TITLE NOTED				DRAWING NO. LEO 280			EO NO. 1088

CDR 081468
ISSUED BY MARZELLA 87222 GROUP VDI (335) PLT 25

0 1
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28780
EO NO. B2
CONTROL INFO NO. LDW280B5033

IN M/B OF -5&-6 ADD EFF FOR LTA-8(18) LFM126
N/A LDW280-28509 QUANTITY (4 EACH)

(NOTE: -1&-2 CONFIGURATION TO REMAIN ON DWG
FOR RECORD PURPOSES ONLY)

LFM

(NOTE -5&-6 MAY BE REWORKED FROM -1&-2 RESPECTIVELY,
FOR LTA-8(18) ELONGATED OR OVERSIZE RIVET HOLES IN GS26E
& GS26F MOUNTINGS ARE ACCEPTABLE)

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	LCD 1021-33 PKG 5

(5) GAEC EO RELEASE: C

REASON FOR EO: INSUFFICENT VENTING

DESCRIPTION OF EO: IN M/B FOR -5&-6 ADDED EFF FOR LTA-8(18)

JK 8/19/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM126	LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	NOT REQ'D	
		REWORK	SCRAP

APPROVED BY								
DATE				8-5-68	NM 8-5-68		8/15/68	8/17/68
P	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: FORMER INST'L-D/S-UPPER OUTRIGGER STRUT PRESSURIZATION VENT
DRAWING NO.: LDW280-28780
EO NO.: B2

8/9/68
ISSUED BY W. KAY / THORJUSEN x1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1451
CONTROL INFO NO. LDW280B7452

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-28697	A3	SEE DWG
-28780	B3	
-28790	C7	
-28816	B2	
-28835	C4	
-51555	B3	
LDW280 -51560	D1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD3587 PKG 55 PG. 12 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: JK 5/12/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO

DISPOSITION OF PARTS: REWORK / SCRAP ✓

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	4/1/69			4-2-69	4/8/69		4/9/69	5/8/69
	VDI							

PRIORITY: C

DRAWING TITLE: SEE DWG

DRAWING NO.: LEO 280

EO. NO.: 1451

052869 ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1723
CONTROL INFO NO. LDW 280 B7977

IN M/B FOR ALL DWGS LISTED REMOVE EFF LM-10(40) THRU LM-14(44)

DRAWING NO.	DASH NO.*	N/A WAS	CHANGE LETTER
LDW 280 -28780	-5 & -6	LDW 280 -54509	B4
-18196	-11, -13 & -14	-28780	B5
-18197	-11, -15, -16 -17, -18, -19	-28780	B6
-18198	-13	-28780	B5
-18199	-11	-28780	B5
LDW 280 -18200	-11, -13 & -15	LDW 280 -28780	B5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3994 PKG 84 (5)

REASON FOR EO: PARTS NO LONGER REQ'D

DESCRIPTION OF EO: FOR * REMOVED EFF LM-10(40) THRU LM-14(44)

GAEC EO RELEASE (E) 10-9-69 10/10/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	FDR			DSA	MW			Bauman
DATE	11/6/69			10-6-69	10/8/69		10/8/69	9/10/69

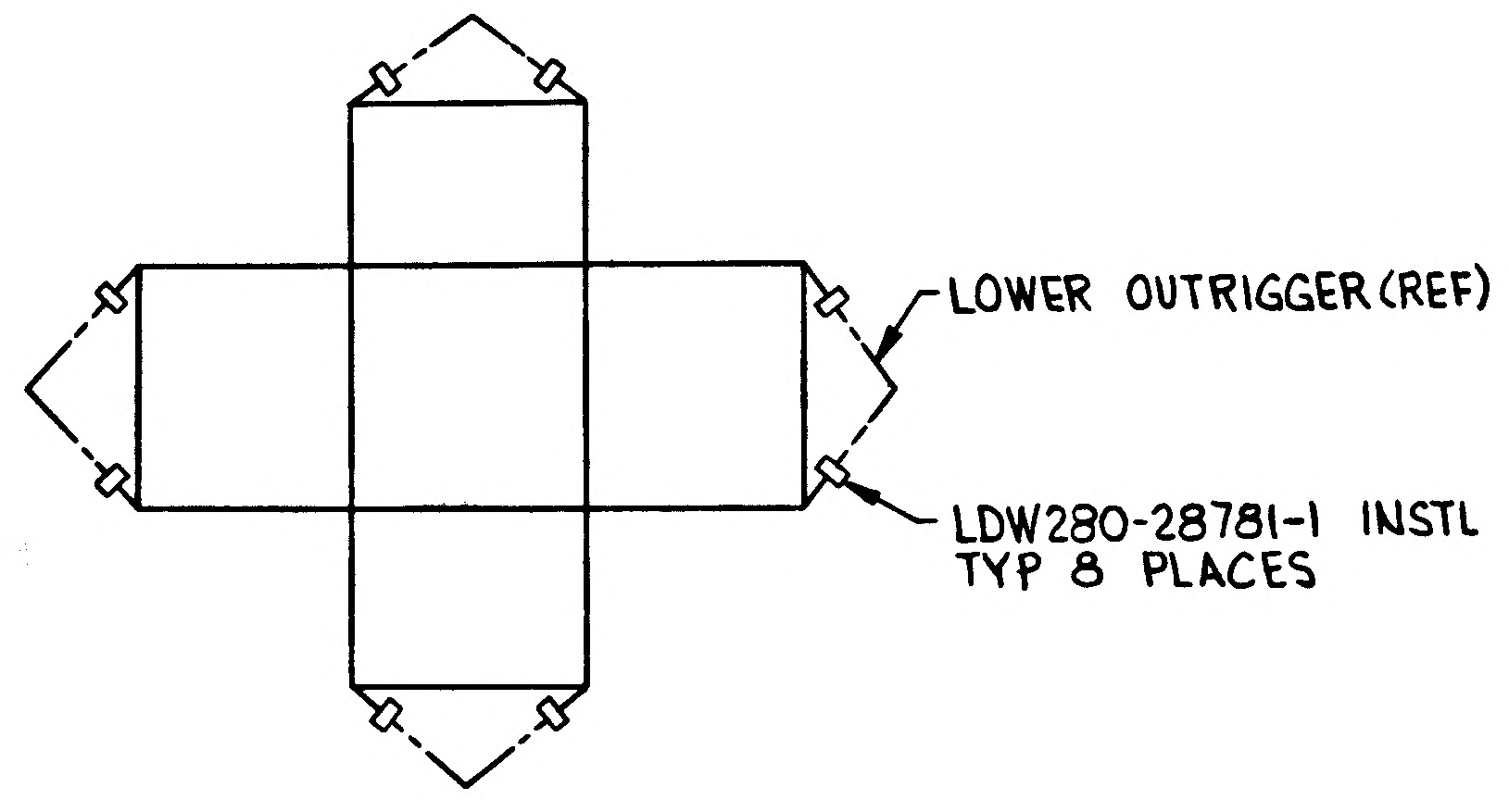
PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1723

CDR 010970
ISSUED BY R. HELMICKI x86046 SECTION VDI GROUP NO. 335 PL 25

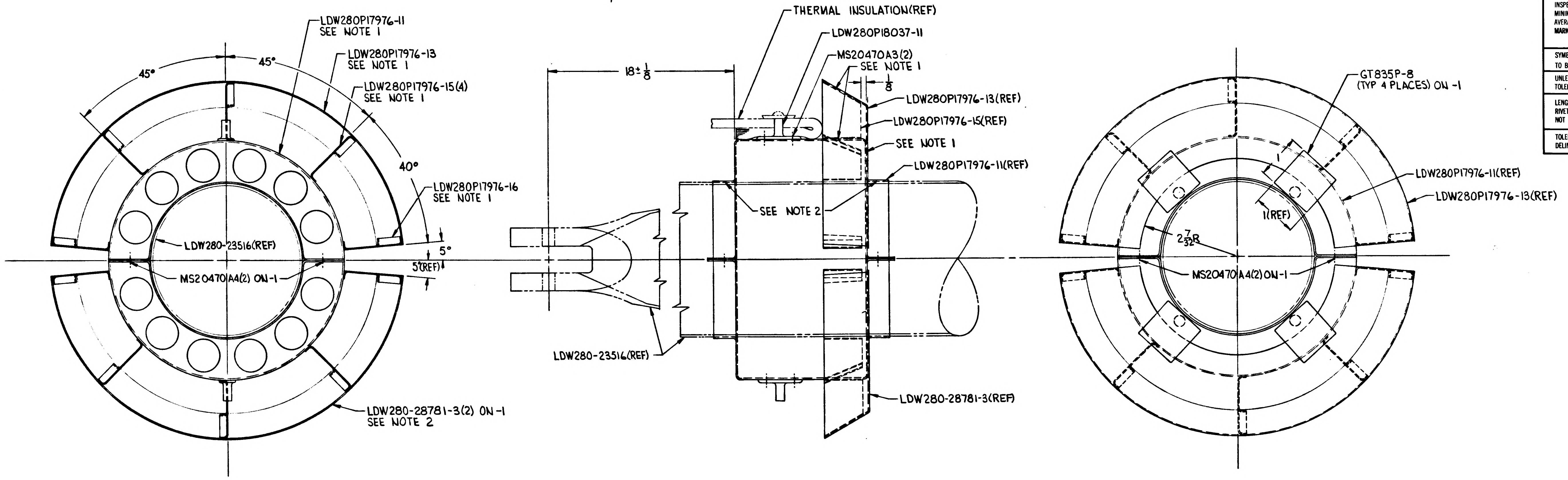
01

NAS 9-1100

NOTES:
1. ON -3 ASSY, BOND LDW280P17976-11,-13,-15 & -16 PER LSP-14-22500 EMPLOYING EPON 934, CURE RANGE I.
2. ON -1 INSTL, BOND LDW280-28781-3(2) TO LDW280-23516 PER LSP-14-22500 EMPLOYING EPON 934, CURE RANGE I.
3. DESTRUCTIVE TEST PANEL NOT REQD.
4. INSTALL FASTENERS PER LSP-14-15302.


LOWER OUTRIGGER (REF)
LDW280-28781-1 INSTL TYP 8 PLACES

FOR ENGINEERING REFERENCE ONLY
NO SCALE


LDW280P17976-11 SEE NOTE 1
LDW280P17976-13 SEE NOTE 1
LDW280P17976-15(4) SEE NOTE 1
45°
45°
40°
LDW280P17976-16 SEE NOTE 1
5°
5°(REF)
LDW280-23516(REF)
MS20470A4(2) ON-1
LDW280-28781-3(2) ON-1 SEE NOTE 2
THERMAL INSULATION(REF)
LDW280P18037-11
MS20470A3(2)
SEE NOTE 1
18 ± 1/8
1/8
LDW280P17976-13(REF)
LDW280P17976-15(REF)
SEE NOTE 1
LDW280P17976-11(REF)
SEE NOTE 2
LDW280-23516(REF)
LDW280-28781-3(REF)
GT835P-8 (TYP 4 PLACES) ON -1
LDW280P17976-11(REF)
LDW280P17976-13(REF)
1(REF)
2 7/32 R
MS20470A4(2) ON-1

LDW280-28781-1 INSTL
-3 ASSY

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	✓
TOLERANCE ON LOFTED DELINEATIONS IS	

LDW280-28781

LDW280-28781

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LM	SIZE F	CODE IDENT NO. 26512	LDW280-28781
MODEL OR END ITEM	SCALE FULL		SHEET

ENG 73-5 6-64

01

NAS 9-1100

LDW280-28781

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-56509	LM-6(36)	8
	LDW280-55509	LM-5(35)	
	LDW280-54509	LM-4(34)	
	LDW280-53509	LM-3(33)	
	LDW280-52509	LM-2(32)	
	LDW280-51509	LM-1(31)	
LM	LDW280-28509	LTA-8(18)	8

PART NO. LDW280-28781-1
GAEC SCH NO.

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED
LAST DASH NO. USED -3
GRUMMAN REL INFO
PRIM NO. 207

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	R.J. DICK	MATERIALS	A.KENGER 6/21
LAYOUT BY	R.J. DICK		
CHECKED BY			
GROUP LDR	J.STRAKOSCH 7/14/66		
VEH DES INT	W. BISCHOFF 7/21		
STRUCTURES	WH FB 7/22	PROJ ENGR	RMC 8/3
STRUCTURES	HILDERMAN 7/22	REL GROUP	BOTTI 8/4/66
WEIGHTS	D.ROBESCH 7/30		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FORMER INSTALLATION
DESCENT STAGE - LOWER OUTRIGGER STRUT
PRESSURIZATION VENT

SIZE B
CODE IDENT NO. 26512
LDW280-28781
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE LAST REV NO CHG ADDED SH 1.10, 2.00 & 3.00				RMS LeCun 10/11/66		

CHG APPROVED											
LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28781

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01 NAS 9-1100

QTY PER ASSEMBLY -3	QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			MS20470A4	E	RIVET	STD PART						
			MS20470A3		RIVET	STD PART						
	AS REQD		GT835P-8		TAPE	GRUMMAN STD						
1			LDW280P18037-11		STANDOFF	SEE DWG						4E
1			LDW280P17976-16		STIFFENER							6D
4			-15		STIFFENER							6D
1			-13		FLANGE							6E
1			LDW280P17976-11		FORMER	SEE DWG						7E
	2		LDW280-28781-3		FORMER ASSY					NONE	NONE	7B
			LDW280-28781-1	E	FORMER INSTL					NONE	NONE	7B

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-28781

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

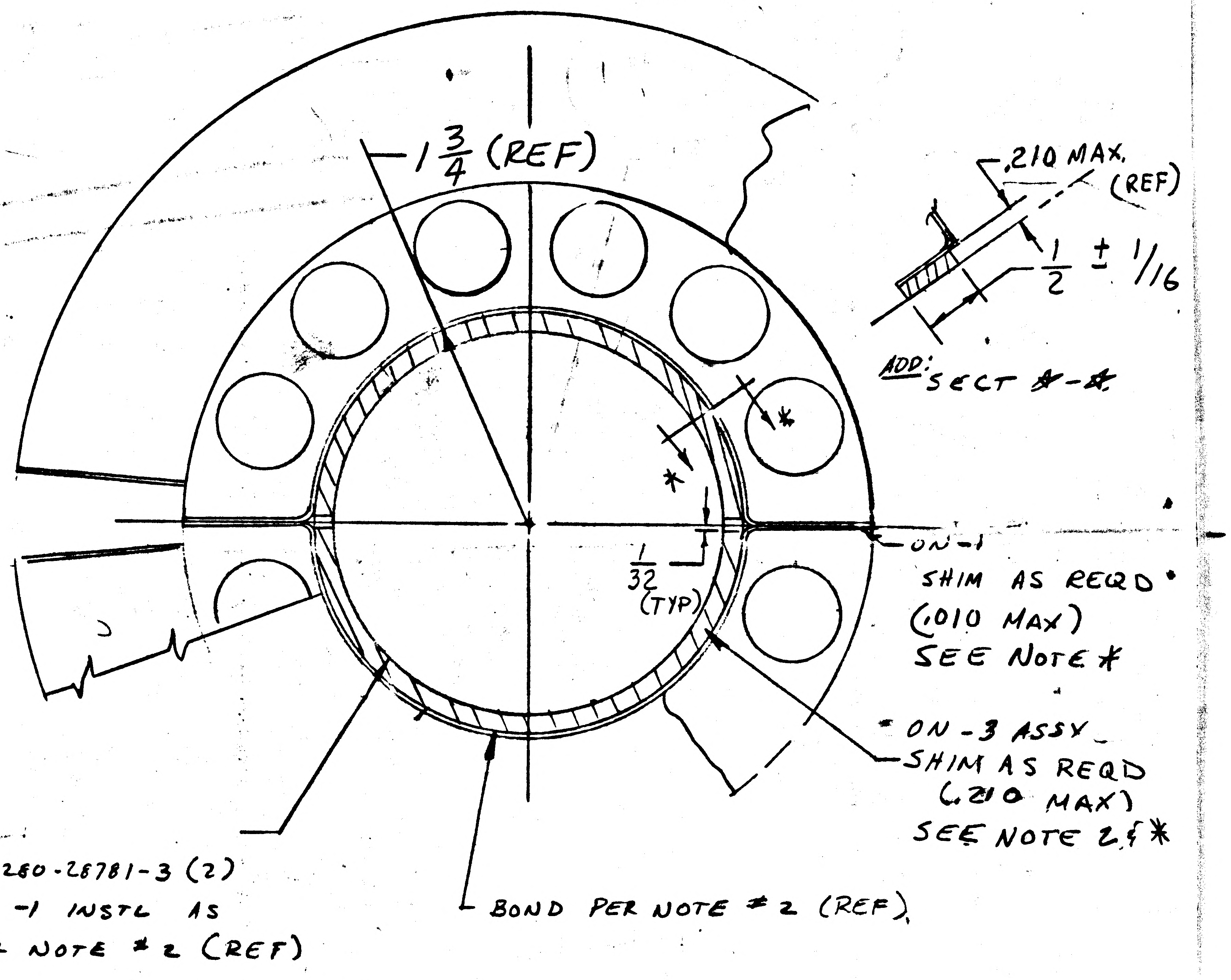
ENG 32.2 REV 3-65

*

DWG. NO. LDW280 28781		EO NO. A2
CONTROL INFO NO. LM5-9288		

ON -3 ASSY: ADD SHIM AS REQD.

IN MOD/BLK -1 N/A TO LTA8(18) ONLY
WAS
LTA8(18) LM 1(31) THRU 6 (36)


1 3/4 (REF)
.210 MAX. (REF)
1/2 ± 1/16
ADD: SECT ✱-✱
1/32 (TYP)
ON -1
SHIM AS REQD •
(.010 MAX)
SEE NOTE ✱
• ON -3 ASSY -
SHIM AS REQD
(.210 MAX)
SEE NOTE 2 & ✱
LDW280-28781-3 (2)
ON -1 INSTL AS
PER NOTE #2 (REF)
BOND PER NOTE #2 (REF)

ADD NOTE ✱
SHIM AS REQD USING 2024T3 AL. ALY SHT, QQ-A-250/4. EDGES TO BE FIN. 76.

✱-✱ & ✱: USE NEXT AVAILABLE NO & LETTER. LM5-9288

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: PART DESIGNED FOR SWIP VEHICLES

DESCRIPTION OF EO: ON -3 ASSY ADDED SHIM (.210 MAX) ADDED NOTE ✱ & SECT ✱-✱. ON-1 MOD BLK. REMOVED LM1(31) THRU 6 (36) EFF.

GAEC C EO RELEASE: C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	
		LM-1(31) THRU	
		LM-6(36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	WT			~	JFH	CH	RMC (WR)	
DATE	10/13/66			~	10-13-66	10-14-66	10-17-66	10-15-66

PRIORITY: C

DRAWING TITLE: FORMER INSTL D/S - LOWER OUTRIGGER STRUT PRESS. VENT

DRAWING NO.: LDW280-28781

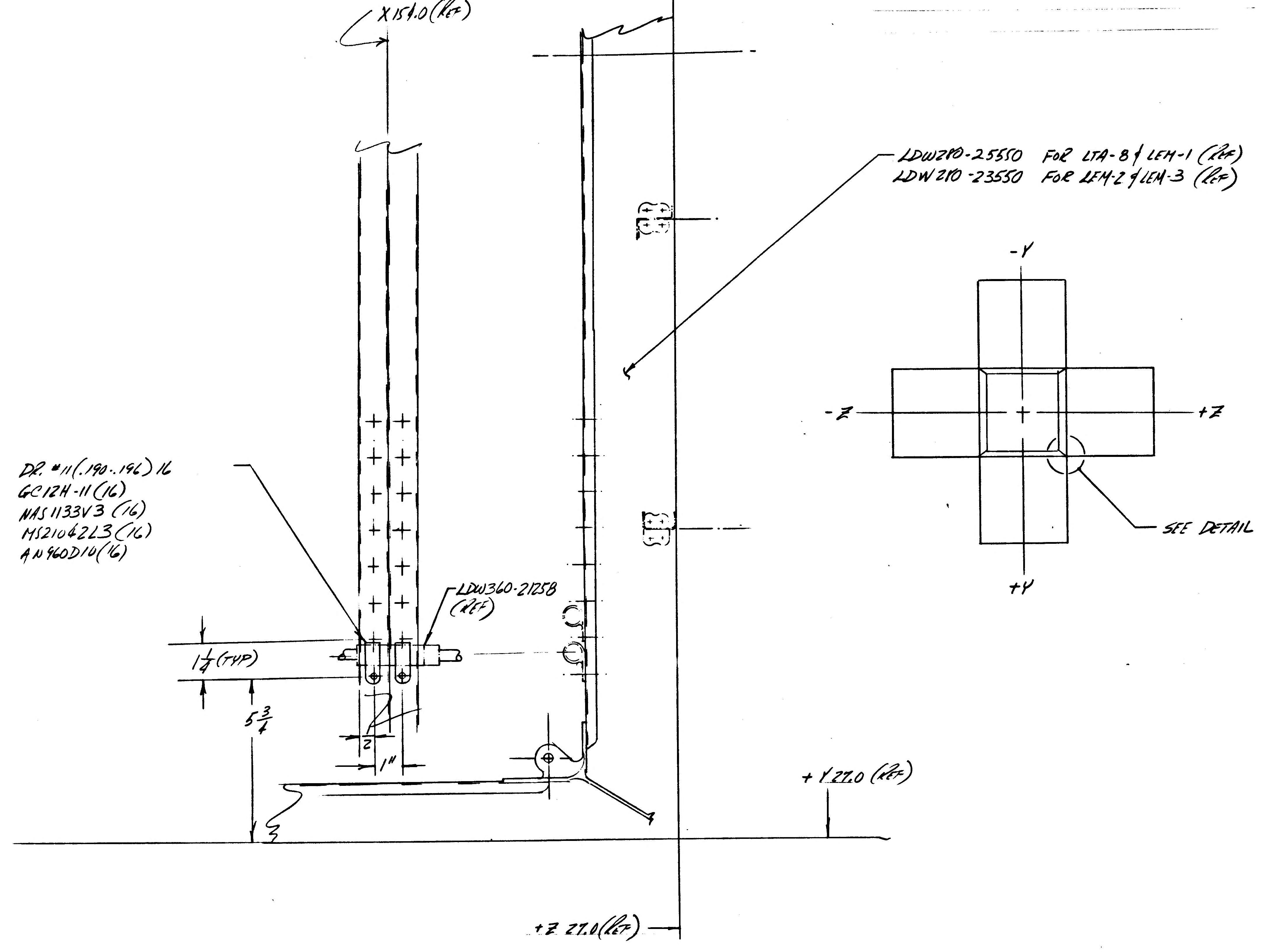
EO NO.: A2

ISSUED BY DRAGAS / W. TRAUT X6454 SECTION VDI GROUP NO. 335 PL 5

MANUFACTURING OPERATIONS	
NOTES CHECKED ✓ APPLY TO THIS DWG.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES EXCEPT AS NOTED.	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031 EXCEPT AS NOTED.	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10 EXCEPT AS NOTED.	
250 FOR ALL DRILLED HOLES UNLESS OTHERWISE SPECIFIED.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ∫ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	

NOTES:
1. LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT.

REVISIONS														
REVISION LETTER	ITEM NO.	ZONE	AUTHORITY FOR REVISION					DESCRIPTION	REVISED BY AND DATE	EFFECTIVE ON MODULE NUMBER	DISPOSITION OF EXIST PARTS		ENGRG APPD	GOVT APPD
			GRUMMAN INFO ONLY / DCRF OR ECP	CLASS II	CLASS I	GOVT SPEC REQ	ENGRG ORDER				RE-WORK	SCRAP		



I&T EXEMPT

NO.	FINISHES	GRUMMAN STD SPEC	MILITARY SPEC NO.
2	CADMIUM PLATE	G. S. S.	
10	ZINC CHROMATE PRIMER	G. S. S.	
15	TINTED PRIMER: 1 COAT	G. S. S.	
76	ALODINE	G. S. S.	
80	ANODIZE	G. S. S.	

SYM	PROCESSES	GRUMMAN STD SPEC	MILITARY SPEC NO.
	AL HEAT TREAT		MIL-H-6088
	MAGNAFLUX		MIL-I-6868
	PENETRANT INSPECTION (ZYGLO)		MIL-I-6866
	THREADING		MIL-S-7742
	STEEL HEAT TREAT PSI ROCKWELL C TO C		

QTY REQ'D PER ASSY			PART OR IDENTIFYING NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE (EA)	PROCESS SYMBOL	FINISH NO.	UNIT WT	ZONE
		16	AN960D10	E		WASHER	STD PART							
		16	MS21042L3	E		NUT	STD PART							
		16	NAS1133V3	E		SCREW	STD PART							
		16	GC12H-11	E		CLAMP	STD PART							
			LDW280-28788-1	E		CLAMP INSTL					NONE	NONE		
		-1												

2

MODEL	NEXT ASSY	MODULE NO.	REQ'D PER MODULE
LEM	LDW280-53509	LEM-3 (33)	1
LEM	LDW280-52509	LEM-2 (32)	1
LEM	LDW280-51509	LEM-1 (31)	1
LEM	LDW280-28509	LTA-8 (18)	1

PART NO. LDW280-28788-1 GRUMMAN SCH INFO 50-1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE
GRUMMAN REL INFO
PRIM. NO. 209 | 6-4-6 | X

DRAWN BY	R. VAN COTT	
CHECKED BY		
LAYOUT BY		
GRP LDR		
VEH DES INT		
STRUCTURES		
STRUCTURES		
WEIGHTS		
RELIABILITY		
INSTRUMENTATION		
PROJECT		
REL RECORDS		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., N. Y.

CLAMP INSTL
DESCENT STAGE - RBHS - INSTRUMENTATION ONE BOX

CONTRACT NO. NAS-9-1100 DOCUMENTATION TYPE II

CODE IDENT NO.	SIZE	
26512	F	LDW280-28788

SCALE 1/2 SHEET 1 OF 1

ENG. 003

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28788 EO NO. A1
CONTROL INFO NO. LDW280-7676

IN FLD DIM $1\frac{1}{4}$ (TYP) SHOULD BE $1\frac{3}{4}$ (TYP)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

2

REASON FOR EO: TO ALLOW CLAMP INSTL.

DESCRIPTION OF EO: $1\frac{3}{4}$ (TYP) WAS $1\frac{1}{4}$ (TYP)

GAEC EO RELEASE: FR 8/16 WB

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8 (18)	
		LEM-1(31), LEM-2(32)	
		LEM-3(33)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK — SCRAP —

APPROVED BY	WT	LBB		~	WJH		RMC (EV)	
DATE	7/14/66	8/10/66		~	7/15/66		8-7	7-16-66
	VDI	SUPPORT WTS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY C
DRAWING TITLE CLAMP INSTL - D.S. - RBHS - INSTRUMENTATION ZONE BOX
DRAWING NO. LDW280-28788
EO NO. A1

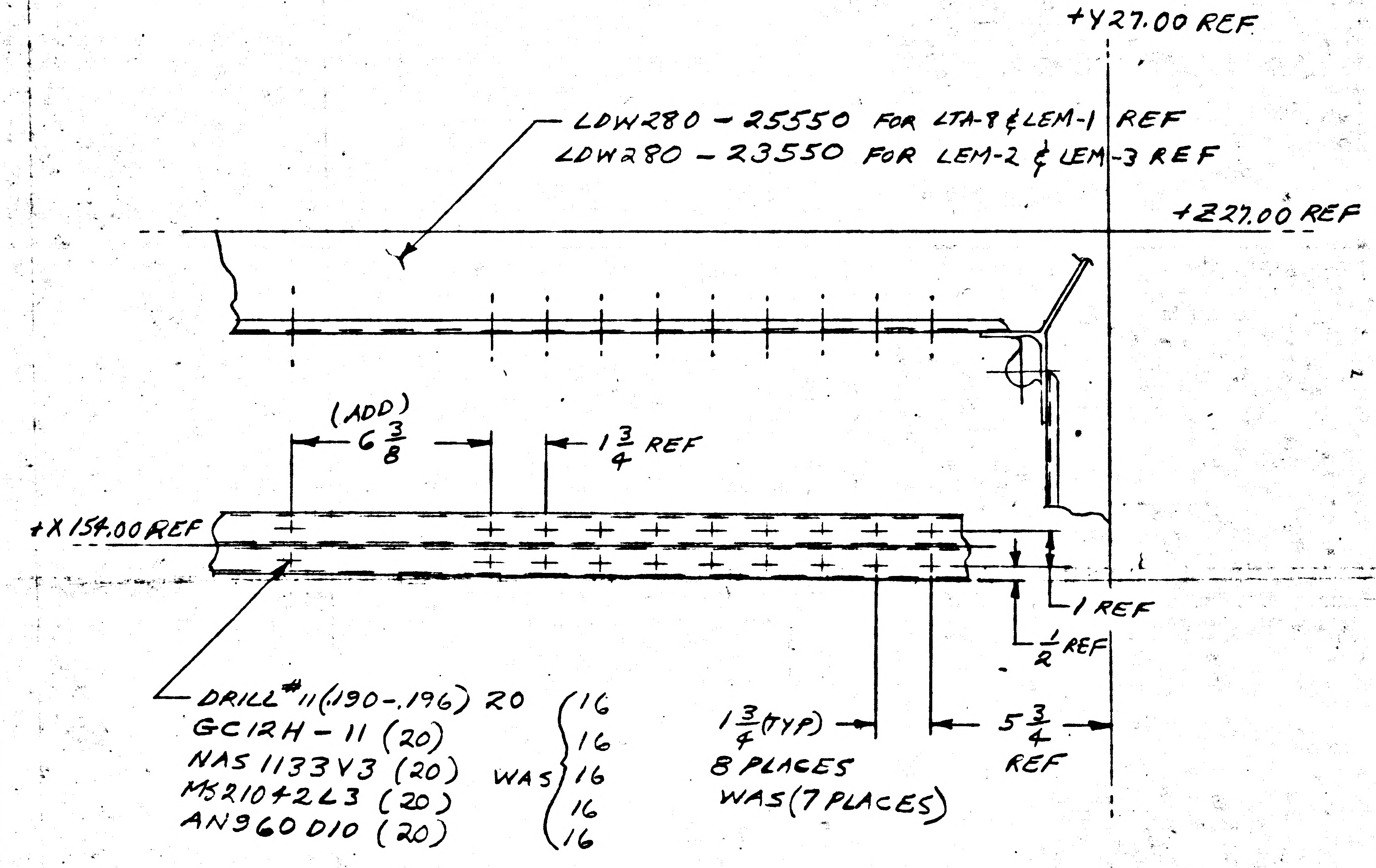
ISSUED BY E. J. COMISKEY 1153 SECTION VDI GROUP NO. 335 PL 5

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28788		EO NO. A2
CONTROL INFO NO. LDW280-9849		

1.) REVISE DWG AS SHOWN BELOW
2.) REVISE B/M TO AGREE WITH CHANGES SHOWN BELOW


+Y27.00 REF
LDW280 - 25550 FOR LTA-8 & LEM-1 REF
LDW280 - 23550 FOR LEM-2 & LEM-3 REF
+Z27.00 REF
(ADD)
6 3/8
1 3/4 REF
+X154.00 REF
1 REF
1/2 REF
DRILL #11 (.190-.196) 20
GC12H-11 (20)
NAS 1133V3 (20)
MS21042L3 (20)
AN960D10 (20)
WAS 16 16 16 16 16
1 3/4 (TYP)
8 PLACES
WAS (7 PLACES)
5 3/4 REF

(5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: PROVISIONS FOR MOUNTING ADDITIONAL ZONE BOXES REQ'D

DESCRIPTION OF EO: ON-1 ADDED DRILL #11 (.190-.196) 4 & LOCATING DIMS. ADDED GC12H-11 (4), NAS 1133V3(4), MS21042L3 (4) & AN960D10 (4)

GAEC C EO RELEASE: LE 8.27

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM	LEM-2 (32)		
LEM	LEM-1 (31)		
LEM	LTA-8 (18)	LEM	LEM-3 (33)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	WB				WM		PMS	Both
DATE	8/23/66				8/24/66		8.25.66	8.24.66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	CLAMP INSTL D.S. RBHS INSTRUMENTATION ZONE BOX	LDW280-28788	A2

ISSUED BY J. Bukowski Ext. 1153 SECTION VDI GROUP NO. 335 PL 35

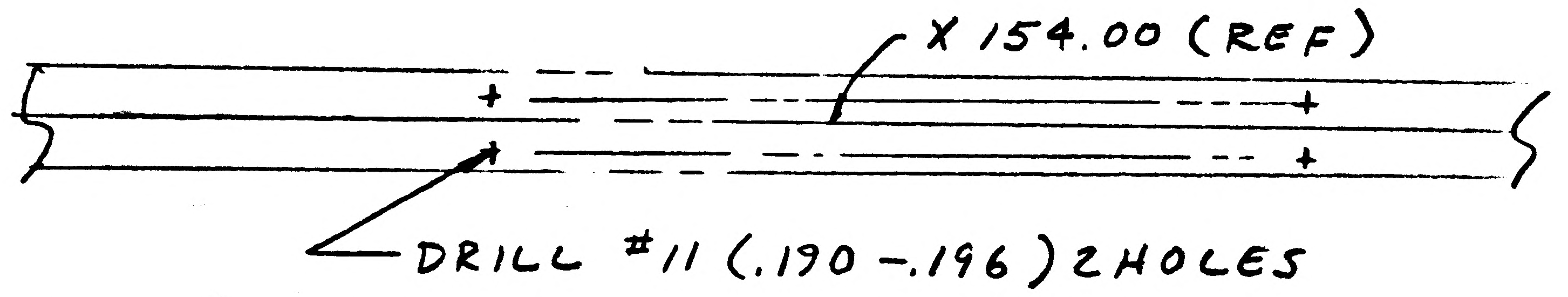
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28788
EO NO. A3
CONTROL INFO NO. LM 5-11586

ON-1 INSTL

REVISE THE FOLLOWING CALLOUT:



X 154.00 (REF)

DRILL #11 (.190-.196) 2 HOLES

REMOVE: GC12H-11 (20)
NAS 1133U3 (20)
MS21042L3 (20)
AN960 D10 (20)

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: DRAWING CORRECTION
HARDWARE CALLED OUT
ON INSTRUMENTATION INSTL.

DESCRIPTION OF EO: ON-1 REMOVED GC-12H-11 (20), NAS 1133U3 (20), MS21042L3 (20) & AN960D10 (20) (DWG. CORRECTION)

GAEC C RELEASE: W 10 31 32/3

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	NOT REQD		
LM			
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD. (REWORK / SCRAP)

APPROVED BY	WT			~		CH	RMC	
DATE	1/11/67			~	1/11	1-12-67	1-16-67	1/13/67
6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: E
DRAWING TITLE: CLAMP INSTL D/S-RBHS INSTL - ZONE BOX
DRAWING NO. LDW280-28788
EO NO. A3

ISSUED BY DON RAGAS x6454 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

LDW280-28789

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28509	LTA 8	1

PART NO.	GAEC SCH NO.
LDW280-28789 -1	50-3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH									
SHEET	1.00	2.00	3.00	4.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	AN	GRUMMAN REL INFO		
		PRIM NO.	LE(001)	625-6 X
LAST DASH NO. USED	-1	207	MP 14	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.020 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS9-1100 LINE ITEM 1 DOCUMENTATION TYPE II

DRAWN BY	D. RAGAS		
LAYOUT BY	J. BUKOWSKI		
CHECKED BY			
GRP LDR	4/15/66		
VEH. DES. INT.	7/8		
STRUCTURES		PROJ ENGR	R. Plunkett 13 July 66
STRUCTURES	6/24	REL GROUP	7-14-66
WEIGHTS	7 11		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SUPPORT INSTALLATION
DS. - UPPER DECK ELECT. LINES

SIZE B CODE IDENT NO. 26512 LDW280-28789
SCALE NONE SHEET 1.00 OF 4.00

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AS REQD		MS21266-1N		GROMMET	STD PART						
AS REQD		MS20470 AD4		RIVET							
AS REQD		MS20470AD3		RIVET							
AS REQD		MS20426AD3		RIVET							
AS REQD		NAS1097AD3		RIVET							
107		NAS697 A08		NUT PLATE	STD PART						
1		LDW280-18035-19	E	ZEE	SEE DWG						
1		-17									
1		-15									
1		-13									
1		LDW280-18035-11	E	ZEE							
4		LDW280-17999 19	E	ANGLE							
1		LDW280-17999-17	E								
1		-15									
1		-13									
4		LDW280-17999-11	E	ANGLE							
1		LDW280-17998-19	E	CLIP							
1		-17									
3		-15									
34		-13									
16		LDW280-17998-11	E	CLIP	SEE DWG.						
		LDW280-28789-1	E	SUPT, INSTL							

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28789

SCALE NONE

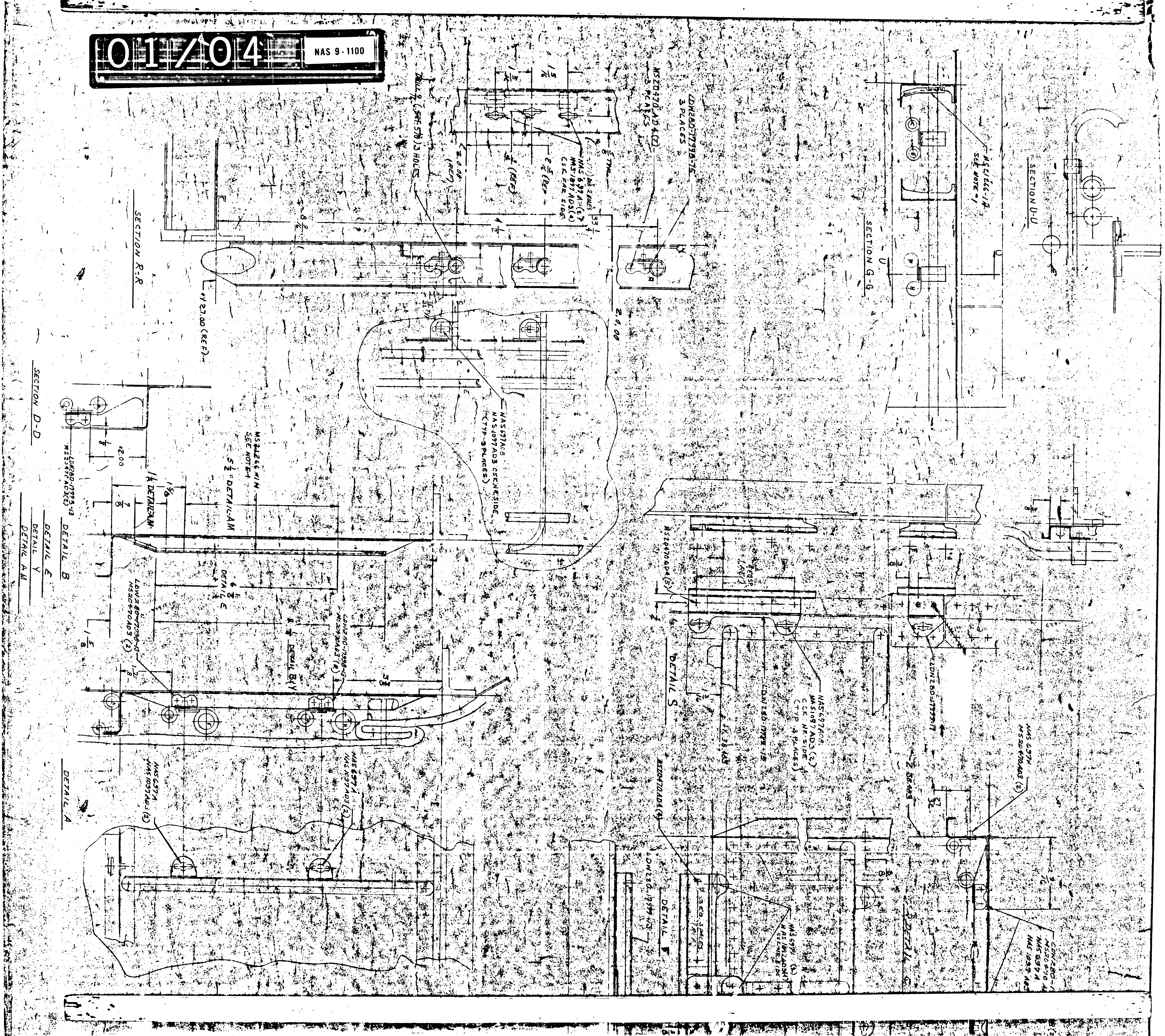
SHEET 2.00

ENG 77.2 7-65

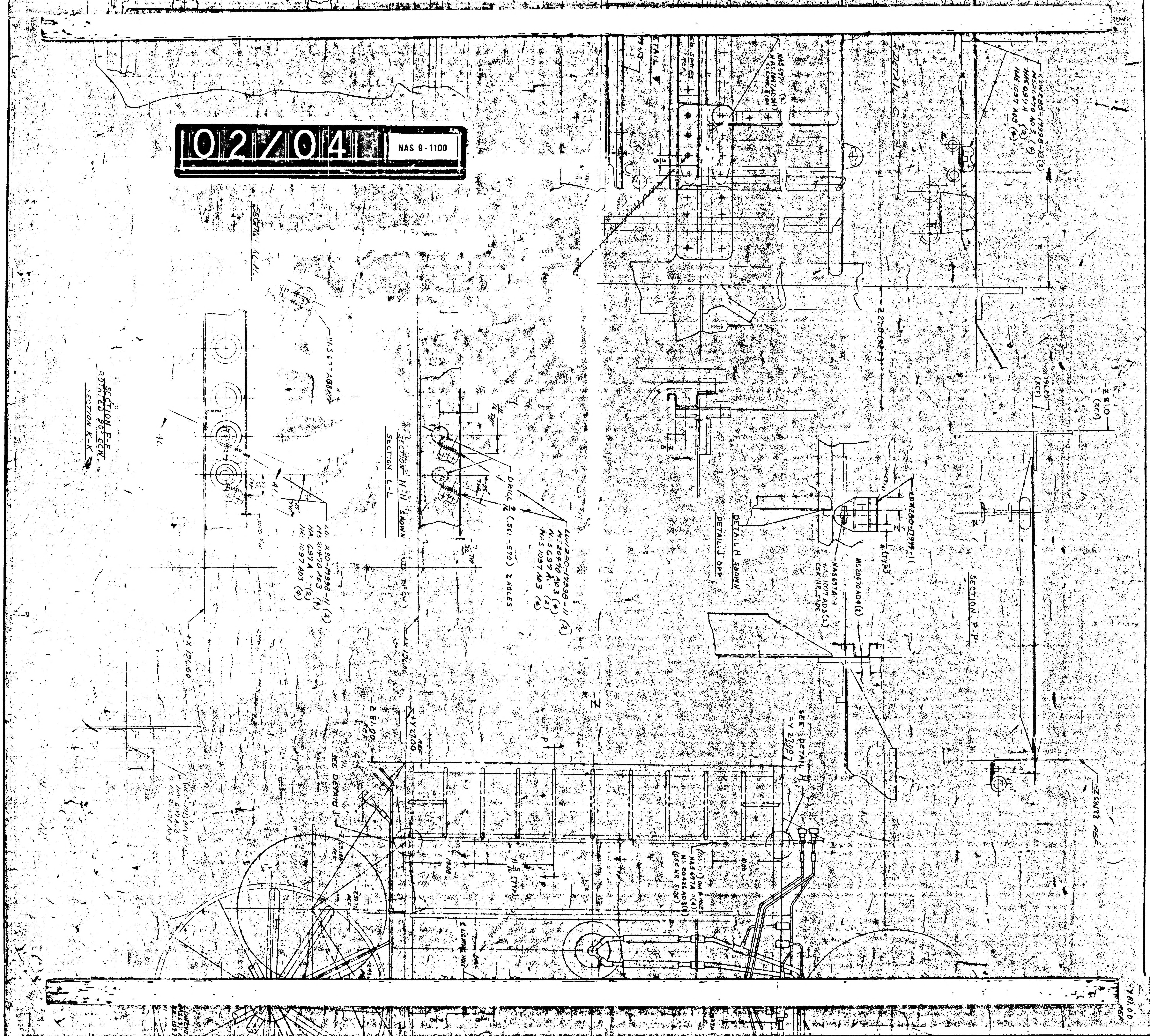
01

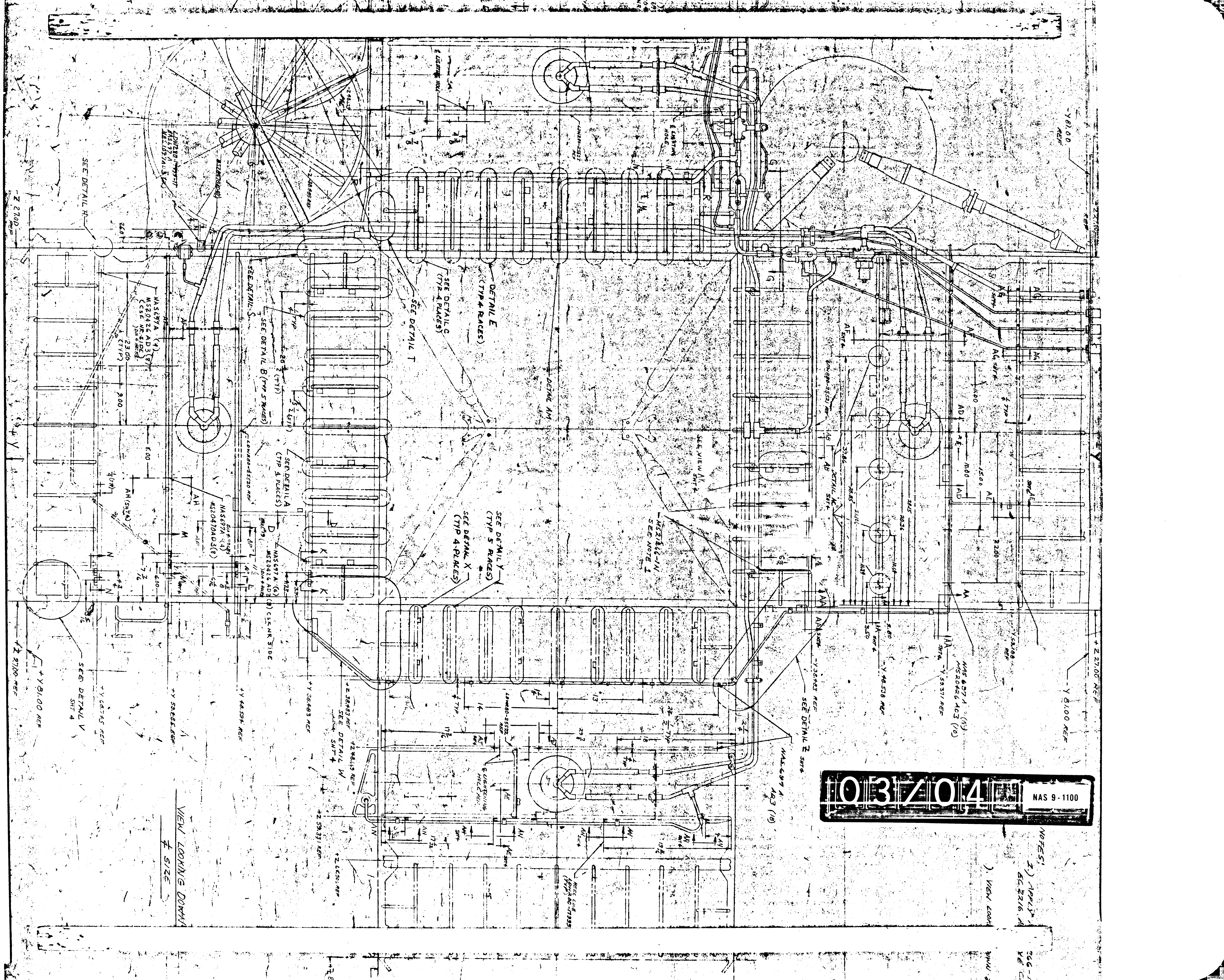
NAS 9-1100

01/04 NAS 9-1100

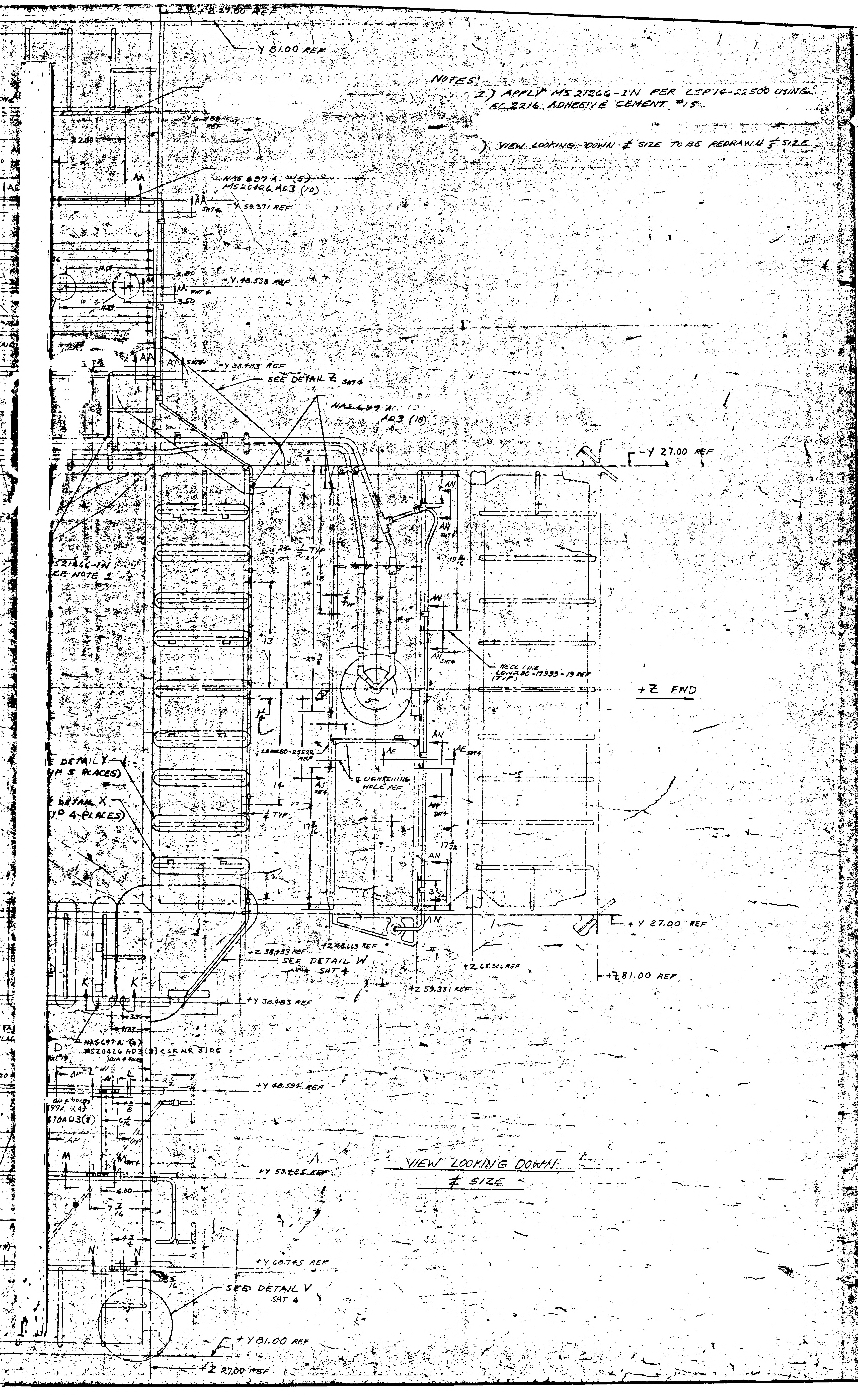

SECTION R-R
SECTION D-D
DETAIL B
DETAIL E
DETAIL Y
DETAIL AM
DETAIL A
DETAIL S
SECTION G-G
SECTION U-U
DETAIL E
DETAIL B-Y
27.00 (REF)
2.00
NAS697AD8
NAS1097AD3 CSK NR SIDE
(TYP 3 PLACES)
MS20470AD4(2)
3 PLACES
SEE NOTE 1
LDW280-17799-13
LDW280-17799-17
NAS697AD8
NAS1097AD3(2)
CSK NR SIDE
(TYP 3 PLACES)

02/04 NAS 9-1100


SECTION M-M
NAS697AD8(4)
SECTION F-F ROTATED 90° CCW
SECTION K-K
LDW280-17996-11 (2)
MS20470AD3 (4)
NAS697A (2)
NAS1097AD3 (4)
SECTION N-N SHOWN
SECTION L-L
DRILL 9/16 (.561-.570) 2 HOLES
+X 196.00
-Z 81.00 REF
+Y 22.00 REF
SEE DETAIL J
SEE DETAIL H
-Z
DETAIL H SHOWN
DETAIL J OPP
LDW280-17996-11
MS20470AD4(2)
(TYP)
SECTION P-P
-Z 81.0 (REF)
+Y 96.00 (REF)
-Z 270 (REF)
LDW280-17996-13(2)
NAS697A (2)
NAS1097AD3 (4)
DETAIL C
DETAIL F
-Z 63.78 REF


VIEW LOOKING DOWN
¼ SIZE
NOTES:
1) APPLY
SEE DETAIL H
SEE DETAIL S
SEE DETAIL T
SEE DETAIL C (TYP 4 PLACES)
DETAIL E (TYP 4 PLACES)
DETAIL AM
SEE DETAIL B (TYP 5 PLACES)
SEE DETAIL A (TYP 4 PLACES)
SEE DETAIL Y (TYP 5 PLACES)
SEE DETAIL X (TYP 4 PLACES)
SEE VIEW AK SHT 4
SEE NOTE 1
SEE DETAIL V SHT 4
SEE DETAIL W SHT 4
SEE DETAIL Z SHT 6
NAS697A AD3 (18)
+Y 81.00 REF
-Y 81.00 REF
-Z 27.00 REF
+Z 27.00 REF

031/04 NAS 9-1100



-Y 81.00 REF
+Z 27.00 REF
NAS 697 A (5)
MS20426 AD3 (10)
-Y 59.371 REF
-Y 48.538 REF
-Y 38.483 REF
SEE DETAIL Z SHT 4
NAS 697 A (9)
AD3 (18)
-Y 27.00 REF
S21266-1N SEE NOTE 1
HEEL LINE LDW280-17999-19 REF (TYP)
+Z FWD
LDW280-25522 REF
℄ LIGHTENING HOLE REF
DETAIL Y (TYP 5 PLACES)
DETAIL X (TYP 4 PLACES)
+Y 27.00 REF
+Z 38.983 REF
+Z 48.669 REF
SEE DETAIL W SHT 4
+Z 66.501 REF
+Z 59.331 REF
+Z 81.00 REF
+Y 38.483 REF
NAS 697 A (4)
MS20426 AD3 (8) CSK NR SIDE
+Y 48.594 REF
+Y 59.286 REF
+Y 68.745 REF
SEE DETAIL V SHT 4
+Y 81.00 REF
+Z 27.00 REF

NOTES:

1.) APPLY MS 21266-1N PER LSP14-22500 USING EC 2216 ADHESIVE CEMENT #15

2.) VIEW LOOKING DOWN-1/4 SIZE TO BE REDRAWN 1/5 SIZE

VIEW LOOKING DOWN
1/4 SIZE

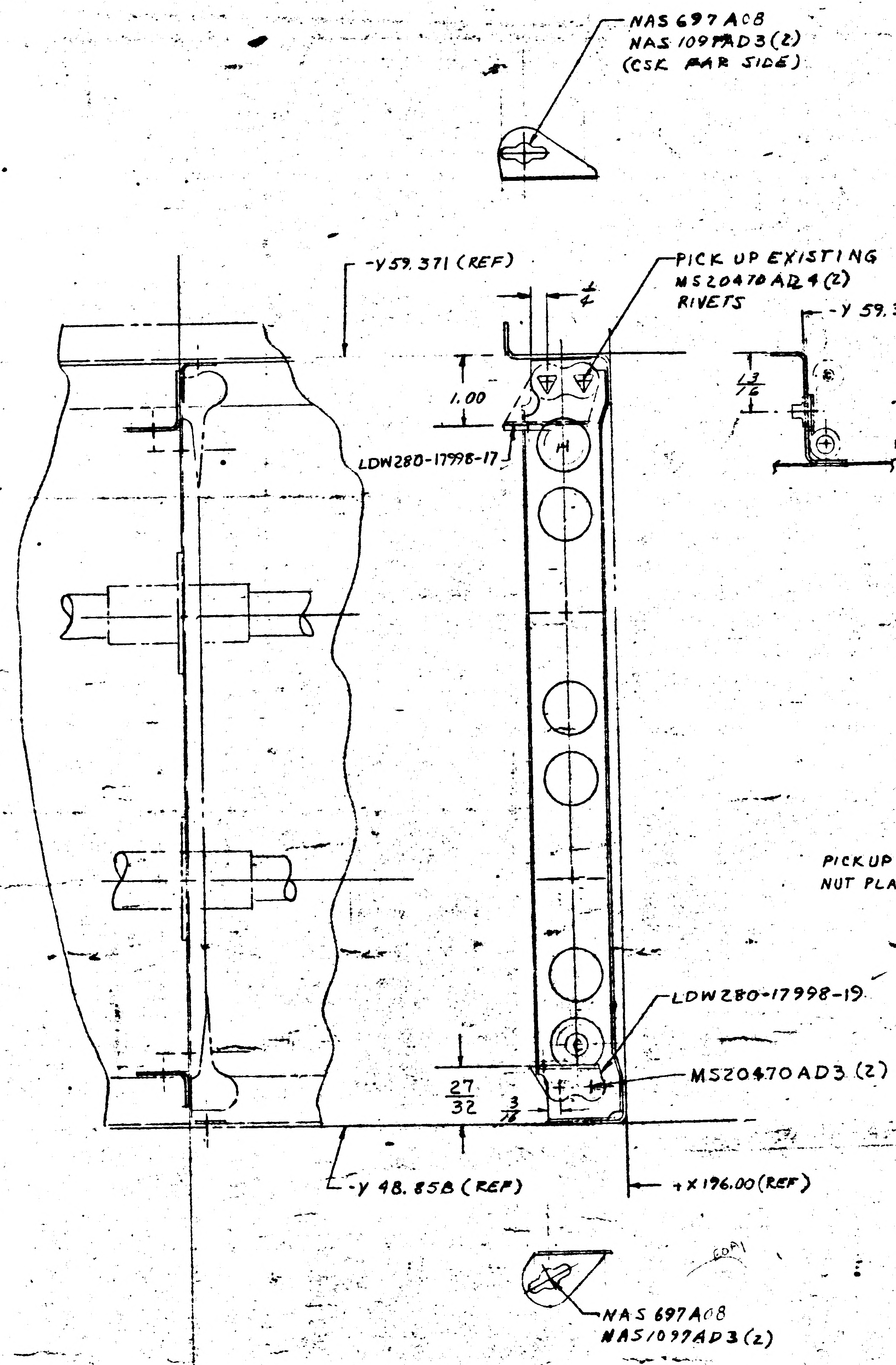
MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

04/04

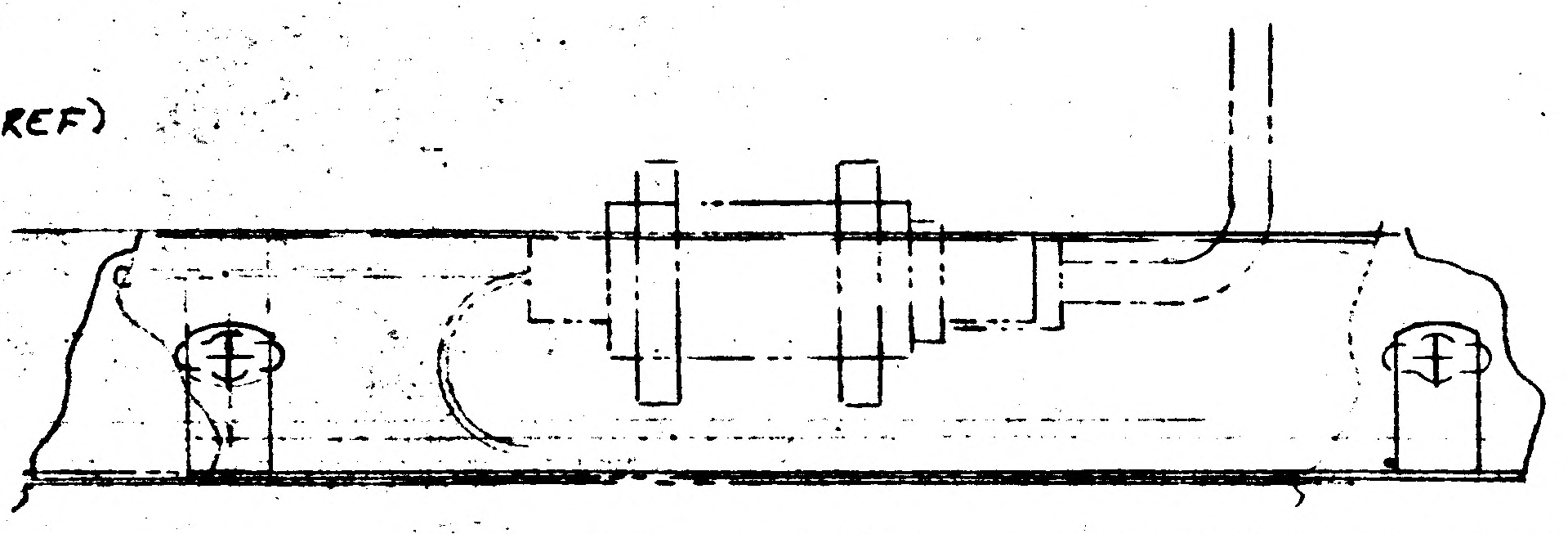
NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE K	CODE IDENT NO. 26512	LDW280-26[illegible]	
MODEL OR END ITEM	SCALE [illegible]		SHEET 3	

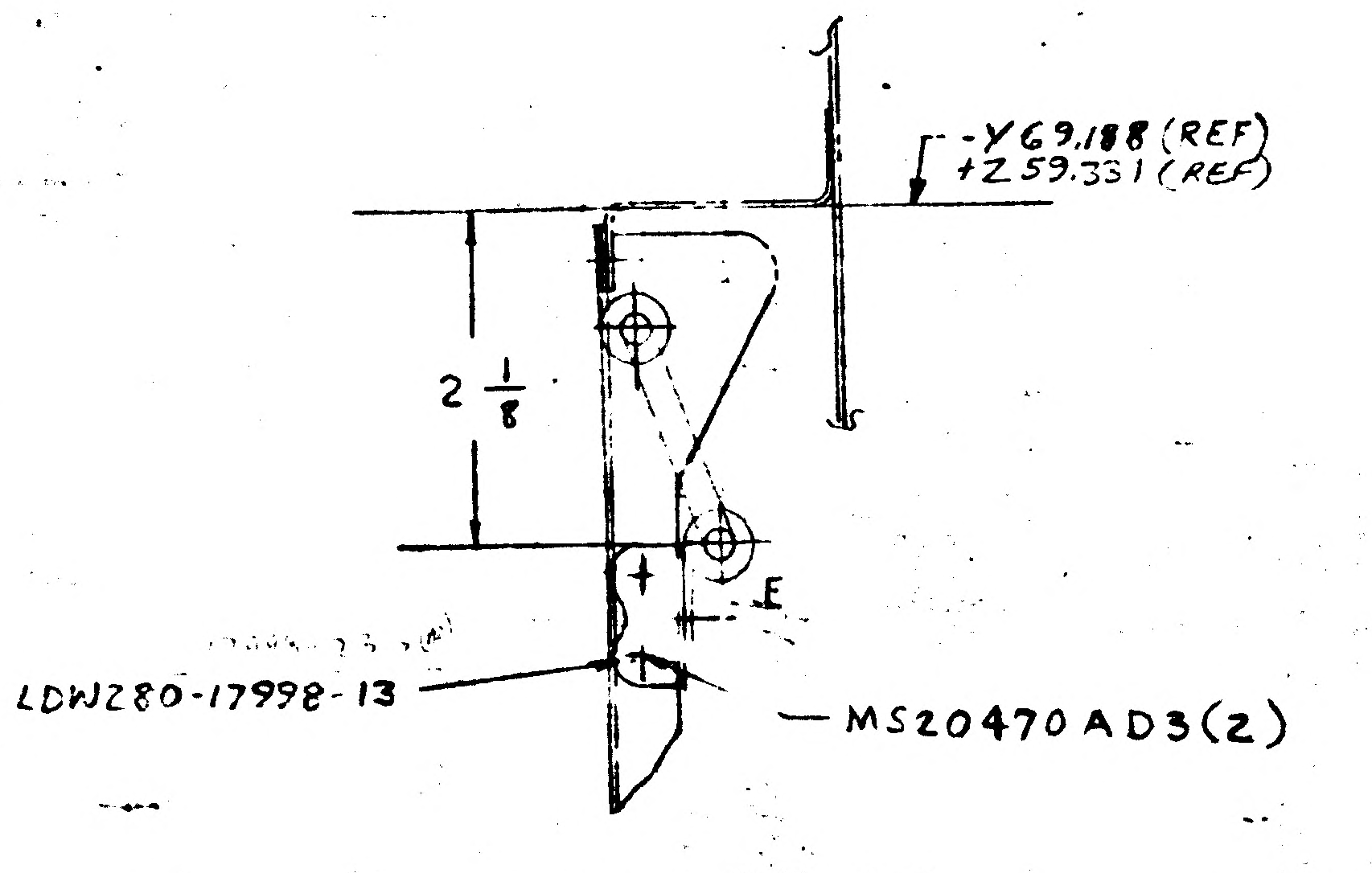
THIS IS AN ORIG DWG


NAS 697 AC8
NAS 1097AD3 (2)
(CSK FAR SIDE)
-Y 59.371 (REF)
PICK UP EXISTING
MS20470AD4 (2)
RIVETS
-Y 59.371 (REF)
1/4
1.00
13/16
LDW280-17998-17
LDW280-17998-19
MS20470AD3 (2)
27/32
3/16
-Y 48.858 (REF)
+X 196.00 (REF)
NAS 697AC8
NAS1097AD3 (2)

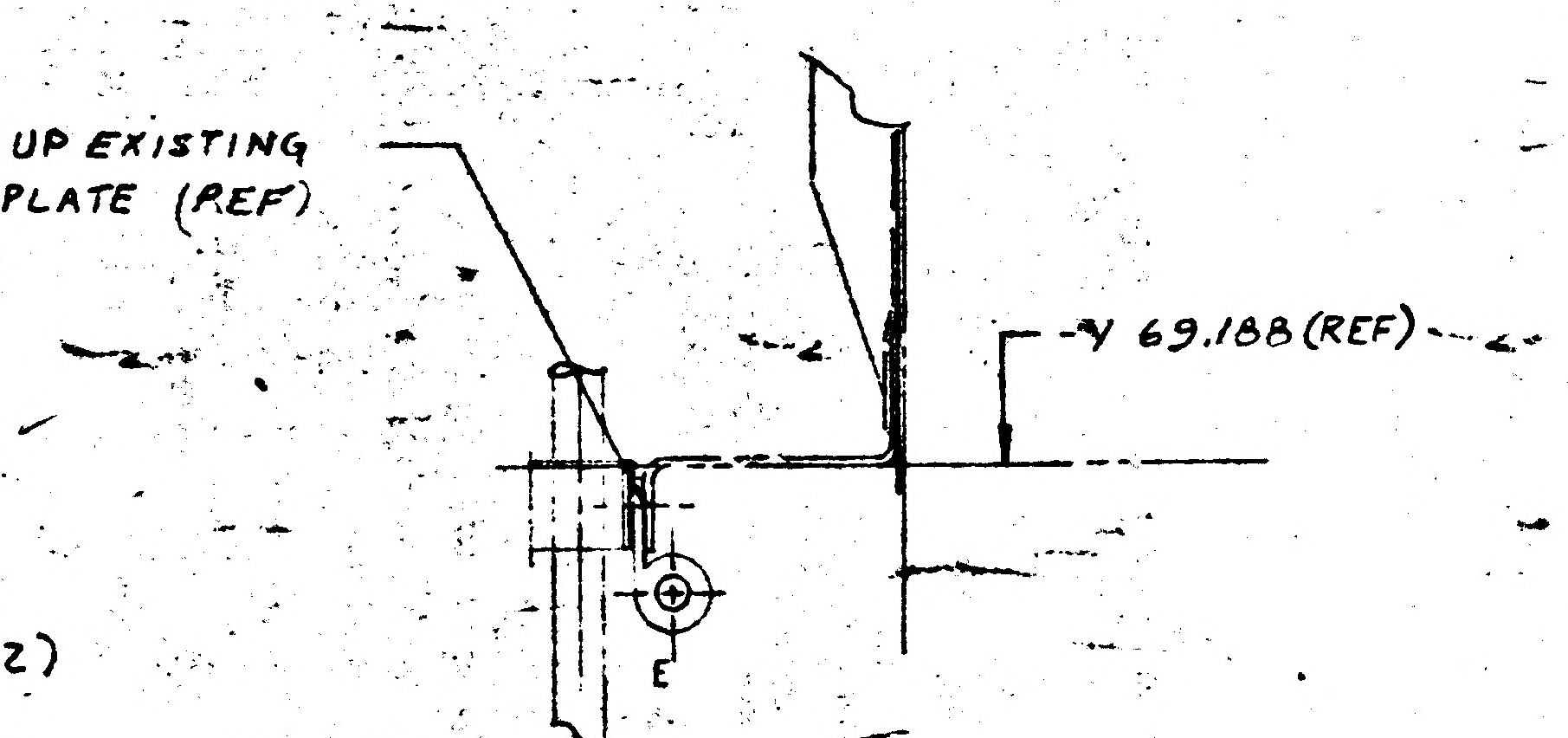
SECTION AF-AF



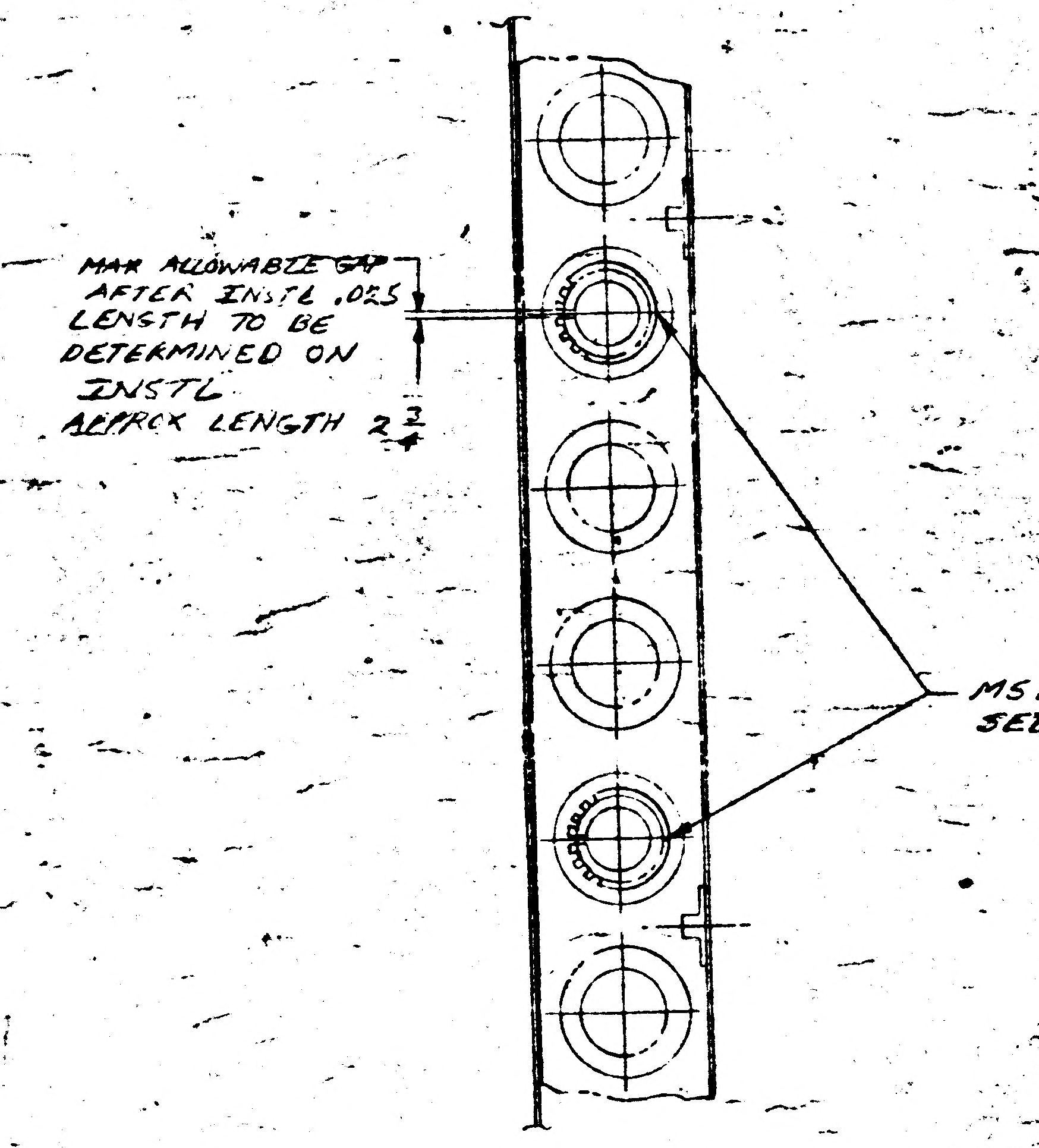
VIEW AD-AD


-Y 69.188 (REF)
+Z 59.331 (REF)
2 1/8
E
LDW280-17998-13
MS20470AD3 (2)

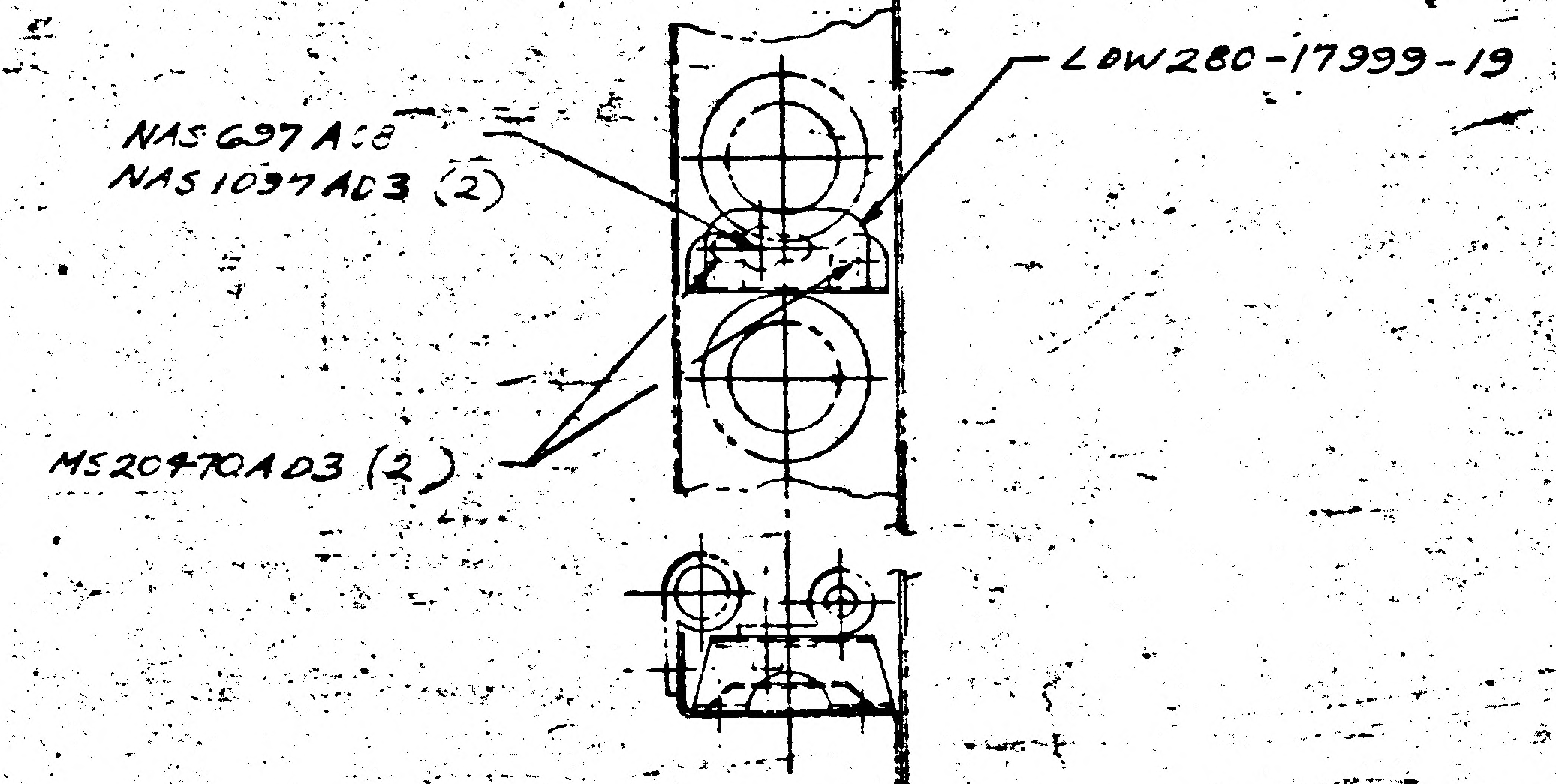
SECTION AE-AE


PICKUP EXISTING
NUT PLATE (REF)
-Y 69.188 (REF)
E

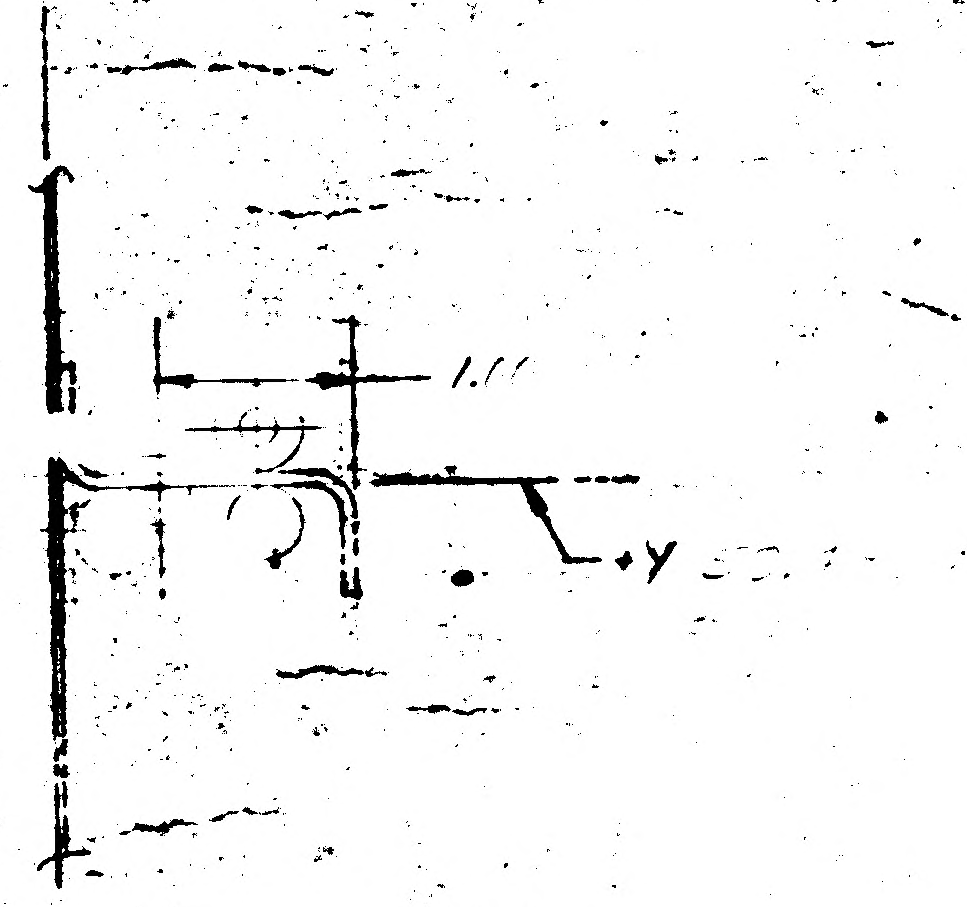
SECTION AG-AG


MAX ALLOWABLE GAP
AFTER INSTL .025
LENGTH TO BE
DETERMINED ON
INSTL
APPROX LENGTH 2 3/4
MS21266-1N
SEE NOTE 1

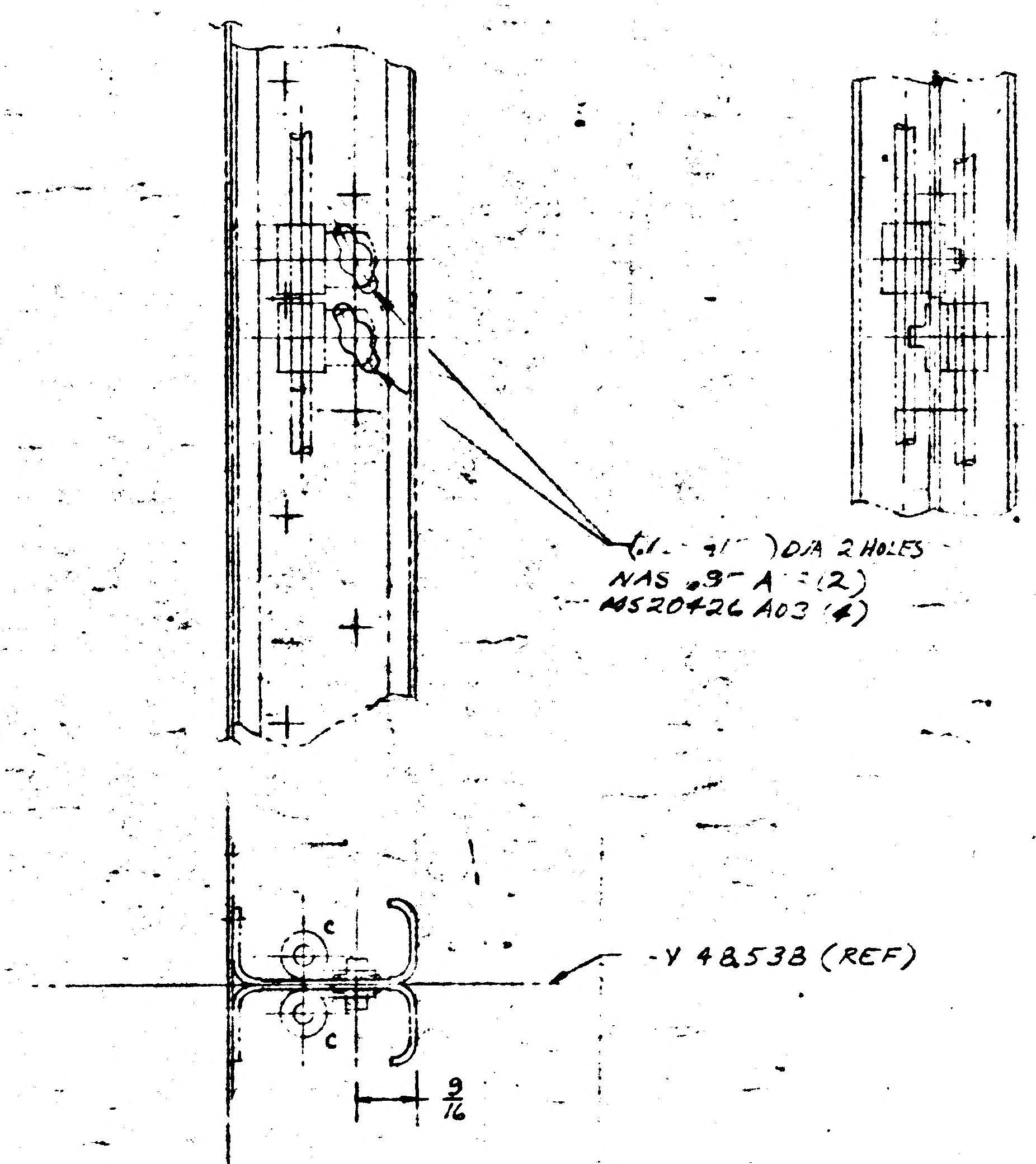
SECTION AJ-AJ


NAS697AC8
NAS1097AD3 (2)
LDW280-17999-19
MS20470AD3 (2)

SECTION AN-AN



SECTION AH-AH


DIA 2 HOLES
NAS
MS20426 AD3 (4)
C
C
-Y 48.538 (REF)
9/16

DETAIL AC

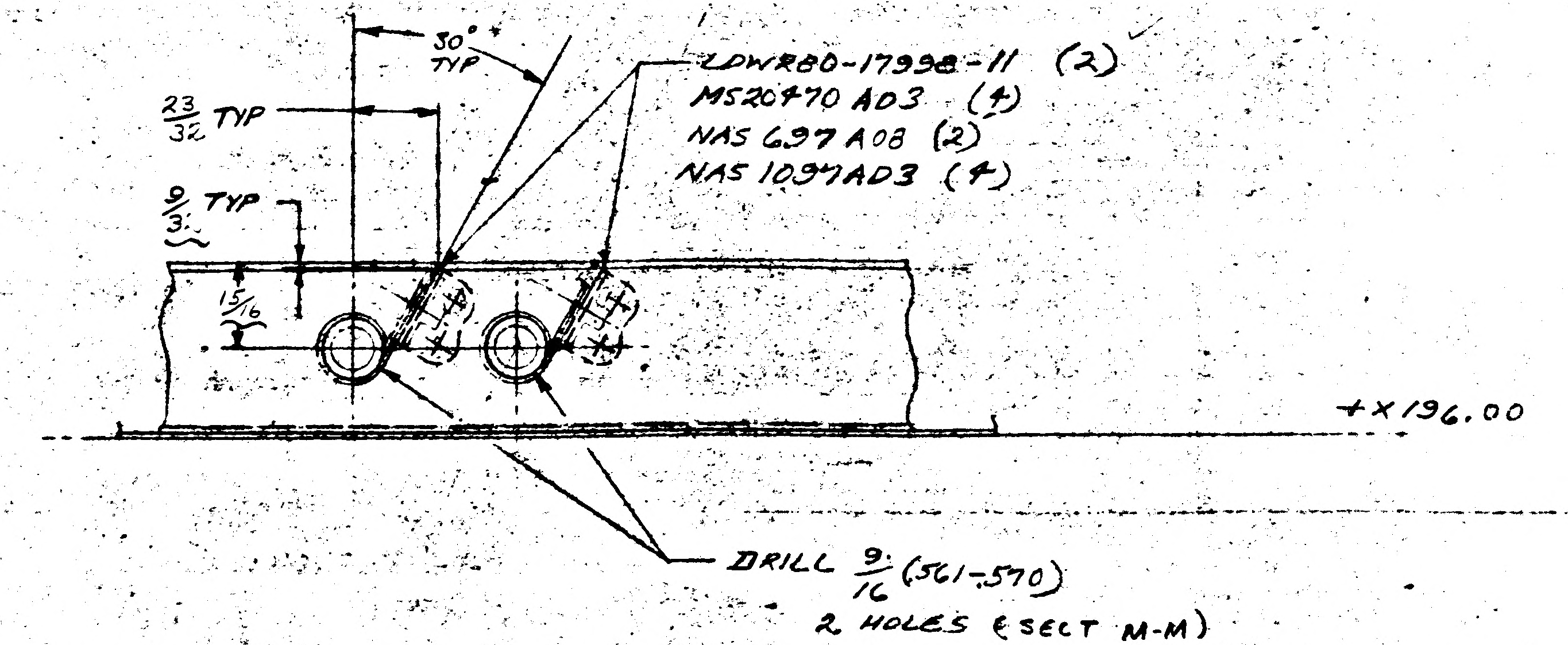
NAS
NAS
(TY

01/03 NAS 9-1100

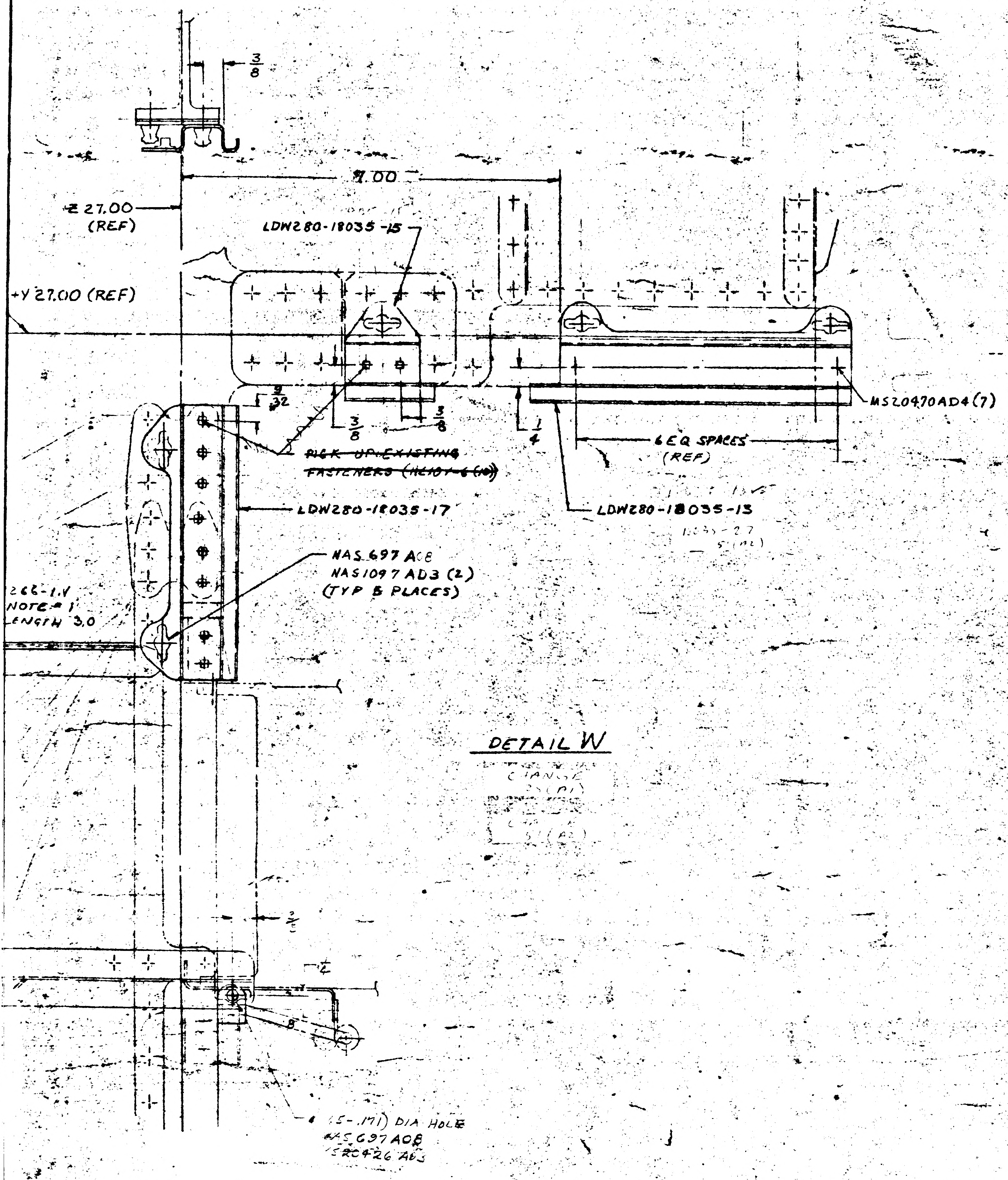
LDW280-17998-13
MS20470 AD3 (2)
NAS 697 ACE
NAS 1097 AD3 (2)
9/32
SECTION AA-AA
-Y 38483
MS20470AD3 (4)
LDW280-17998-13(2)
VIEW AK
CHANGE PER
8 3/4
4 1/4
-Y69.188 (REF)
+Z59.331 (REF)
LDW280-17999-11
LDW280-18035-19
MS20470AD4 (4)
470 AD3(2)
NAS 697 ACE
NAS1097 AD3(2)
(TYP 2 PLACES)
4 3/4
-Y27.00
(REF)
+Z 27.00
(REF)
DETAIL Z
DIA 2 HOLES
NAS 697 A 3(2)
MS20426 AD3 (4)
+X 196.00 (REF)
3/8
7.00
+Z 27.00
(REF)
LDW280-18035-15
+Y 27.00 (REF)
3/32
3/8
3/8
1/4
6 EQ SPACES
(REF)
PICK UP EXISTING FASTENERS
LDW280-18035-13
LDW280-17998-13
(REF)
LDW280-18035-17
NAS 697 A
NAS1097 AD3 (2)
(TYP 5 PLACES)
MS21266-1N
SEE NOTE 1
ACT LENGTH 3.0
1 5/8
DETAIL W
LDW280-17998-13
(REF)
3/8
-Y 48.538 (REF)
9/16
AC
4 7/8
2 27/32
NAS 697 ACE (2)
NAS1097 AD3 (4)
LDW280-17998-13
MS20470AD3(4)
DETAIL X
+Z 38.483 (REF)
CHANGE
CHANGE
NAS 697 A08
NAS1097 AD3
25°
23/32
LDW280-17998-11
.050
MS20470 AD3(2)
.165-.171 DIA HOLE
NAS 697 A08
MS20426 AD3

02/03 NAS 9-1100

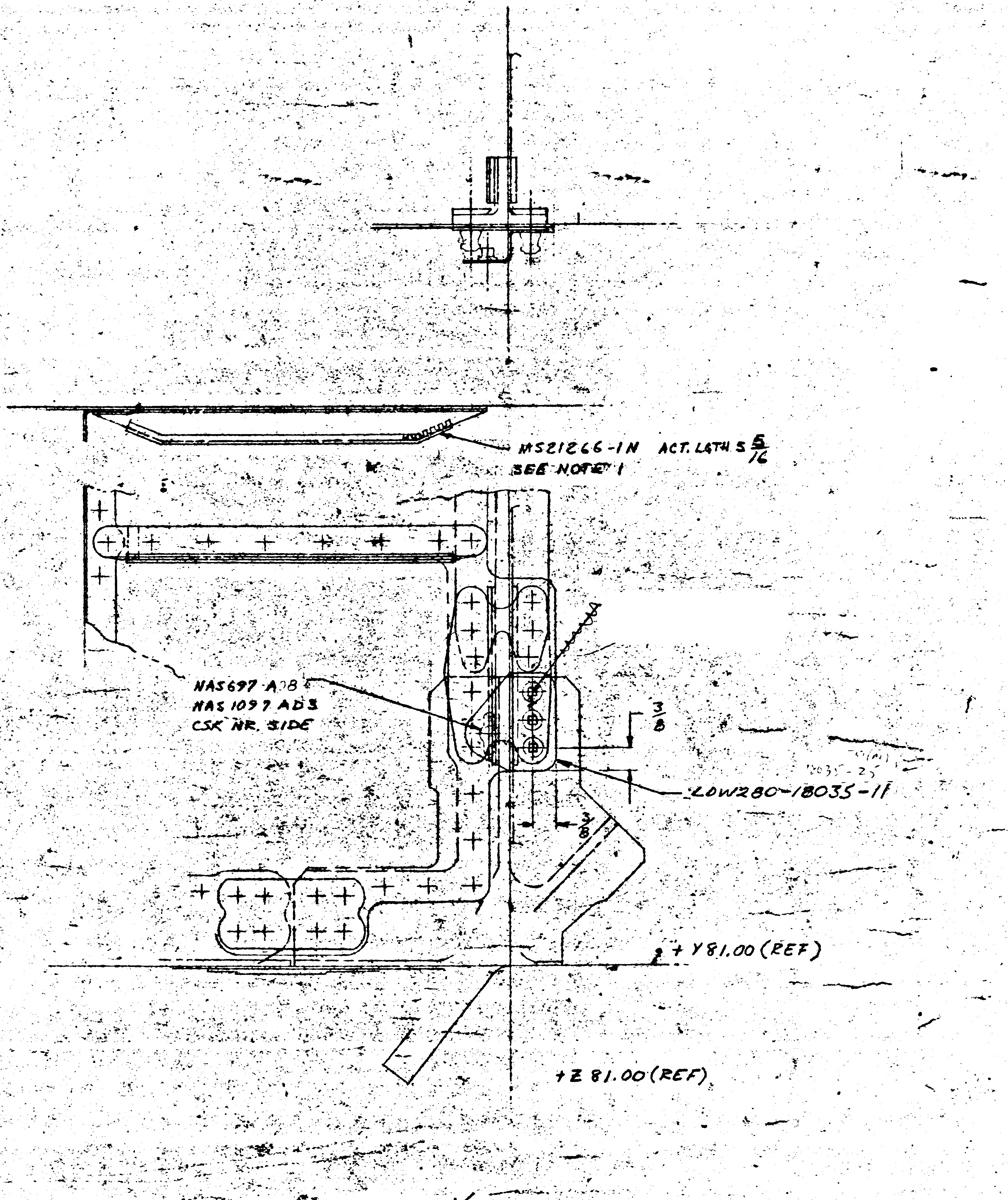
3
(4)
3(2)
VIEW AK


30° TYP
23/32 TYP
9/32 TYP
LDW280-17998-11 (2)
MS20470 AD3 (4)
NAS 697 A08 (2)
NAS 1097AD3 (4)
+X196.00
DRILL 9/16 (.561-.570)
2 HOLES (SECT M-M)
1 HOLE (VIEW AB-AB)

SECTION M-M
VIEW AB-AB


3/8
7.00
Z 27.00 (REF)
LDW280-18035-15
+Y 27.00 (REF)
MS20470AD4(7)
9/32
3/8
3/8
1/4
6 EQ SPACES (REF)
~~PICK UP EXISTING FASTENERS (HL101-6 (10))~~
LDW280-18035-17
LDW280-18035-13
NAS 697 A08
NAS1097 AD3 (2)
(TYP 5 PLACES)
266-1.V
NOTE 1
LENGTH 3.0
(.15-.171) DIA HOLE
NAS 697 A08
MS20426 AD3

DETAIL W


MS21266-1N ACT. LGTH 5 5/16
SEE NOTE 1
NAS697 A08
NAS 1097 AD3
CSK NR. SIDE
3/8
LDW280-18035-11
3/8
+Y81.00 (REF)
+Z 81.00 (REF)

DETAIL V
CHANGE PER 28 (M)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

03/03
NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-28789	
MODEL OR END ITEM	SCALE FULL		SHEET 4	

THIS IS AN ORIG DWG

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED SH-3.00, NO CHANGE, LAST REVISION NO CHANGE (DOTTIN 11-29-67)						
A	1	1.00, 1.10,	5A					EO A1	ADDED -3 ASS'Y. & LDW280-17998-23 ADDED SH.1.10	LM-1 (31)	✓		R. DOTTIN 12-16-67		
	2	2.00, 3.00	3A 4C 4B 5D 7A 8B 9B 10C 11C 12C				✓	EO A2	RELOCATED LDW280-18038-15 (1) ON-1 & -3. ADDED LDW280-18035-15 (2) ON-1 & -3. RELOCATED LDW280-17998-13 & -23, 1/8 WAS 23/32 RELOCATED LDW280-17998-13 & -23 & ADDED 1/8 DIM. ADDED LDW280-17998-13 (1) ON-1 & LDW280-17998-23 (1) ON-3. ON-1 & -3 ADDED NAS697C08 (3), NAS680C08 (1), GR500A-5J (2), GR500A-5G (2), GR500A-5H (2), NAS1097AD3 (8) & MS20470AD3 (2). ADDED DETAILS "M", P, R & S. ADDED SECTION N-N. IN DETAIL H ADDED: "VIEW LOOKING DOWN" & CSK FAR SIDE WAS CSK NEAR SIDE. IN DETAIL "E" CSK FAR SIDE WAS CSK NEAR SIDE. IN B/M LDW 280-17998-13 & -23, 97 REQ'D. WAS 94	LTA-8 (18) LM-1 (31)					
	3	1.10 1.00					✓	EO A3	IN MOD. BLK. FOR -3 ADDED LM-2 THRU LM-6	LM-2 THRU LM-6	NOT	REQ'D.			
	4	1.10 3.00 2.00	6C					EO A4	FOR -1 & -3 IN FLD. & B/M LDW280-17998-13 (94 REQ'D.) WAS 93 REQ'D. ADDED CLIP PER DETAIL "A" TO AFT LOWER DECK & DIM. 5" IN DETAIL "A" CALLOUT (TYP. 62 PLACES) WAS 61 PLACES. ON AFT LOWER DECK CALLOUT "SEE DETAIL "A" (TYP 16 PLACES) (WAS 15 PLACES)	LTA-8 (18) LM-1 (31) THRU LM-6 (36)	✓				
	5	1.10						EO A5	CANCELLED BY EOA9	LTA-8, LM-1 THRU LM-6					
	6	1.10, 2.00 & 3.00	7C					EO A6	IN FLD. & B/M ON -3 ADDED GB11D-8-76 (8) & MS20470AD4 (16)	LM-1 THRU LM-6					
	7	1.00 & 1.10						EO A7	ADDED EO. TO RECORD EO BLOCK FOR LTA-8 EFF ON-1: IN FLD & B/M ADDED NAS697C08 (1) & NAS1097AD3 (2) (EO NOT APPLICABLE)	LTA-8 (18) LM-1 (31) THRU LM-6 (36)					
	8	1.00 & 1.10	4A 4B				✓	EO A8	THIS E.O IS A REVISION OF E.O'S A2 & A3 FOR EFF ONLY REMOVED -3 FOR LM-4 THRU LM-6 ADDED -5 FOR LM-4 THRU LM-15 N/A LDW280-54509, (1) REQD/MOD. ADDED NOTE 1	LM-4 (34) THRU LM-15 (45					
	9	1.00 & 1.10	8A					EO A9	REFERENCE EO-A2 FOR -1 & -3 "ADDED LDW280-18038-15 (2)" WAS "ADDED LDW280-18035-15 (2). THIS EO CANCELS EO-A5	LTA-8 (18) LM-1 (31) THRU LM-6 (36)					
	10	1.00, 1.10, 2.00 & 3.00	5B 6B 7D				✓	EO A10 LCD 1078	ON-5 INSTL IN B/M & FLD ADDED GB11D-8-88 (4), MS20470AD3 (6), MS20470AD4 (18) RELOCATED LDW280-17998-23 (3) REMOVED GB11D-8-76 (14) & MS20470AD4 (28) MS20470AD3 (14) PLUG HOLES USING MS20470AD3 & AD4 AS REQ'D. REMOVED LDW280-17998-23 (4)	LM-4 (34) THRU LM-15 (45)			H.D.	WC	

CHG APPROVED

LTR	GROUP LDR	VEH. DES. INT	STRUCTURE	STRUCTURE	WEIGHTS	RELIABILITY					
B											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28790	B
SCALE	NONE		SHEET 1.10

(B)

ENG 77.16 3-66

01

NAS 9-1100

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

LDW280-28790 C

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52509	LM-2(32)	1
LDW280-28790-9			
LM	LDW280-54509	LM-14(44)	
LM	LDW280-54509	LM-4(34)	1
LDW280-28790-7			
LM	LDW280-53509	LM-3(33)	1
LDW280-28790-11			
LEM	LDW280-28509	LTA8(18)	1
PART NO. LDW280-28790-1		GAEC SCH NO. 50-2	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00	~~4.00~~					
REV	C	C	C						
SHEET	1.10	1.11							
REV	B	C							
SHEET									
REV									

LAST SECT LTR USED	T	GRUMMAN REL INFO C	
DASH NO. USED	-11	PRIM NO.	JK 001
		207	ME-1C-6/23/9

12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/16 ± .020 ± 1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100 LINE ITEM 1 DOCUMENTATION TYPE II

DRAWN BY	BUKOWSKI	RELIABILITY	
LAYOUT BY	RAGAS 7-7-66		
CHECKED BY			
GRP LDR	Wink for J. STRAKOSCH 7/9		
V.D.I.	[illegible] 7-9		
STRUCTURES	W.N. (EB 7/15	PROJ ENGR	[illegible] /RMC 7-25
STRUCTURES	[illegible] 7/16	REL GROUP	[illegible] 7-25
WEIGHTS	[illegible] 7-21		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET INSTALLATION
D/S-LOWER DECK ELECT. LINES SUPT

SIZE	CODE IDENT NO.		
B	26512	LDW280-28790	C
SCALE	NONE	SHEET 1.00 OF 5	

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
B	1	1.11, 2.00, 3.00	5A				✓	EO-B1	IN FLD/DWG. B/M & MODEL BLOCK -7 INSTL REPLACED -5 ADDED SH 1.11	LM-4 THRU LM-5	✓		R. DOTTIN 11-29-67 H.D.		
	2	1.11, 2.00, 3.00	11A				✓	EO-B2	ON-3 GR500A-4C WAS MS20470AD4, GB11D-10-76 WAS GB11D-8-76 REVISED DIM. 1.0±1/16 WAS 1/4	LM-1, LM-2 LM-3					
	3	1.11, 2.00 3.00	2B				✓	EO-B3 LCD-1843	ON-9 REMOVED LDW280-18038-13 & DETAIL "F"	LM-2 LM-3					
	4	1.11, 2.00 3.00	4A 11A				✓	EO-B4	REF EO-B2 REMOVED LM-2(32) & LM-3(33) FROM -3 INSTL. CREATED -9 INSTL. FOR LM-2(32) & LM-3(33)			-3			
	5	1.11					✓	EO-B5 LCD-1843	REFERENCE EO-B3 "ON-9" SHOULD BE "ON-3"		✓				
	6	1.0, 2.00 & 3.00	9D				✓	EO-B6 LCD-2020	ADDED -7 INSTL. IN M/B FOR -3 REMOVE LM-1(31) EFF (ADDED NOTE 2)	LM-1					
	7	1.11				✓		EOB-7 LCD-2020 A&D (E)	REF EO-B6 REVISED CALLOUT: ADDED -7 INSTL (IDENT TO -3 ETC. S/B ON-3 REMOVE LDW280-17998-13 CANCELLED SH 4.00 WC						
C	1	1.00, 200 3.00	5A		✓			EO C1	REMOVED -3 INSTL, N/A LDW 280-51509 (1) REQD/MOD EFF: LM1 (31).	NOT REQD	NOT	REQD	P. SEGURSKY 6-18-69		6-23-69
	2	1.00, 2.00 3.00	5A 6A 10D				✓	EO C2	ADDED -11 INSTL, REMOVED -9 INSTL. (-11 MAY BE MADE FROM -9)	LM-3	NOT	ED			
	3.	1.00, 2.00 3.00	2A 10C			✓		EO C3 LCD 2011	ON-7, ADDED DETAIL "T" LDW280-18038-15 (2), NAS697 C08 (2), NAS1097AD3 (4), REMOVED LDW280-18038-13.	LM4 THRU LM-15	✓				
	4	2.00, 3.00	2B				✓	EO C4	FOR -9 & -11, IN B/M DELETE LDW280-18038-13, IN F/D, DETAIL "F", (ON-1, -3 & -7) WAS (ON-1 & -7 ONLY).	NOT REQD	NOT	REQD			
	5	2.00 3.00	5D 8C 10D 7A			✓		EOC5, LCD 2011 CCA 668-3	FOR -7 INSTL, GB11D-8-88 S/B 5 REQD (WAS) 10 REQD, REMOVED GB11D-8-88 (4), ADDED 3 25/64 DIM, & RELOCATED GB11D-8-88 IN QUAD III, 18° (REF) (WAS) 9° (REF).	LM-6 THRU LM-15	✓				
	6	2.00 3.00	6C			✓		EOC6, LCD 2011 CCA 668-3	ON -7, IN F/D & B/M, REMOVED LDW280-17998-23 (1). IN F/D, REMOVED DIM 5 3/8.	LM 9 THRU LM-15	✓				
	7.	1.00		(E)		✓		LEO280-1451 LCD 3587 CCA 1821	DELETED LM-15 (45) EFFECTIVITY FROM -7. J.V.	LM-15		-7			

CHG APPROVED LTR	GROUP LDR	VEH. DES. INT	STRUCTURE	STRUCTURE	WEIGHTS	RELIABILITY
B						
C						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28790	C
SCALE	NONE	SHEET 1.11	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY																
	-11	-9	-7		-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	2	2					GR500A-4C	E	RIVET	GRUMMAN STD						
	A/R	A/R	A/R		A/R		MS20470DD5	E	RIVET	STD PART						
	A/R	A/R	A/R		A/R		MS20470AD4	E	RIVET	STD PART						
	A/R	A/R	A/R		A/R		MS20470AD3	E	RIVET	STD PART						
	2	2			2		GR500A-5U	E	RIVET	GRUMMAN STD						
	A/R	A/R	A/R		A/R		NAS1097AD3	E	RIVET	STD PART						
	1	1			1		NAS680C08	E	NUT PLATE	STD PART						
	107	107	108		109		NAS697C08	E	NUT PLATE	STD PART						
	2	2			2		GR500A-5G	E	RIVET	GRUMMAN STD						
	2	2	2		2		GR500A-5H	E	RIVET	↕						
	24	24			15		GB11D-8-76	E	CLIP	↕						
									↕	↕						
			5				GB11D-8-88	E	↕	↕						
			1				GB11D-2-86	E	CLIP	GRUMMAN STD						
	4	4	3		4		LDW280-18038-15	E	ZEE	SEE DWG						
					1		LDW280-18038-13	E	ZEE	SEE DWG						
	1	1	1		1		LDW280-18038-11	E	ZEE	SEE DWG						
	91	94	95				LDW280-17998-23	E	CLIP	SEE DWG.						
					94		LDW280-17998-13	E	CLIP	SEE DWG.						
							LDW280-28790-11	E	BRACKET INSTL					NONE	NONE	5A
							-9	E	↕					↕	↕	5A
							↓ -7	E	↕					↕	↕	5A
							LDW280-28790-1	E	BRACKET INSTL					NONE	NONE	5A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

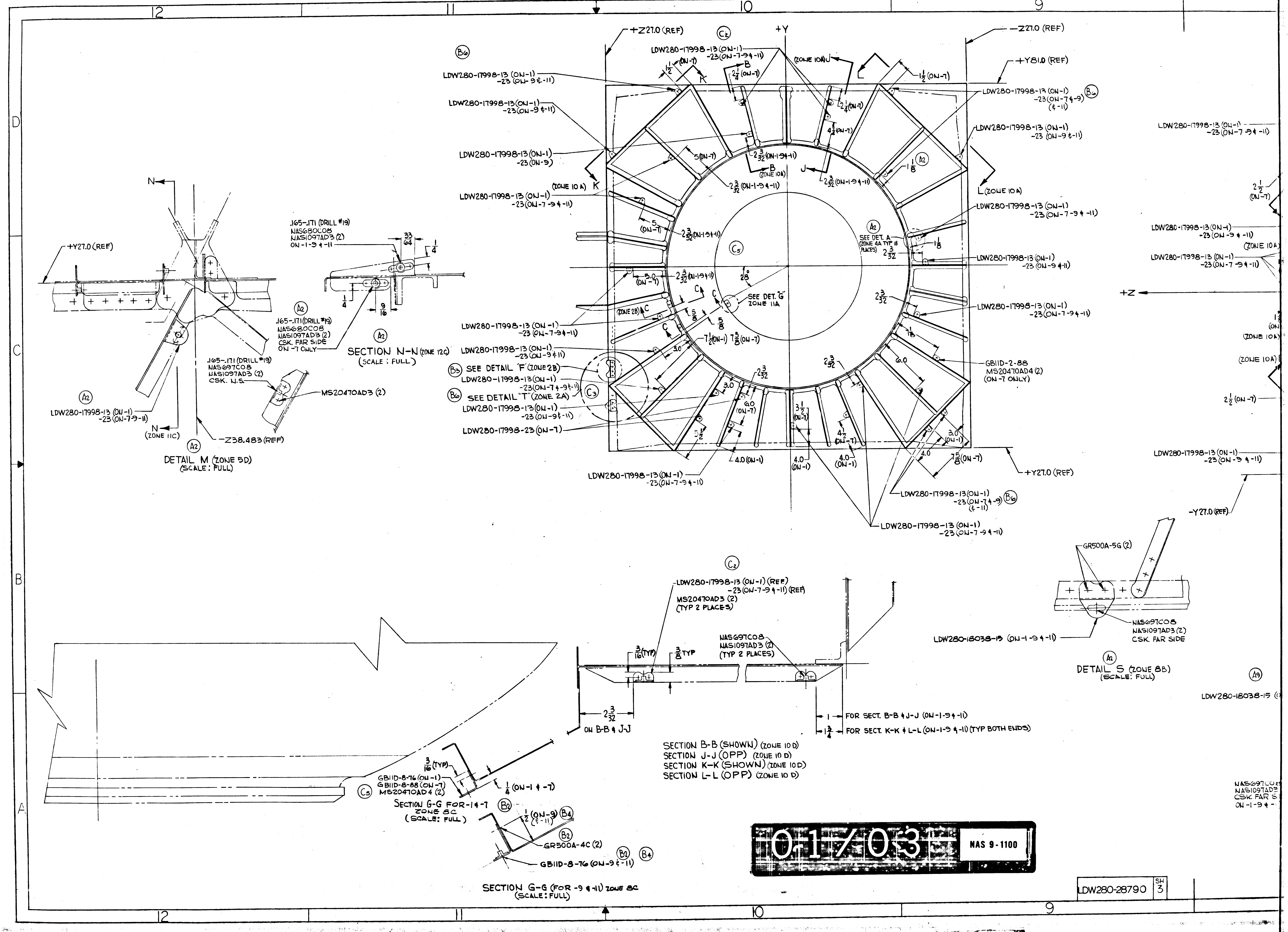
SIZE B | CODE IDENT NO. 26512 | LDW280-28790 | C

SCALE NONE | SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


12
11
10
9
D
C
B
A
+Z27.0 (REF)
-Z27.0 (REF)
+Y
+Y81.0 (REF)
+Y27.0 (REF)
-Y27.0 (REF)
+Z
LDW280-17998-13 (ON-1)
-23 (ON-7-9 & -11)
LDW280-17998-13 (ON-1)
-23 (ON-9 & -11)
LDW280-17998-13 (ON-1)
-23 (ON-9)
LDW280-17998-13 (ON-1)
-23 (ON-7-9 & -11)
LDW280-17998-13 (ON-1)
-23 (ON-7 & -9 (& -11)
LDW280-17998-23 (ON-7)
LDW280-17998-13 (ON-1)
-23 (ON-7 & -9 & -11)
SEE DET. A (ZONE 4A TYP 18 PLACES)
SEE DET. "G" ZONE 11A
SEE DETAIL "F" (ZONE 2B)
SEE DETAIL "T" (ZONE 2A)
GB11D-2-88
MS20470AD4 (2)
(ON-7 ONLY)
(ZONE 10 A)
K
L (ZONE 10 A)
B (ZONE 10A)
J
C
28°
2 3/32 (ON-1-9 & -11)
5 (ON-7)
1 1/2 (ON-7)
2 1/4 (ON-7)
4 1/2 (ON-7)
1 1/8
5/8
7 1/2 (ON-1)
7 5/8 (ON-7)
6.0
3.0
4.0 (ON-1)
3 1/2 (ON-1)
5 1/2
N
.165-.171 (DRILL #19)
NAS680C08
NAS1097AD3 (2)
ON-1-9 & -11
33/64
1/4
9/16
.165-.171 (DRILL #19)
NAS680C08
NAS1097AD3 (2)
CSK. FAR SIDE
ON-7 ONLY
.165-.171 (DRILL #19)
NAS697C08
NAS1097AD3 (2)
CSK. N.S.
MS20470AD3 (2)
SECTION N-N (ZONE 12C)
(SCALE: FULL)
LDW280-17998-13 (ON-1)
-23 (ON-7-9-11)
N (ZONE 11C)
-Z38.483 (REF)
DETAIL M (ZONE 5D)
(SCALE: FULL)
GR500A-5G (2)
NAS697C08
NAS1097AD3 (2)
CSK. FAR SIDE
LDW280-18038-15 (ON-1-9 & -11)
DETAIL S (ZONE 8B)
(SCALE: FULL)
LDW280-18038-15
NAS697C08
NAS1097AD3
CSK. FAR S
ON-1-9 & -
LDW280-17998-13 (ON-1) (REF)
-23 (ON-7-9 & -11) (REF)
MS20470AD3 (2)
(TYP 2 PLACES)
3/16 (TYP)
3/8 TYP
NAS697C08
NAS1097AD3 (2)
(TYP 2 PLACES)
2 3/32
ON B-B & J-J
1 — FOR SECT. B-B & J-J (ON-1-9 & -11)
1 3/4 — FOR SECT. K-K & L-L (ON-1-9 & -11) (TYP BOTH ENDS)
SECTION B-B (SHOWN) (ZONE 10 D)
SECTION J-J (OPP) (ZONE 10 D)
SECTION K-K (SHOWN) (ZONE 10 D)
SECTION L-L (OPP) (ZONE 10 D)
3/16 (TYP)
GB11D-8-76 (ON-1)
GB11D-8-88 (ON-7)
MS20470AD4 (2)
1/4 (ON-1 & -7)
SECTION G-G FOR -1 & -7
ZONE 8C
(SCALE: FULL)
1/2 (ON-9 (& -11)
GR500A-4C (2)
GB11D-8-76 (ON-9 & -11)
SECTION G-G (FOR -9 & -11) ZONE 8C
(SCALE: FULL)

01/03 NAS 9-1100

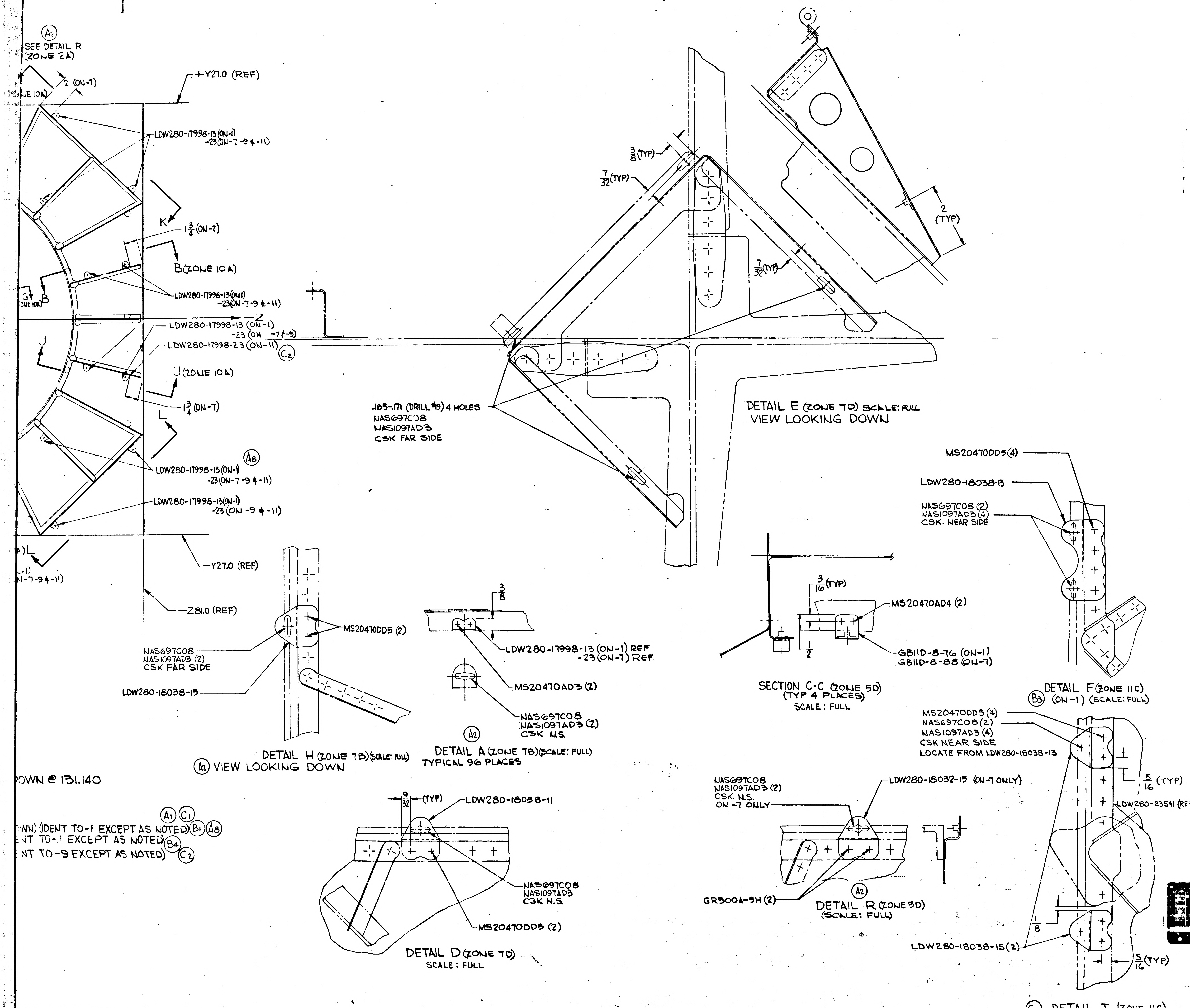
LDW280-28790 SH 3

-Z27.0 (REF)
SEE DETAIL "E" (ZONE 3C)
SEE DETAIL "D" (ZONE 3A)
A10
LDW280-17998-13 (ON-1) -23 (ON-7-9 & -11)
K (ZONE 10 A)
LDW280-17998-13 (ON-1) -23 (ON-7-9 & -11)
2 1/2 (ON-7)
LDW280-17998-13 (ON-1) -23 (ON-9 & -11)
(ZONE 10A) J
LDW280-17998-13 (ON-1) -23 (ON-7-9 & -11)
1 3/4 (ON-7)
+Z
1 5/8 (ON-7)
(ZONE 10A) B
(ZONE 10A) L
2 1/2 (ON-7)
LDW280-17998-13 (ON-1) -23 (ON-9 & -11)
C5
(ZONE 11A) G
SEE SECT "C" (ZONE 2B)
SEE DETAIL A ZONE 4B TYP (22) PLACES
2 3/32 (TYP)
LDW280-17998-23 (ON-7)
A6
SEE DET "S" (ZONE 9B)
A2
LDW280-17998-13 (23 ON-1) -23 (23 ON-7-9 & -11)
A8
GB11D-8-88
MS20470AD4 (2)
-Y27.0 (REF)
+Z81.0 (REF)
6 1/2 (ON-7)
4 3/8 (ON-7)
LDW280-17998-13 (ON-1) -23 (ON-7-9 & -11)
4 1/4 (ON-7)
4.0 (ON-1-9 & -11)
LDW280-17998-23 (22) ON-7-9 & -11 -13 (15) ON-1
(SEE DETAIL A) (ZONE 3B)
A8 SEE DETAIL H (ZONE 4B)
LDW280-17998-13 (ON-1) -23 (ON-9 & -11)
LDW280-177998-13 (ON-1) -23 (ON-7-9 & -11)
SEE DETAIL C (ZONE 2B)
SEE DETAIL G
43 1/2°
7 5/8
LDW280-17998-13 (ON-1) -23 (ON-7-9 & -11)
LDW280-17998-13 (ON-1) -23 (ON-3-7 & -9)
SEE DETAIL P (ZONE 8 A)
SEE DETAIL "A" ZONE 4B TYP (15) PLACES
(ZONE 10 A) L
K (ZONE 10 A)
LDW280-17998-13 (ON-1) -23 (ON-9 & -11)
LDW280-17998-13 (ON-1) -23 (ON-7-9 & -11)
LDW280-17998-13 (ON-1) -23 (ON -7 & -9)
LDW280-17998-23 (ON -11) C2
LDW280-17998-13 (ON-1) -23 (ON-7-9 & -11)
1 3/4 (ON-7)
J (ZONE 10A)
B (ZONE 10A)
-Y81.0 (REF)
-Y
LDW280-17998-13 (ON-1) -23 (ON-7-9 & -11)
SEE DETAIL R (ZONE 2A)
LDW280-17998-23 (ON-7)
SEE DET M (ZONE 12C)
LDW280-17998-13 (ON-1) -23 (ON-7-9 & -11)
SEE DETAIL "A" ZONE 4B TYP (23) PLACES
A4 LDW280-17998-13 (ON-1)
C6 LDW280-17998-23 (ON-7)
LDW280-17998-13 (ON-1) -23 (ON-7-9 & -11)
G (ZONE 10 A)
18°
10°
1 3/4 (ON-7)
B (ZONE 10
J (ZONE 10A)
(ZONE 10A) L
LDW280-17998-13 (ON-1) -23 (ON-7-9 & -11)
-Y27.0
-Z81.0 (REF)
NAS697C08
NAS1097AD3 (2)
CSK FAR SIDE
LDW280-18038-15
A2 VIEW
NAS697C08
NAS1097AD3 (2)
CSK. FAR SIDE
S (ZONE 8B)
SCALE: FULL
A9
LDW280-18038-15 (ON-1-9 & -11)
GR500A-5J (2)
NAS697C08
NAS1097AD3 (2)
CSK. FAR SIDE
ON-1-9 & -11
DETAIL P (ZONE 7A) (SCALE: FULL)
VIEW LOOKING DOWN
A2

VIEW LOOKING DOWN @ 131.140

LDW280-28790-1 INSTL

-7 INSTL (SHOWN) (IDENT TO-1 EXCEPT AS NOTED) A1 C1 B1 A8
-9 INSTL (IDENT TO-1 EXCEPT AS NOTED) B4
-11 INSTL (IDENT TO-9 EXCEPT AS NOTED) C2


4
3
2
(A2)
SEE DETAIL R
(ZONE 2A)
+Y27.0 (REF)
2 (ON-7)
ZONE 10A)
LDW280-17998-13 (ON-1)
-23 (ON-7 -9 & -11)
K
1 3/4 (ON-7)
B (ZONE 10 A)
G
B
ZONE 10A)
LDW280-17998-13 (ON-1)
-23 (ON-7 -9 & -11)
-Z
LDW280-17998-13 (ON-1)
-23 (ON -7 & -9)
LDW280-17998-23 (ON-11) (C2)
J
J (ZONE 10 A)
1 3/4 (ON-7)
L
(A8)
LDW280-17998-13 (ON-1)
-23 (ON-7 -9 & -11)
LDW280-17998-13 (ON-1)
-23 (ON -9 & -11)
)L
-1)
N-7-9 & -11)
-Y27.0 (REF)
-Z81.0 (REF)
3/16 (TYP)
7/32 (TYP)
7/32 (TYP)
2 (TYP)
.165-.171 (DRILL #19) 4 HOLES
NAS697C08
NAS1097AD3
CSK FAR SIDE
DETAIL E (ZONE 7D) SCALE: FULL
VIEW LOOKING DOWN
MS20470DD5 (2)
NAS697C08
NAS1097AD3 (2)
CSK FAR SIDE
LDW280-18038-15
DETAIL H (ZONE 7B) (SCALE: FULL)
(A2) VIEW LOOKING DOWN
3/8
LDW280-17998-13 (ON-1) REF
-23 (ON-7) REF.
MS20470AD3 (2)
NAS697C08
NAS1097AD3 (2)
CSK N.S.
(A2)
DETAIL A (ZONE 7B) (SCALE: FULL)
TYPICAL 96 PLACES
3/16 (TYP)
MS20470AD4 (2)
1/2
GB11D-8-76 (ON-1)
GB11D-8-88 (ON-7)
SECTION C-C (ZONE 5D)
(TYP 4 PLACES)
SCALE: FULL
MS20470DD5 (4)
LDW280-18038-13
NAS697C08 (2)
NAS1097AD3 (4)
CSK. NEAR SIDE
DETAIL F (ZONE 11C)
(B3) (ON-1) (SCALE: FULL)
DOWN @ 131.140
(A1) (C1)
WN) (IDENT TO-1 EXCEPT AS NOTED) (B1) (A8)
NT TO-1 EXCEPT AS NOTED) (B4)
NT TO-9 EXCEPT AS NOTED) (C2)
9/32 (TYP)
LDW280-18038-11
NAS697C08
NAS1097AD3
CSK N.S.
MS20470DD5 (2)
DETAIL D (ZONE 7D)
SCALE: FULL
NAS697C08
NAS1097AD3 (2)
CSK. N.S.
ON -7 ONLY
LDW280-18032-15 (ON-7 ONLY)
GR500A-5H (2)
(A2)
DETAIL R (ZONE 5D)
(SCALE: FULL)
MS20470DD5 (4)
NAS697C08 (2)
NAS1097AD3 (4)
CSK NEAR SIDE
LOCATE FROM LDW280-18038-13
5/16 (TYP)
LDW280-23541 (RE
1/8
LDW280-18038-15 (2)
5/16 (TYP)
(C3) DETAIL T (ZONE 11C)
(ON-7) SCALE: FULL
3
2

W280-28790 SH 3

NOTES:

~~1. ALL CLIP LOCATION DIMENSIONS ALONG STIFFENERS TO BE ±1/4 ON -5~~

2. THIS DWG. IS AFFECTED BY THE FOLLOWING LFM(S) SEE LFM 43 FOR EFF AND MODIFICATION.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 132

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X142)= 35.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 9 SQ. FT.

PRINT TRIM LINE

1
D
C
B
A

LDW280-28790 C

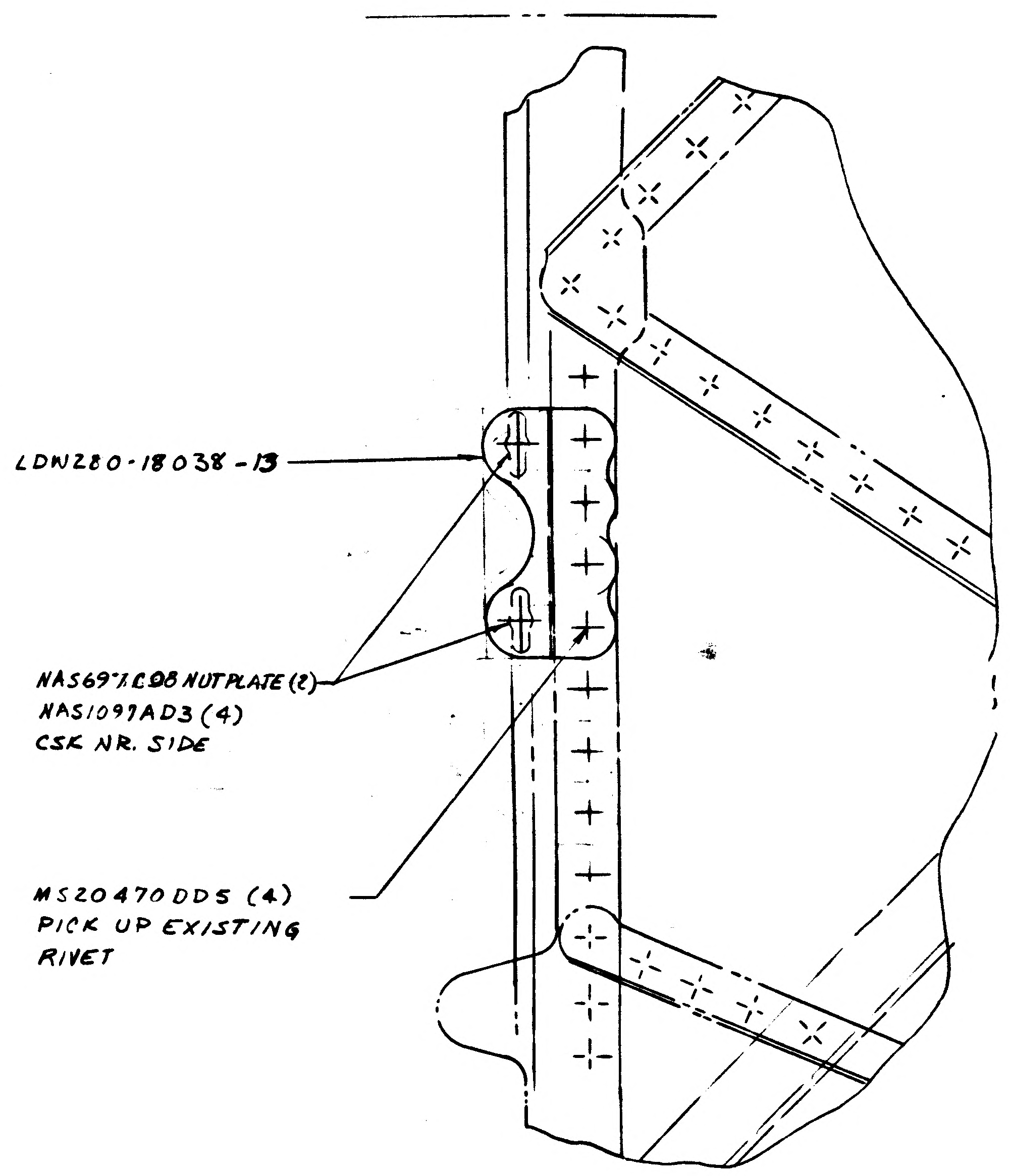
LDW280-28790 C

03/03 NAS 9-1100

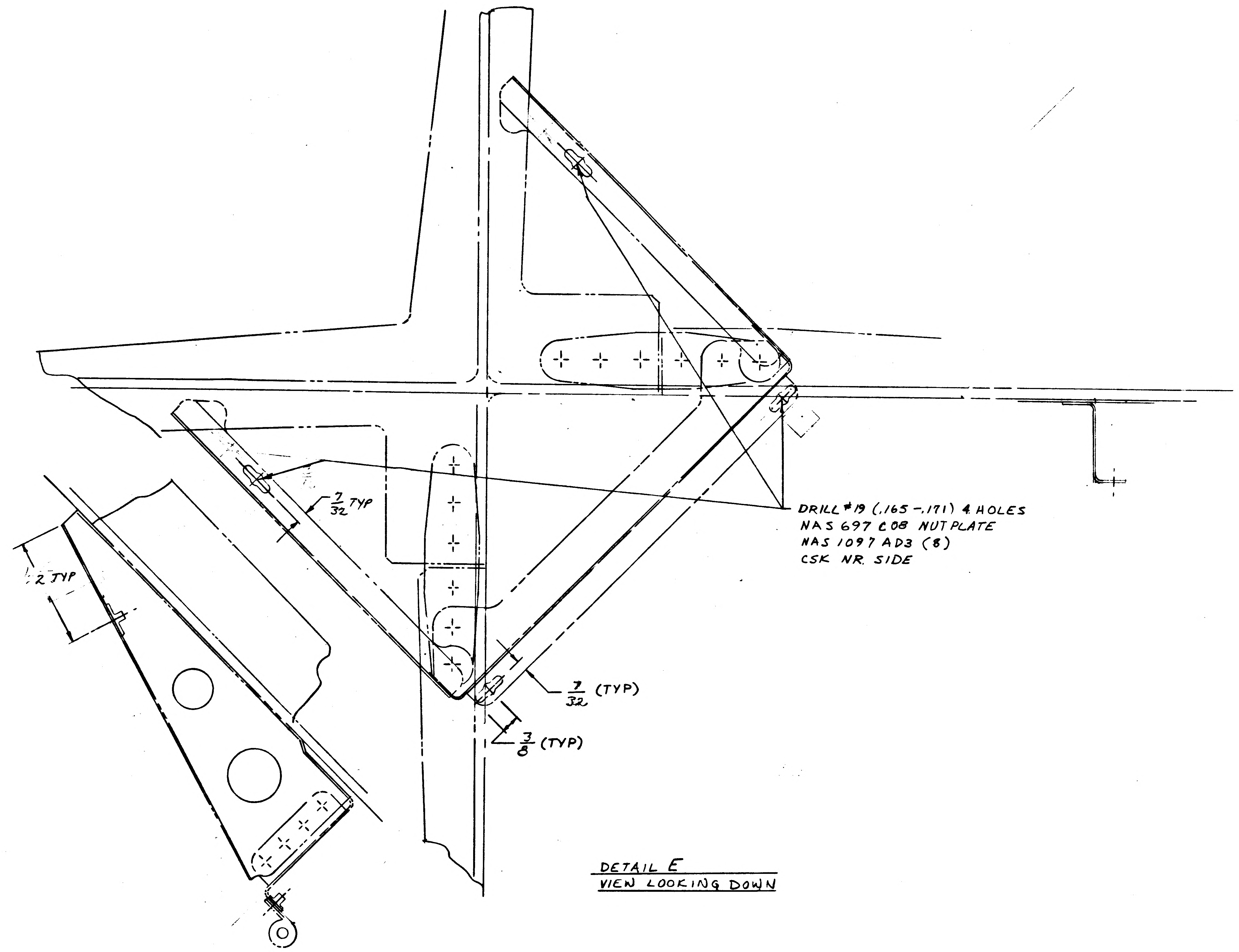
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-28790	C
	SCALE 1/4		SHEET 3.00	

SUPERSEDES LDW280-28790 LAST REV NC 7-7-66 3FR

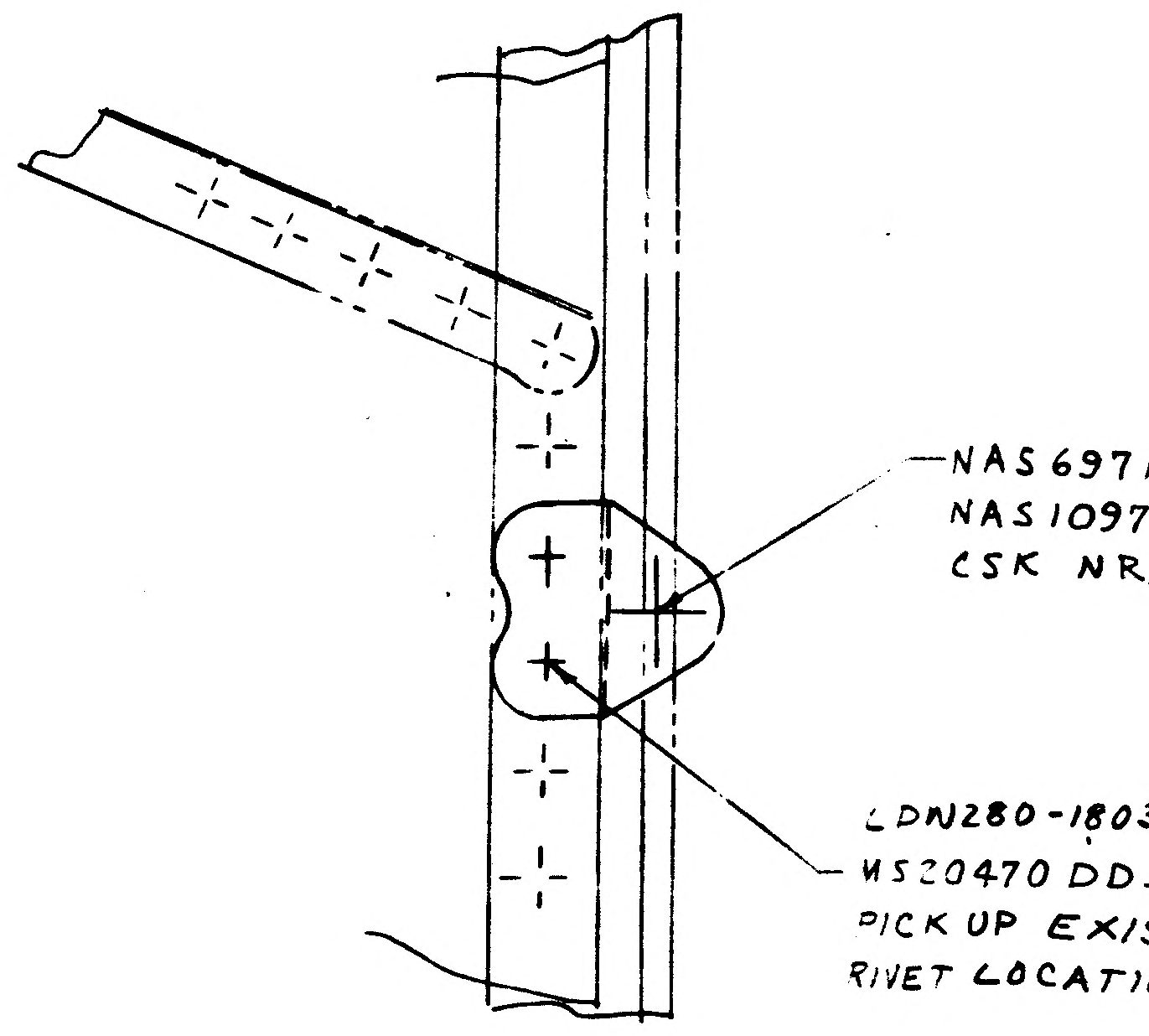

LDW280-18038-13
NAS697C08 NUTPLATE (2)
NAS1097AD3 (4)
CSK NR. SIDE
MS20470DD5 (4)
PICK UP EXISTING
RIVET

DETAIL F
VIEW LOOKING UP

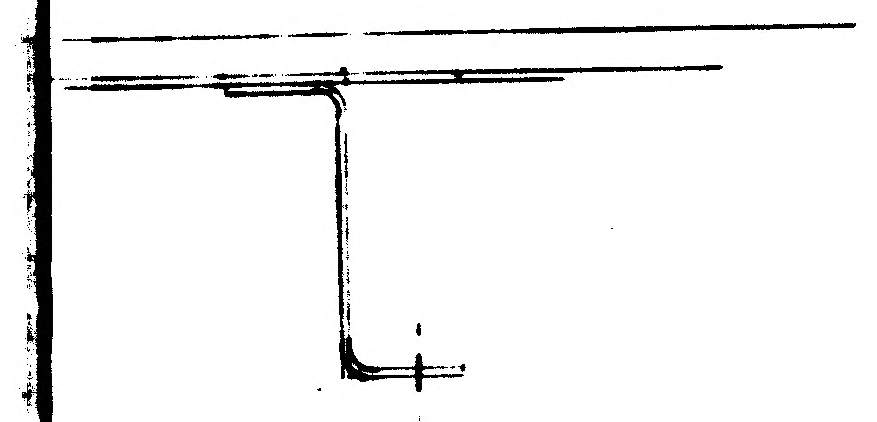

7/32 TYP
2 TYP
DRILL #19 (.165-.171) 4 HOLES
NAS 697 C08 NUTPLATE
NAS 1097 AD3 (8)
CSK NR. SIDE
7/32 (TYP)
3/8 (TYP)

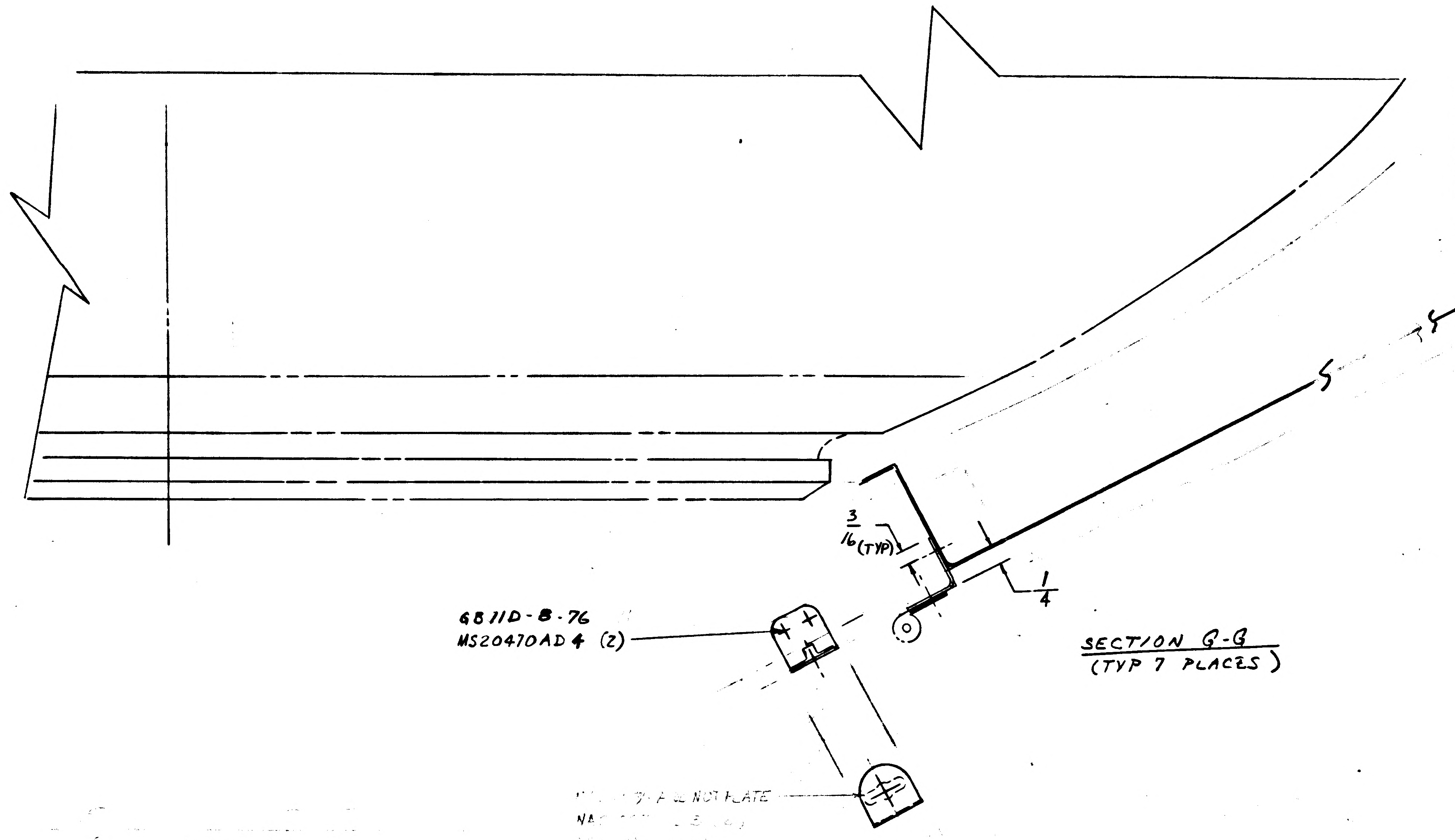
DETAIL E
VIEW LOOKING DOWN

01/03 NAS 9-1100

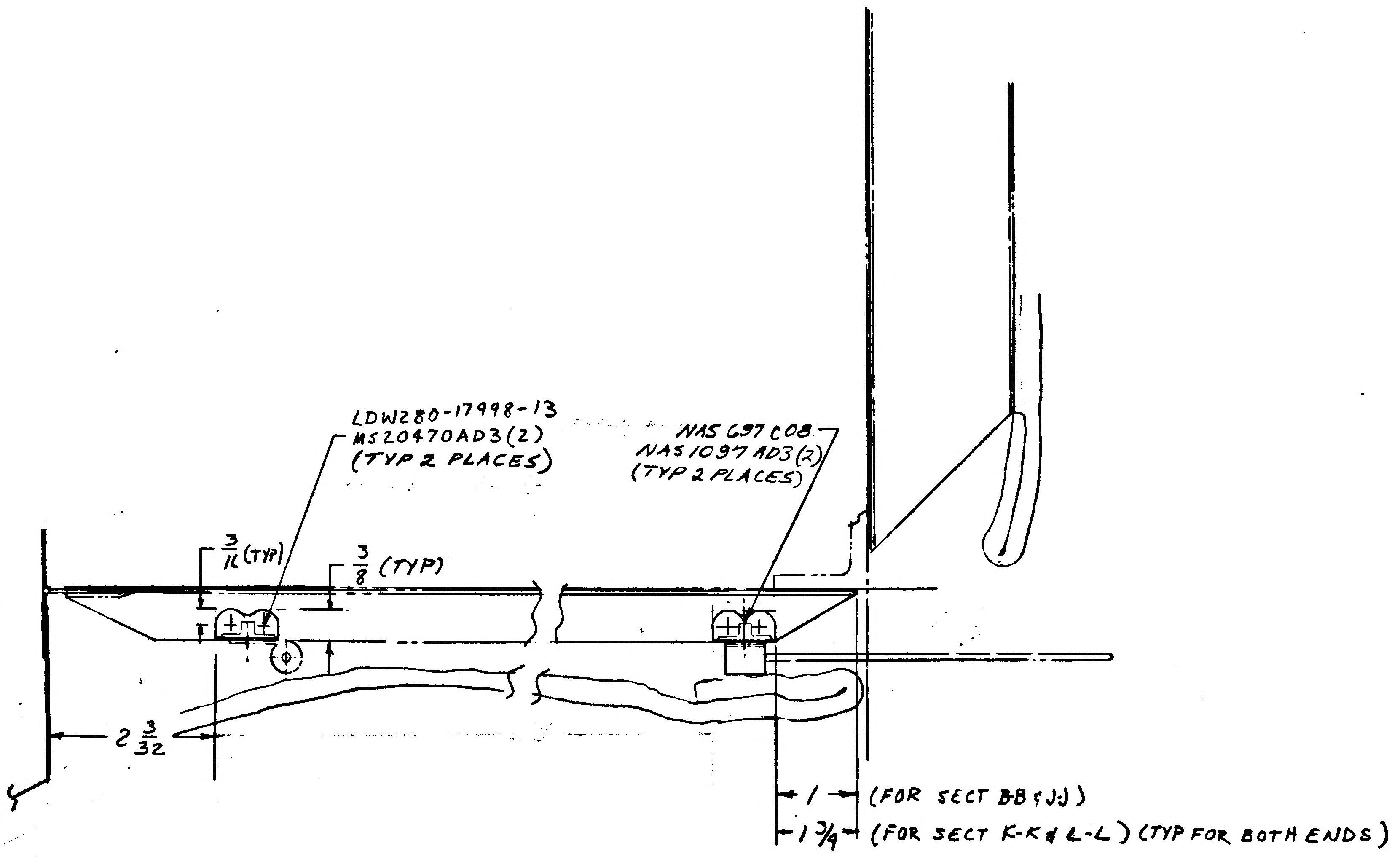

NAS697
NAS1097
CSK NR
LDW280-1803
MS20470 DD
PICK UP EXIS
RIVET LOCATI

DETAIL H

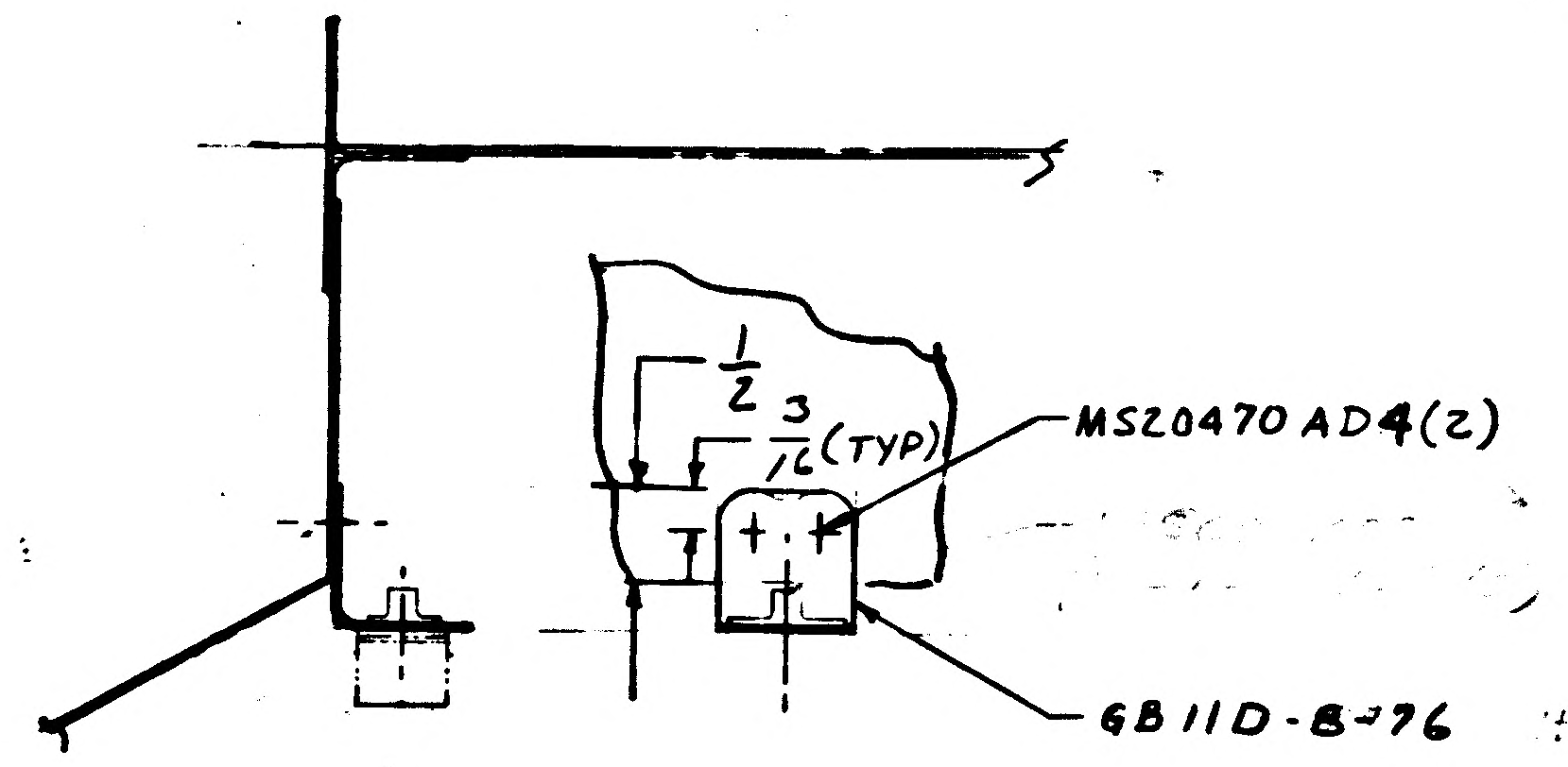



3/16 (TYP)
1/4
6B11D-8-76
MS20470AD4 (2)
NUTPLATE

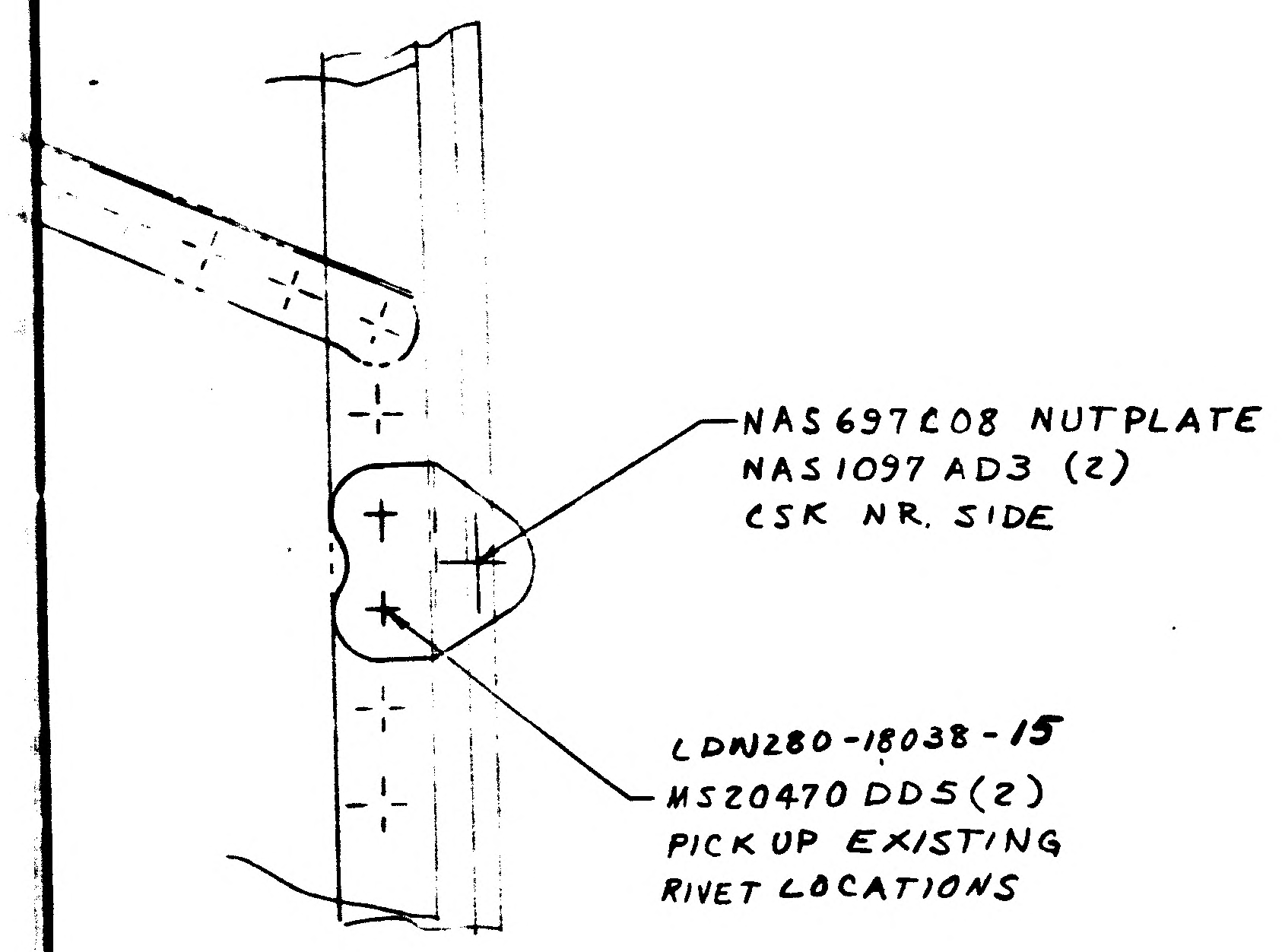
SECTION G-G
(TYP 7 PLACES)


LDW280-17998-13
MS20470AD3(2)
(TYP 2 PLACES)
NAS 697 C08
NAS 1097 AD3(2)
(TYP 2 PLACES)
3/16 (TYP)
3/8 (TYP)
2 3/32
1 (FOR SECT B-B & J-J)
1 3/4 (FOR SECT K-K & L-L) (TYP FOR BOTH ENDS)

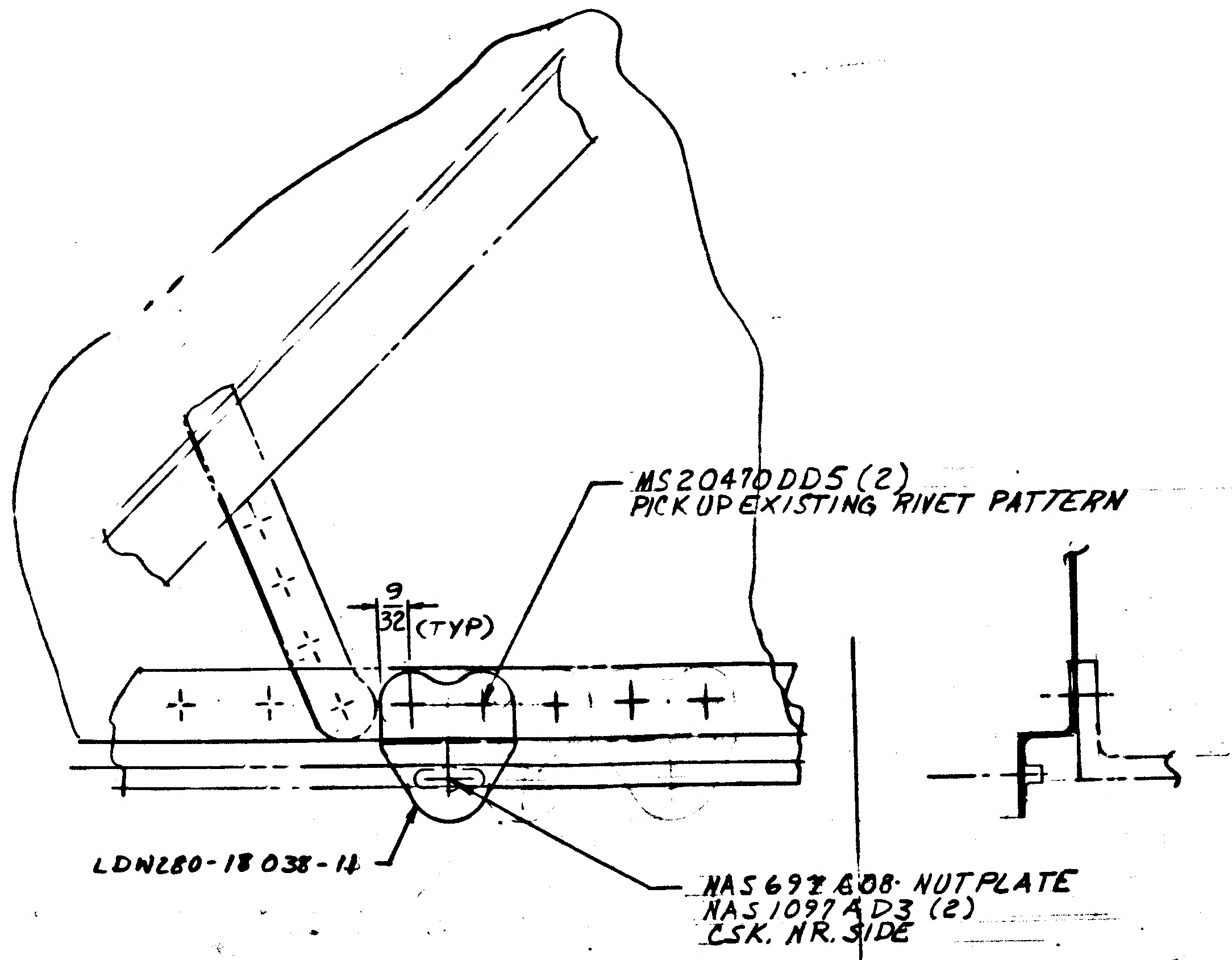
SECTION B-B (SHN)
SECTION J-J (OPP)
SECTION K-K (SHN)
SECTION L-L (OPP)
(TYP 8 PLACES EACH)


1/2
3/16 (TYP)
MS20470 AD4(2)
6B11D-8-76

SECTION C-C (ROTATED)
(TYP 4 PLACES)


NAS 697 C08 NUTPLATE
NAS 1097 AD3 (2)
CSK NR. SIDE
LDW280-18038-15
MS20470 DD5 (2)
PICK UP EXISTING
RIVET LOCATIONS

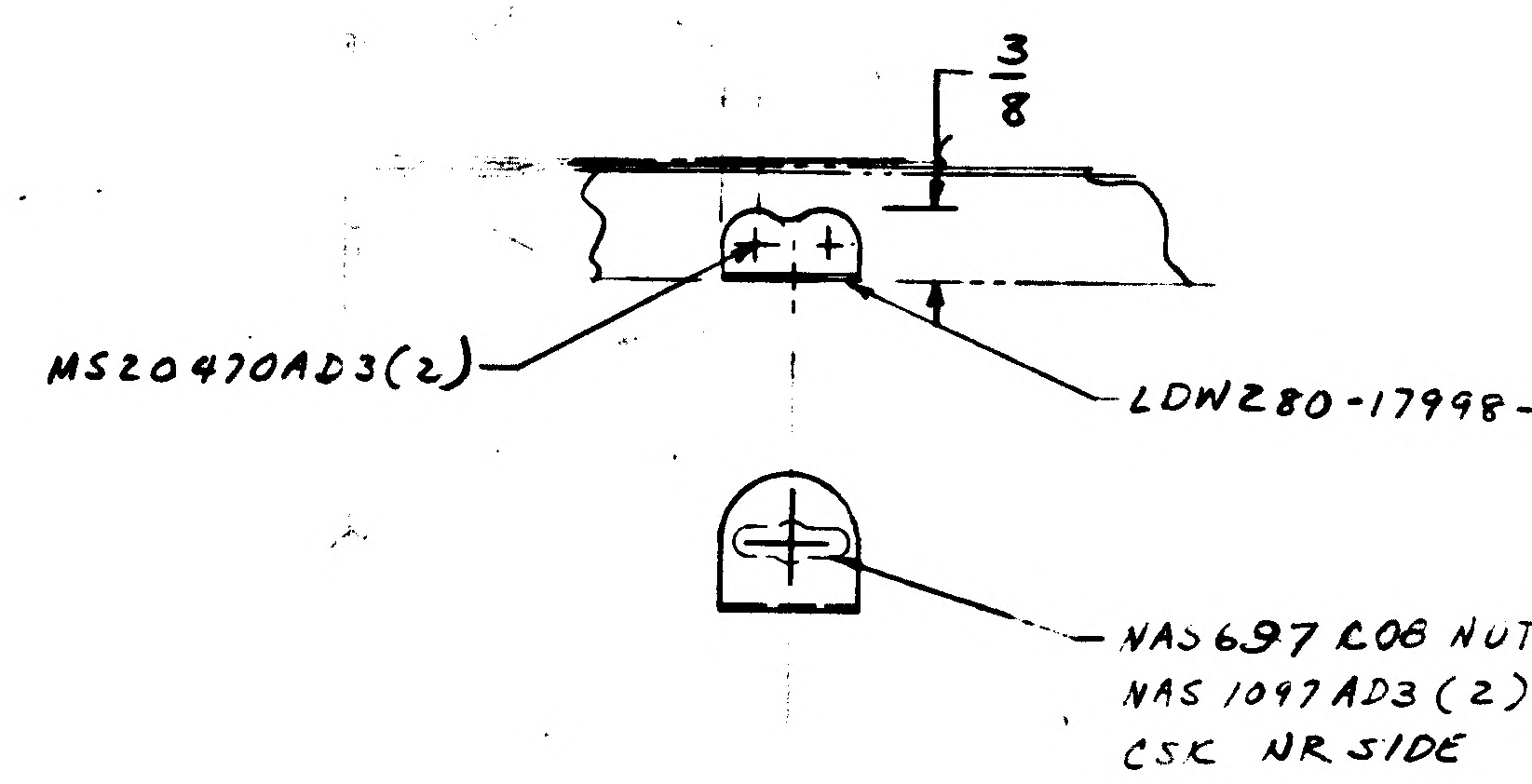
DETAIL H


MS20470DD5 (2)
PICK UP EXISTING RIVET PATTERN
9/32 (TYP)
LDW280-18038-14
NAS 697 C08 NUTPLATE
NAS 1097 AD3 (2)
CSK. NR. SIDE

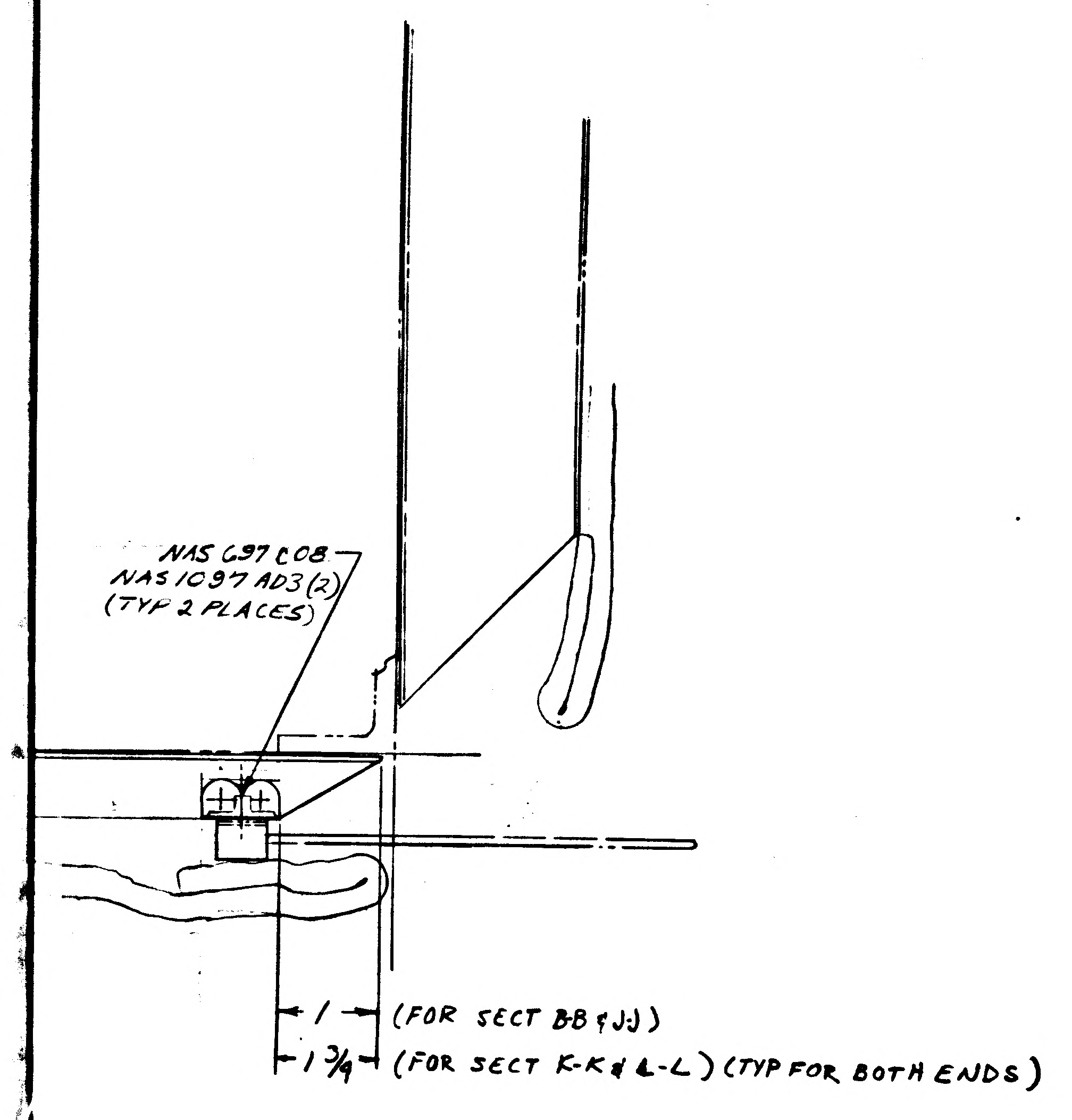
DETAIL D
VIEW LOOKING UP

02/03

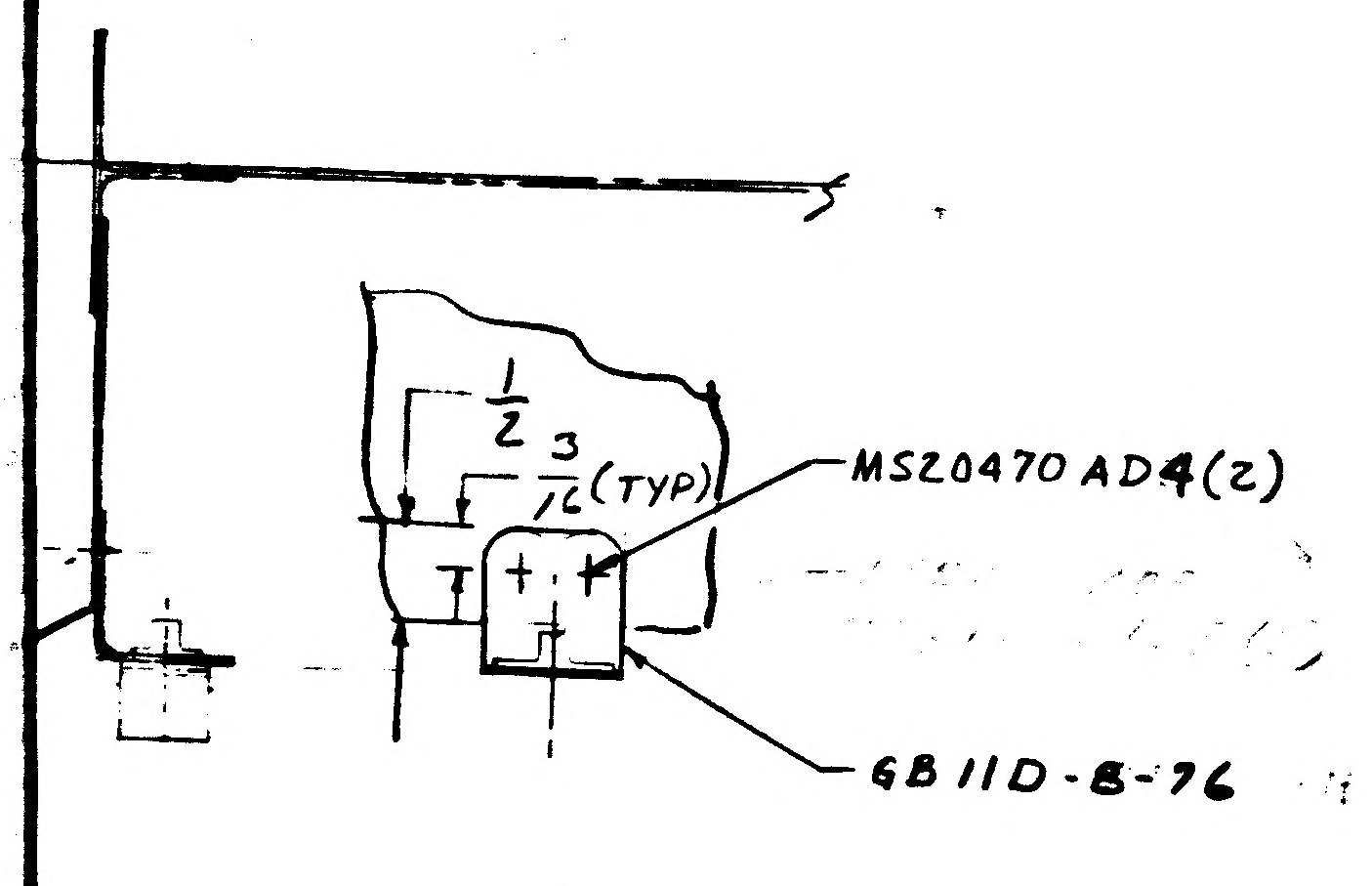
NAS 9-1100


3/8
MS20470AD3(2)
LDW280-17998-
NAS 697 C08 NUT
NAS 1097 AD3 (2)
CSK NR SIDE

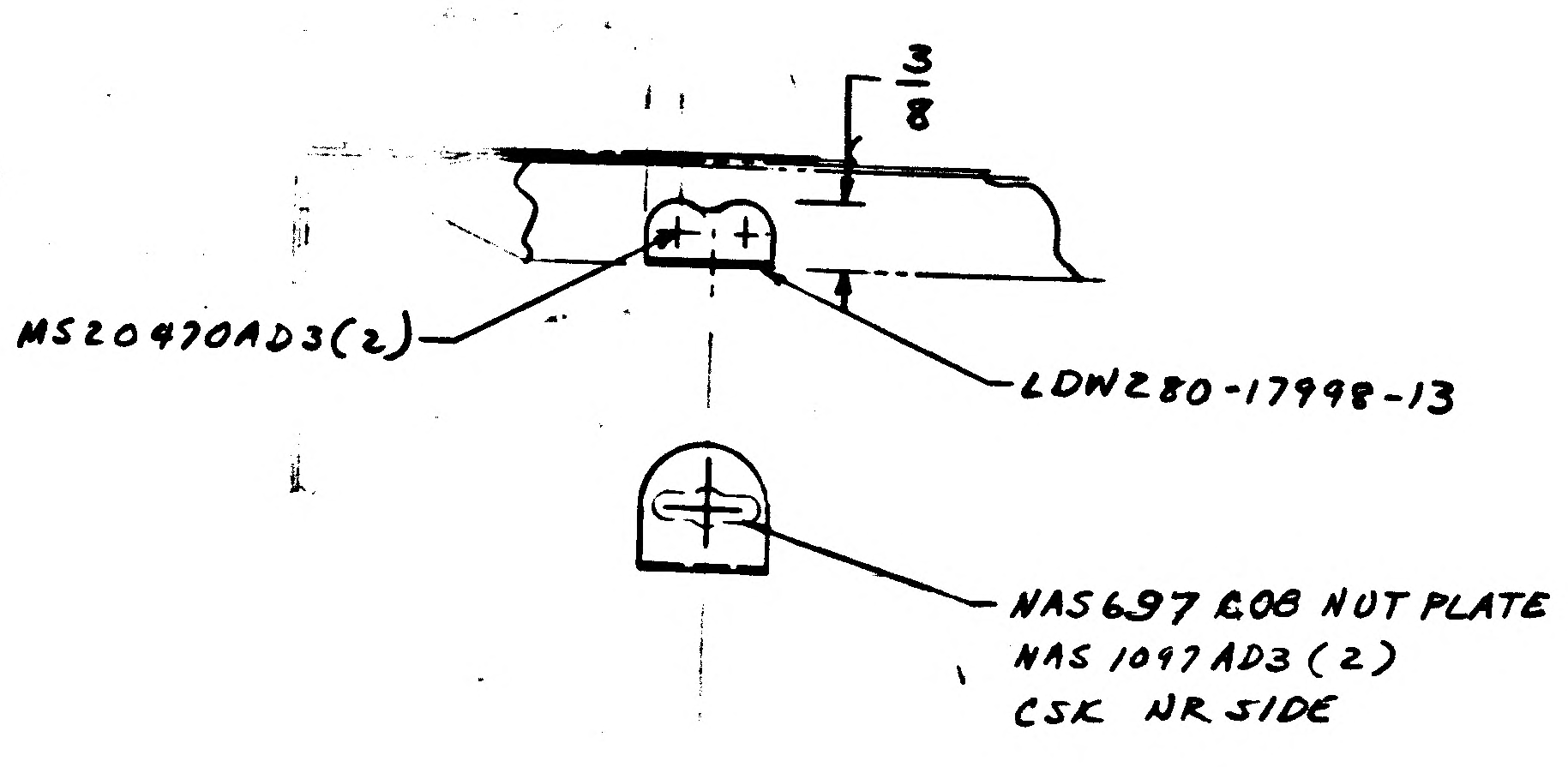
DETAIL A
(TYP 61 PLACES)


NAS 697 C08
NAS 1097 AD3 (2)
(TYP 2 PLACES)
1 (FOR SECT B-B & J-J)
1 3/4 (FOR SECT K-K & L-L) (TYP FOR BOTH ENDS)

B (SHN)
J (OPP)
K (SHN)
L (OPP)
EACH)


1/2
3/16 (TYP)
MS20470 AD4 (2)
6B11D-8-76

SECTION C-C (ROTATED)
(TYP 4 PLACES)


3/8
MS20470AD3 (2)
LDW280-17998-13
NAS697 C08 NUT PLATE
NAS 1097 AD3 (2)
CSK NR SIDE

DETAIL A
(TYP 61 PLACES)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL f DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X) = SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = SQ. FT.

PRINT TRIM LINE

LDW280-28790

LDW280-28790

03/03 **NAS 9-1100**

LAYOUT RELEASE:
TO BE REDRAWN ON A
PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-28790	
LEM MODEL OR END ITEM	SCALE FULL			SHEET 4 OF C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW28028790
EO NO. A1
CONTROL INFO NO. LDW 280-8764

CREATE LDW280-28790-3 IDENTICAL TO LDW280-28790 "NC"
EXCEPT AS NOTED.

LDW280-17998-23 REPLACE -13 (94 REQD)

* DWG NOT MADE
NEXT ASSY FOR -3 IS LDW280-51509 (LEM-1(31))

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: TO ADD LEM1 REQMTS

DESCRIPTION OF EO: ADDED -3 ASSY & LDW280-17998-23

Ⓡ GAEC EO RELEASE: MP FR7 8/6

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-1(31)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

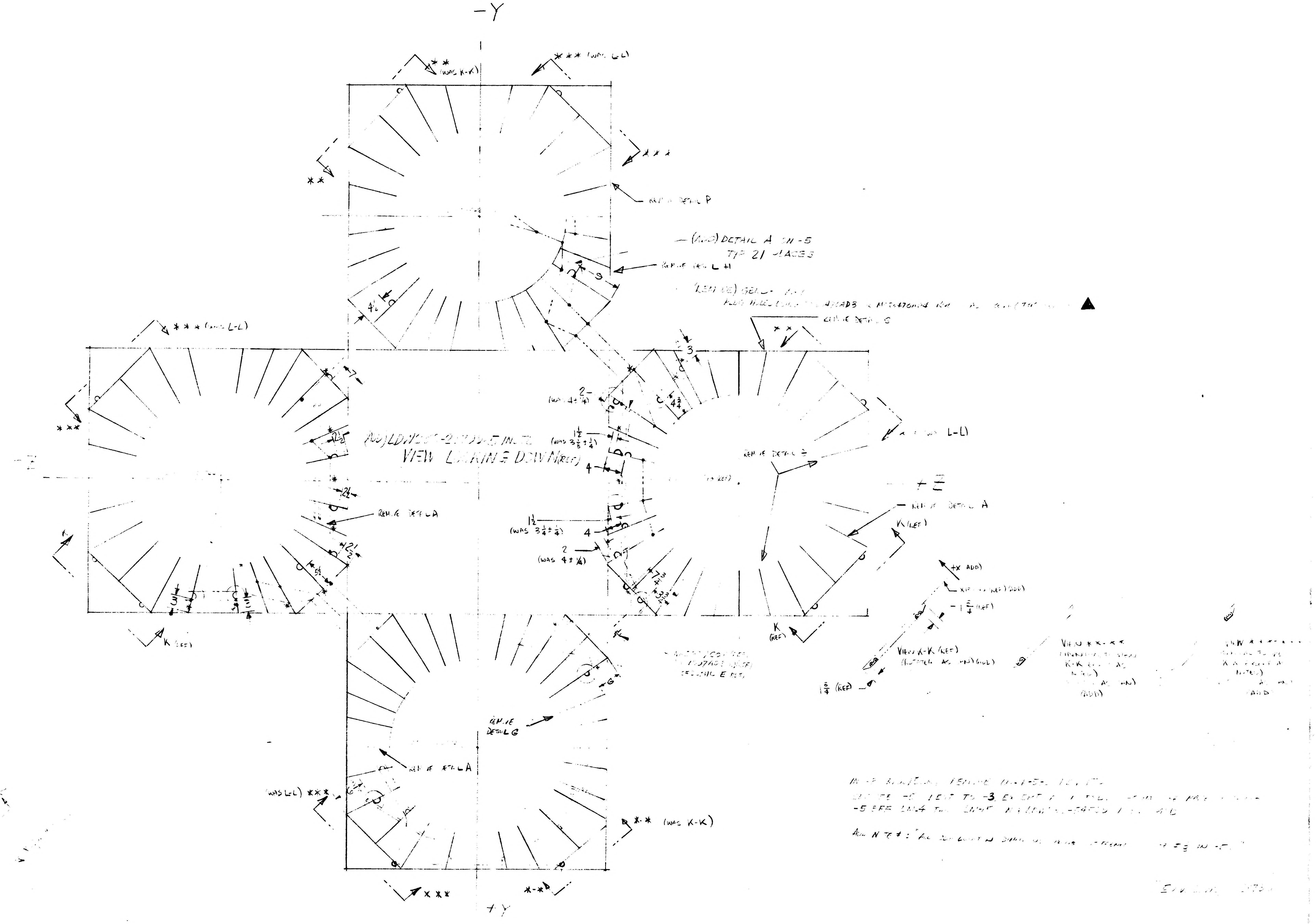
APPROVED BY								
DATE	7/21/66	8-2			7/25/66		8-3-66	7-2?-66
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~QC~~

PRIORITY: C
DRAWING TITLE: BRACKET INSTL - D/S - LOWER DECK ELECT LINES SUPPORT
DRAWING NO.: LDW280-28790
EO NO.: A1

ISSUED BY DRAGAS / J. STRAKOSCH X1153 SECTION VD1 GROUP NO. 335 PL 35

01

NAS 9-1100


-Y
+Y
-Z
+Z
VIEW LOOKING DOWN (REF)
(ADD) DETAIL A ON -5
TYP 21 PLACES
REM'VE DETAIL A
REM'VE DETAIL G
REM'VE DETAIL P
** (WAS K-K)
*** (WAS L-L)
L-L
K (REF)
1 1/2 (WAS 3 3/4 ± 1/4)
2 (WAS 4 ± 1/4)
4
+X ADD
VIEW K-K (REF)
1 1/4 (REF)

ADD NOTE 4: "ALL ... SHALL ... 3 ... -5."

O1 NAS 9-1100

DETAIL SPEC REQD		CLASS II ENGRG CHG	✓	CLASS I ENGRG CHG			CONTROL INFO NO. LD

REASON FOR EO	DESCRIPTION OF EO	GRUMMAN RELEASE
... ELECTRICAL REQUIREMENTS	-3 FOR LM 4 THRU LM-6 ... ADD -5 FOR LM 4 THRU LM-5	

MODEL	EFFECTIVITY PROCURING ACT NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.

DRAWING REVISION REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	BY / DATE	SUPPORT	RELIAB GROUP		STRESS GROUP	LIAISON ENGRG	PROJ ENGR	GOV'T
✓		✓									

PRIORITY	DRAWING TITLE	ENGINEERING ORDER DRAWING NO.	EO NO.
C	BRACKET INSTL ~		A

ISSUED BY SECTION GROUP NO. PL

CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 32 3 REV 3-65

ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28790
EO NO. A3
CONTROL INFO NO. LDW280A-0266

IN M/B FOR -3 ADD:

N/A LDW280-52509 LEM-2 (32) 1 REQ'D/MOD.
N/A LDW280-53509 LEM-3 (33) 1 REQ'D/MOD.
N/A LDW280-54509 LEM-4 (34) 1 REQ'D/MOD.
N/A LDW280-54509 LEM-5 (35) 1 REQ'D/MOD
N/A LDW280-54509 LEM-6 (36) 1 REQ'D/MOD.

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: IN M/B FOR -3 ADDED LEM-2 THRU LEM-6

GAEC EO RELEASE: FR 9/15/6

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM	LEM-2 (32)	THRU	LEM-6 (36)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT REQ'D	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	9/8/66	9/19/66			9/12/66		9.15	9/19/66
	VDZ	~~SUPPORT~~ WTS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET INSTL. D.S. LWR DECK ELECT. LINES SUPT.	LDW280-28790	A3

ISSUED BY J. BUHOWSKI EXT. 1153 SECTION VD1 GROUP NO. 335 PL 35

01

NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28790

EO NO. A4

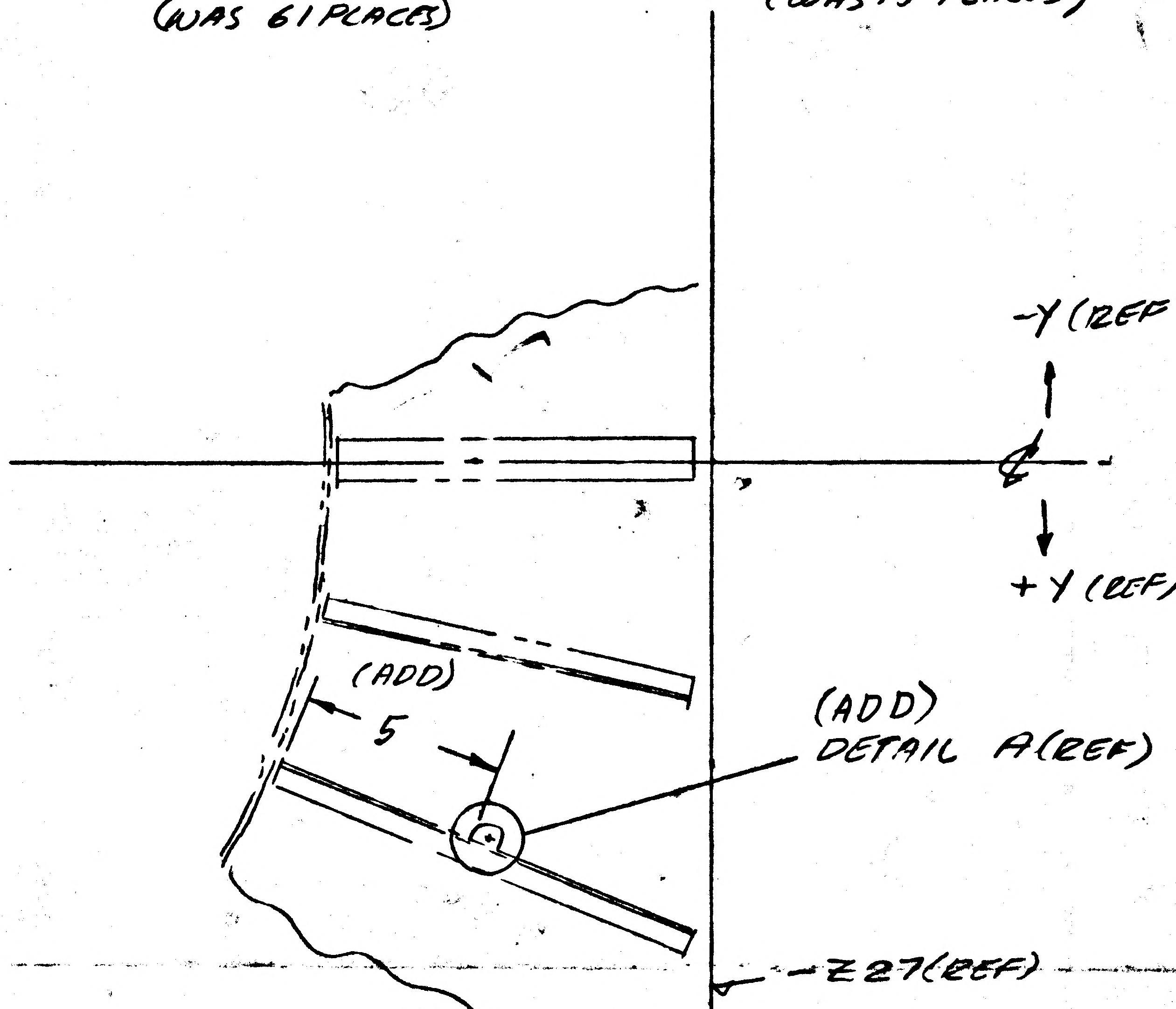
CONTROL INFO NO. LM5-9268

IN F/D & B/M ADD CLIP TO -1 & -3 AS FOLLOWS

IN B/M: LDW280-17998-13 CLIP 94 REQ (WAS 93 REQ)

IN F/D: ON AFT LOWER DECK CALLOUT "SEE DETAIL A (TYP 16 PLACES" (WAS 15 PLACES)

ON DETAIL A- (TYP 62 PLACES) (WAS 61 PLACES)



LM5-9268

(DESCRIPTION CONTD)
ON AFT LOWER DECK CALLOUT "SEE DETAIL A (TYP 16 PLACES) (WAS 15 PLACES)

(5)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: SUPPORT REQD FOR ELECT CABLE

DESCRIPTION OF EO: FOR -1 & -3 IN F/D & B/M 1 LDW280-17998-13 (94 REQ) (WAS 93 REQ) ADDED CLIP PER DETAIL A TO AFT LOWER DECK & DIM 5" IN DETAIL A CALLOUT (TYP 62 PLACES) WAS 61 PLACES (CONTD ABOVE)

GAEC C EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (31)-	
		LM-6 (36)	

DRAWING CHANGE REQC: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	WT			~	WPB wjh	CH	RMC	
DATE	10/7/66			~	10/10/66	10-17-66	10-13	10-17-66
10/7/66	UDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: BRACKET INSTL - D/S LOWER DECK ELECT LINES SUPT

DRAWING NO. LDW280-28790

EO NO. A4

ISSUED BY T DALY / W. TRAUT X6455 SECTION UDI GROUP NO. 335 PL 5

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
ENG 32.1 REV 3-65

*

DWG. NO. LDW280-28790	EO NO. A5
CONTROL INFO NO. LM5-9577	

THIS IS A REVISION OF EO A4

ON EO A4 "LDW 280-17998-13 CLIP 94 REQD (WAS 93 REQD)"
SHOULD BE
" FOR-1 INSTL LDW 280-17998-13 CLIP 98 REQD (WAS 97 REQD)
FOR-3 INSTL LDW 280-17998-23 CLIP 98 REQD (WAS 97 REQD)"

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: EO A4 IN ERROR PREVIOUS EO'S CONFLICT. ANS RTE 05131-169

REF EO A4
DESCRIPTION OF EO: "FOR-1 INSTL LDW280-17998-13 CLIP 98 REQD (WAS 97 REQD)
FOR-3 INSTL LDW280-17998-23 CLIP 98 REQD (WAS 97 REQD)"
WAS "LDW 280-17998-13 CLIP 94 REQD (WAS 93 REQD)"

GAEC C EO RELEASE: 5 (R) 16

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (31) TO	
		LM-6 (36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓		DATE	11/5				10-26-66	10-24	10-26-66	10-26-66
REVISE DWG	RECORD EO	REWORK	SCRAP	11-6-66	VDI	SUPPORT	RELIAB. GROUP	~~GROUP~~ LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET INSTL D/S LOWER DECK ELECT LINES SUPPORT	LDW280-28790	A5

ISSUED BY LIAISON J. GRASSIANO X6453 SECTION V DI GROUP NO. 335 PL 35

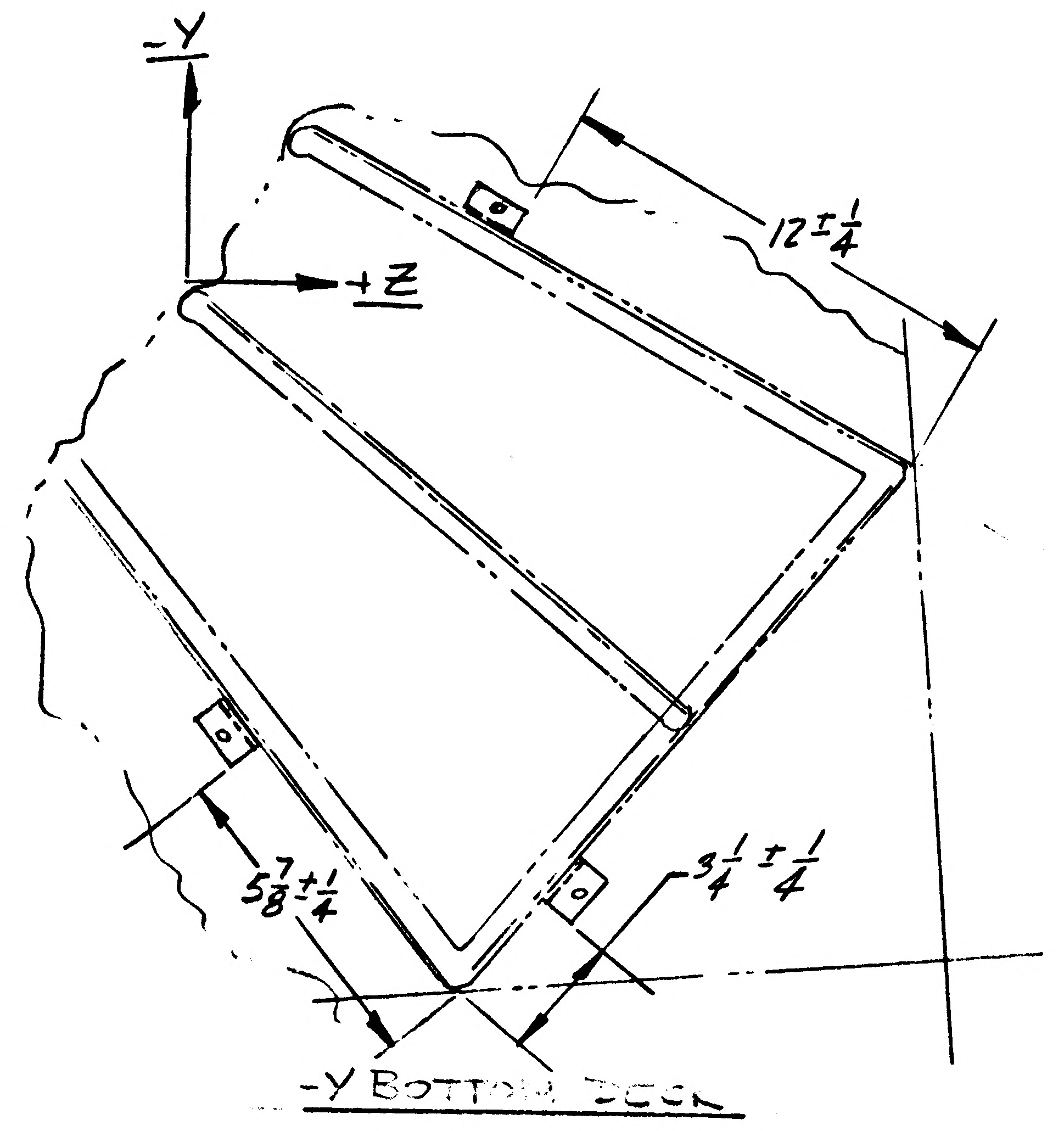
01 NAS 9-1100

A.G.
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

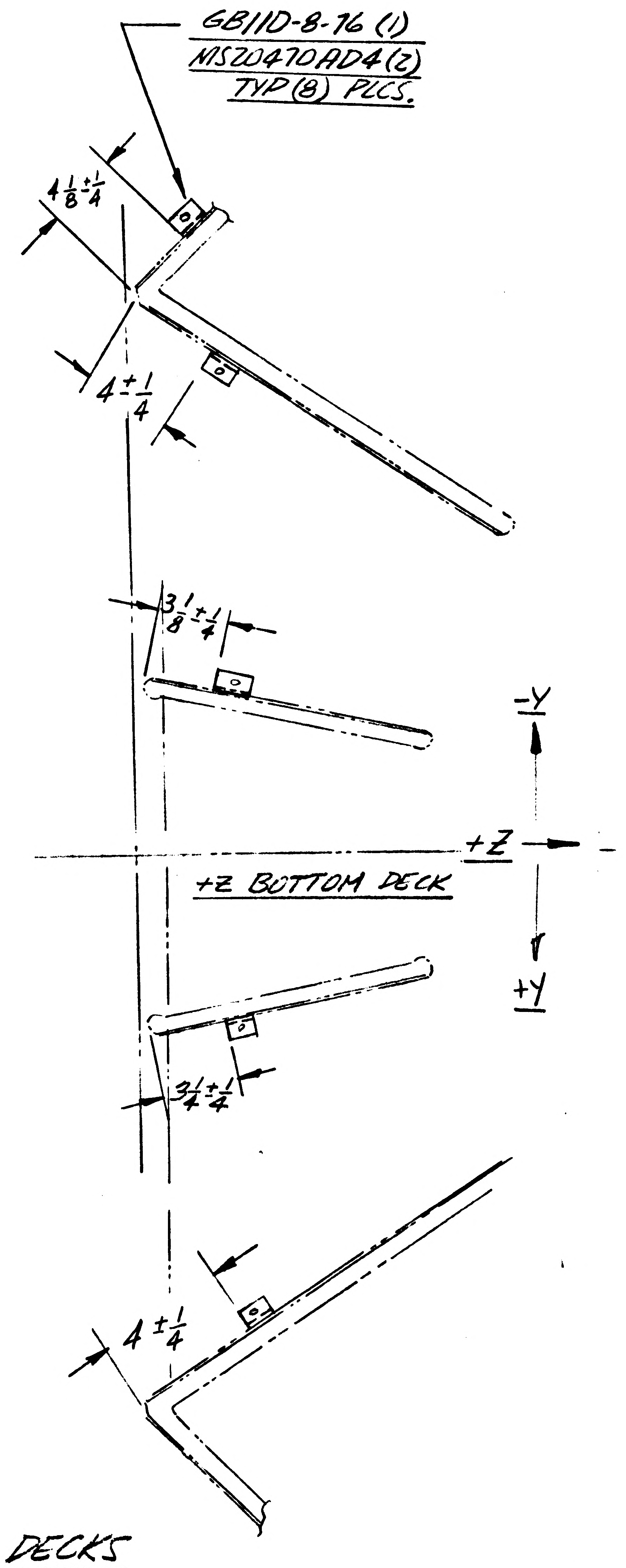
DWG. NO. LDW280-28790		EO NO. A6	
CONTROL INFO NO. LM-2-3075			

ON-3: ADD GB11D-8-76 CLIPS TO BOTTOM DECKS AS SHOWN:



-Y
+Z
$12 \pm \frac{1}{4}$
$5\frac{7}{8} \pm \frac{1}{4}$
$3\frac{1}{4} \pm \frac{1}{4}$
-Y BOTTOM DECK

NOTE: 1/4 E.D. FOR GB11D-8-76 (8)



GB11D-8-76 (1)
MS20470AD4 (2)
TYP (8) PLCS.
$4\frac{1}{8} \pm \frac{1}{4}$
$4 \pm \frac{1}{4}$
$3\frac{1}{8} \pm \frac{1}{4}$
-Y
+Z
+Z BOTTOM DECK
+Y
$3\frac{1}{4} \pm \frac{1}{4}$
$4 \pm \frac{1}{4}$

VIEW LOOKING UP @ BOTTOM DECKS

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO PROVIDE ADDITIONAL SUPPORT FOR ELECT. LINES

DESCRIPTION OF EO: IN FID & B/M: ON-3: ADD GB11D-8-76 (8) & MS20470AD4 (16)

GAEC EO RELEASE: FK 02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-1 (31)	LM-2 (32)	LM5 (35)
LM	LM-4 (34)	LM-3 (33)	LM6 (36)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

	APPROVED BY	DATE
-/-	JAS	12/20
VD1		
SUPPORT		
RELIAB. GROUP		
~~GROUP LEADER~~		
STRESS GROUP	RBS	12-5-66
LIAISON ENGRG	CLF	12/5/66
PROJ ENGRG	RMC (JD)	12-7-66
~~GOVT~~		12-5-66

PRIORITY: C

DRAWING TITLE: BRACKET INSTL. D.S.~BOTTOM DECKS~ELECT. LINES SUPT.

DRAWING NO.: LDW280-28790

EO NO.: A6

ISSUED BY LIAISON/E.NEFF X3604 12-2-66 SECTION V.D.I. GROUP NO. 335 PL 35

01
NAS 9-1100

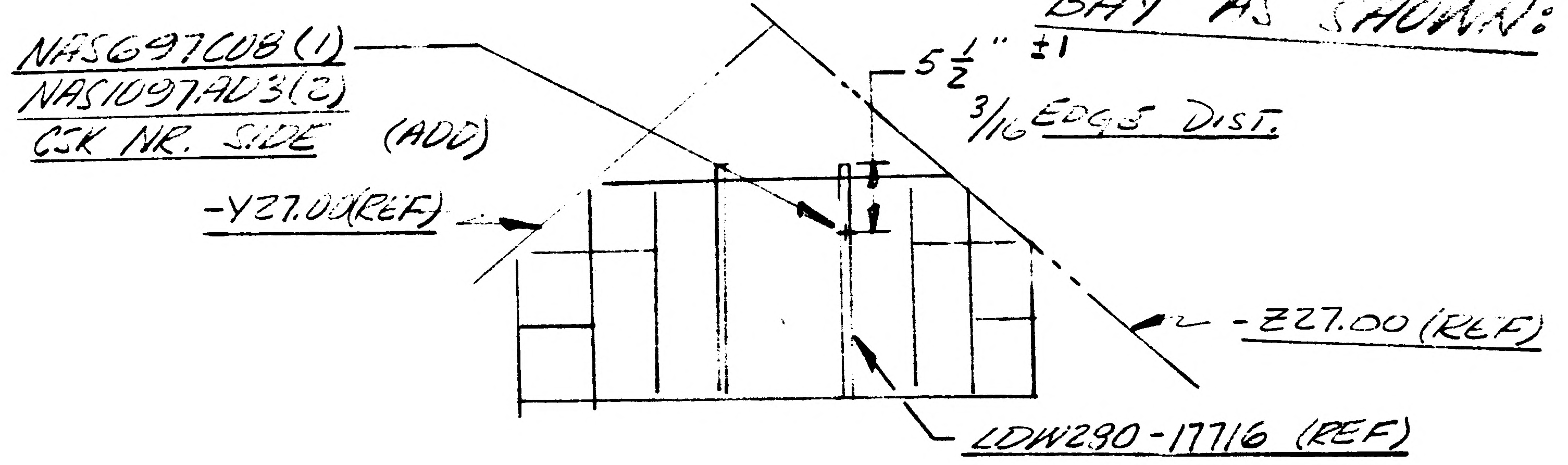
L G

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 EMF-A
ENGINEERING ORDER

DWG. NO. LDW290-28190 | EO NO. A7
CONTROL INFO NO. LM-2-3123

IN F/D & B/M: ADD NUTPLATE TO FLANGE OF STIFFENER ON BOTTOM DECK OF THE SCIENTIFIC EQUIPMENT BAY AS SHOWN:



VIEW LOOKING UP

PARTIAL RECORD E.O.
THIS E.O. IS NOT TO
BE INCORPORATED
FOR LTA-8 (18)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: ADDITIONAL SUPPORTS REQ'D FOR ELECTRICAL LINES

DESCRIPTION OF EO: ADDED EO. TO RECORD. EO BLOCK. FOR LTA-8 EFF.
LM-1: IN F/D & B/M ADDED NAS691C08(1) & NAS1097AD3(2)

GAEC EO RELEASE: C, 6, 02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
LM		LM-1 (31) THRU	
LM		LM 6 (36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓	✓	✓	

APPROVED BY	[illegible]								
DATE	1/2[illegible]				12/14/66	12/16/66	12-19-66	1/17/67	
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY: C
DRAWING TITLE: BRACKET INSTALLATION D/S LOWER DECK ELECTRICAL LINES
DRAWING NO.: LDW290-28190
EO NO.: A7

ISSUED BY LIAISON / E.NEFF X3604 12-13-66 SECTION V.D.I. GROUP NO. 335 PL 35

01

NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-28790
EO NO. A9
CONTROL INFO NO. LM-2-3372

THIS IS A REVISION OF EO-A2
THIS EO CANCELS EO-A5

IN DESCRIPTION OF EO (REF EO-A2)
FOR -1 & -3, ADDED LDW280-18035-15(2)
SHOULD BE
FOR -1 & -3, ADDED LDW280-18038-15(2)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

2 C

REASON FOR EO: INCORRECT PART NO. IN DESCRIPTION ORIGINAL QUANTITY OF CLIPS WAS CORRECT

DESCRIPTION OF EO: REFERENCE EO-A2 FOR -1 & -3, "ADDED LDW280-18038-15(2)" WAS "ADDED LDW280-18035-15(2)." THIS EO CANCELS EO-A5

GAEC EO RELEASE: JK 02025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31) THRU	
		LM-6(36)	

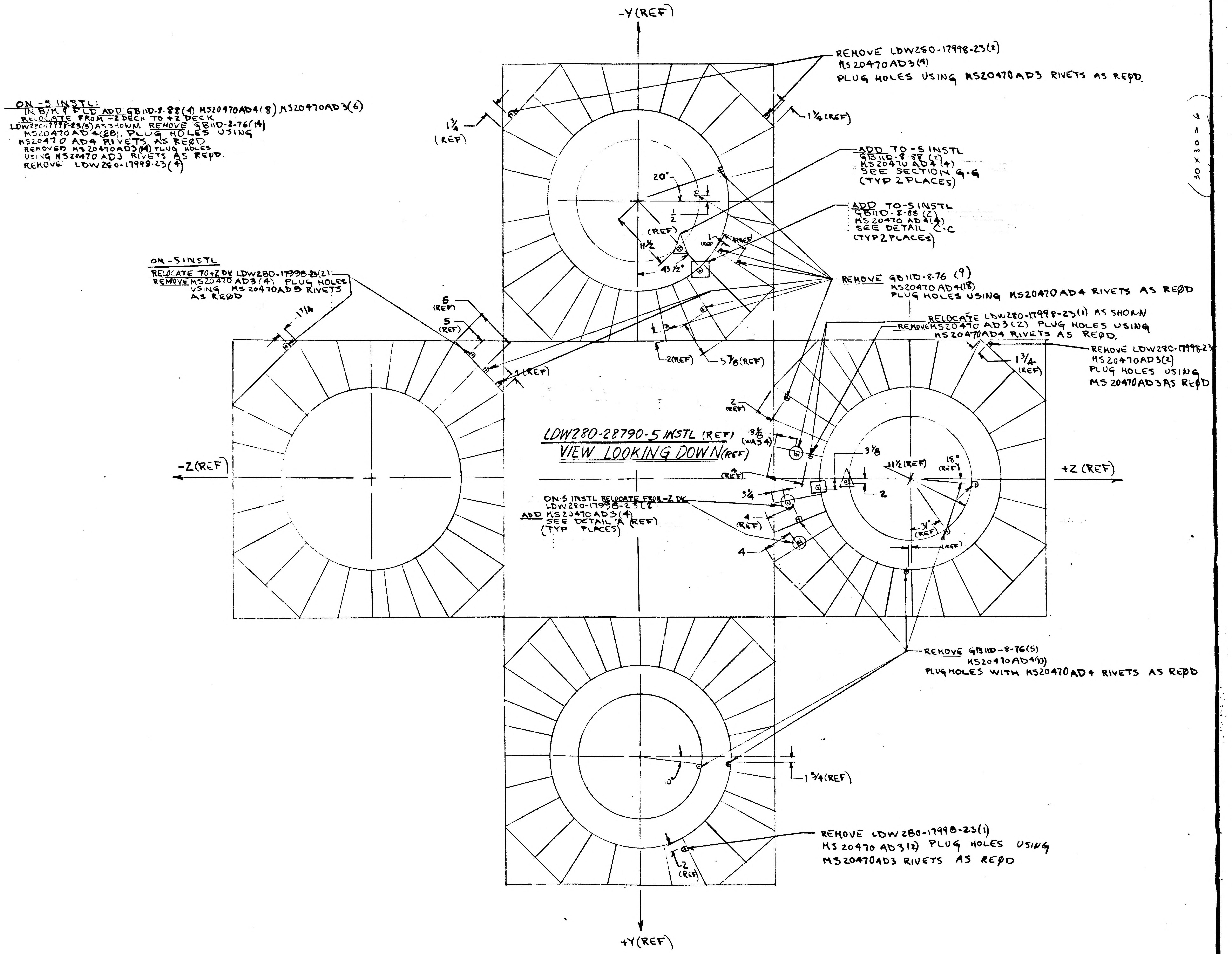
DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ✓ SCRAP ☐

-6-	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY								
DATE	3/13/67				3/1/67	3/1/67	3-8-67	3-3-67

PRIORITY: C
DRAWING TITLE: BRACKET INSTL~D/S~LOWER DECK ELECTRICAL LINES SUPPORT
DRAWING NO. LDW280-28790
EO NO. A9

ISSUED BY LIAISON J. MALONEY 3/1/67 x3604 SECTION V.D.I. GROUP NO. 335 PL 35

01 NAS 9-1100



ON -5 INSTL:
IN B/M & FLD ADD GB11D-8-88(4) MS20470AD4(8) MS20470AD3(6)
RELOCATE FROM -Z DECK TO +Z DECK
LDW280-17998-23(3) AS SHOWN. REMOVE GB11D-8-76(14)
MS20470AD4(28). PLUG HOLES USING
MS20470 AD4 RIVETS AS REQD
REMOVED MS20470AD3(14) PLUG HOLES
USING MS20470 AD3 RIVETS AS REQD.
REMOVE LDW280-17998-23(4)

ON -5 INSTL
RELOCATE TO +Z DK LDW280-17998-23(2)
REMOVE MS20470 AD3(4) PLUG HOLES
USING MS20470AD3 RIVETS
AS REQD

REMOVE LDW280-17998-23(2)
MS20470AD3(4)
PLUG HOLES USING MS20470AD3 RIVETS AS REQD.

ADD TO -5 INSTL
GB11D-8-88 (2)
MS20470 AD4 (4)
SEE SECTION G-G
(TYP 2 PLACES)

ADD TO-5 INSTL
GB11D-8-88 (2)
MS20470 AD4(4)
SEE DETAIL C-C
(TYP 2 PLACES)

REMOVE GB11D-8-76 (9)
MS20470 AD4(18)
PLUG HOLES USING MS20470AD4 RIVETS AS REQD

RELOCATE LDW280-17998-23(1) AS SHOWN
REMOVE MS20470 AD3(2) PLUG HOLES USING
MS20470AD4 RIVETS AS REQD.

REMOVE LDW280-17998-23
MS20470AD3(2)
PLUG HOLES USING
MS20470AD3 AS REQD

LDW280-28790-5 INSTL (REF)
VIEW LOOKING DOWN (REF)

ON 5 INSTL RELOCATE FROM -Z DK
LDW280-17998-23(2
ADD MS20470AD3(4)
SEE DETAIL "A (REF)
(TYP PLACES)

REMOVE GB11D-8-76(5)
MS20470AD4(10)
PLUG HOLES WITH MS20470AD4 RIVETS AS REQD

REMOVE LDW280-17998-23(1)
MS20470 AD3(2) PLUG HOLES USING
MS20470AD3 RIVETS AS REQD

30 x 30 = 6

5

DETAIL SPEC REQD		CLASS II ENGRG CHG ✓	CLASS I ENGRG CHG	LCD 1078	CONTROL INFO NO. LDW 280A-6004
REASON FOR EO			DESCRIPTION OF EO		GRUMMAN EO RELEASE C
ADDITIONAL ELECTRICAL REQUIREMENTS LCD 1078			ON -5 INSTL: IN B/M & FLD ADDED GB11D-8-88(4) MS20470AD3(6) MS20470AD4(8) RELOCATED LDW280-17998-23(3) REMOVED GB11D-8-76(14) MS20470 AD4(28) MS20470 AD3(14) PLUG HOLES USING MS20470 AD3 & AD4 AS REQD. REMOVED LDW280-17998-23(4)		JK 4/4/7
MODEL	EFFECTIVITY PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.		
LM		LM-4(34) THRU LM-15 (45)			

DRAWING REVISION REQD		DISPOSITION OF PARTS		BY								
✓		✓		DATE	3/21/67			3/18/67			3-30-67	4-3-67
REVISE DWG	RECORD EO	REWORK	SCRAP	S	VD1	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	~~GOV'T~~

PRIORITY	DRAWING TITLE	ENGINEERING ORDER DRAWING NO.	EO NO.
C	BRACKET INSTL DESCENT STAGE - BOTTOM DECKS ELECTRICAL LINES SUPPORT	LDW280-28790	A10

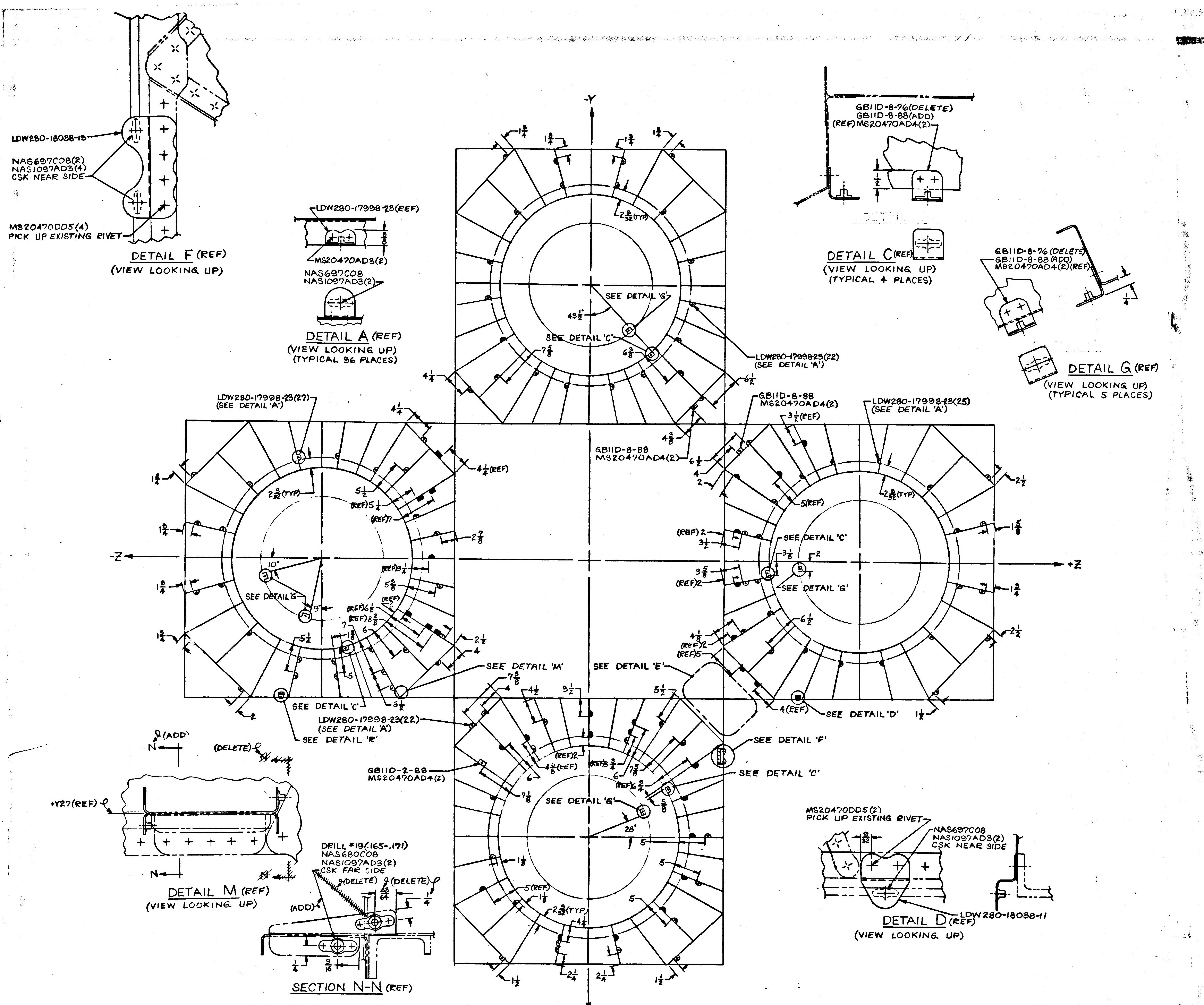
1156 ISSUED BY STEA/STRAKOSCH	SECTION V.D.I	GROUP NO 335	PL 1	CODE IDENT NO. 26512	GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE, L. I., N. Y.

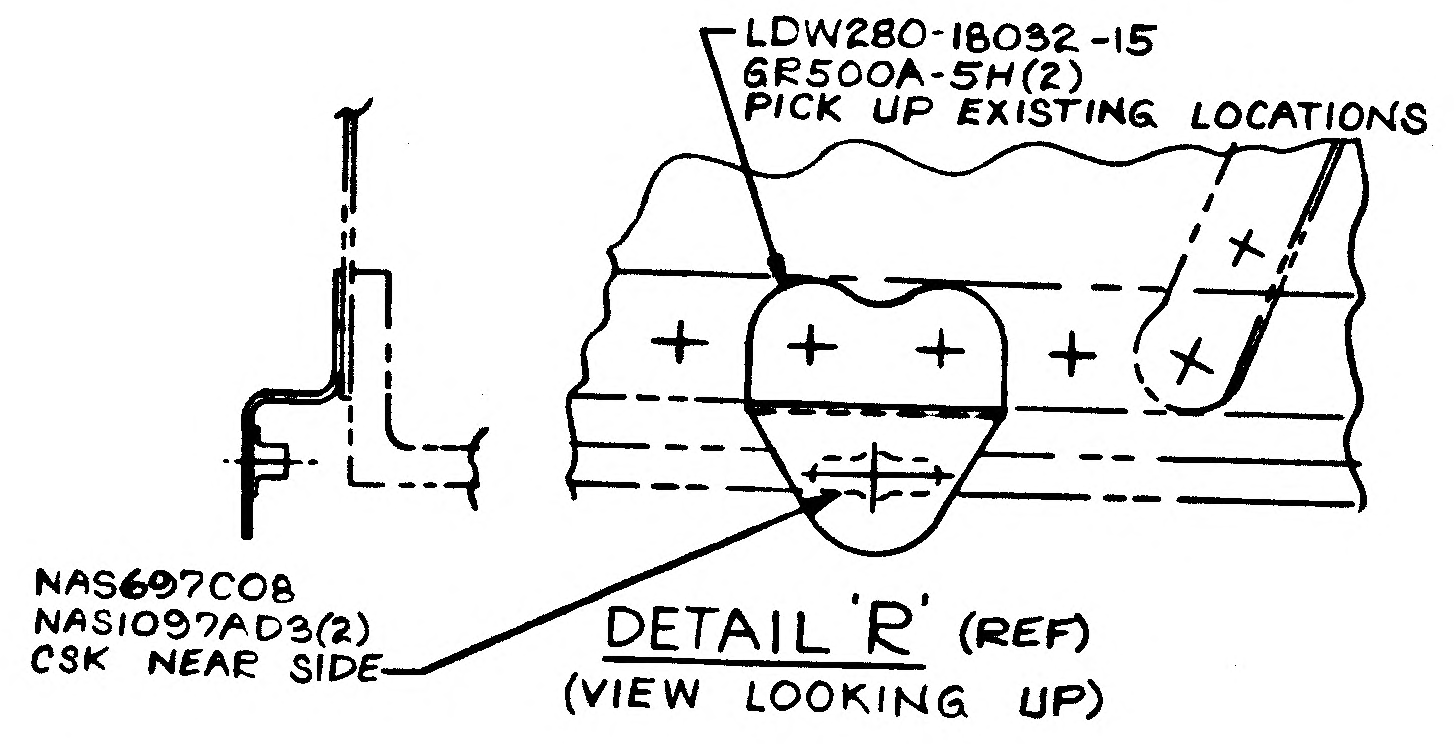
ENG 32.3 REV 3-66

EMF A

01

NAS 9-1100


-Y
+Y
-Z
+Z
LDW280-18038-15
NAS697C08(2)
NAS1097AD3(4)
CSK NEAR SIDE
MS20470DD5(4)
PICK UP EXISTING RIVET
DETAIL F (REF)
(VIEW LOOKING UP)
LDW280-17998-23(REF)
MS20470AD3(2)
NAS697C08
NAS1097AD3(2)
DETAIL A (REF)
(VIEW LOOKING UP)
(TYPICAL 96 PLACES)
GB11D-8-76(DELETE)
GB11D-8-88(ADD)
(REF) MS20470AD4(2)
DETAIL C (REF)
(VIEW LOOKING UP)
(TYPICAL 4 PLACES)
GB11D-8-76(DELETE)
GB11D-8-88(ADD)
MS20470AD4(2)(REF)
DETAIL G (REF)
(VIEW LOOKING UP)
(TYPICAL 5 PLACES)
SEE DETAIL 'G'
SEE DETAIL 'C'
LDW280-1799825(22)
(SEE DETAIL 'A')
LDW280-17998-23(27)
(SEE DETAIL 'A')
GB11D-8-88
MS20470AD4(2)
LDW280-17998-23(25)
(SEE DETAIL 'A')
GB11D-8-88
MS20470AD4(2)
SEE DETAIL 'M'
SEE DETAIL 'E'
SEE DETAIL 'D'
SEE DETAIL 'C'
LDW280-17998-23(22)
(SEE DETAIL 'A')
SEE DETAIL 'R'
SEE DETAIL 'F'
SEE DETAIL 'C'
GB11D-2-88
MS20470AD4(2)
SEE DETAIL 'G'
N (ADD)
(DELETE)
+Y27(REF)
N
DETAIL M (REF)
(VIEW LOOKING UP)
DRILL #19(.165-.171)
NAS680C08
NAS1097AD3(2)
CSK FAR SIDE
(DELETE)
(ADD)
SECTION N-N (REF)
MS20470DD5(2)
PICK UP EXISTING RIVET
NAS697C08
NAS1097AD3(2)
CSK NEAR SIDE
LDW280-18038-11
DETAIL D (REF)
(VIEW LOOKING UP)


LDW280-18032-15
GR500A-5H(2)
PICK UP EXISTING LOCATIONS
NAS697C08
NAS1097AD3(2)
CSK NEAR SIDE
DETAIL 'R' (REF)
(VIEW LOOKING UP)

LDW280-28790-7 INSTL
VIEW LOOKING DOWN @ X131.140

IN FLD/DWG, B/M & MODEL BLOCK DELETE -5 INSTL

IN FLD/DWG, B/M & MODEL BLOCK ADD -7 INSTL REPLACING -5 INSTL

-7 INSTL CONSISTS OF:

LDW280-17998-23(96)
LDW280-18038-11(1), LDW280-18038-13(1) & LDW280-18038-15(1)
GB11D-2-88(1) & GB11D-8-88(10)
NAS697C08(106)
GR500A-5H(2)
NAS1097AD3 (AS REQD), MS20470AD4 (AS REQD) & MS20470DD5 (AS REQD)

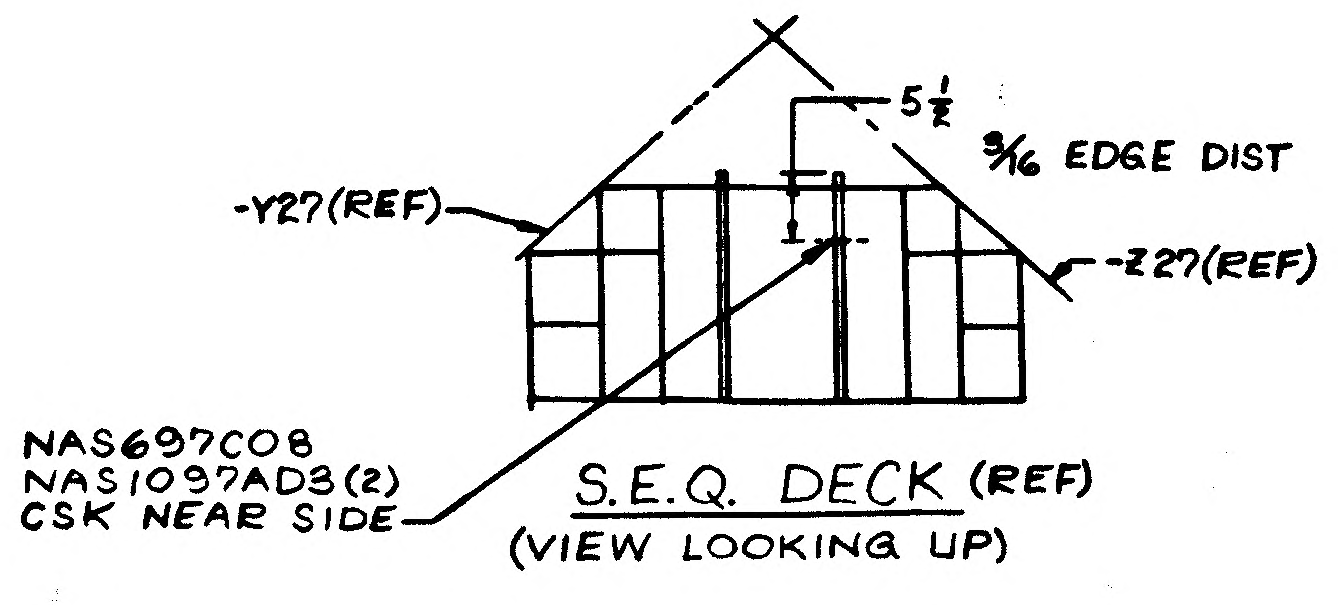
-7 FLD/DWG CONSISTS OF:
MAIN VIEW AS SHOWN ABOVE & VIEW OF S.E.Q. DECK AS SHOWN
DETAILS 'A', 'C', 'D', 'E', 'F', 'G', 'M' & 'R' & SECTION 'N-N' AS SHOWN

NOTE: (FOR SHOP INFORMATION ONLY)
CLIPS SHOWN AS ● & ■ ARE FOR REFERENCE ONLY. THEY APPEAR ON LDW280-23677 BRACKET INSTL FOR THE FLUID LINES ON THE BOTTOM DECK.

REWORK NOTE
-7 INSTL MAY BE MADE FROM -5 INSTL
FLUSH PLUG UNUSED HOLES USING 'DD' RIVET MATL.

(REF) DRILL #19(.165-.171) 4 HOLES
NAS697C08(4)
NAS1097AD3(8)
CSK NEAR SIDE

DETAIL 'E' (REF)
(VIEW LOOKING DOWN)
(SAME AS EXISTING DETAIL)


5½
3/16 EDGE DIST
-Y27(REF)
-Z27(REF)
NAS697C08
NAS1097AD3(2)
CSK NEAR SIDE
S.E.Q. DECK (REF)
(VIEW LOOKING UP)

01 NAS 9-1100

DETAIL SPEC REQD		CLASS II ENGRG CHG ✓	CLASS I ENGRG CHG						CONTROL INFO NO. LM-2-3503			
REASON FOR EO: ADDITION OF NEW INSTALLATION REQUIRED TO CONFORM TO LATEST CONFIGURATION OF ELECTRICAL LINES			DESCRIPTION OF EO: IN FLD/DWG, B/M & MODEL BLOCK, -7 INSTL REPLACED -5									GRUMMAN EO RELEASE C JK
MODEL	EFFECTIVITY PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING REVISION REQD		DISPOSITION OF PARTS		BY / DATE				
LM		LM-4(34) THRU LM-15(45)		✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP	4/4/67 V-D-1	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP 4/18/67 · LIAISON ENGRG 4/18/67 · PROJ ENGR 4-20-67 · 4/17/67
PRIORITY: C		DRAWING TITLE: BRACKET INSTALLATION DESCENT STAGE-BOTTOM DECK ELECTRICAL LINES SUPPORT						ENGINEERING ORDER DRAWING NO. LDW280-28790			EO NO. B1	
LIAISON ISSUED BY	J. MALONEY 4/17/67 X3604 SECTION V.D.I.	GROUP NO. 335	PL 25	CODE IDENT NO. 26512		GRUMMAN AIRCRAFT ENGINEERING CORP BETHPAGE, L. I., N. Y.						

ENG 30.3 REV 3-65

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

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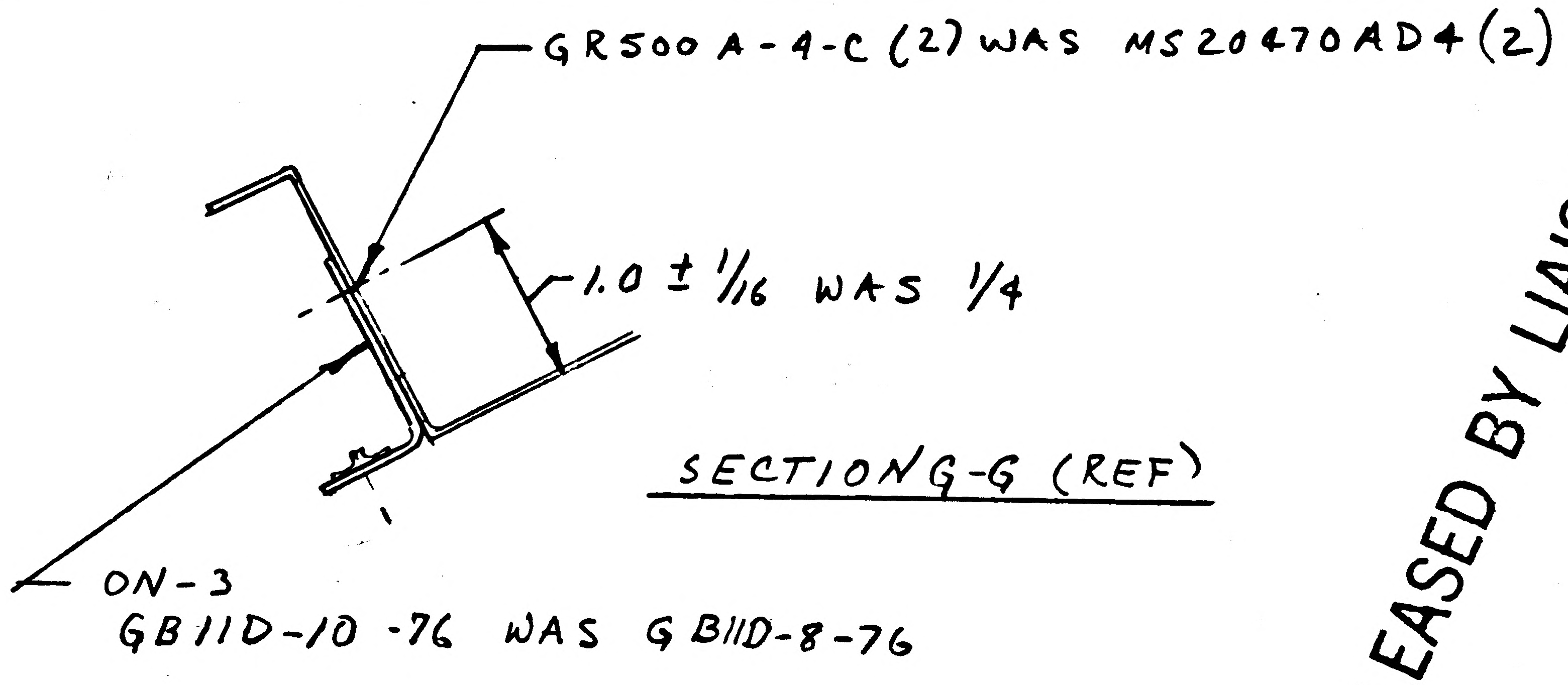
DWG. NO. LDW280-28790
EO NO. B2
CONTROL INFO NO. LM5-13490



RELEASED BY LIAISON

SHOP NOTE (DON'T INCORP ON DWG.)
EXTRANEOUS HOLES, MAY BE LEFT OPEN

DETAIL SPEC REQ ☐ CL II ENGRG CHG ✓ CL I ENGRG CHG ☐ 5

REASON FOR EO: ELECT. - CLAMP INTERFERS WITH METROID SHIELD

DESCRIPTION OF EO: ON-3 GR500A-4-C WAS MS20470AD4
GB11D-10-76 WAS GB11D-8-76.
REVISED DIM: 1.0 ± 1/16 WAS 1/4

GAEC EO RELEASE C
JK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM1(31)	
LM		LM2(32)	
LM		LM3(33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT			~		EUB	Dam	
✓		✓		DATE	6/5/67			~	6-5-67	6/5/67	6/7/67	6/5/67
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: BRKT. INSTL D/S - LOWER DECK - ELECT LINES
DRAWING NO.: LDW280-28790
EO NO.: B2

ISSUED BY DON RAGAS X6510 SECTION VD1 GROUP NO. 335 PL 5

01 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28790		EO NO. B3
CONTROL INFO NO. LDW280-A-8106.		

ON-9
REMOVE LDW280-18038-13 & DETAIL "F"

SHOP NOTE - PLUG-ALL-EXTRANEOUS HOLES WITH MS20470DD" "

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD-1843.

REASON FOR EO TO PREVENT DAMAGE TO DIFFERENTIAL TRANSDUCERS	DESCRIPTION OF EO ON-9 REMOVED LDW280-18038-13 & DETAIL "F"

GAEC EO RELEASE 5 C
JK 7/ 7/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM2(32) LM3(33)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				JAS				CC
DATE	7/21/67			7/27/67	7/27/67		7/29/67	7-29-67
	VD1							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRKT INSTL D/S - ELECT, LINES SUPT	LDW280-28790	B3

7/24/67
ISSUED BY DON RAGAS X1153 SECTION VD1 GROUP NO. 335 PL 5

Q 1 NAS 9-1100

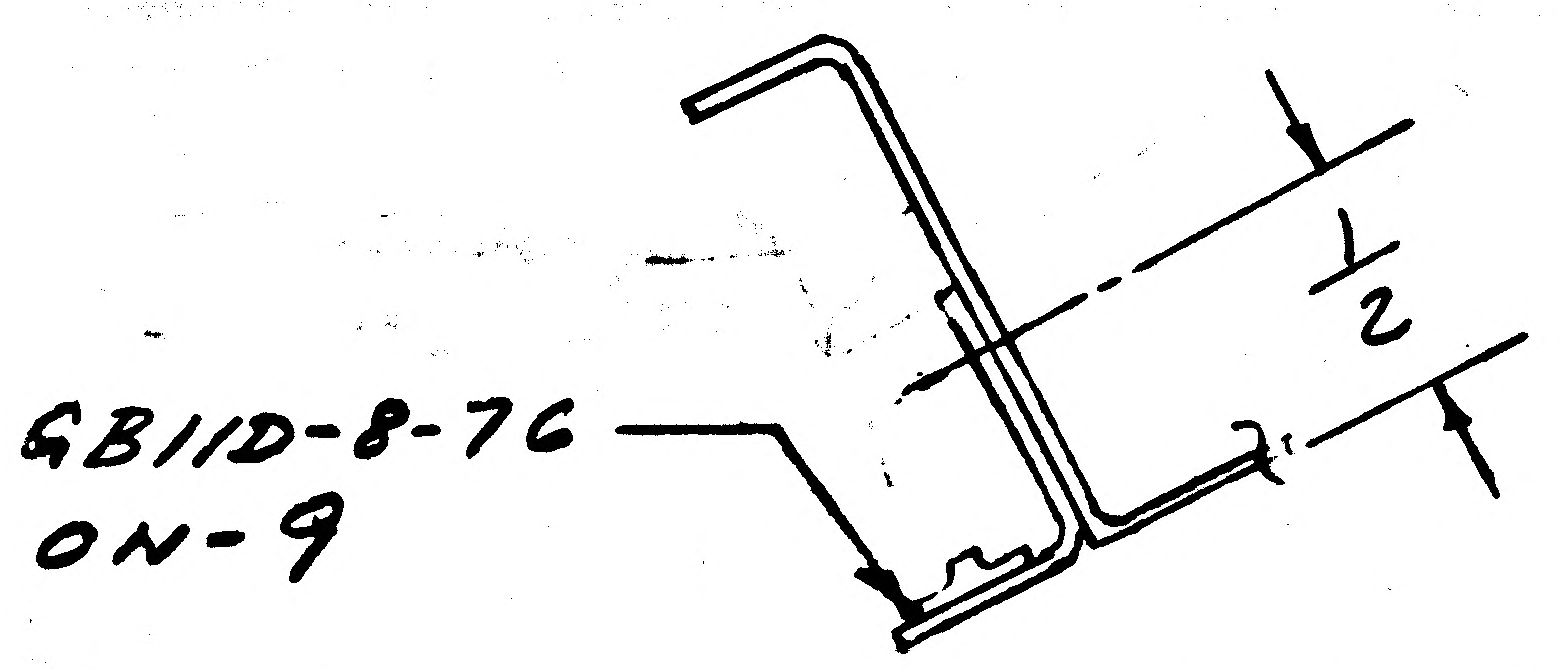
A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO LDW280-28790 | EO NO. B4
CONTROL INFO NO. LM-5-15728

THIS IS A REVISION OF E.O. B2.



SEC. G-G. (REF)

ON-3 REMOVE LM-2 (32) & LM-3 (33)
ADD -9 FOR LM-2 (32) & LM-3 (33).
-9 IDENT. TO -3 EXCEPT AS SHN.
N/A LDW280-52509 LM-2 (32) 1 REQD.
N/A LDW280-53509 LM-3 (33) 1 REQD.

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑
CL I ENGRG CHG	☐		

REASON FOR EO: ELEC. CLAMP INTERFERES WITH METROID SHIELD.

DESCRIPTION OF EO: REF. E.O. B2
REMOVED LM-2 (32) & LM-3 (33) FROM -3 INSTL.
CREATED -9 INSTL. FOR LM-2 (32) & LM-3 (33)

GAEC C EO RELEASE 5

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-3

APPROVED BY				—	DV	DV		
DATE	8/18/67			—	7/26	7/26	8/18/67	8/16/67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY C

DRAWING TITLE: BRKT. INSTL. D/S LOWER DECK - ELEC. LINES

DRAWING NO. LDW280-28790 | EO NO. B4

ISSUED BY LIAISON J. JARVIS SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28790
EO NO. B5
CONTROL INFO NO. LM-2-3828

THIS IS A REVISION OF EO-B3

"ON -9 INSTL" SHOULD BE "ON -3 INSTL"

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD-1843

2

REASON FOR EO: TO PREVENT DAMAGE TO DIFFERENTIAL TRANSDUCERS INCORRECT INSTL CALLOUT

DESCRIPTION OF EO: REFERENCE EO-B3 "ON -9" SHOULD BE "ON -3"

GAEC EO RELEASE: C
JK
02131

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	
		LM-3 (33)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JaP			—	MRS	Ctf	WLB	
DATE	8/21/67			—	8/15/67	8/15/67	8/21/67	8/16/67

PRIORITY: C
DRAWING TITLE: BRACKET INSTL~D/S~BOTTOM DECKS~ELECTRICAL LINES SUPPORT
DRAWING NO. LDW280-28790
EO NO. B5

ISSUED BY LIAISON J. MALONEY 8/14/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

LFM

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

*

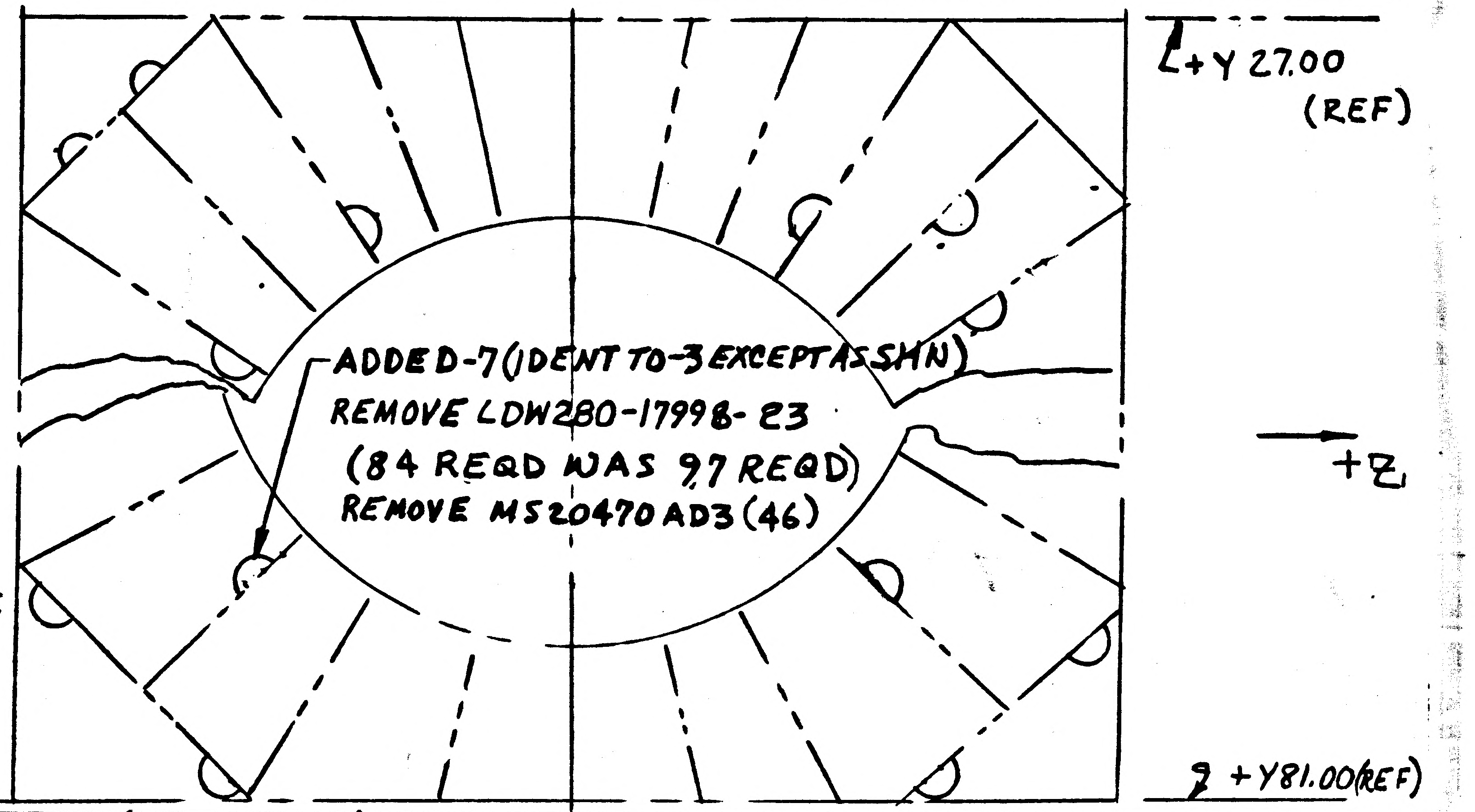
DWG. NO. LDW280-28790

EO NO. B6

CONTROL INFO NO. LDW280A-8724

IN F/D B/M & N/A
ADD-7 INSTL
N/A-LDW280-51509
LM1(31)
IN M/B FOR-3
REMOVE LM1(31) EFF

SHOP NOTE (DON'T
INCORP. ON DWG.)
EXTRANEOUS HOLES
MAY BE LEFT OPEN.



ADDED-7 (IDENT TO-3 EXCEPT AS SHN)
REMOVE LDW280-17998-23
(84 REQD WAS 97 REQD)
REMOVE MS20470AD3 (46)
℄ +Y 27.00
(REF)
+Z
℄ +Y81.00 (REF)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	✓ LCD-2020

REASON FOR EO: REINFORCEMENT OF +Y LOWER DECK PANELS

DESCRIPTION OF EO: ADDED -7 INSTL IN M/B FOR-3 REMOVE LM1(31) EFF)

GAEC EO RELEASE: C JK 8/17/7

MODEL	EFFECTIVITY		
	~~PROCURING ACTIVITY NO~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 43	LM1(31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	Jap			—	NM	RLT FOR MRG	E.S	Both
DATE	8/15/67			—	8-15-67	PROJ KSC 8/15/67		8-17-67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: BRKT INSTL D/S - LOW. DECK - ELECT LINE SUPT

DRAWING NO.: LDW280-28790

EO NO.: B6

8/18 ISSUED BY DON RAGAS X4153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

B

ENG 32.1 REV 3-65

LFM

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280 -28790
EO NO. B7
CONTROL INFO NO. LDW280A-8830

~~THIS IS A REV. OF~~ EO B6
REVISE CALLOUT:
ADDED -7 INSTL (IDENT TO -3 ---- ETC.)
S/B
ON -3 INSTL
REMOVE LDW280-17998-23

5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD-2020 ok

REASON FOR EO: NEW INSTL NOT REQD

DESCRIPTION OF EO: REF EO B6 REVISED CALLOUT: ADDED -7 INSTL (IDENT TO -3 ---ETC. S/B ON-3 REMOVE LDW280-17998-23

GAEC EO RELEASE: C J/K 8/19/7

MODEL	~~PROCURING ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 43	LM 1 (31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	~~[illegible]~~ ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY				—		HRG for PROJ KSC	E.S.	
DATE	8/17/67			—			8/18/67	8/19/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRKT INSTL D/S - LOW. DECK - ELECT LINES SUPT	LDW 280-28790	B7

8/17
ISSUED BY DON RAGAS X1153 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
ENG 32.1 REV 3-65

DWG. NO. LDW280-28790
EO NO. C1
CONTROL INFO NO. LDW280B1158

REMOVE -3 INST'L, N/A LDW280-51509 (1)RED/MOD
EFF: LM-1(31)

DETAIL SPEC REQ	✓	CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: INST'L NOT REQ'D (CDR LIST)

DESCRIPTION OF EO: REMOVED -3 INST'L, N/A 280-51509 (1) REQ'D/MOD
EFF: LM-1(31)

(5)

GAEC EO RELEASE: 1/18

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQ'D	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK / SCRAP
✓		NOT REQ'D

APPROVED BY								
DATE	1/11/68			1-12-68	1-12-68		1/11/68	1-17-68
—	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: E
DRAWING TITLE: BRACKET INST'L D.S.-LOWER DECK ELECT. LINES SUPT
DRAWING NO. LDW280-28790
EO NO. C1

ISSUED BY R.STOBE/P.THORJUSEN (EXT 1153) SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-62 RELEASED BY LIAISON

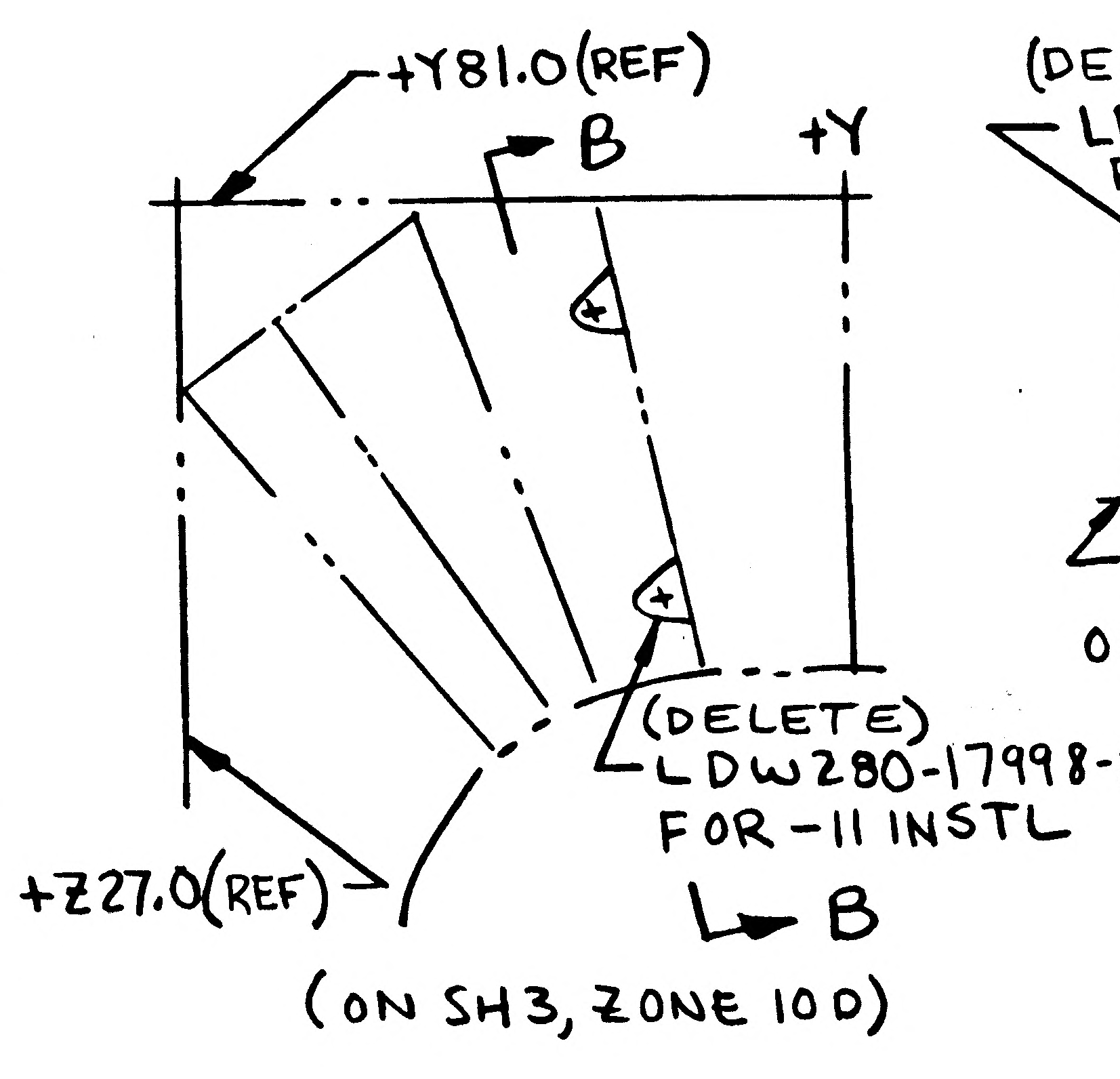
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

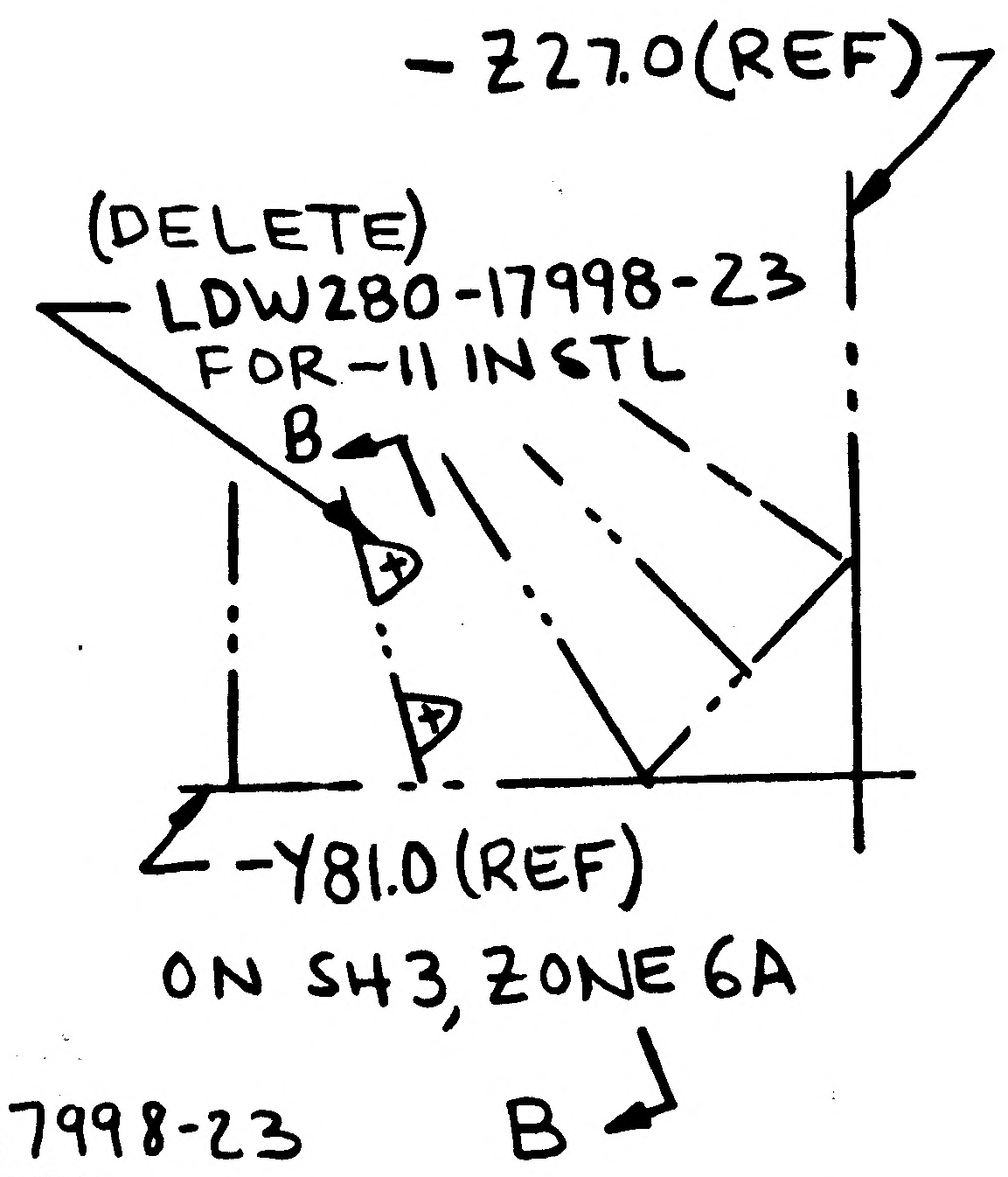
DWG. NO. LDW280 28790		EO NO. C2
CONTROL INFO NO. LM 5-13909		

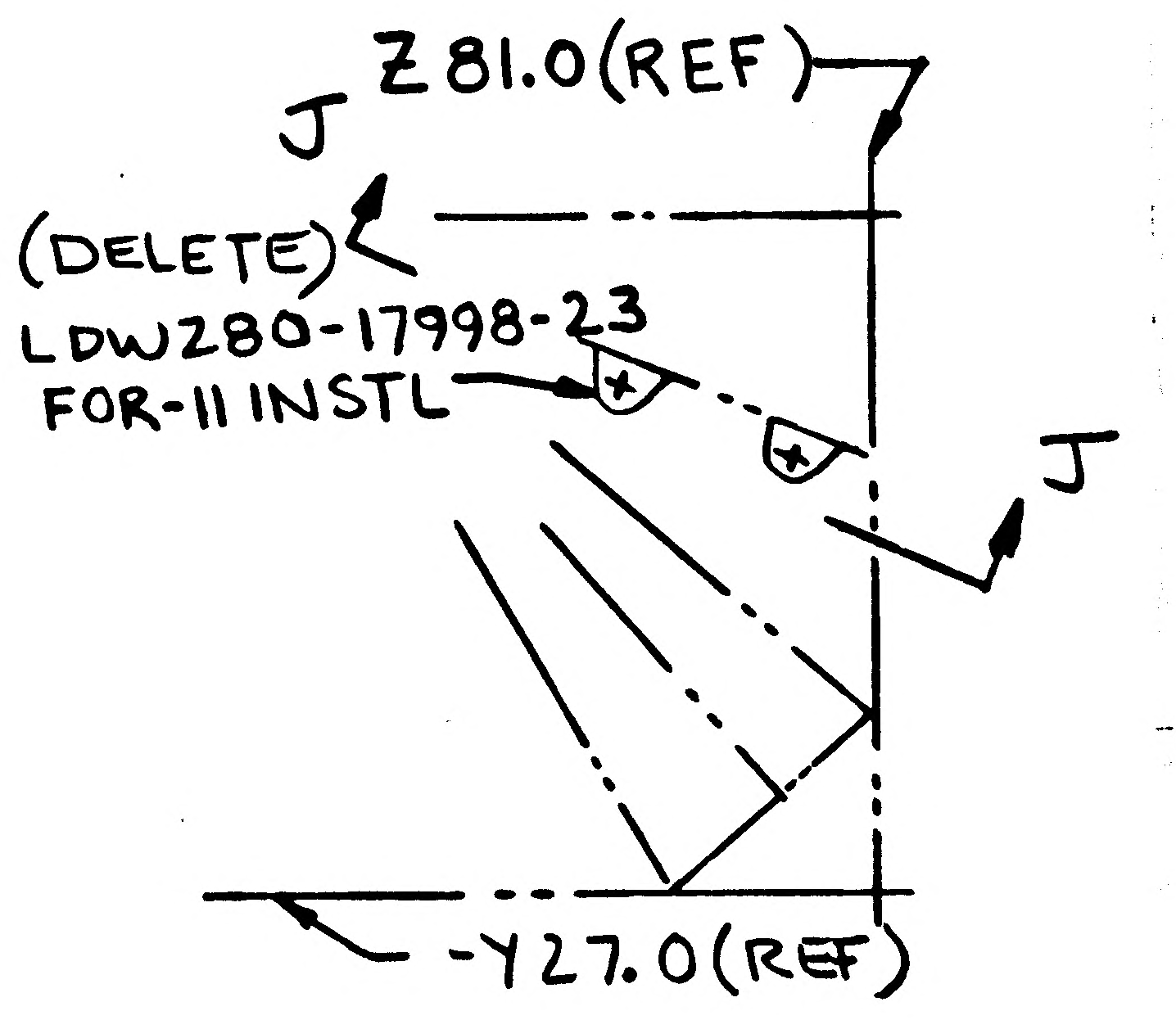
CREATE -11 INSTL IDENTICAL TO -9 EXCEPT AS NOTED:

-11 INSTL EFF FOR LM-3 (33) ONLY.

REMOVE -9 INSTL FOR LM-3 (33).


+Y81.0 (REF)
B
+Y
(DELETE)
LDW280-17998-23
FOR-11 INSTL
B
+Z27.0 (REF)
(ON SH3, ZONE 10D)


-Z27.0 (REF)
(DELETE)
LDW280-17998-23
FOR-11 INSTL
B
-Y81.0 (REF)
ON SH3, ZONE 6A
B


Z81.0 (REF)
J
(DELETE)
LDW280-17998-23
FOR-11 INSTL
J
-Y27.0 (REF)

DRAFTING INFO:
IN SECTION B-B (SHOWN) (ZONE 10D)
SECTION J-J (OPP) (ZONE 10D)
SECTION K-K (SHOWN) (ZONE 10D)
SECTION L-L (OPP) (ZONE 10D)
} REVISE THE FOLLOWING:

LDW280-17998-13 (ON-1) (REF)
LDW280-17998-23 (ON-3-7-9-11) (REF)
MS20470AD3 (2)
(TYP 2 PLACES)

WAS

LDW280-17998-13 (ON-1) (REF)
LDW280-17998-23 (ON-3-7-9) (REF)
MS20470AD3 (2)
(TYP 2 PLACES)

IN B/M
CREATE -11 INSTL, DELETE: NAS697C08 (3), NAS1097AD3 (6),
LDW280-17998-23 (3), MS20470AD3 (6)

01
NAS 9-1100

REWORK: -9 MAYBE REWORKED INTO -11

PLUG EXTRANEOUS HOLES USING MS20470AD3.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☒	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PERMIT INSTL OF PYRO CONN.	ADDED -11 INSTL, REMOVED -9 INSTL	(5) IC ✗

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LM		LM-3 (33)		✓		✓	

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
DATE	4/20			Z	4-3-68	4-3-68	4/10
	VP						4/18

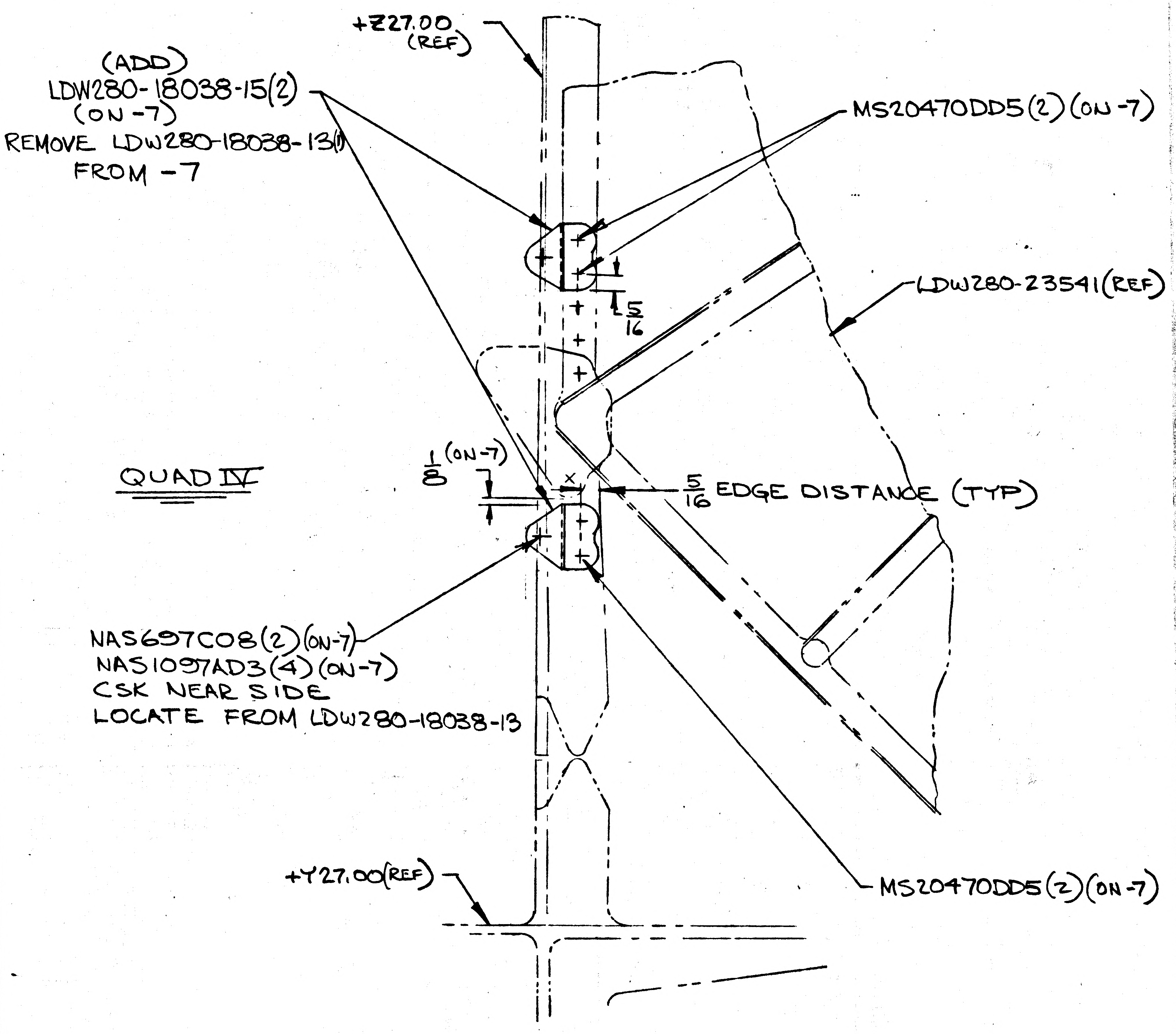
PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET INSTL D/S LOWER DECK ELECT. LINES SUPT.	LDW280-28790	C2

ISSUED BY R. EBERLE X1153/E. ROSADO SECTION EQUIP LINES GROUP NO. 332 PL 5

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28790		EO NO. C3
CONTROL INFO NO. LDW280B3095		



+Z27.00 (REF)
(ADD) LDW280-18038-15(2) (ON -7) REMOVE LDW280-18038-13(1) FROM -7
MS20470DD5(2)(ON -7)
5/16
LDW280-23541(REF)
QUAD IV
1/8 (ON-7)
5/16 EDGE DISTANCE (TYP)
NAS697C08(2)(ON-7) NAS1097AD3(4)(ON-7) CSK NEAR SIDE LOCATE FROM LDW280-18038-13
+Y27.00(REF)
MS20470DD5(2)(ON -7)

DETAIL * (VIEW LOOKING DOWN @ X131.14)

FOR -7 ADD DETAIL *, LDW280-18038-15, NAS697C08(2), NAS1097AD3(4), & MS20470DD5(4), REMOVE LDW280-18038-13;

SHOP INFO PLUG EXTRANEOUS HOLES WITH MS20470DD RIVET MATL.

* USE NEXT AVAIL SECTION LTR

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG ✓	LCD 2011	PKG 17	(5)

REASON FOR EO: REROUTE ELEC LINES DUE TO MODULARIZED EQUIPMENT

DESCRIPTION OF EO: ON -7 ADDED DETAIL *, LDW280-18038-15(2), NAS697C08(2), NAS1097AD3(4), REMOVED LDW280-18038-13

GAEC EO RELEASE: C H.F. 4/30/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	4/23/68			4/22			4/25/68	4-30-68

PRIORITY: C

DRAWING TITLE: D/S BRACKET INSTALLATION LWR DECK ELECT LINES SUPT

DRAWING NO.: LDW280-28790

EO NO.: C3

5-3-68
ISSUED BY G. BARNES/ P. THORJUSEN X1153 SECTION VDI GROUP NO. 335 PL 25

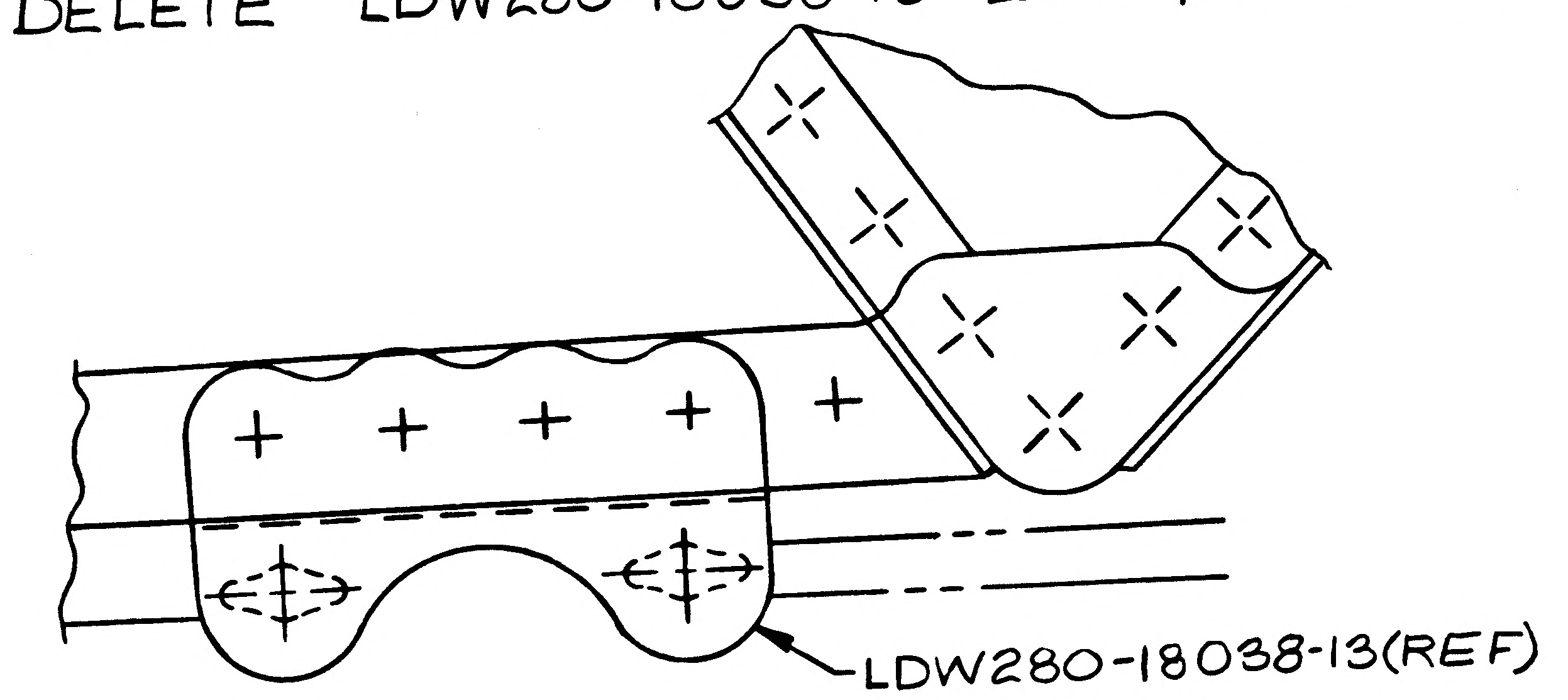
01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28790
EO NO. C4
CONTROL INFO NO. LM-2-4707

FOR -9 & -11
IN B/M DELETE LDW280-18038-13 ZEE & NAS697C08(2)



DETAIL F (REF)
(ON -1 & -7 ONLY) SHOULD BE (ON -1, -3, & -7)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: DRAWING CORRECTION ONLY (EO-B5 INCORRECTLY INCORPORATED) PART DELETED FROM LM-2 & LM-3

DESCRIPTION OF EO: FOR -9 & -11 IN B/M DELETE LDW280-18038-13 IN FLD, DETAIL 'F', (ON -1, -3, & -7) WAS (ON -1 & -7 ONLY)

GAEC EO RELEASE (2) C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK NOT SCRAP REQD

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY					ps		
DATE	5/25				5/20/68		5/25
	VDI						

5-20-68

PRIORITY: E
DRAWING TITLE: BRACKET INSTL~D/S~LOWER DECK ELECTRICAL LINES SUPPORT
DRAWING NO. LDW280-28790
EO NO. C4

ISSUED BY LIAISON J. MALONEY 5/20/68 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.2 REV 3-65

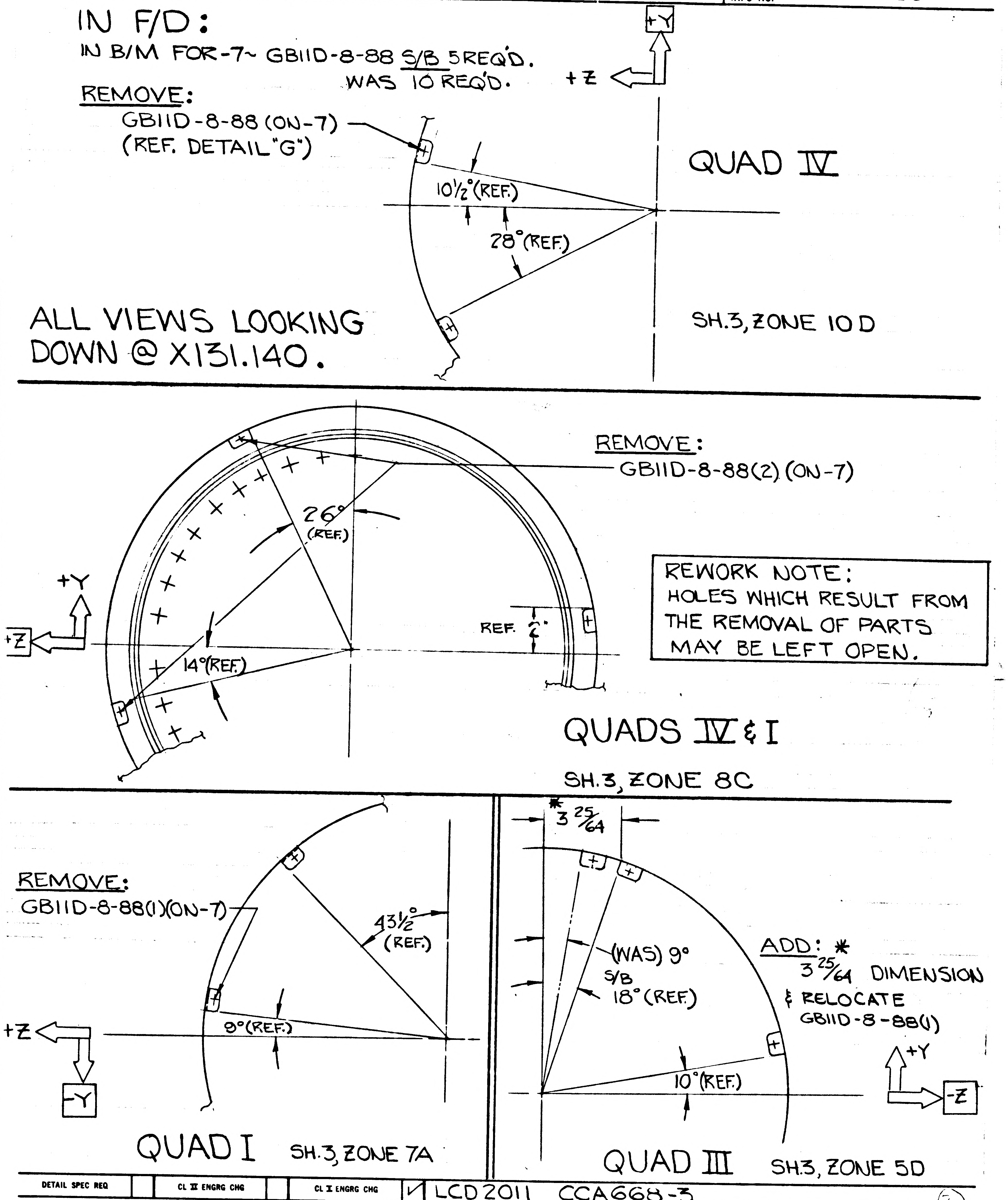
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28790 EO NO. C5
CONTROL INFO NO. LM-2-4826

IN F/D:
IN B/M FOR-7~ GB11D-8-88 S/B 5 REQ'D.
WAS 10 REQ'D.

REMOVE:
GB11D-8-88 (ON-7)
(REF. DETAIL "G")

ALL VIEWS LOOKING
DOWN @ X131.140.


+Y
+Z
10½° (REF.)
28° (REF.)
QUAD IV
SH.3, ZONE 10 D
26° (REF.)
14° (REF.)
REF. 2"
+Y
+Z
QUADS IV & I
SH.3, ZONE 8C
43½° (REF.)
9° (REF.)
+Z
-Y
QUAD I SH.3, ZONE 7A
* 3 25/64
(WAS) 9°
S/B
18° (REF.)
10° (REF.)
+Y
-Z
QUAD III SH.3, ZONE 5D

REMOVE:
GB11D-8-88(2) (ON-7)

REWORK NOTE:
HOLES WHICH RESULT FROM
THE REMOVAL OF PARTS
MAY BE LEFT OPEN.

REMOVE:
GB11D-8-88(1)(ON-7)

ADD: *
3 25/64 DIMENSION
& RELOCATE
GB11D-8-88(1)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2011 CCA668-3

REASON FOR EO
CLIP IN QUAD III @ 9° LOCATION INTERFERES, WITH CLIP FOR METEOROID SH'LD. SUPRT. & TO REMOVE EXCESS CLIPS

DESCRIPTION OF EO
FOR -7 INST'L.
GB11D-8-88 S/B 5 REQ'D. (WAS) 10 REQ'D.
REMOVED: GB11D-8-88 (4) ~ ADDED: 3 25/64 DIM. &
RELOCATED GB11D-8-88 IN QUAD III, 18° (REF) (WAS) 9° (REF)

(2)
GAEC C
EO RELEASE
VC

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6 (36) THRU	LM-15 (45)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONF~~
✓		-7		APPROVED BY	Gar			—	J. M	Ctf	Gar	
				DATE	7/23/68			—	7-8-68	7/3/68	7/23/68	7/9/68
				7-3-68	VEI							

PRIORITY C
DRAWING TITLE: BRACKET INSTALLATION ~ DESCENT STAGE ~ LWR. DECK ELECTRICAL LINES SUPT.
DRAWING NO. LDW280-28790
EO NO. C5

ISSUED BY LIAISON G M GREEN SECTION VEH. DES. INT. GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

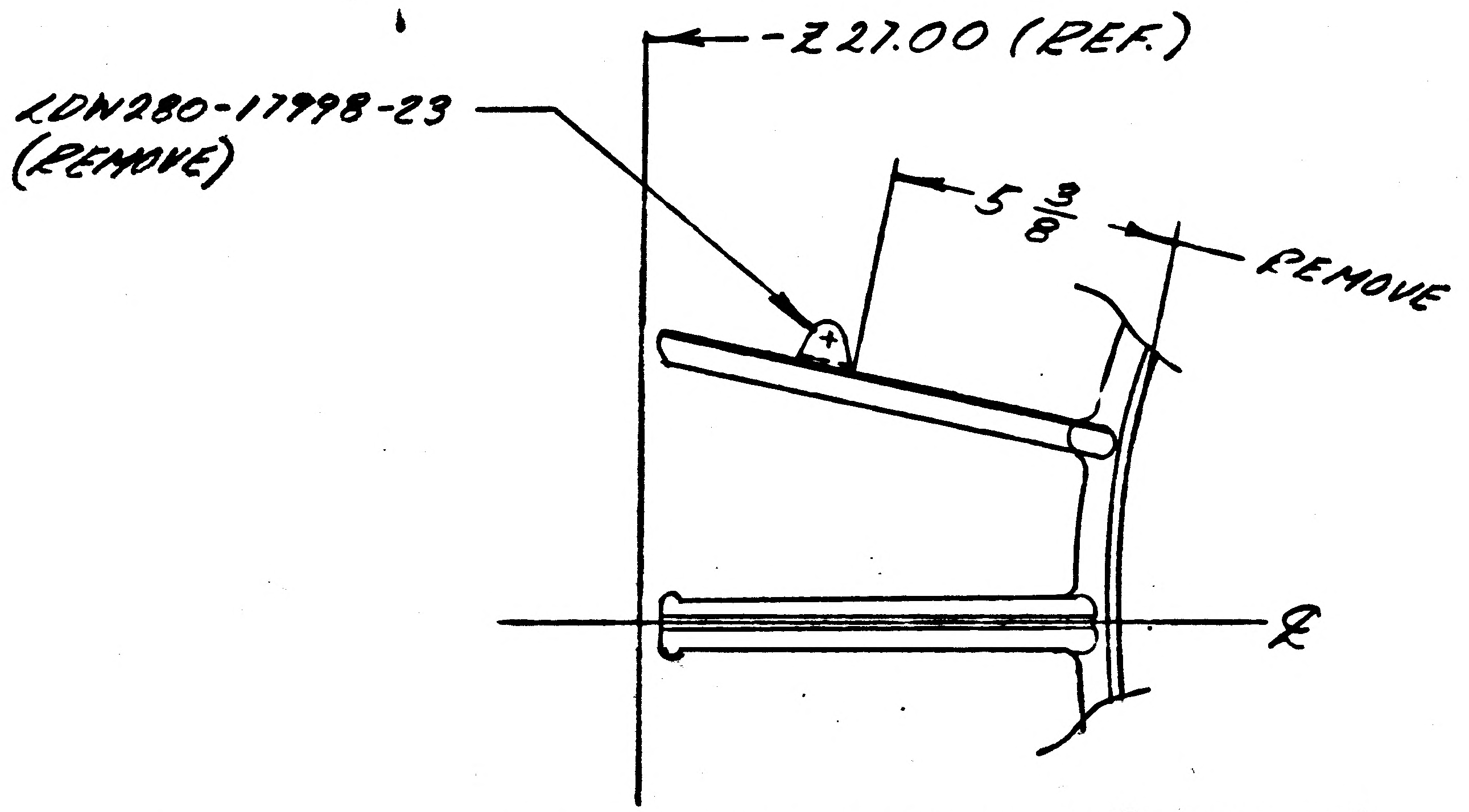
GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28790	EO NO. C6
CONTROL INFO NO. LM-2-5406	

ON-7



PLUG EXTRANEOUS
HOLES WITH
MS20470AD3 RIVET

VIEW LOOKING DWN. @ 131.40
(ZONE 6C)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☒	LCD 2011 CCA 668-3 (2)

REASON FOR EO

CLAMP RELOCATED ON PIPE

DESCRIPTION OF EO

ON-7

IN F/D & B/M, REMOVED LDW 280-17998-23 (1)
IN F/D REMOVED DIM 5 3/8.

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-9 (39)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	JAS			DJ PH	L.M	C	JAP	
DATE	5/2/69			4-30-69	4-16-69	4/16/69	5/6/69	5/8/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET INSTL. - O/S LOWER DECK - ELECT. LINES SUP.	LDW280-28790	C6

ISSUED BY LIAISON, R. GRELL, X3604 SECTION VDI GROUP NO. 332 PL 25

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NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1451
CONTROL INFO NO. LDW280B 7452

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-28697	A3	SEE DWG
-28780	B3	
-28790	C7	
-28816	B2	
-28835	C4	
-51555	B3	
LDW280 -51560	D1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 12 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM — *

GAEC EO RELEASE: JK 5/12/

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	4/1/69			4-2-69	4-5-69		4/9/69	5/8/69

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1451

052869 ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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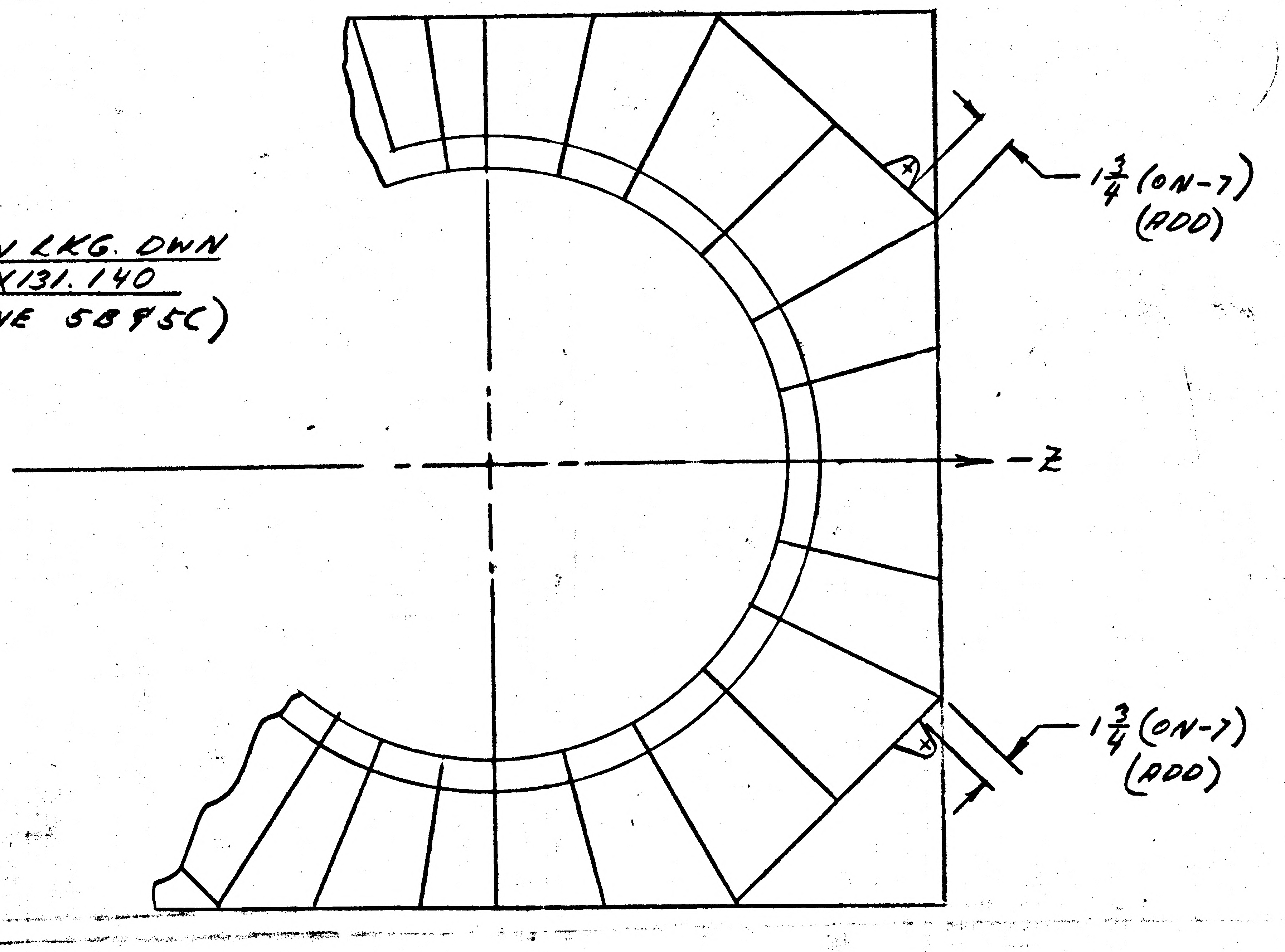
NAS 9-1100

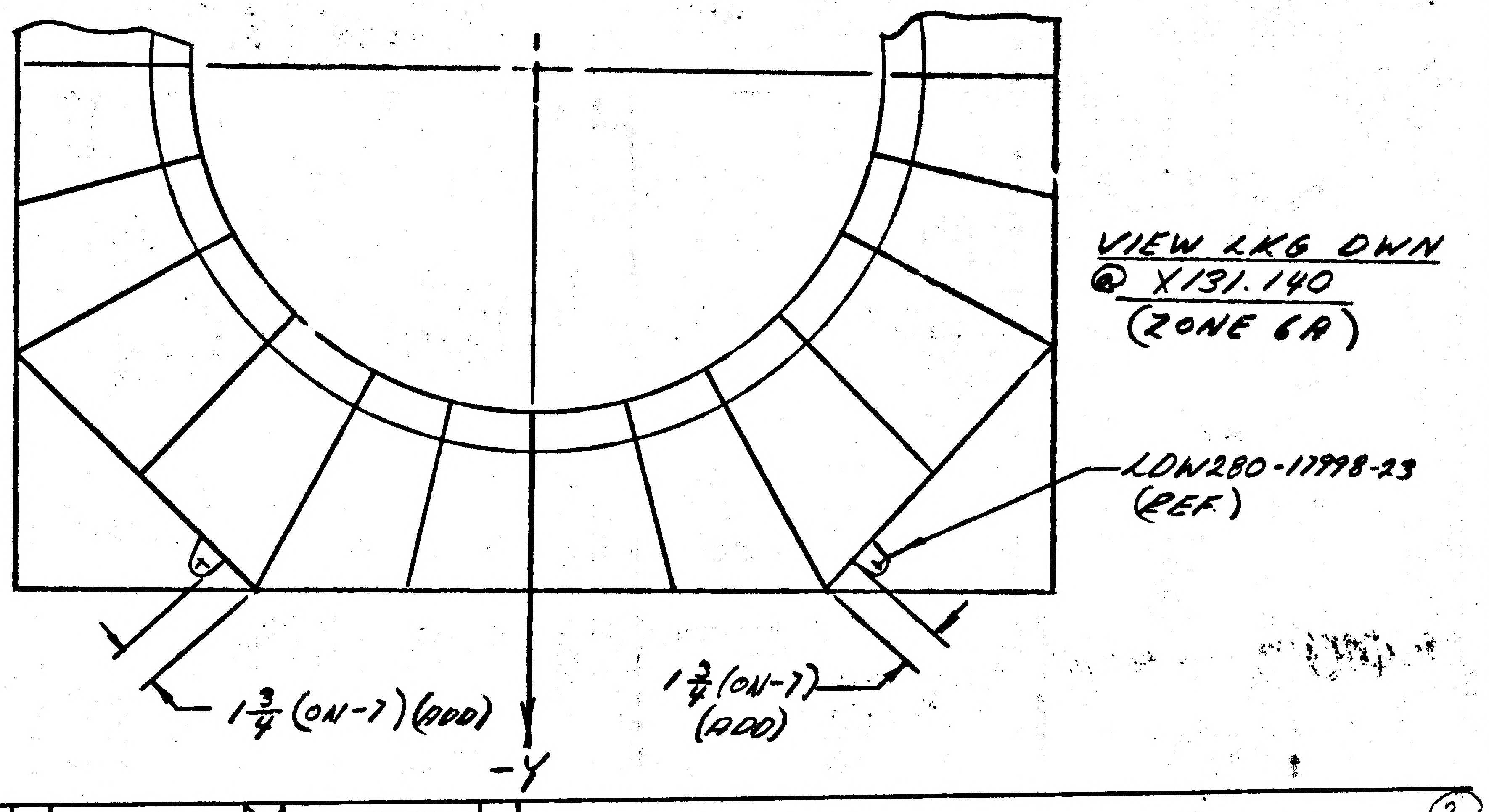
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28790 EO NO. D1
CONTROL INFO NO. LM-2-5556

ON -7 INSTL
IN F/D


VIEW LKG. DOWN
@ X131.140
(ZONE 5B&5C)
1 3/4 (ON-7)
(ADD)
1 3/4 (ON-7)
(ADD)
-Z


VIEW LKG DOWN
@ X131.140
(ZONE 6A)
LDW280-17998-23
(REF)
1 3/4 (ON-7) (ADD)
1 3/4 (ON-7)
(ADD)
-Y

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☒	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO
DIM'S OMITED WHEN INCORP. E.O. 81 (PICTURE CORRECT)	ON-7 INSTL ADDED: 1 3/4 (ON-7) 4 PLACES (REF: E.O. 81)

GAEC EO RELEASE: 8-15-69 HF

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	✓	NOT REQD.	
RECORD EO		REWORK	SCRAP

APPROVED BY					KC			
DATE	8-14-69			8-14-69	7/30/69	7/30/69	8/1/69	8-6-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E	BKT. INSTL. D/S - BOTTOM DECK ELECT. LINES SUPPORT	LDW280-28790	D1

ISSUED BY LIAISON, R. GRELL, X3604 SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1791
CONTROL INFO NO. LDW280B9278

FOR THE FOLLOWING DWGS (ALL* DASH NOS)
REMOVE LM10 (40) THRU 14 (44) EFF.

DWG	TITLE	CHANGE NO
✓ LDW280-28790 *	SEE DWG.	D2
LDW280-23677 *	SEE DWG.	E9

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3890 PK91 (5)

REASON FOR EO: NEW INSTL DWG REQD FOR LMMP LWR DECK LINES SPRT.

DESCRIPTION OF EO: IN MOD BLK FOR* REMOVED LM10(40) THRU 14(44) REQMTS.

GAEC EO RELEASE: JK 12/16/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM10 (40) THRU 14(14)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

APPROVED BY: VDI 12-15-69; SUPPORT; RELIAB. GROUP; GROUP LEADER 12/13/69; STRESS GROUP 12/15/69; LIAISON ENGRG; PROJ ENGRG 12/15/69; GOVT 12/16/69

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 1791

CDR 122969
ISSUED BY DON RAGAS X86046 SECTION VDI GROUP NO. 280 PL 25

01

NAS 9-1100

LDW280-28791 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51509	LM-1(31)	1
PART NO. LDW280-28791-7		GAEC SCH NO. 50-2	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28509	LTA-8(18)	1
PART NO. LDW280-28791-5		GAEC SCH NO. 50-2	

WORK PKG FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00	5.00	6.00		
REV	B	B	B	B	B	B	B		
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	BK-BK	GRUMMAN REL INFO B	
		PRIM NO.	JK(001)
LAST DASH NO. USED	-7	207	mP-14 E-6/26/

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
±1/16 ±.030 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	J. LANG	RELIABILITY	
LAYOUT BY	D. RAGAS 7-16-66		
CHECKED BY			
GR. LEADER	J. STRAKOSCH 7-18-66		
VEH. DES. INT.	W. BISCHOFF 7-18-66		
STRUCTURES	WPB. FEB. 7-21-66	PROJ ENGR	F. DESENE RMC 7-29-66
STRUCTURES	HILDERMAN 7-22-66	REL GROUP	BOTTI 8-1-66
WEIGHTS	D. ROBESCH 7-27-66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BRACKET INSTALLATION
DESCENT STAGE-BEAM PANELS-ELECTRICAL
LINES SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-28791	B
SCALE	NONE	SHEET 1.00 OF 7	

(B)

ENG 77.1 12-65

THIS DWG SUPERSEDES LDW280-28791 NO CHANGE 8-1-66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE - LAST REV. NO CHANGE. ADDED SH 1.10, 1,11 & 6.00.						
A	1	SH4	14D					EO-A1	IN F/D ADDED VIEW L-L, SECT. AF-AF & AG-AG. IN F/D & B/M ADDED LDW280-18086-11,-13,-14,-15,-17 & MS20470DD4.	LTA-8(18) & LM-1(31)	✓		V.NARONIS 2-1-67		
	2	SH 4	16A					EO-A2	ON-1 LDW280-18038-19 WAS LDW280-18038-17						
	3	SH1 & 3	3D				✓	EO-A3	IN F/D & M/B ADDED -3. IN M/B REMOVED N/A LDW280-51509 & LM-1(31) FROM -1.						
	4	SH1 & SH3	3D					EO-A4	IN F/D, B/M & M/B REMOVED -1 & -3 & ADDED -5 & -7.						
	5	SH6	33C				✓	EO-A5	ON-5 & -7 ADDED VIEW BE-BE, BF-BF, BG-BG & BH-BH. ADDED DETAIL BD, SECT. BA-BA & BC-BC. ADDED GB11D-8-76(8), MS20470AD4(16), NAS697C08(40), MS20426AD3(80) DRILL #19(40) & MS21266-1N.						
B	1	SH3, SH4	5A 7A 6B 4D 16A 18B 18C 5C					EO-B1	ON-5 & -7 ADDED DRILL #19(.165-.171) & SEE NOTE #2. TO VIEW W-W (3 HOLES), VIEW U-U (7 HOLES), VIEW S-S (2 HOLES) & VIEW AW-AW, 4 HOLES IN VIEW W-W ADDED DRILL #19(.165-.171) 5 HOLES, NAS697C08(5) & NAS1097AD3(10) CSK N.S. ADDED DETAIL AN, GB11D-8-76(2), IN VIEW S-S RELOCATED (2) GB11-8-76 CLIPS 4 3/4 WAS 2 5/8. ADDED GB11D-76 CLIP & DRILL #1/4 DIA. HOLE CALLOUT, ADDED VIEW AM-AM, DRILL #19(.165-.171) & SEE NOTE #2. ADDED VIEW AL-AL & DRILL #1/4 DIA. HOLE, DRILL #19(.165-.171) SEE NOTE #2, ADDED VIEW AK-AK, GB11D-8-76 & MS20470AD3(2), ADDED IN SECT Y-Y DRILL #19(.165-.171) 3 HOLES, NAS697C08(3), NAS1097AD3(6) & ADDED NOTE #2.						
	2	SH4	16A					EO-B2	ON-5 & -7 ADDED LDW280-18064-13 & MS20470DD4(3)						
	3	SH3, SH4	7C 16A					EO-B3	REF EO-B1. IN VIEW U-U ADDED NAS697C08(2) NAS1097AD3(6), REVISED DIM. 9.0 WAS 7 1/2. IN VIEW S-S ADDED DRILL #19(.165-.171) 2 HOLES, IN VIEW W-W ADDED ±1/2 TOL TO 1 1/2 DIM.						
	4	SH4	14A					EO-B4	ON-5 & -7 ADDED DRILL #60(.039-.044) 2 HOLES						
	5	SH3, SH4	16B 16A 14B 12C						VIEW BK-BK WAS VIEW X-X. GB11D-1-76 WAS GB11D-76 IN VIEW S-S REMOVED SECT. J-J, IN VIEW U-U REMOVED DETAIL Q, IN VIEW T-T REMOVED CALLOUT IDENTICAL TO DETAIL S-S EXCEPT AS SHOWN & ADDED PICTURE OF REF STRUCTURE & LOCATIONS OF GB11D-8-76 (CLIPS)				EG		6-24-67

CHG APPROVED

LTR	~~GROUP LDR~~	VEH. DES. INT.	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	PRO J.			
B		6/19/67	WPB 6/21/67							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28791	B
SCALE	NONE		SHEET 1.10

(B)

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY												
-7	-5	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		NAS1097AD3	E		RIVET	STD PART						
233	233	NAS697C08			PLATE NUT							
9	9	MS21266-1N			GROMMET							
2	2	MS21265-B6N			GROMMET							
		MS20470DD4			RIVET							
		MS20470AD4			RIVET							
		MS20470AD3			RIVET							
		MS20426AD3			RIVET	STD PART						
6	6	GR500A-4H			RIVET	GRUMMAN STD						
10	10	GR500A-4E			RIVET	GRUMMAN STD						
16	16	GR500A-4C			RIVET	GRUMMAN STD						
63	63	GB11D-8-76			CLIP	GRUMMAN STD						
1	1	GB11D-1-76			CLIP	GRUMMAN STD						
1	1	LDW280-18086-19			BRACKET	SEE DWG						12D
2	2	LDW280-18086-17			DOUBLER							14D
2	2	LDW280-18086-15			CLIP							12D
1	1	LDW280-18086-14			CHANNEL							14D
1	1	LDW280-18086-13			CHANNEL							14C
1	1	LDW280-18035-25			ZEE							9B
1	1	LDW280-18064-13			CLIP							16A
1	1	LDW280-18052-15			DOUBLER							14A
5	5	LDW280-18052-11			CLIP							18C
4	4	LDW280-18038-19			ZEE							16D
1	1	LDW280-18038-11			ZEE							13B
1	1	LDW280-17999-11			CLIP	SEE DWG						10A
		LDW280-28791-7			BRACKET INSTL					NONE	NONE	3B
		LDW280-28791-5	E		BRACKET INSTL					NONE	NONE	3B

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28791	B

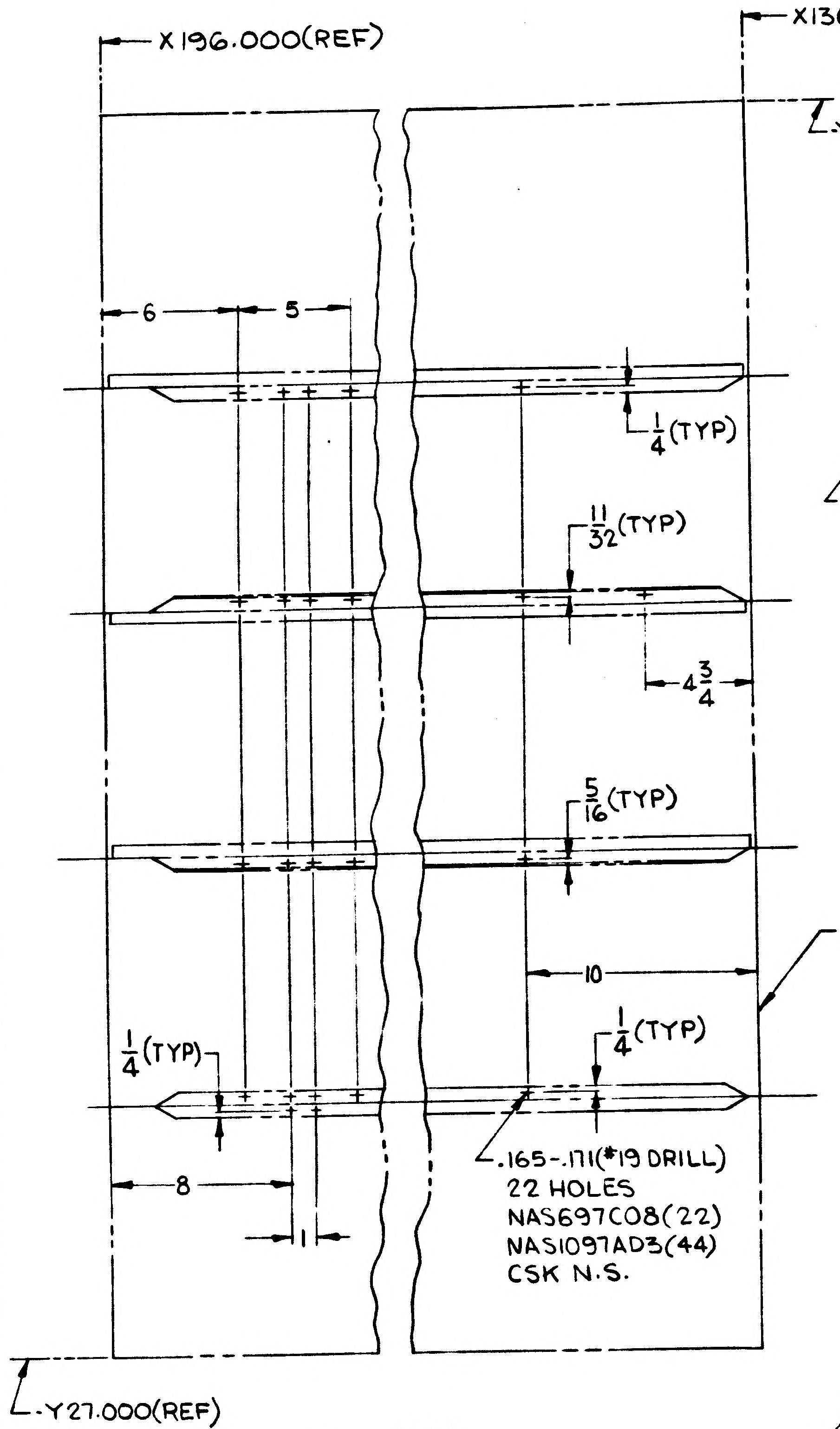
SCALE NONE

SHEET 2.00

ENG 77.2 5-64

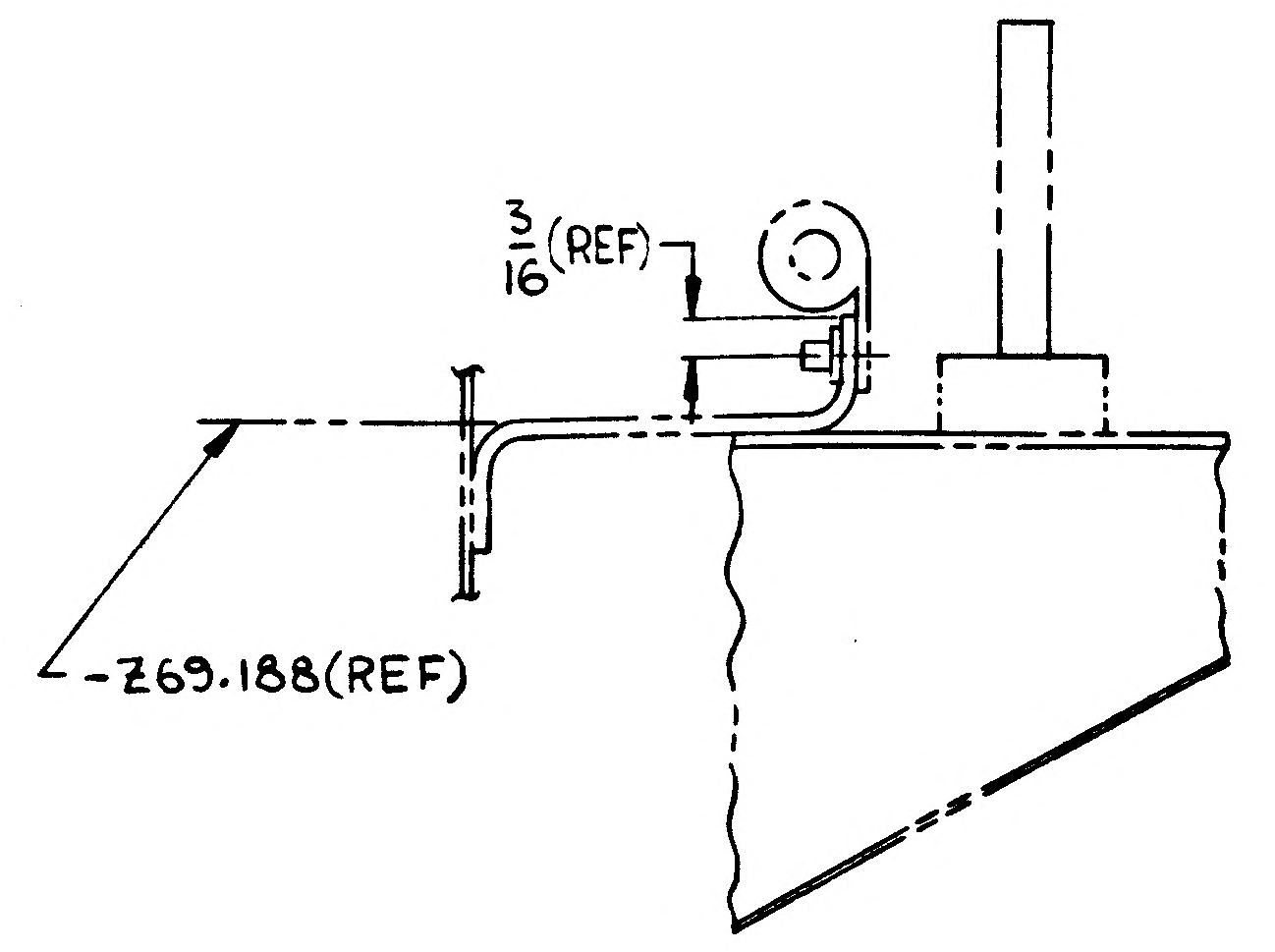
01

NAS 9-1100



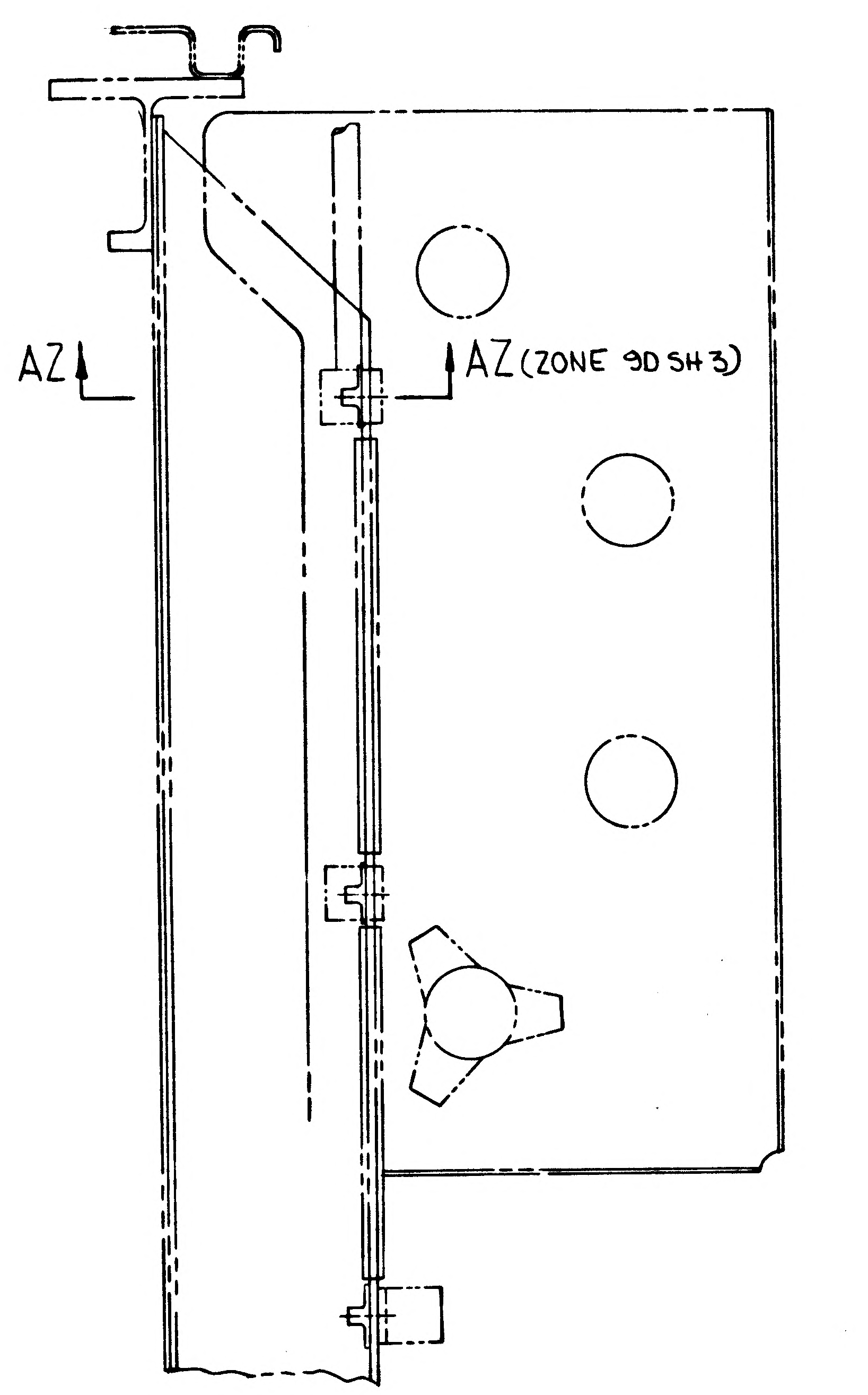
X196.000(REF)
X130.140(REF)
Y81.000(REF)
6
5
1/4(TYP)
11/32(TYP)
4 3/4
5/16(TYP)
10
LDW280-25530(REF)
1/4(TYP)
1/4(TYP)
8
1
.165-.171(#19 DRILL)
22 HOLES
NAS697C08(22)
NAS1097AD3(44)
CSK N.S.
Y27.000(REF)

VIEW-V-V
(ZONE 3D SH 3)



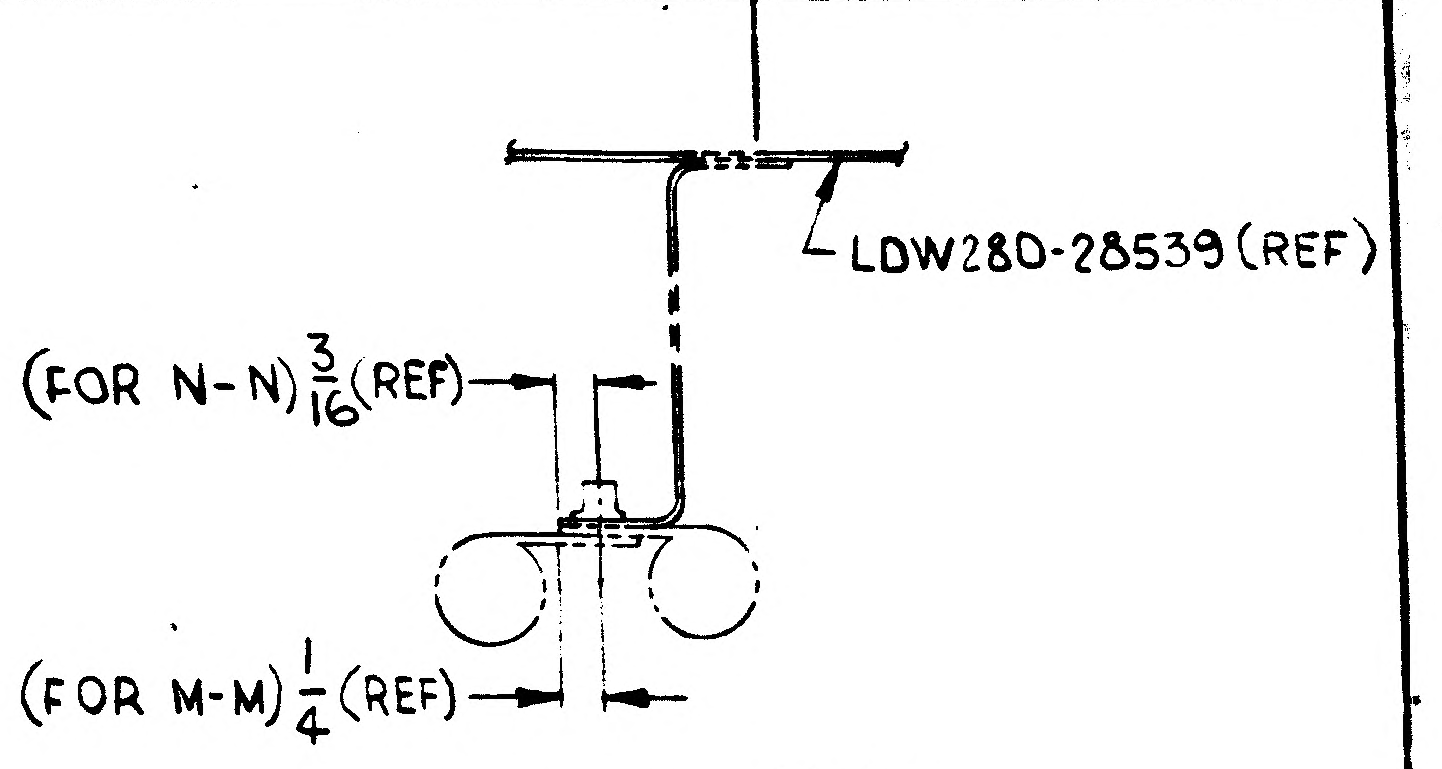
3/16(REF)
Z69.188(REF)

SECTION AZ-AZ
SCALE: FULL SIZE



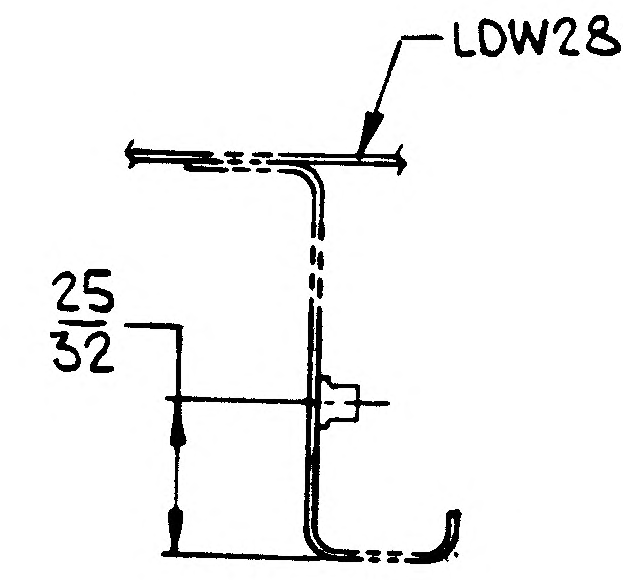
AZ
AZ(ZONE 9D SH 3)

SECTION R-R (ZONE 7A SH 3)
ROTATED 180°
SCALE: FULL SIZE



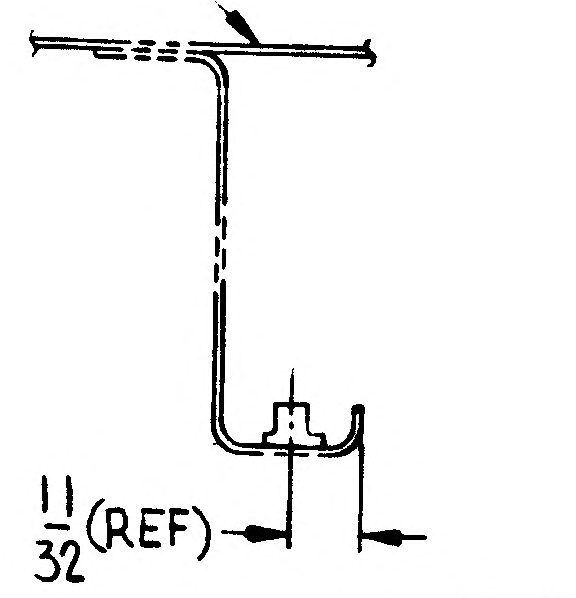
LDW280-28539(REF)
(FOR N-N) 3/16(REF)
(FOR M-M) 1/4(REF)

SECTION M-M (SHOWN)
N-N (OPP)
SCALE: FULL SIZE
(ZONE 7B SH 3)

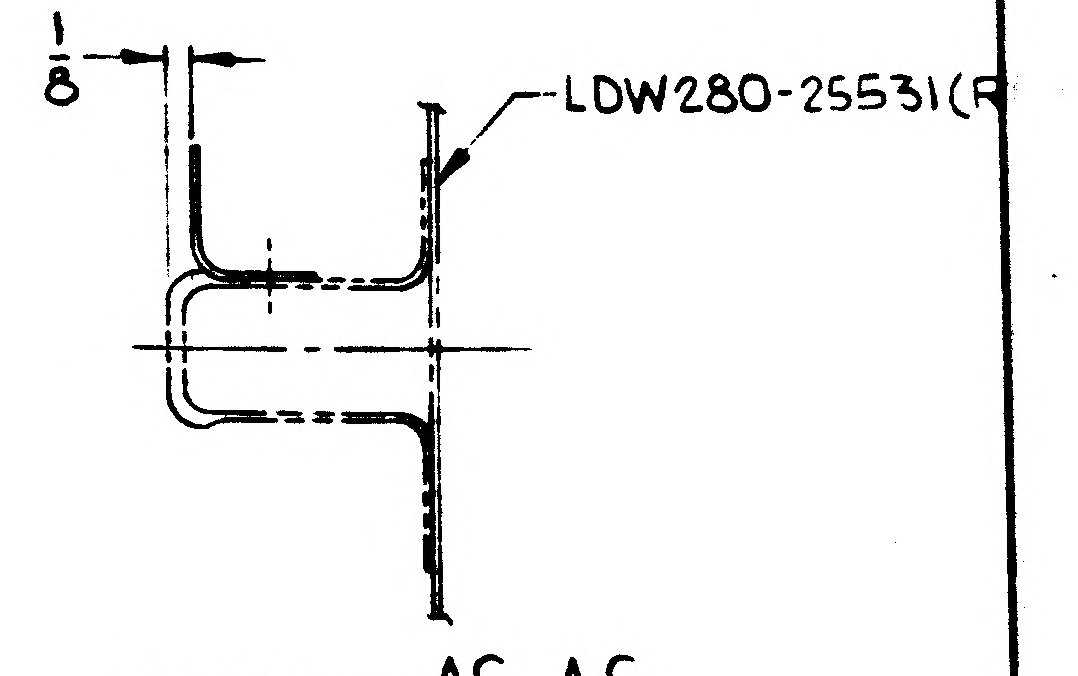


LDW280-28539(REF)
25/32

(ZONE 7B SH3) SECTION AU-AU
(ZONE 7A SH3) AV-AV
SCALE: FULL SIZE

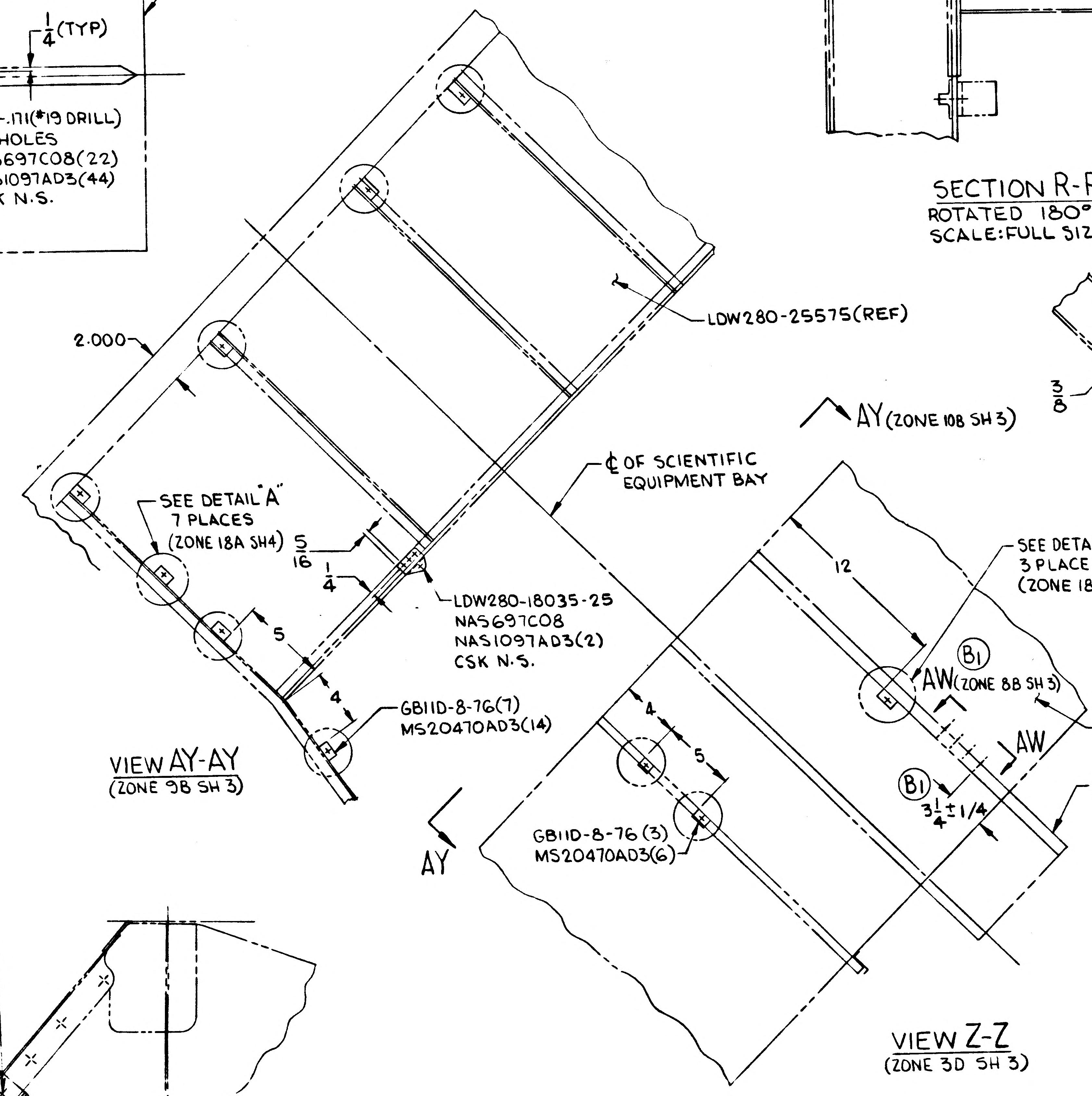


SECTION AT-AT
SCALE: FULL SIZE
(ZONE 7C SH 3)



1/8
LDW280-25531(R

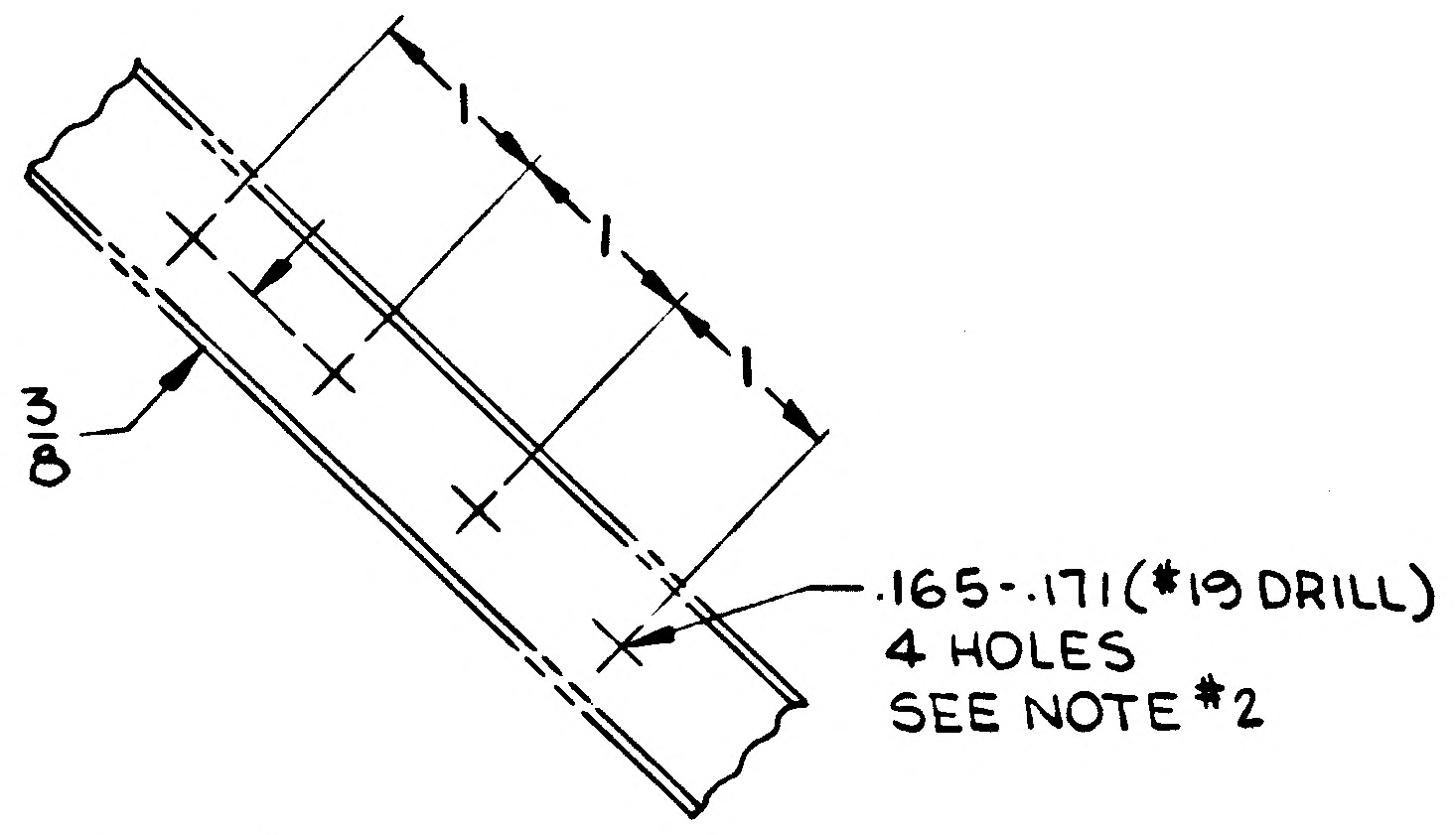
SECTION AS-AS
SCALE: FULL SIZE
(ZONE 4A SH 3)



LDW280-25575(REF)
2.000
SEE DETAIL "A"
7 PLACES
(ZONE 18A SH4)
5/16
1/4
LDW280-18035-25
NAS697C08
NAS1097AD3(2)
CSK N.S.
5
4
GB11D-8-76(7)
MS20470AD3(14)
AY
AY (ZONE 10B SH 3)
℄ OF SCIENTIFIC EQUIPMENT BAY
12
SEE DETAIL "A"
3 PLACES
(ZONE 18A SH4)
AW (ZONE 8B SH 3)
B1
AW
LDW280-25577(REF)
LDW280-25766(REF)
B1
3 1/4 ± 1/4
4
5
GB11D-8-76(3)
MS20470AD3(6)

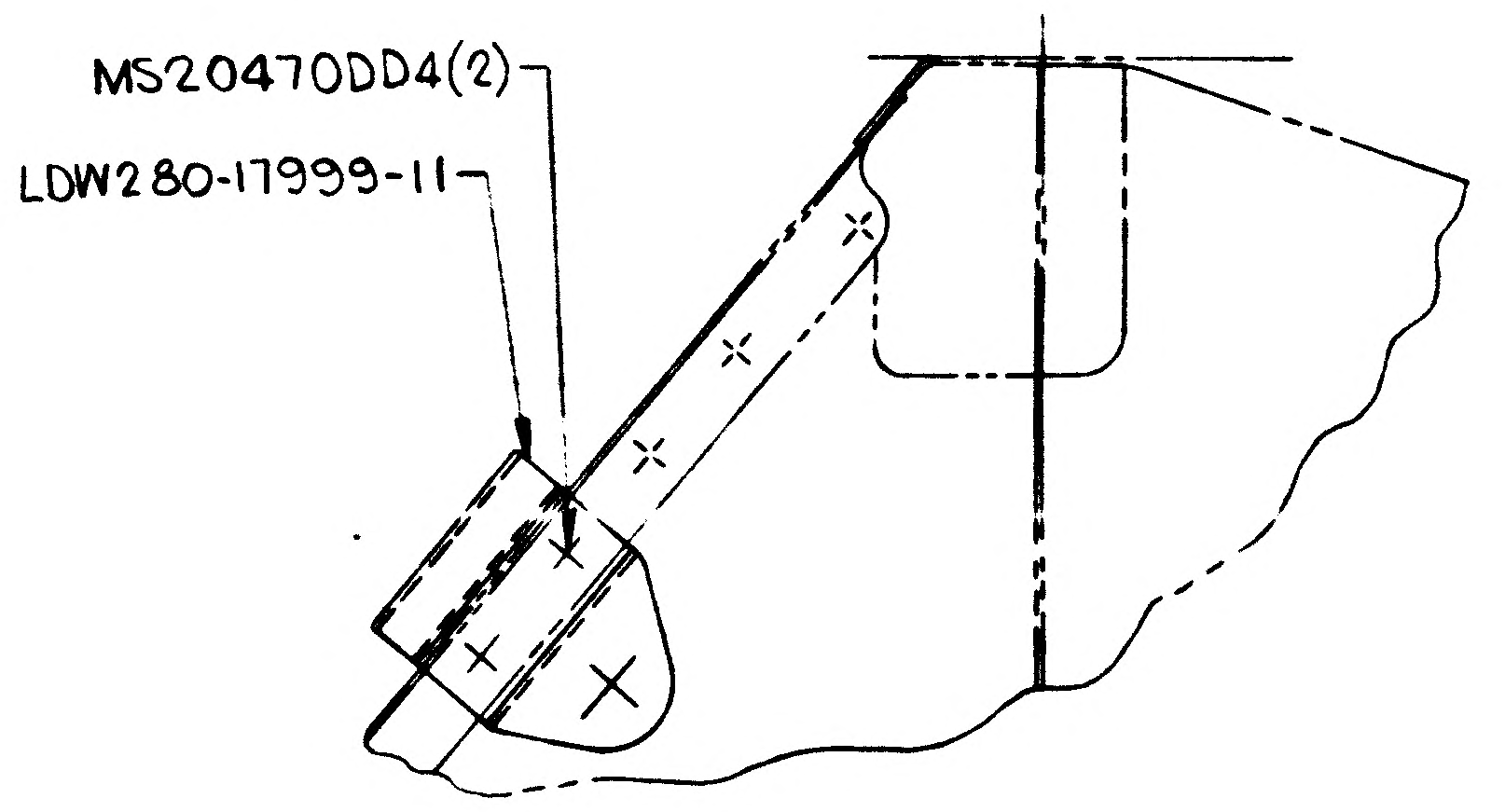
VIEW AY-AY
(ZONE 9B SH 3)

VIEW Z-Z
(ZONE 3D SH 3)



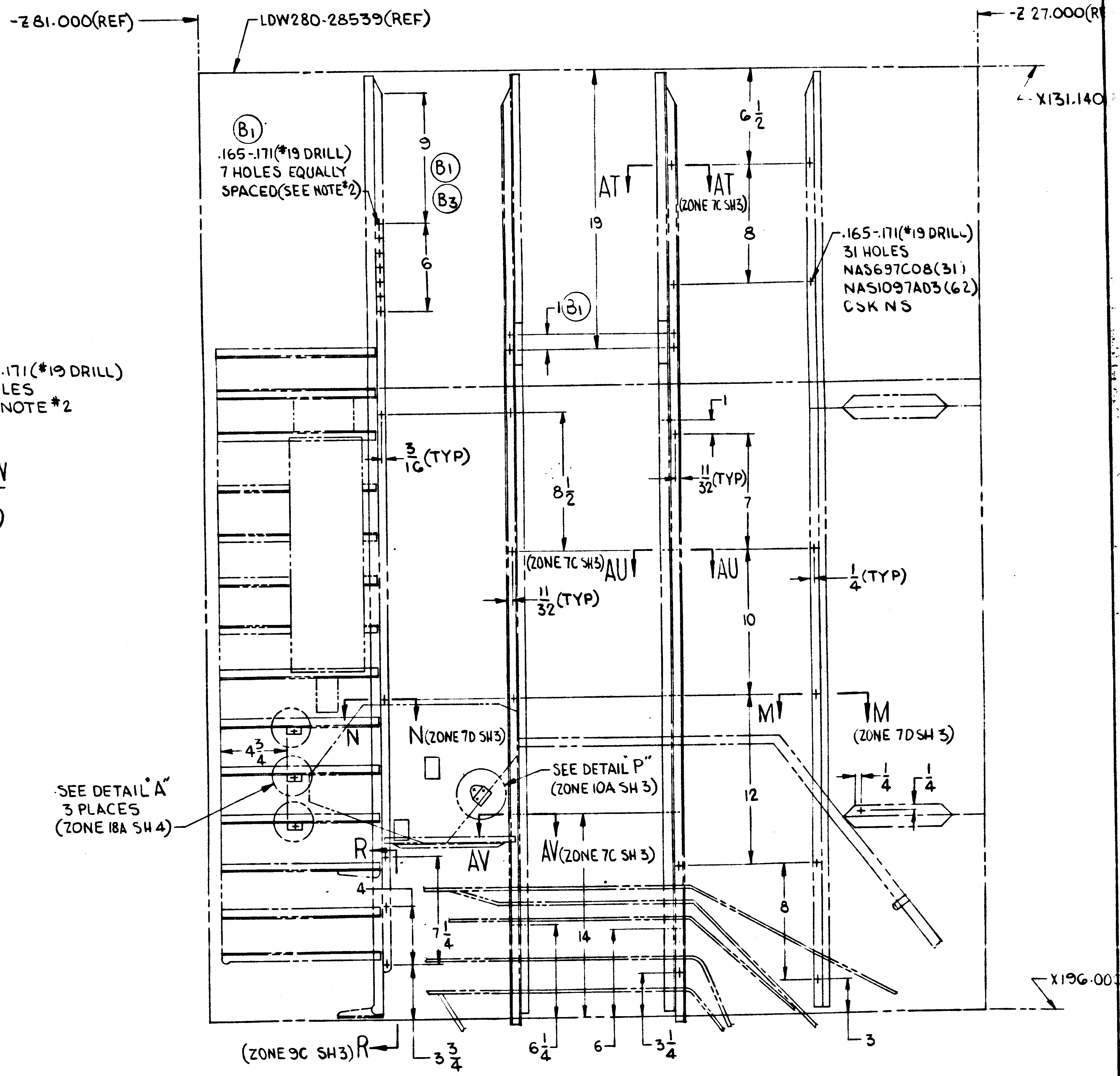
3/8
1
1
.165-.171(#19 DRILL)
4 HOLES
SEE NOTE #2

(B1) VIEW AW-AW
SCALE: FULL SIZE
(ZONE 9B SH 3)



MS20470DD4(2)
LDW280-17999-11

DETAIL P
SCALE: FULL SIZE
(ZONE 7A SH 3)

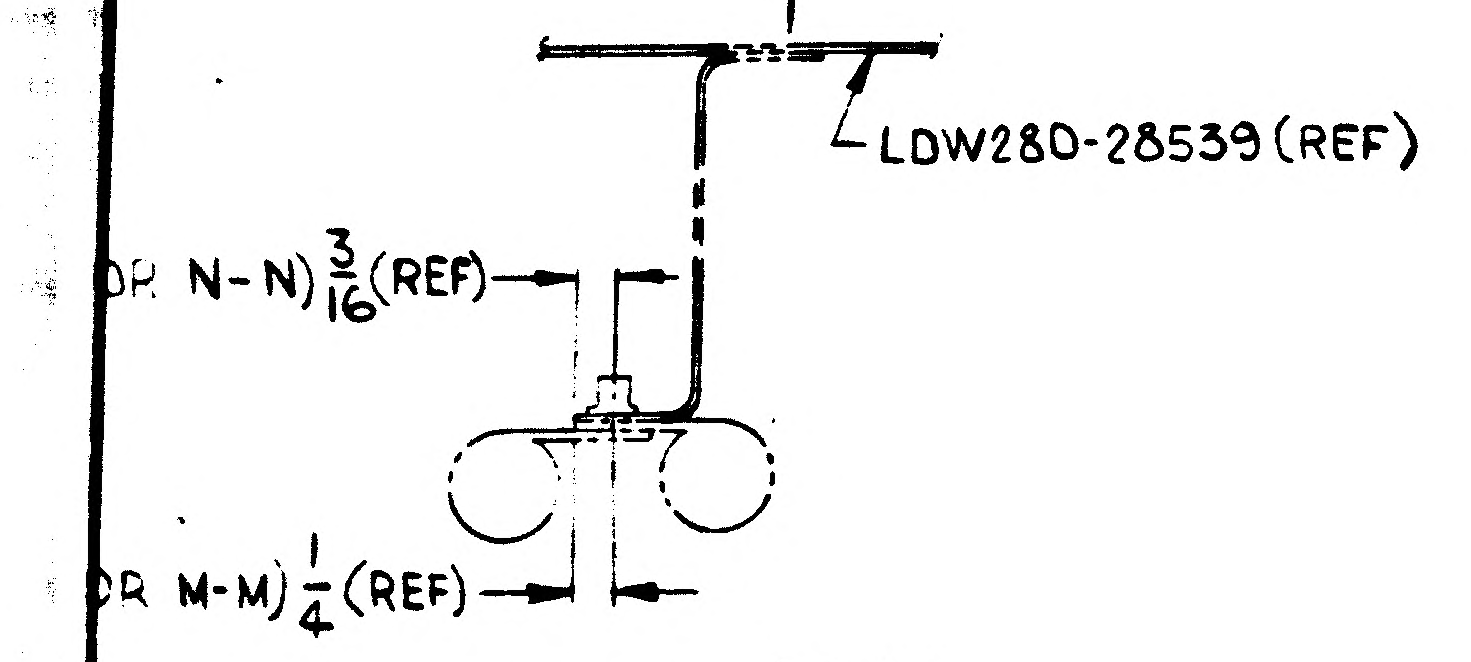


Z81.000(REF)
LDW280-28539(REF)
Z27.000(R
X131.140
B1
.165-.171(#19 DRILL)
7 HOLES EQUALLY
SPACED (SEE NOTE #2)
9
B1
B3
6
AT
19
AT (ZONE 7C SH3)
6 1/2
8
.165-.171(#19 DRILL)
31 HOLES
NAS697C08(31)
NAS1097AD3(62)
CSK NS
1 B1
1
3/16(TYP)
8 1/2
11/32(TYP)
7
(ZONE 7C SH3) AU
AU
11/32(TYP)
10
1/4(TYP)
M
M (ZONE 7D SH 3)
N
N (ZONE 7D SH3)
SEE DETAIL "P"
(ZONE 10A SH 3)
1/4
1/4
4 3/4
SEE DETAIL "A"
3 PLACES
(ZONE 18A SH 4)
12
R
AV
AV (ZONE 7C SH 3)
4
7 1/4
14
8
X196.00
(ZONE 9C SH3) R
3 3/4
6 1/4
6
3 1/4
3

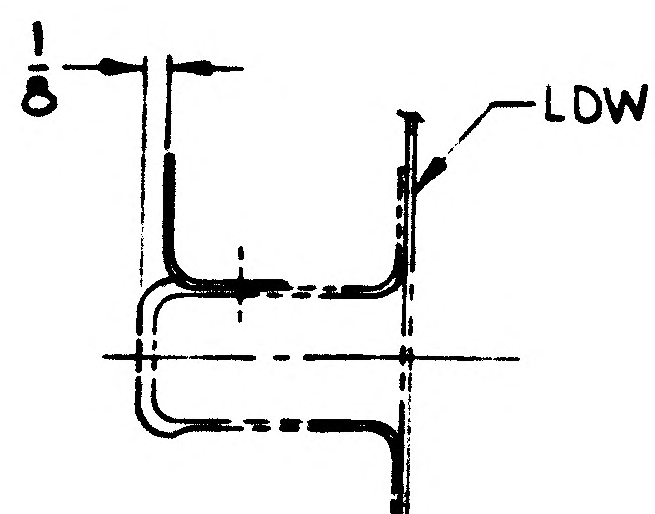
VIEW U-U
(ZONE 3D SH 3)

LDW280-28791B SHEET 3

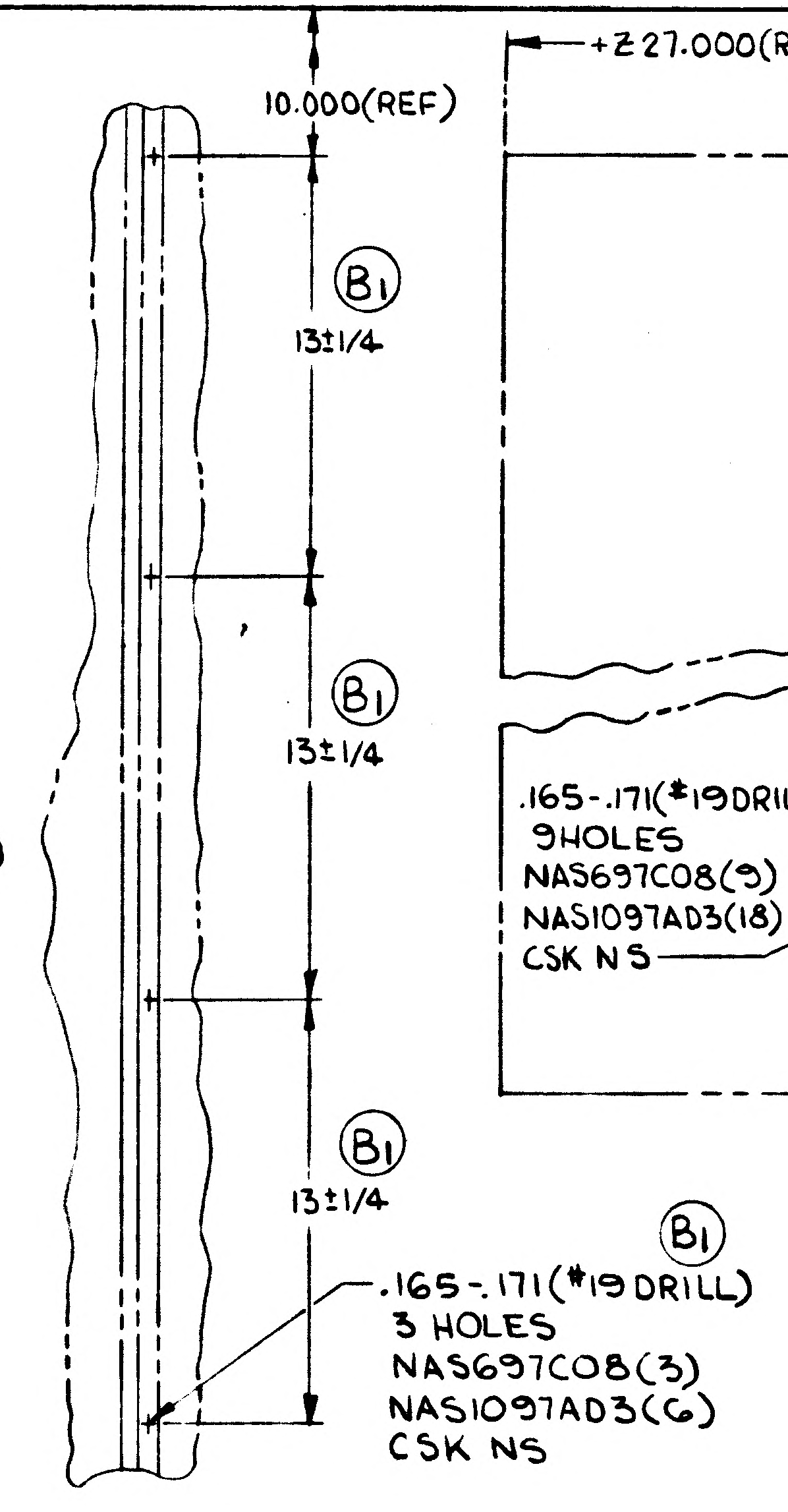
01/03 NAS 9-1100


LDW280-28539 (REF)
(OR N-N) 3/16 (REF)
(OR M-M) 1/4 (REF)

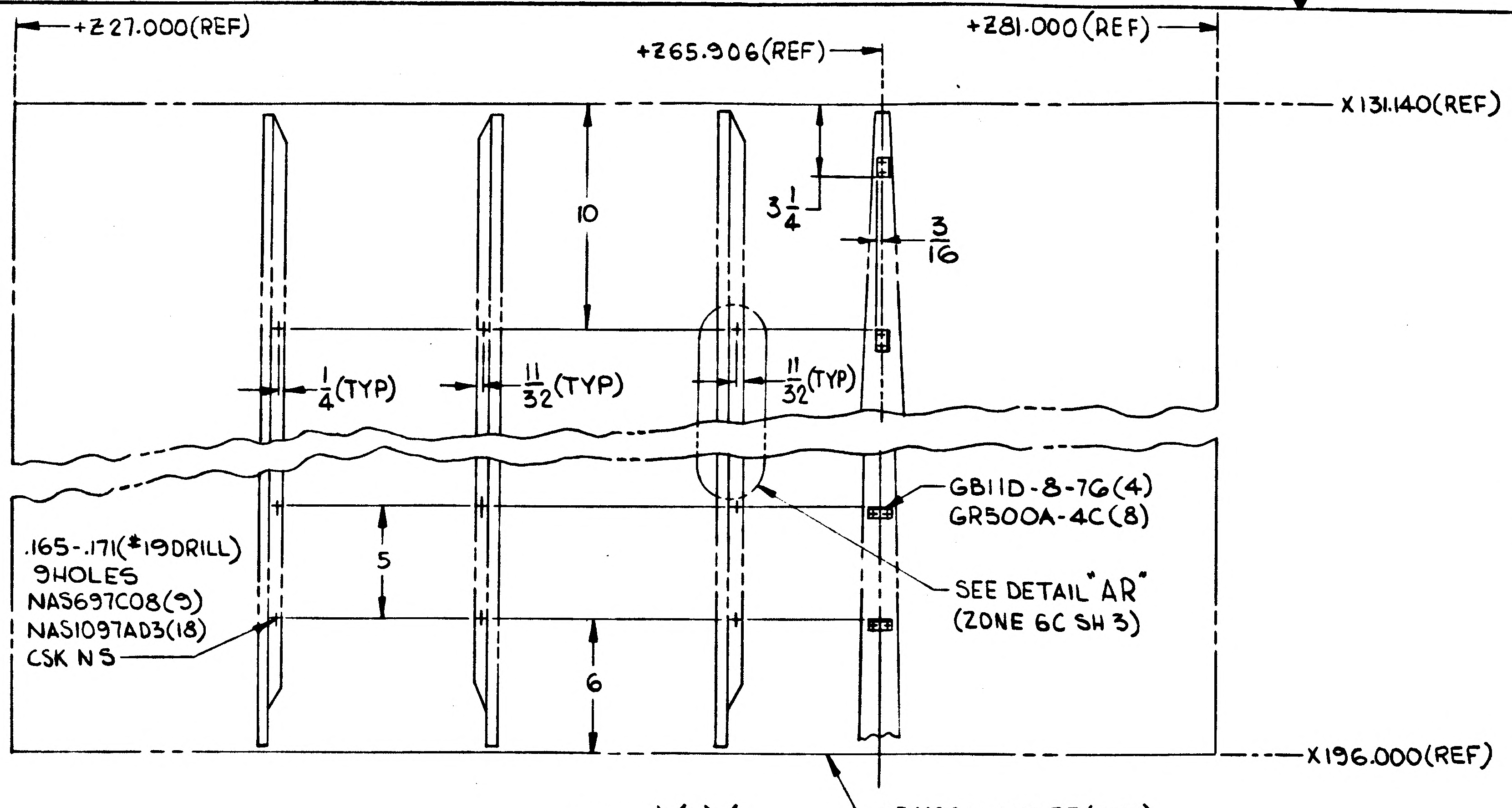
SECTION M-M (SHOWN)
N-N (OPP)
SCALE: FULL SIZE
(ZONE 7B SH 3)


1/8
LDW280-25531 (REF)

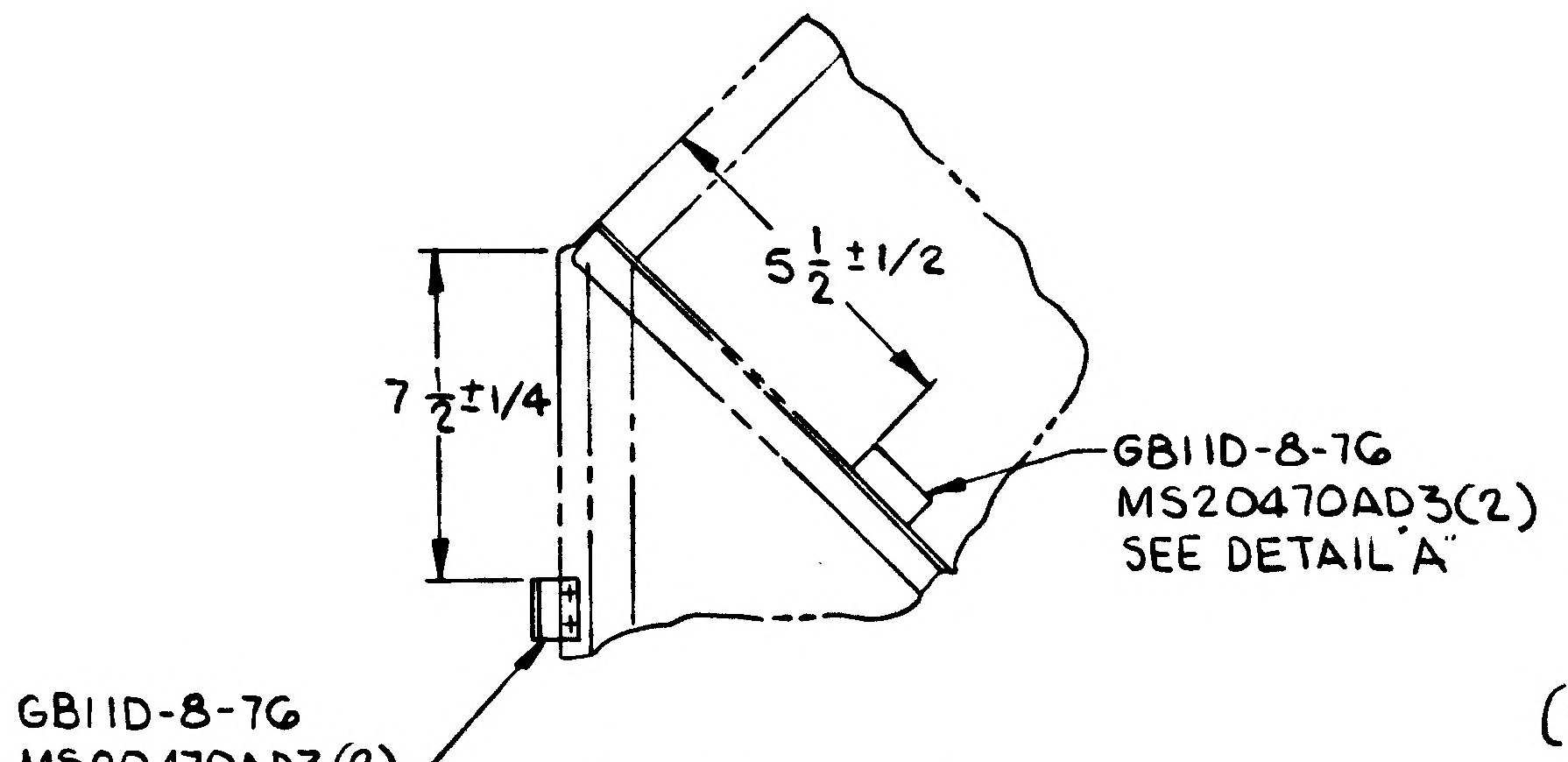
SECTION AS-AS
SCALE: FULL SIZE
(ZONE 4A SH 3)


10.000 (REF)
B1
13±1/4
B1
13±1/4
B1
13±1/4
B1
.165-.171 (#19 DRILL)
3 HOLES
NAS697C08 (3)
NAS1097AD3 (6)
CSK NS

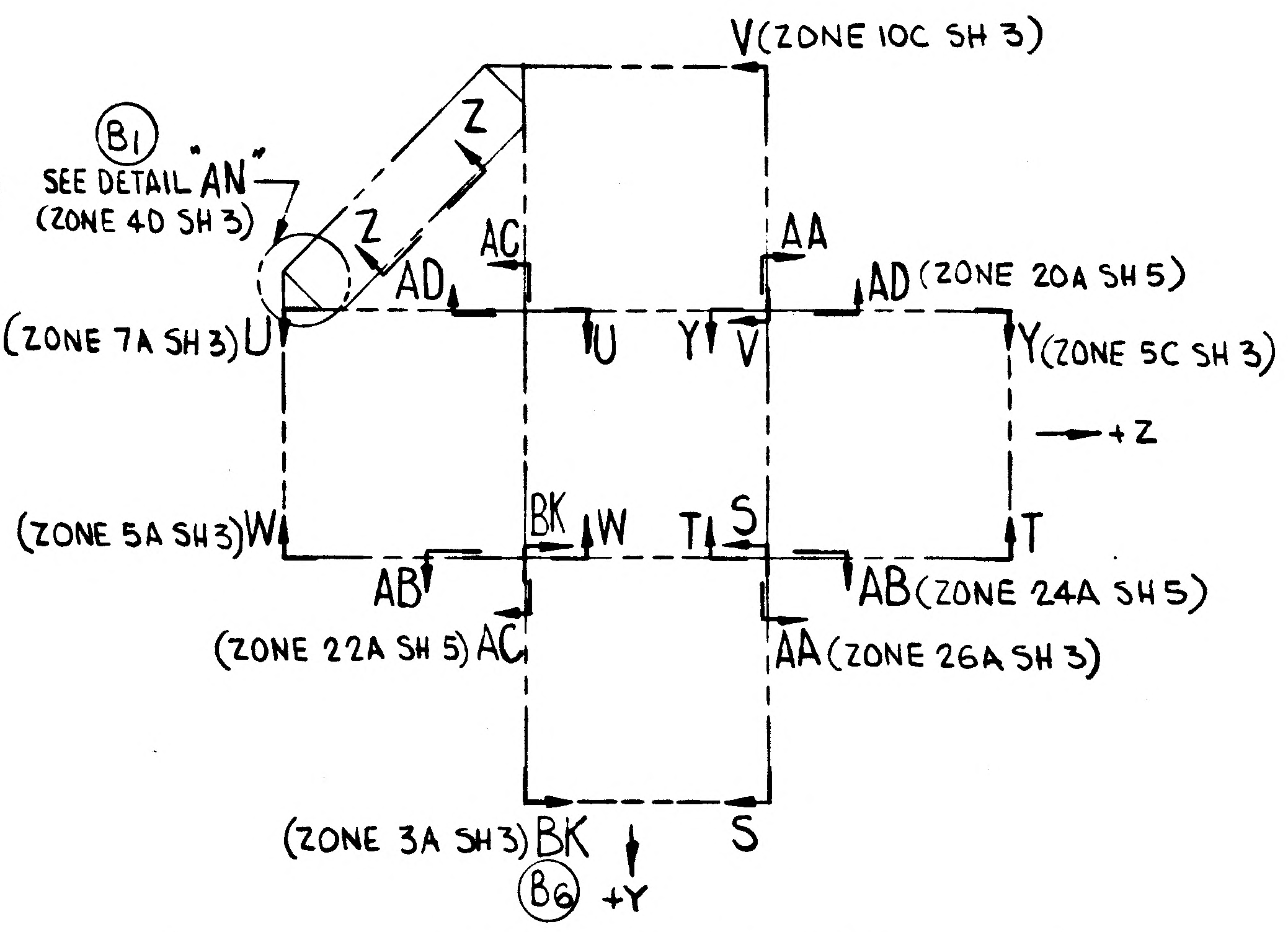
DETAIL AR
(ZONE 5D SH 3)


+Z27.000 (REF)
+Z65.906 (REF)
+Z81.000 (REF)
X131.140 (REF)
10
3 1/4
3/16
1/4 (TYP)
11/32 (TYP)
11/32 (TYP)
5
6
.165-.171 (#19 DRILL)
9 HOLES
NAS697C08 (9)
NAS1097AD3 (18)
CSK NS
GB11D-8-76 (4)
GR500A-4C (8)
SEE DETAIL "AR"
(ZONE 6C SH 3)
X196.000 (REF)
LDW280-25537 (REF)

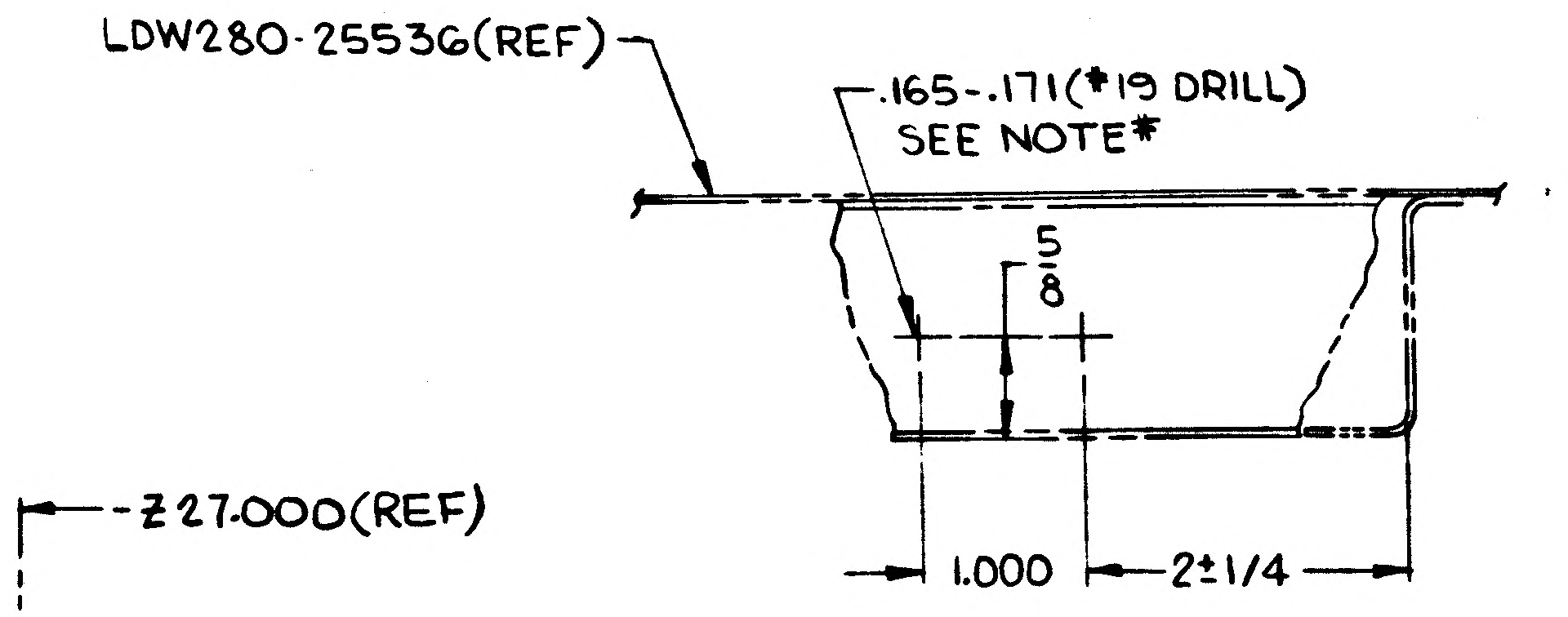
VIEW Y-Y
(ZONE 3D SH 3)


5 1/2 ±1/2
7 1/2 ±1/4
GB11D-8-76
MS20470AD3 (2)
SEE DETAIL "A"
GB11D-8-76
MS20470AD3 (2)
SEE DETAIL "A"

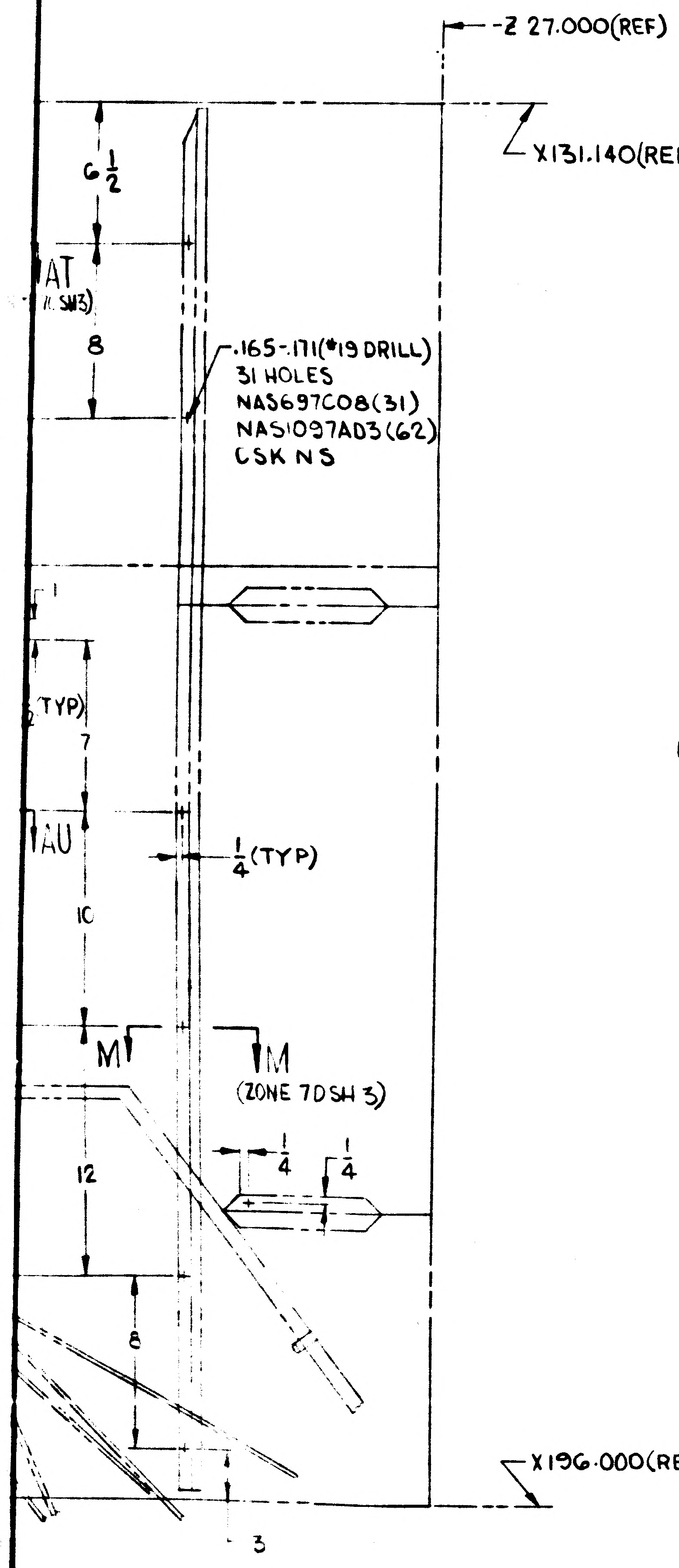
B1 DETAIL AN
(ZONE 3D SH 3)

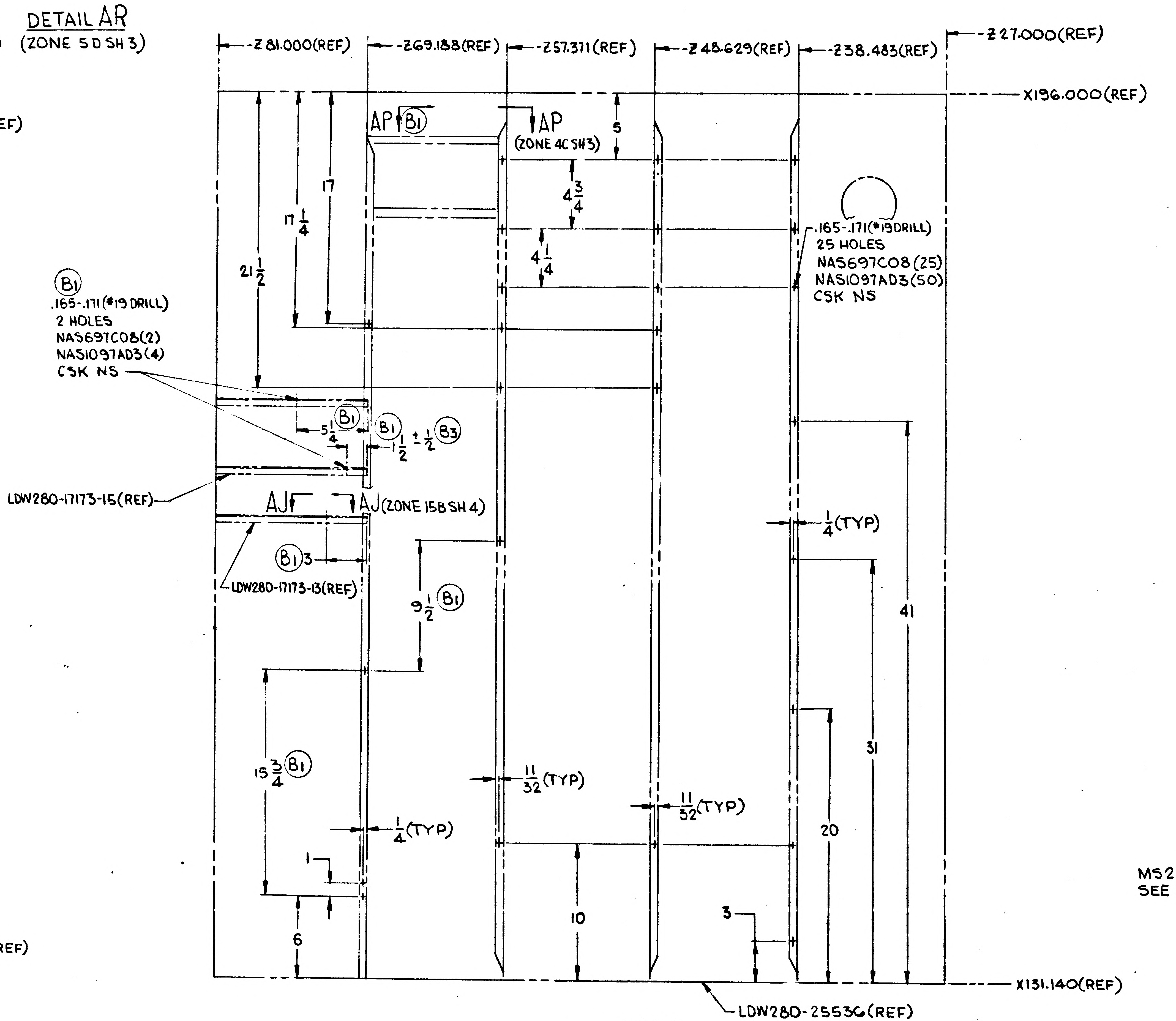

V (ZONE 10C SH 3)
B1
SEE DETAIL "AN"
(ZONE 4D SH 3)
Z
Z
AC
AA
AD
AD (ZONE 20A SH 5)
(ZONE 7A SH 3) U
U
Y
V
Y (ZONE 5C SH 3)
+Z
(ZONE 5A SH 3) W
BK
W
T
S
T
AB
AB (ZONE 24A SH 5)
(ZONE 22A SH 5) AC
AA (ZONE 26A SH 3)
(ZONE 3A SH 3) BK
S
B6
+Y

A4 A3 LDW280-28791-5 INSTL
-7 INSTL (IDENTICAL TO -5 EXCEPT AS NOTED)
VIEW LOOKING DOWN
NO SCALE

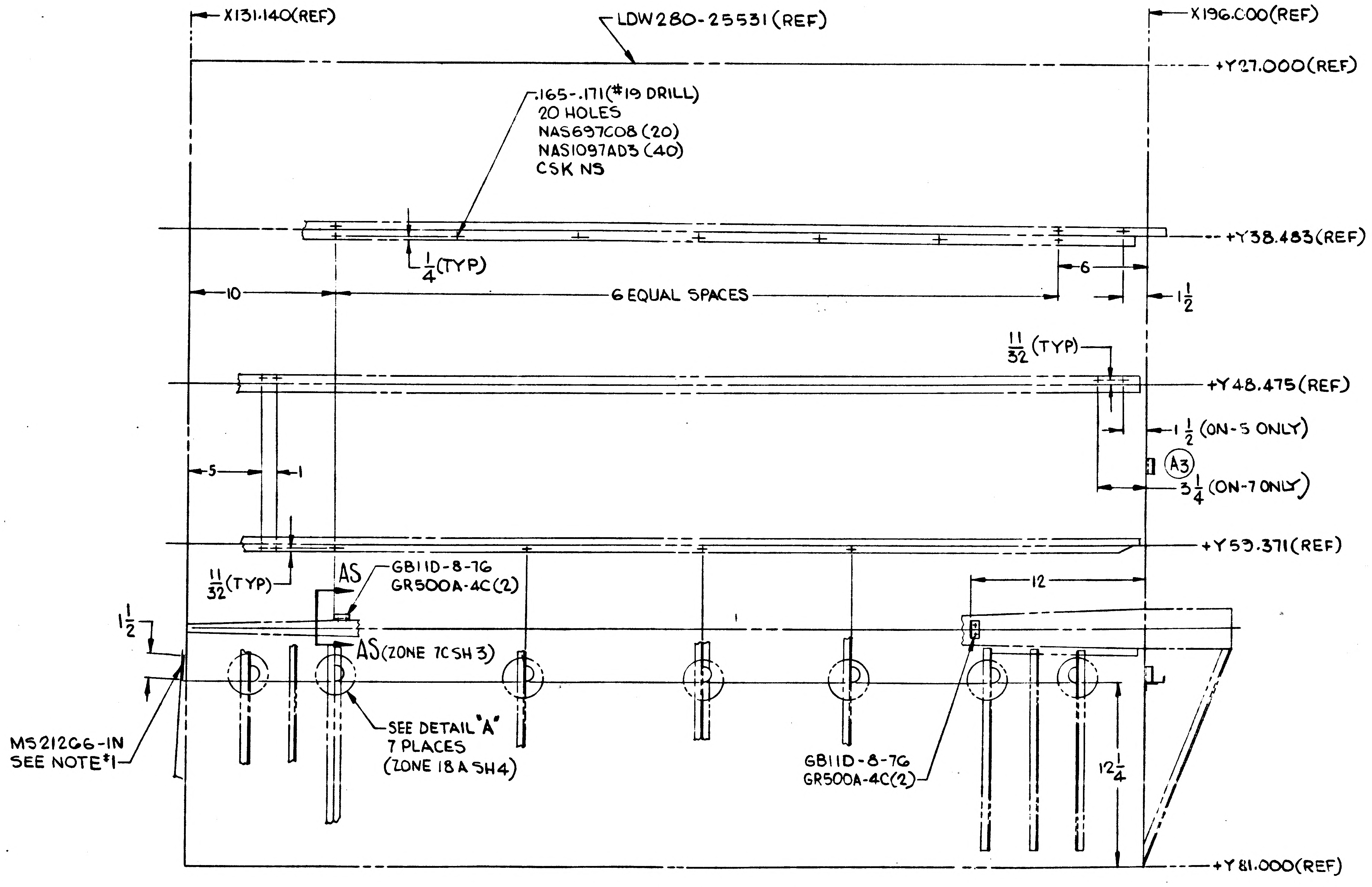

LDW280-25536 (REF)
.165-.171 (#19 DRILL)
SEE NOTE*
5/8
1.000
2±1/4

B1 VIEW AP-AP
SCALE: FULL SIZE
(ZONE 5C SH 3)

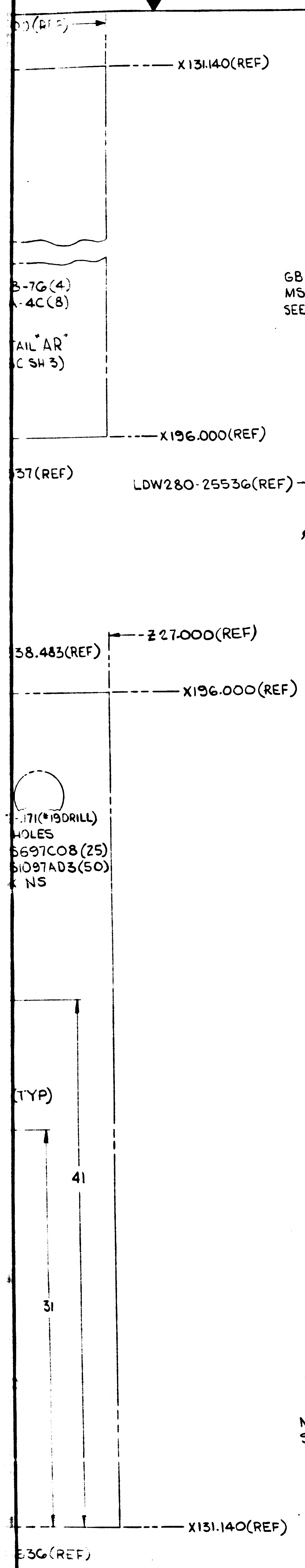

-Z27.000 (REF)
6 1/2
X131.140 (REF)
AT
8
.165-.171 (#19 DRILL)
31 HOLES
NAS697C08 (31)
NAS1097AD3 (62)
CSK NS
(TYP)
7
AU
1/4 (TYP)
10
M
M
(ZONE 7D SH 3)
12
1/4
1/4
8
X196.000 (REF)
3

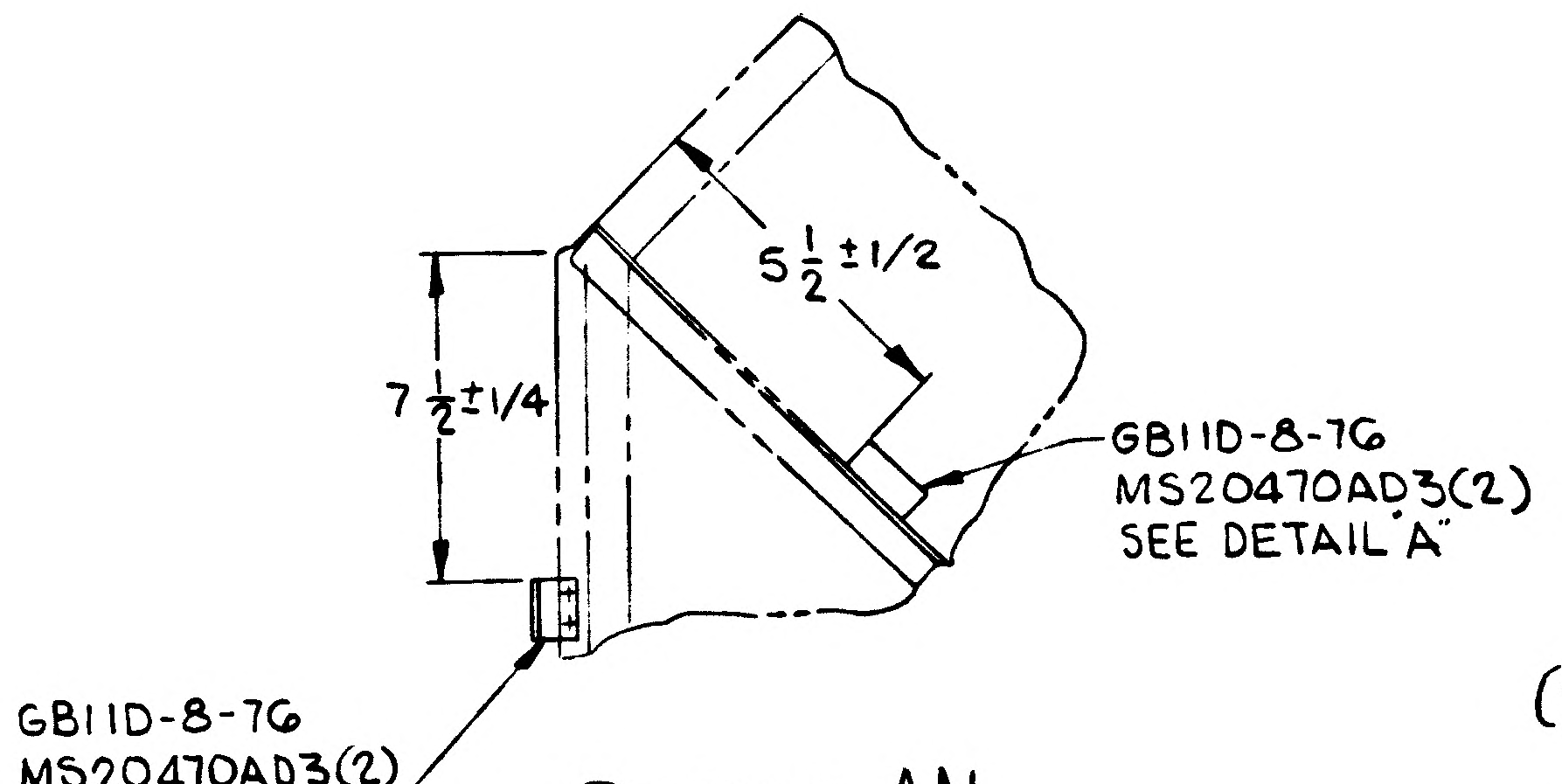

-Z81.000 (REF)
-Z69.188 (REF)
-Z57.371 (REF)
-Z48.629 (REF)
-Z38.483 (REF)
-Z27.000 (REF)
X196.000 (REF)
AP B1
AP
(ZONE 4C SH 3)
5
17
17 1/4
21 1/2
4 3/4
4 1/4
.165-.171 (#19 DRILL)
25 HOLES
NAS697C08 (25)
NAS1097AD3 (50)
CSK NS
B1
.165-.171 (#19 DRILL)
2 HOLES
NAS697C08 (2)
NAS1097AD3 (4)
CSK NS
B1
5 1/4
B1
1 1/2 ± 1/2
B3
LDW280-17173-15 (REF)
AJ
AJ (ZONE 15B SH 4)
B1 3
LDW280-17173-13 (REF)
1/4 (TYP)
9 1/2 B1
41
31
15 3/4 B1
11/32 (TYP)
11/32 (TYP)
1/4 (TYP)
1
20
10
6
3
X131.140 (REF)
LDW280-25536 (REF)

VIEW W-W
(ZONE 3D SH 3)

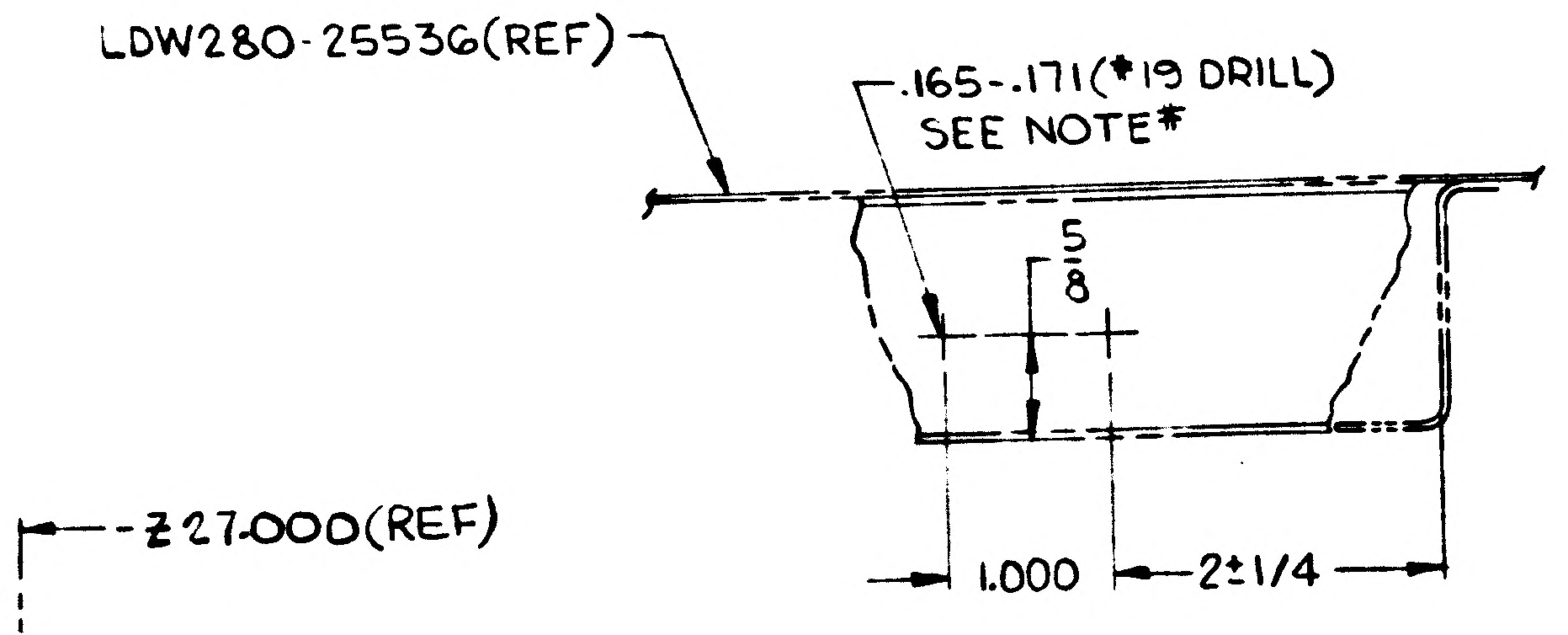

X131.140 (REF)
LDW280-25531 (REF)
X196.000 (REF)
+Y27.000 (REF)
.165-.171 (#19 DRILL)
20 HOLES
NAS697C08 (20)
NAS1097AD3 (40)
CSK NS
+Y38.483 (REF)
1/4 (TYP)
6
10
6 EQUAL SPACES
1 1/2
11/32 (TYP)
+Y48.475 (REF)
1 1/2 (ON -5 ONLY)
5
1
A3
3 1/4 (ON -7 ONLY)
+Y53.371 (REF)
11/32 (TYP)
AS
GB11D-8-76
GR500A-4C (2)
12
1 1/2
AS (ZONE 7C SH 3)
MS21266-1N
SEE NOTE #1
SEE DETAIL "A"
7 PLACES
(ZONE 18A SH 4)
GB11D-8-76
GR500A-4C (2)
12 1/4
+Y81.000 (REF)

VIEW BK-BK
(ZONE 3C SH 3) B5

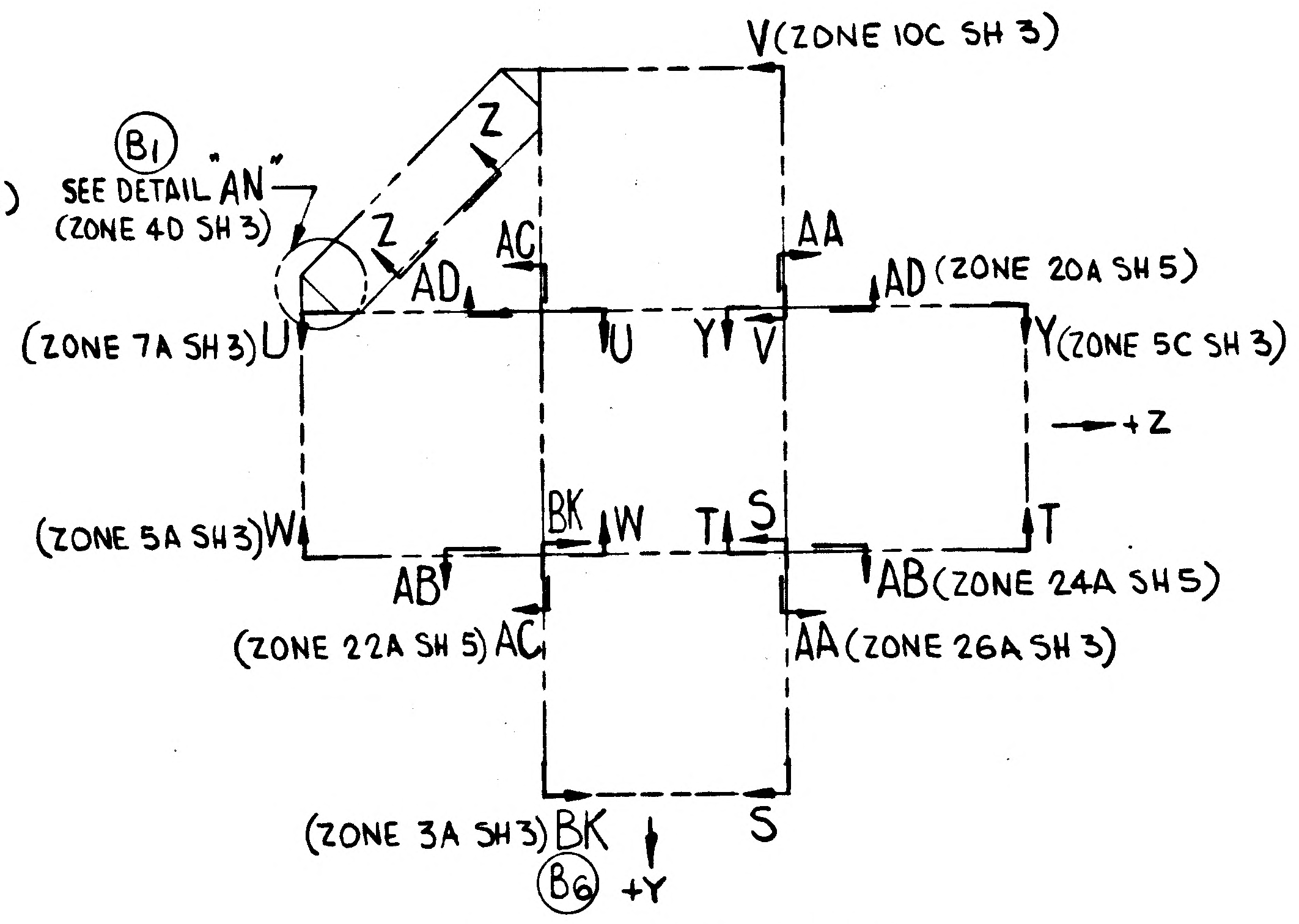

X131.140(REF)
8-76(4)
-4C(8)
AIL "AR"
C SH 3)
X196.000(REF)
37(REF)
38.483(REF)
Z27.000(REF)
X196.000(REF)
.171(#19 DRILL)
HOLES
697C08(25)
1097AD3(50)
NS
(TYP)
41
31
X131.140(REF)
36(REF)


5 1/2 ±1/2
7 1/2 ±1/4
GB11D-8-76
MS20470AD3(2)
SEE DETAIL "A"
GB11D-8-76
MS20470AD3(2)
SEE DETAIL "A"

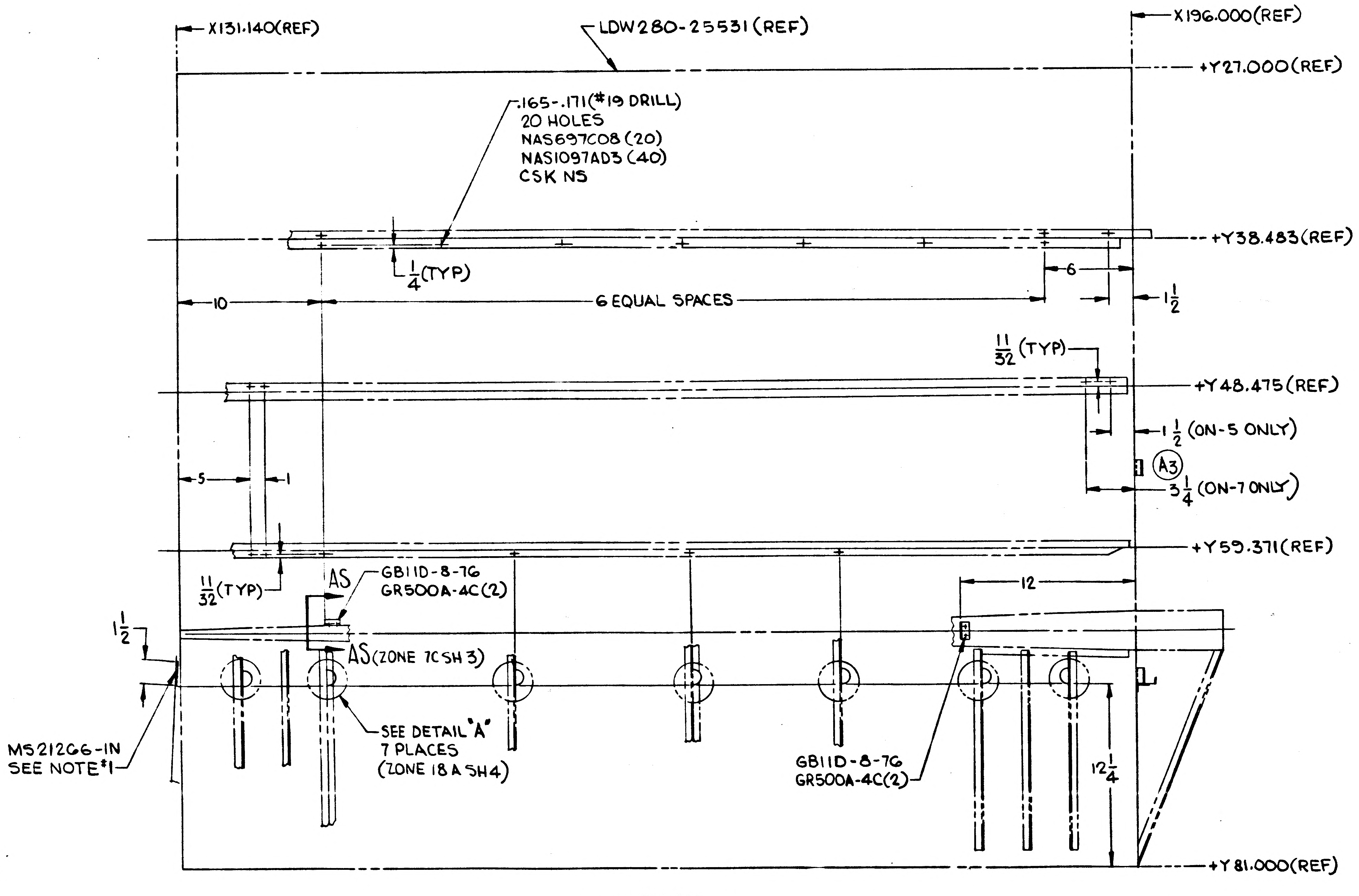
(B1) DETAIL AN
(ZONE 3D SH 3)


LDW280-25536(REF)
.165-.171(#19 DRILL)
SEE NOTE #
5/8
1.000
2±1/4

(B1) VIEW AP-AP
SCALE: FULL SIZE
(ZONE 5C SH 3)


V(ZONE 10C SH 3)
(B1)
SEE DETAIL "AN"
(ZONE 4D SH 3)
Z
Z
AD
AC
AA
AD (ZONE 20A SH 5)
(ZONE 7A SH 3) U
U
Y
V
Y (ZONE 5C SH 3)
+Z
(ZONE 5A SH 3) W
BK
W
T
S
T
AB
AB (ZONE 24A SH 5)
(ZONE 22A SH 5) AC
AA (ZONE 26A SH 3)
(ZONE 3A SH 3) BK
(B6)
+Y
S

(A4) (A3) LDW280-28791-5 INSTL
-7 INSTL (IDENTICAL TO -5 EXCEPT AS NOTED)
VIEW LOOKING DOWN
NO SCALE


X131.140(REF)
LDW280-25531 (REF)
X196.000(REF)
+Y27.000(REF)
.165-.171(#19 DRILL)
20 HOLES
NAS697C08 (20)
NAS1097AD3 (40)
CSK NS
+Y38.483(REF)
1/4 (TYP)
10
6 EQUAL SPACES
6
1 1/2
11/32 (TYP)
+Y48.475(REF)
1 1/2 (ON-5 ONLY)
5
1
(A3)
3 1/4 (ON-7 ONLY)
+Y59.371(REF)
11/32 (TYP)
AS
GB11D-8-76
GR500A-4C(2)
12
1 1/2
AS (ZONE 7C SH 3)
SEE DETAIL "A"
7 PLACES
(ZONE 18A SH4)
MS21266-IN
SEE NOTE #1
GB11D-8-76
GR500A-4C(2)
12 1/4
+Y81.000(REF)

VIEW BK-BK (B5)
(ZONE 3C SH 3)

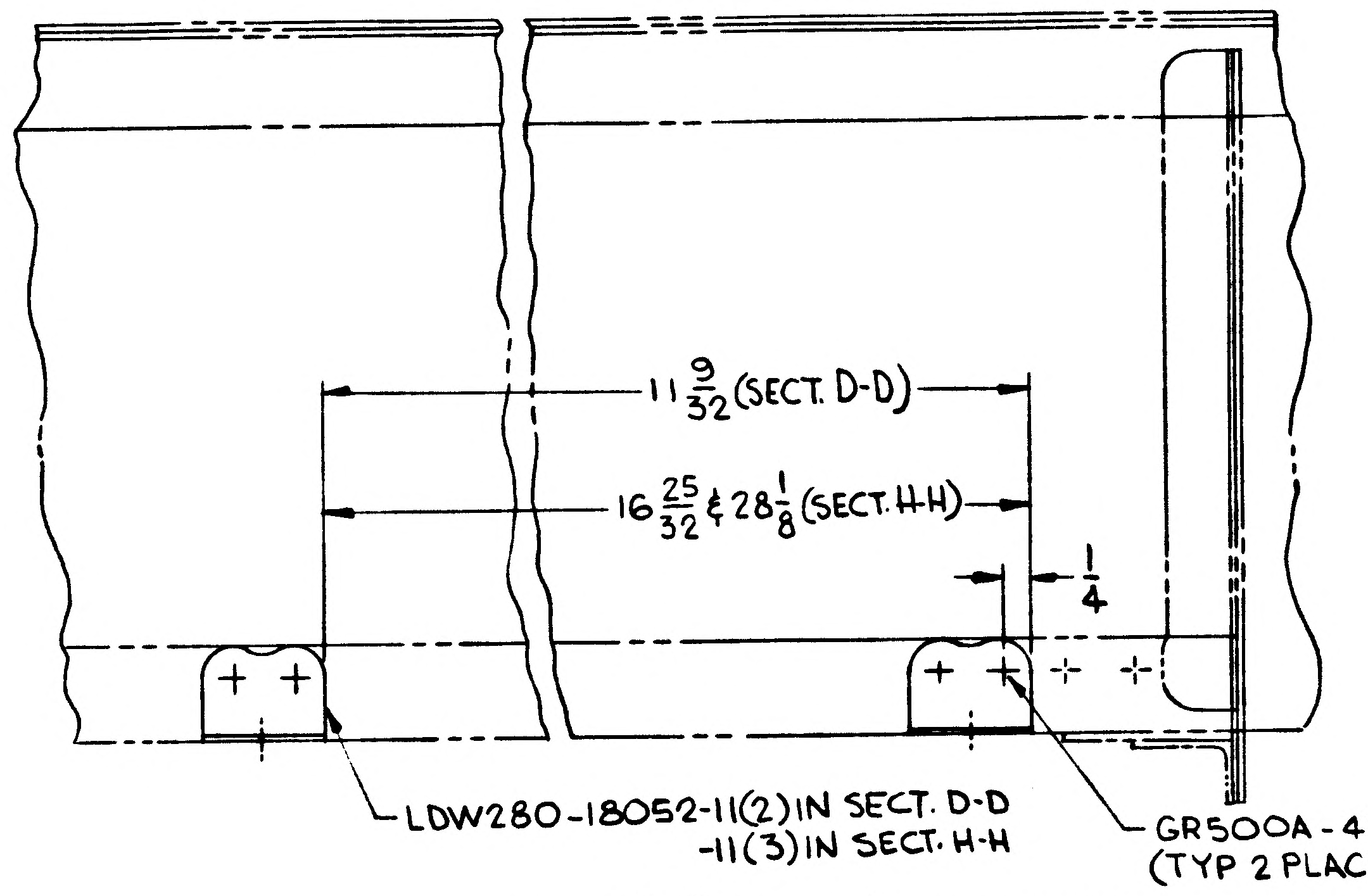
NOTES:
1. APPLY MS21266-IN & MS21265-BGN PER LSP14-22500 USING EC2216 ADHESIVE CEMENT #15.
2. DRILL HOLES TO BE PREPARED FOR ELECTRICAL GROUNDING PER LSP14-13302 CLASS 'B' REMOVE FINISH TO BARE METAL IN AREA OF BOND.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	√
TOLERANCE ON LOFTED DELINEATIONS IS	

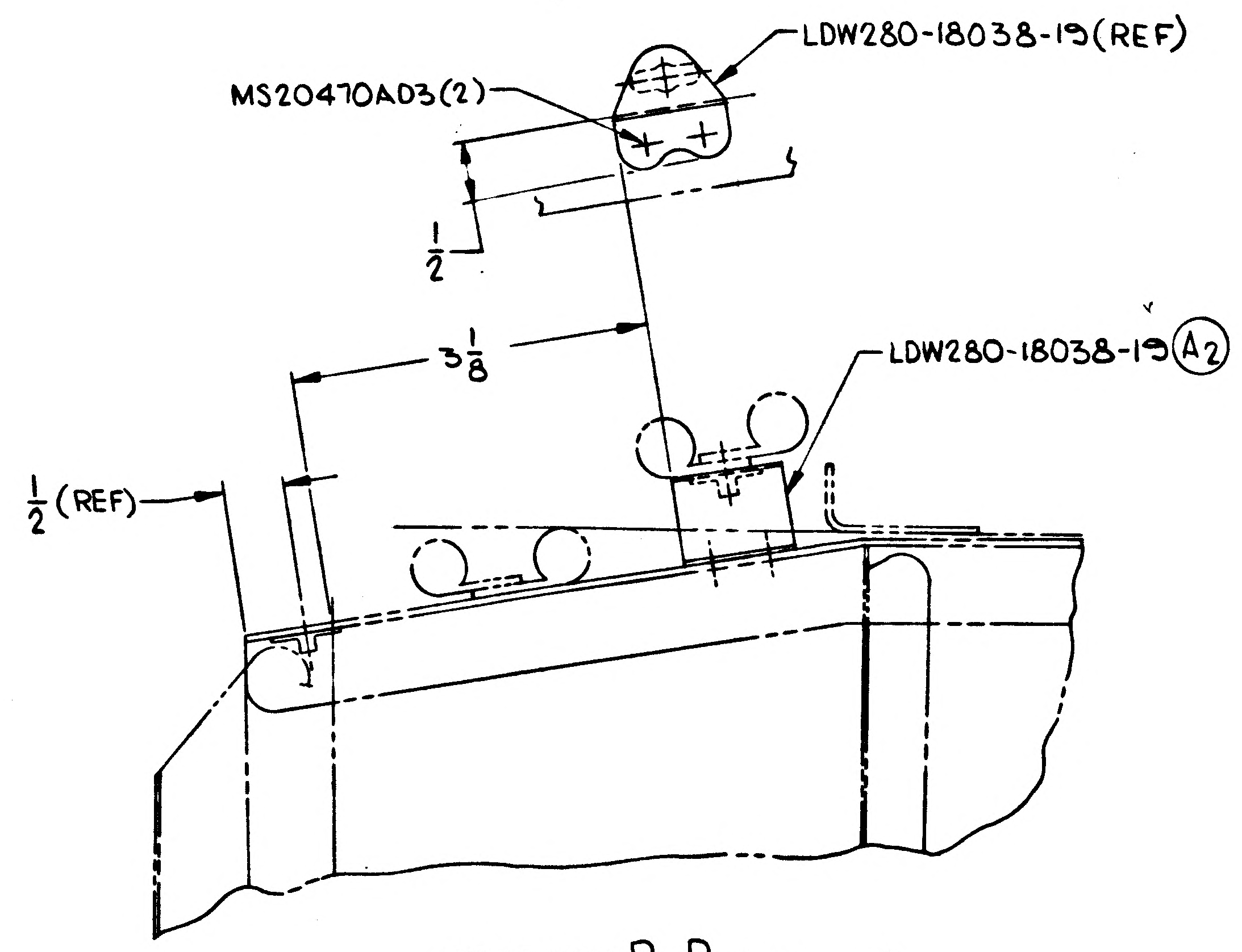
DWG SIZE 34 X
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 120)= 30 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 7.5 SQ. FT.
PRINT TRIM LINE

03/03
NAS 9-1100

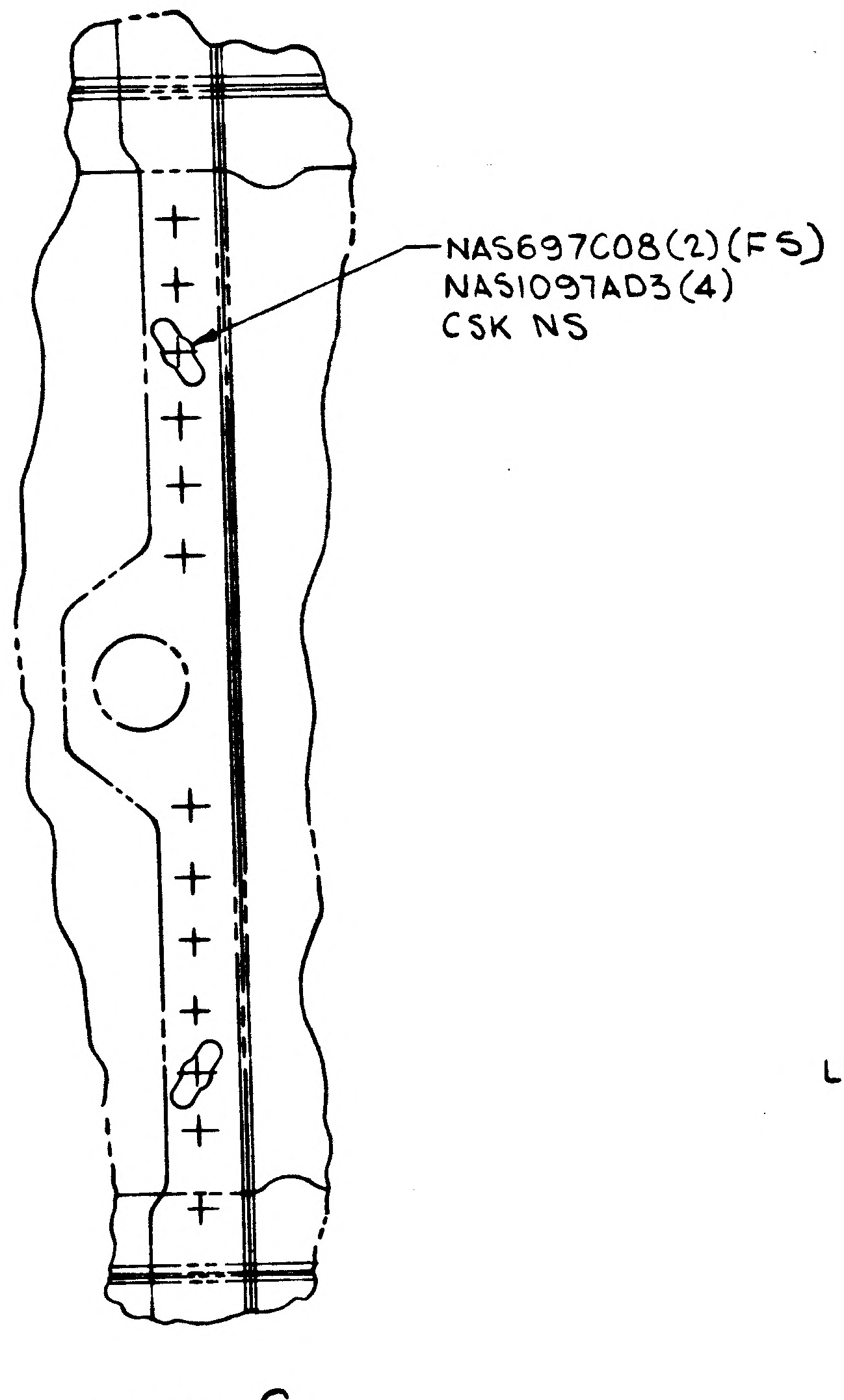
	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28791	B
MODEL OR END ITEM	SCALE AS NOTED		SHEET 3.00	


11 9/32 (SECT. D-D)
16 25/32 & 28 1/8 (SECT. H-H)
1/4
LDW280-18052-11(2) IN SECT. D-D
-11(3) IN SECT. H-H
GR500A-4E(2)
(TYP 2 PLACES)

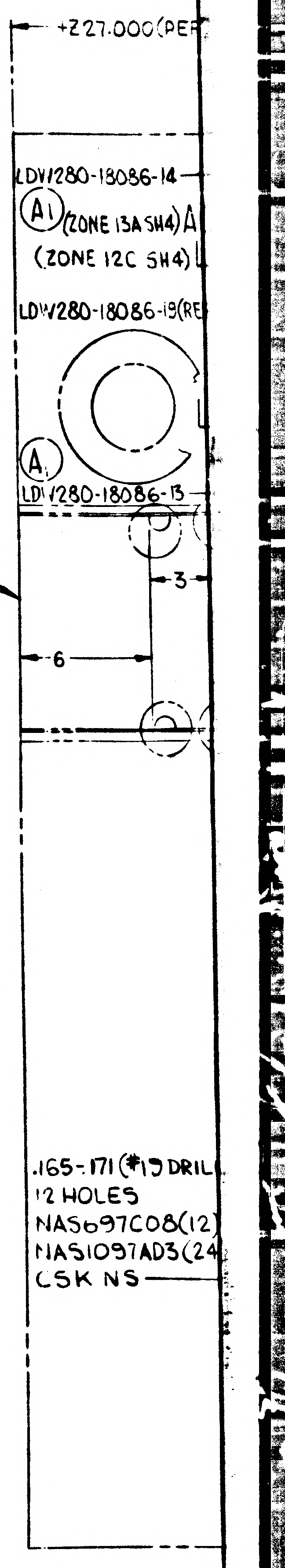
SECTION D-D (SHOWN) ZONE 15B SH 4
H-H (OPP) ZONE 15A SH 4
SCALE: FULL SIZE

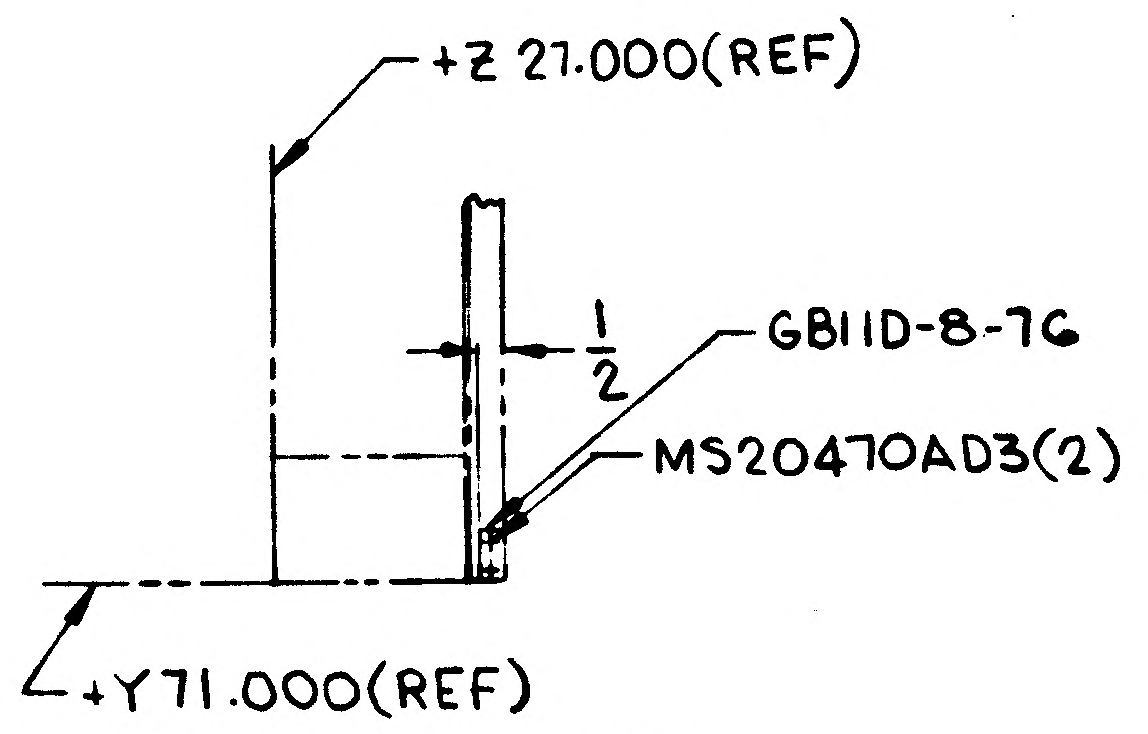

LDW280-18038-19(REF)
MS20470AD3(2)
1/2
3 1/8
LDW280-18038-19 (A2)
1/2 (REF)

SECTION B-B (SHOWN)
F-F (OPP)
(TYP 2 PLACES)
SCALE: FULL SIZE
(ZONE 16B SH 4)

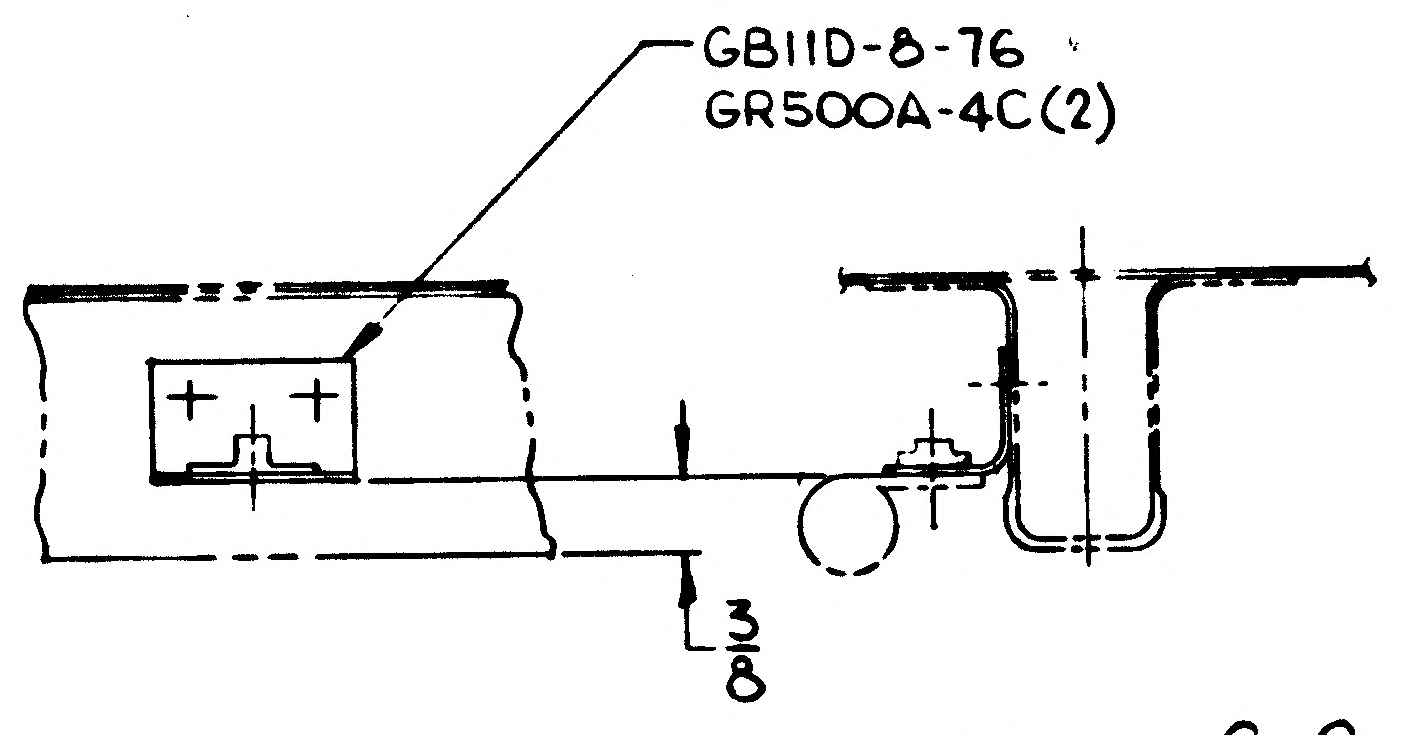

NAS697C08(2)(FS)
NAS1097AD3(4)
CSK NS

DETAIL C
SCALE: FULL SIZE
(ZONE B16 & B15 SH4)

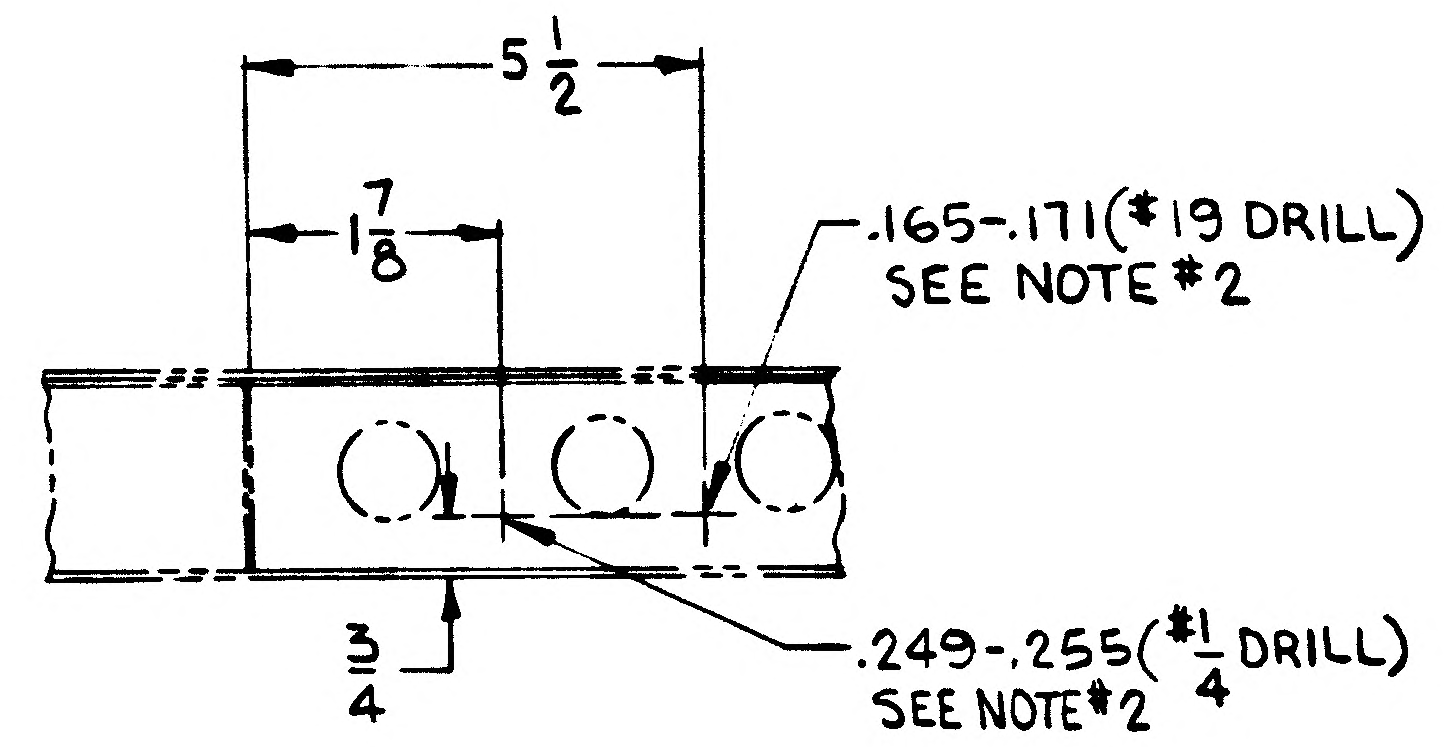

+Z27.000(REF)
LDW280-18086-14
(A1) (ZONE 13A SH4)
(ZONE 12C SH4)
LDW280-18086-19(REF)
(A)
LDW280-18086-13
LDW280-25534(REF)
3
6
.165-.171(#19 DRILL)
12 HOLES
NAS697C08(12)
NAS1097AD3(24)
CSK NS


+Z 27.000(REF)
1/2
GB11D-8-76
MS20470AD3(2)
+Y71.000(REF)

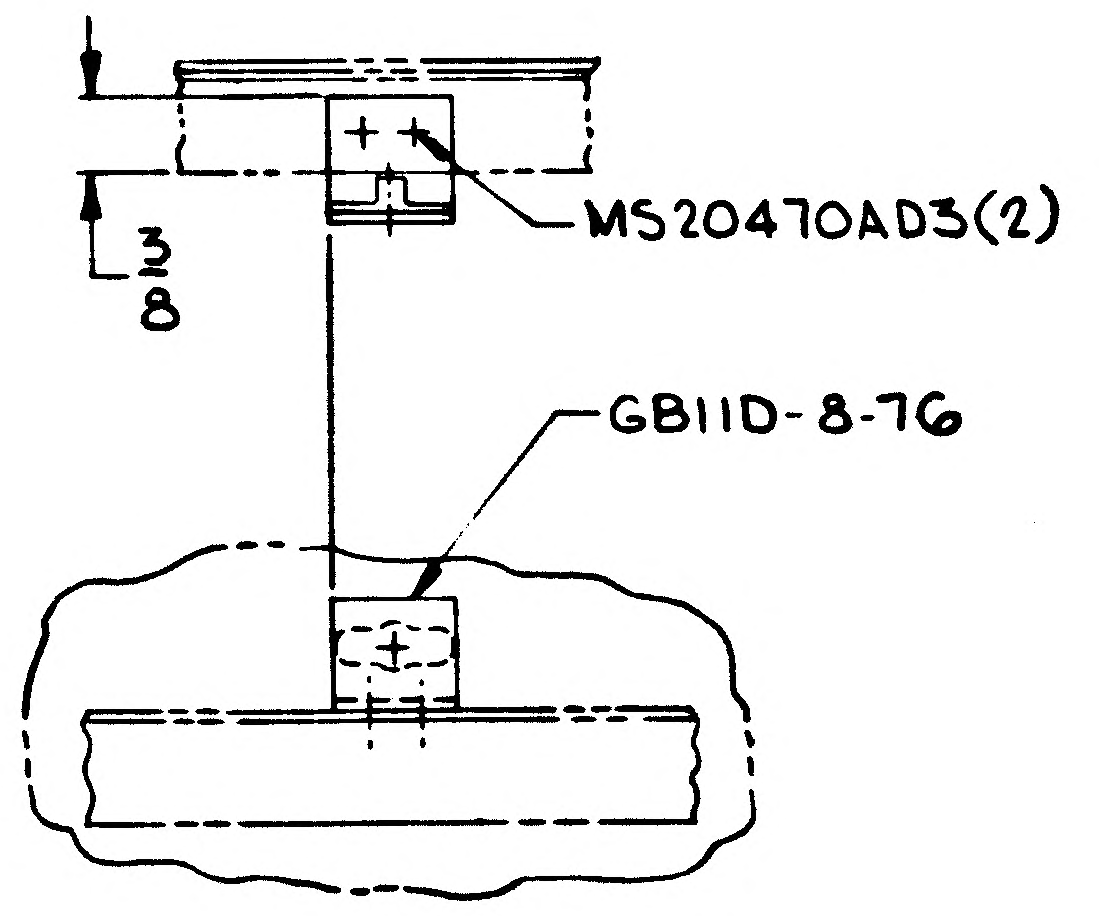
(B1) VIEW AK-AK
(ZONE 16A SH 4)


GB11D-8-76
GR500A-4C(2)
3/8

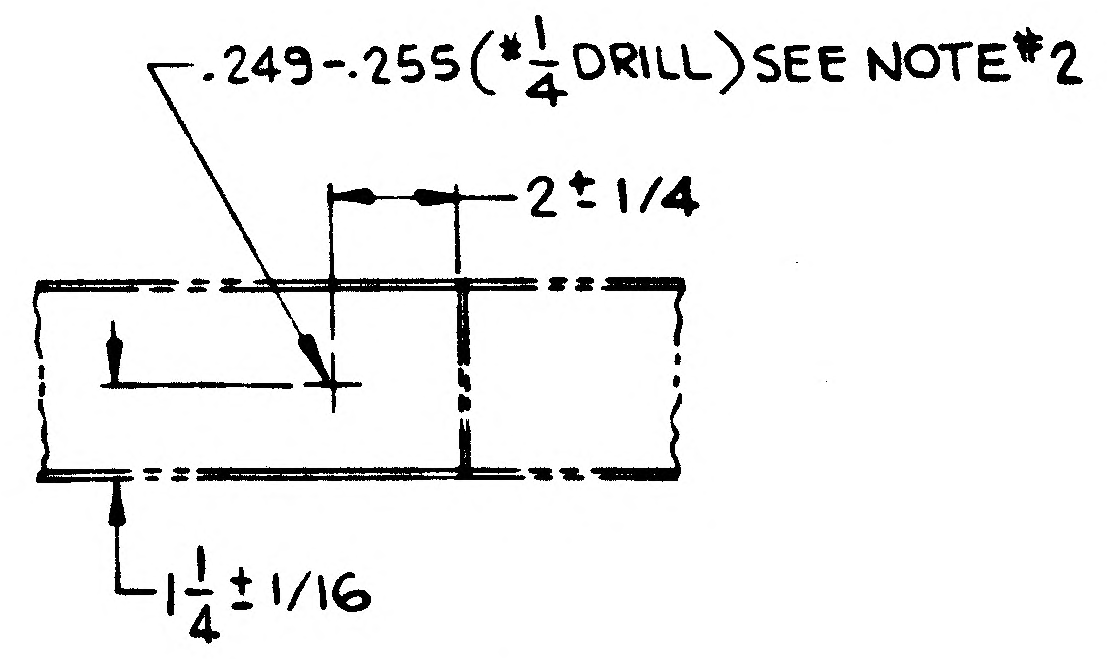
SECTION G-G
SCALE: FULL SIZE
(ZONE 13B SH 4)


5 1/2
1 7/8
.165-.171(#19 DRILL)
SEE NOTE #2
3/4
.249-.255(#1/4 DRILL)
SEE NOTE #2

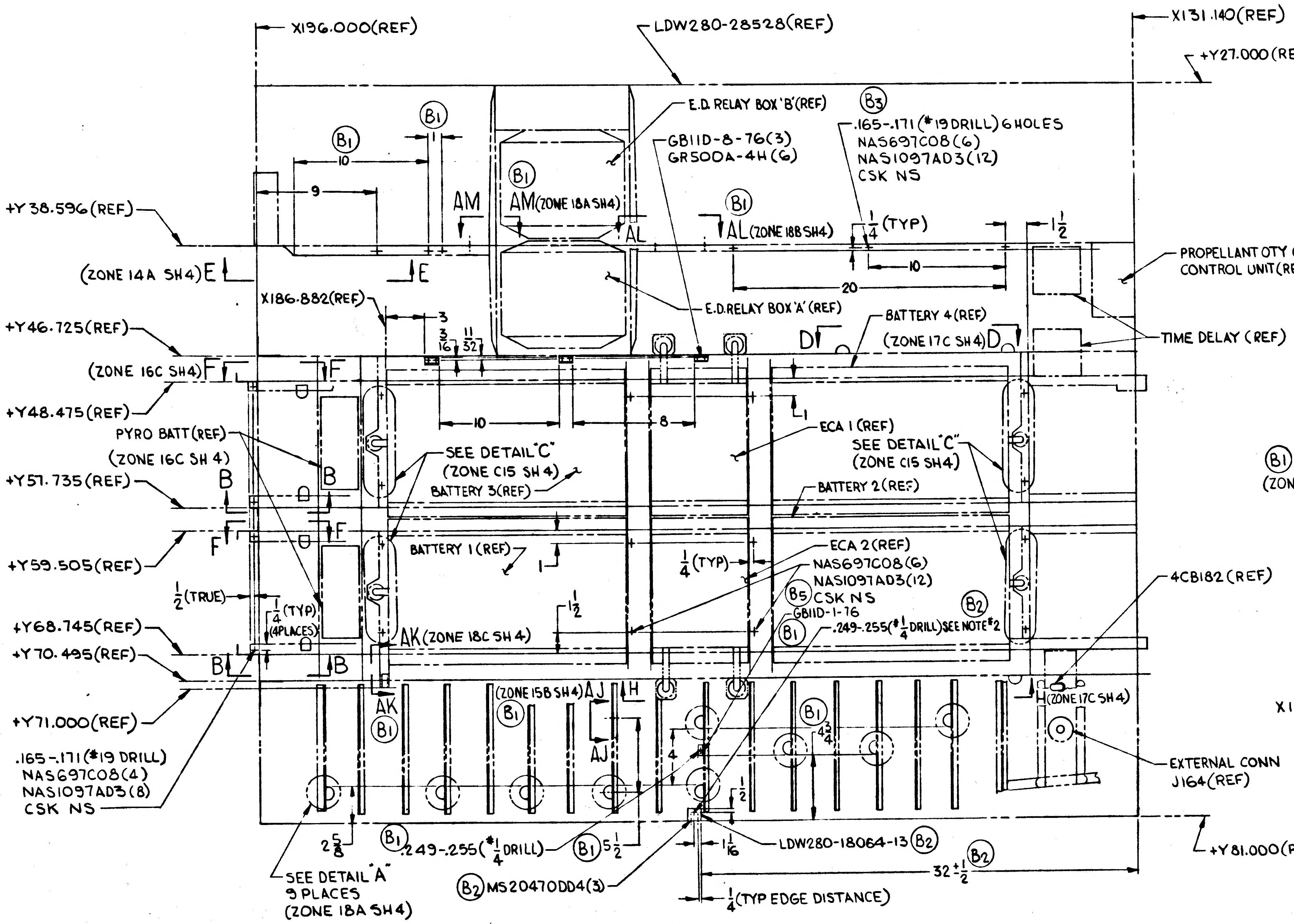
(B1) VIEW AL-AL
NO SCALE
(ZONE 16B SH 4)


MS20470AD3(2)
3/8
GB11D-8-76

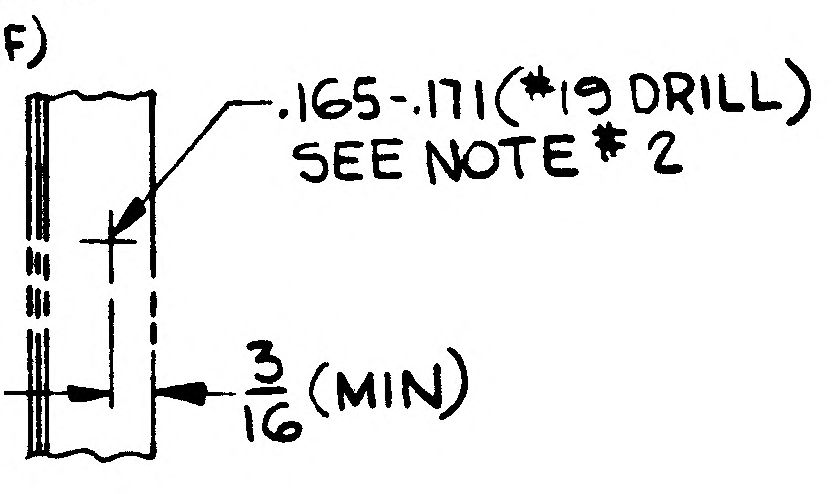
DETAIL A
SCALE: FULL SIZE


.249-.255(#1/4 DRILL) SEE NOTE #2
2 ± 1/4
1 1/4 ± 1/16

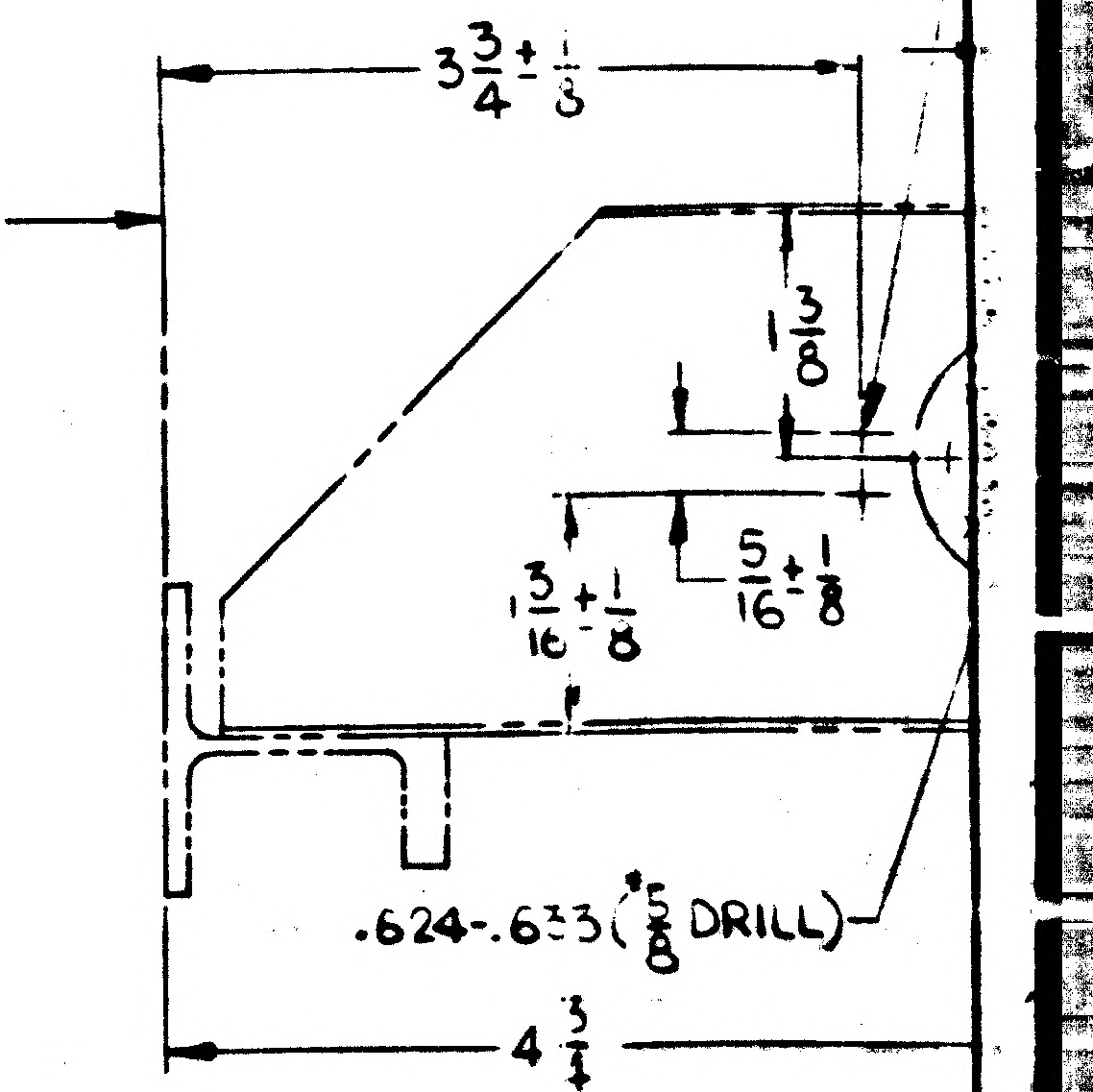
(B1) VIEW AM-AM
NO SCALE
(ZONE 16B SH 4)


X196.000(REF)
LDW280-28528(REF)
X131.140(REF)
+Y27.000(REF)
E.D. RELAY BOX 'B'(REF)
(B3)
.165-.171(#19 DRILL) 6 HOLES
NAS697C08(6)
NAS1097AD3(12)
CSK NS
GB11D-8-76(3)
GR500A-4H(6)
(B1) 10
9
AM
AM (ZONE 18A SH4)
AL
AL (ZONE 18B SH4)
1/4 (TYP)
1 1/2
+Y38.596(REF)
(ZONE 14A SH4) E
E
20
10
PROPELLANT QTY GAGE CONTROL UNIT(REF)
X186.882(REF)
3
3/16
11/32
E.D. RELAY BOX 'A' (REF)
BATTERY 4(REF)
(ZONE 17C SH4) D
D
TIME DELAY (REF)
+Y46.725(REF)
(ZONE 16C SH4) F
F
+Y48.475(REF)
10
8
1
ECA 1 (REF)
PYRO BATT(REF)
(ZONE 16C SH 4)
SEE DETAIL "C"
(ZONE C15 SH 4)
BATTERY 3(REF)
SEE DETAIL "C"
(ZONE C15 SH4)
+Y51.735(REF)
B
BATTERY 2(REF)
F
+Y59.505(REF)
BATTERY 1(REF)
1
1/4 (TYP)
ECA 2(REF)
NAS697C08(6)
NAS1097AD3(12)
(B5) CSK NS
GB11D-1-76
.249-.255(#1/4 DRILL) SEE NOTE #2
(B2)
4CB182(REF)
1/2 (TRUE)
1/4 (TYP) (4 PLACES)
1 1/2
AK (ZONE 18C SH 4)
+Y68.745(REF)
+Y70.495(REF)
B
H (ZONE 17C SH4)
+Y71.000(REF)
(ZONE 15B SH4) AJ
AJ
H
H
AK
(B1)
4
4 3/4
EXTERNAL CONN J164(REF)
.165-.171(#19 DRILL)
NAS697C08(4)
NAS1097AD3(8)
CSK NS
2 5/8
(B1) .249-.255(#1/4 DRILL)
(B1) 5 1/2
1 1/16
LDW280-18064-13 (B2)
(B2)
+Y81.000(REF)
SEE DETAIL "A"
9 PLACES
(ZONE 18A SH 4)
(B2) MS20470DD4(3)
32 ± 1/2
1/4 (TYP EDGE DISTANCE)

VIEW S-S
(ZONE 3C SH3)

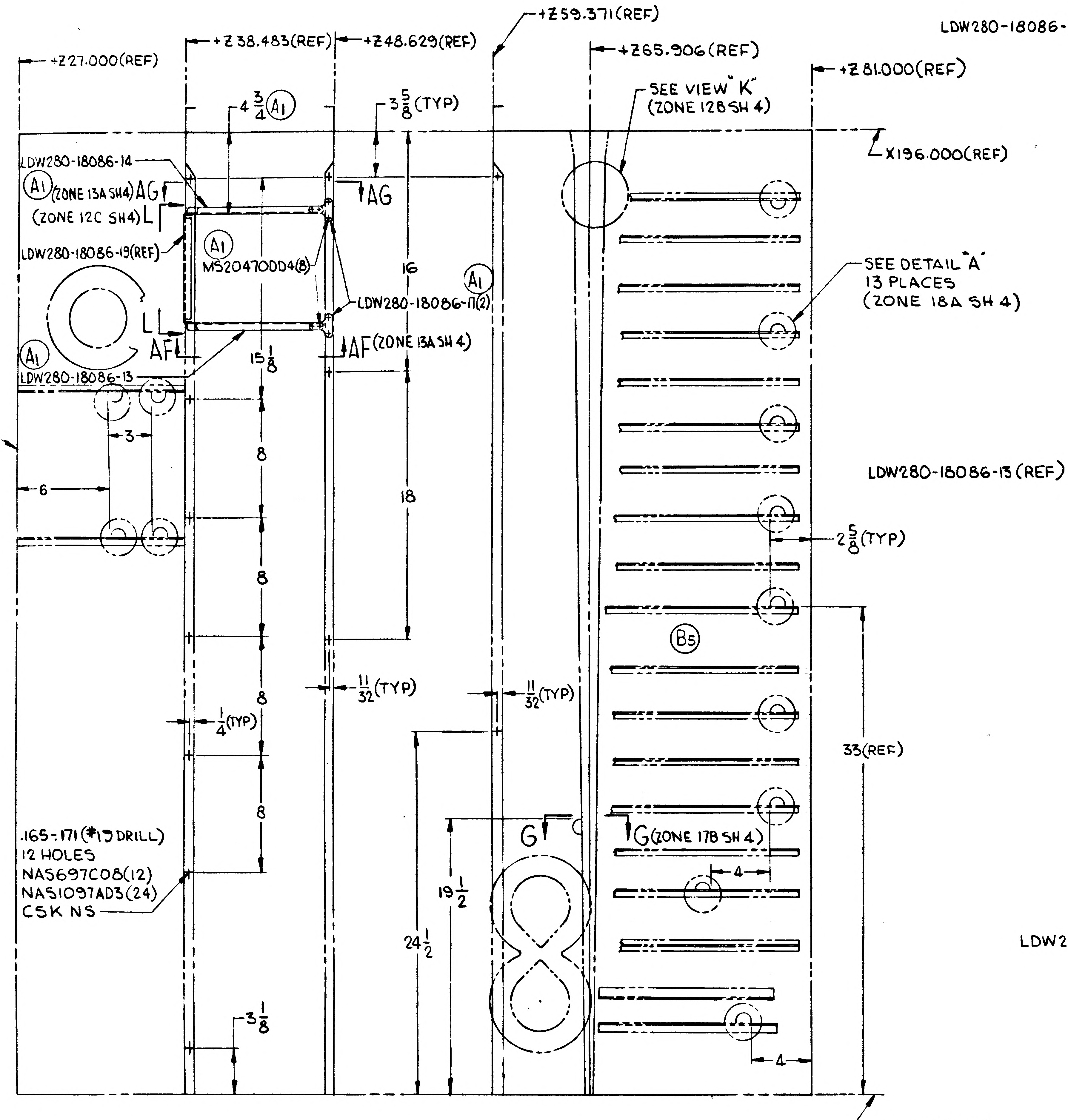

.165-.171(#19 DRILL)
SEE NOTE #2
3/16 (MIN)

(B1) VIEW AJ-AJ (2 PLACES)
SCALE: FULL SIZE
(ZONE 6B SH3 & 16A SH4)

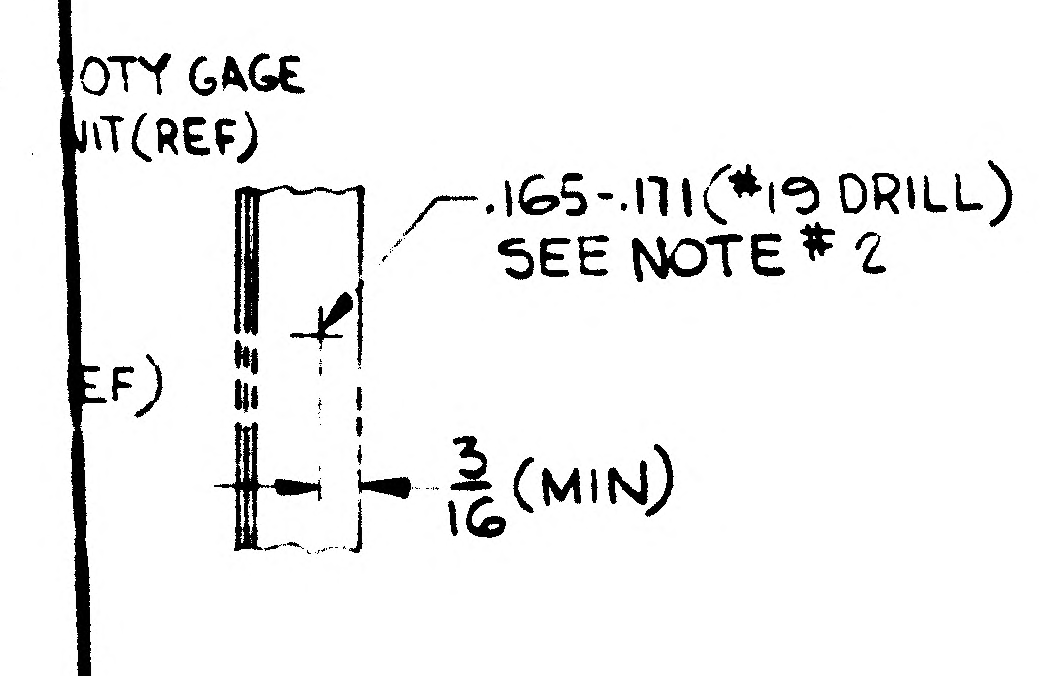

X196.000(REF)
3 3/4 ± 1/8
1 3/8
1 3/16 ± 1/8
5/16 ± 1/8
.624-.633(5/8 DRILL)
4 3/4

01/02 NAS 9-1100

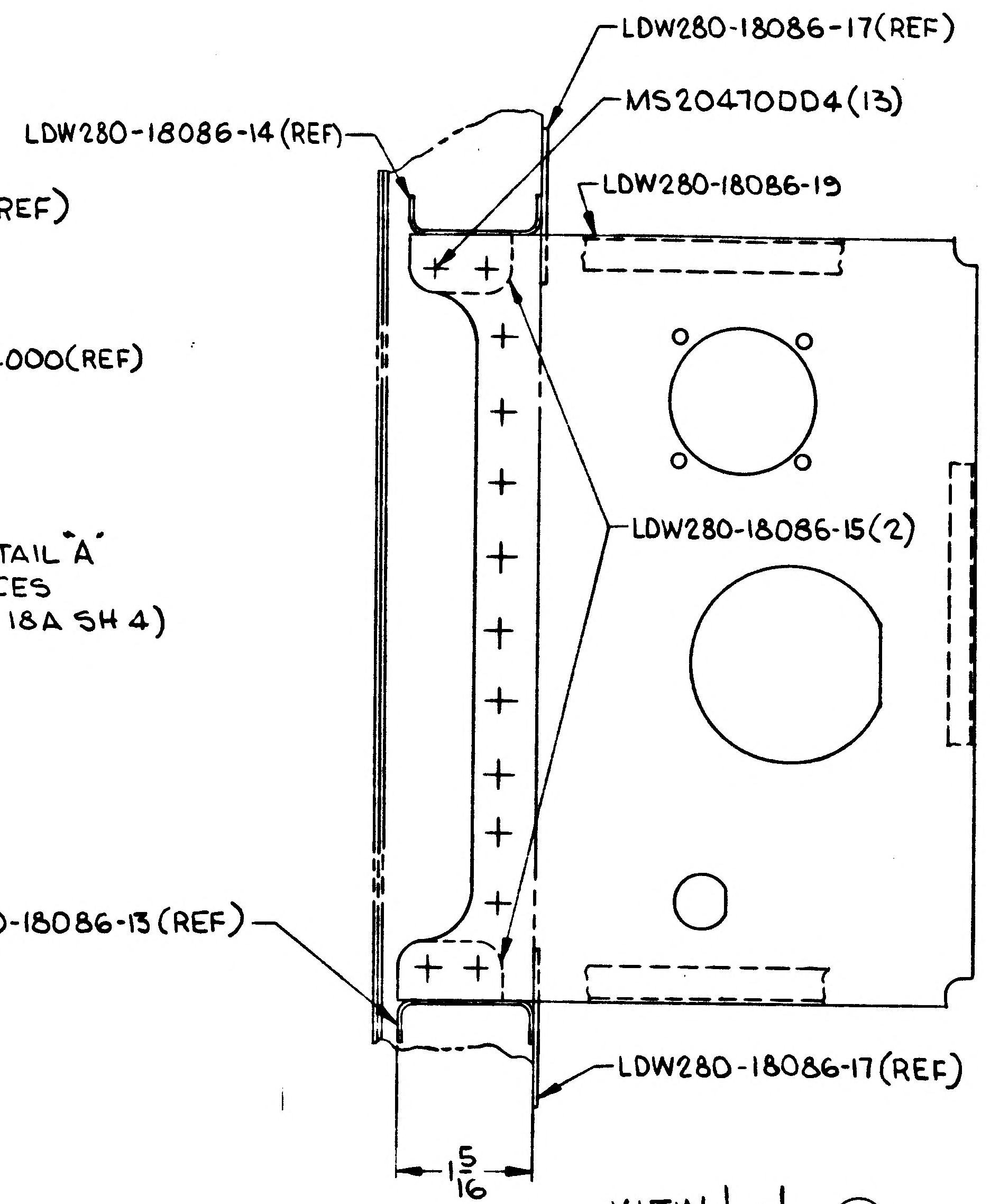
LDW280-28791 B SHEET 4


+Z27.000(REF)
+Z38.483(REF)
+Z48.629(REF)
+Z59.371(REF)
+Z65.906(REF)
+Z81.000(REF)
X196.000(REF)
X131.140(REF)
4 3/4 (A1)
3 5/8 (TYP)
SEE VIEW "K" (ZONE 12B SH 4)
LDW280-18086-14
(A1) (ZONE 13A SH4) AG
(ZONE 12C SH4) L
AG
LDW280-18086-19(REF)
(A1)
MS20470DD4(8)
16
(A1)
LDW280-18086-17(2)
L L
AF
AF (ZONE 13A SH 4)
15 1/8
(A1)
LDW280-18086-13
LDW280-25534(REF)
3
6
8
8
18
8
8
8
1/4 (TYP)
11/32 (TYP)
11/32 (TYP)
SEE DETAIL "A" 13 PLACES (ZONE 18A SH 4)
2 5/8 (TYP)
(B5)
33(REF)
.165-.171 (#19 DRILL) 12 HOLES NAS697C08(12) NAS1097AD3(24) CSK NS
G
G (ZONE 17B SH 4)
4
19 1/2
24 1/2
3 1/8
4

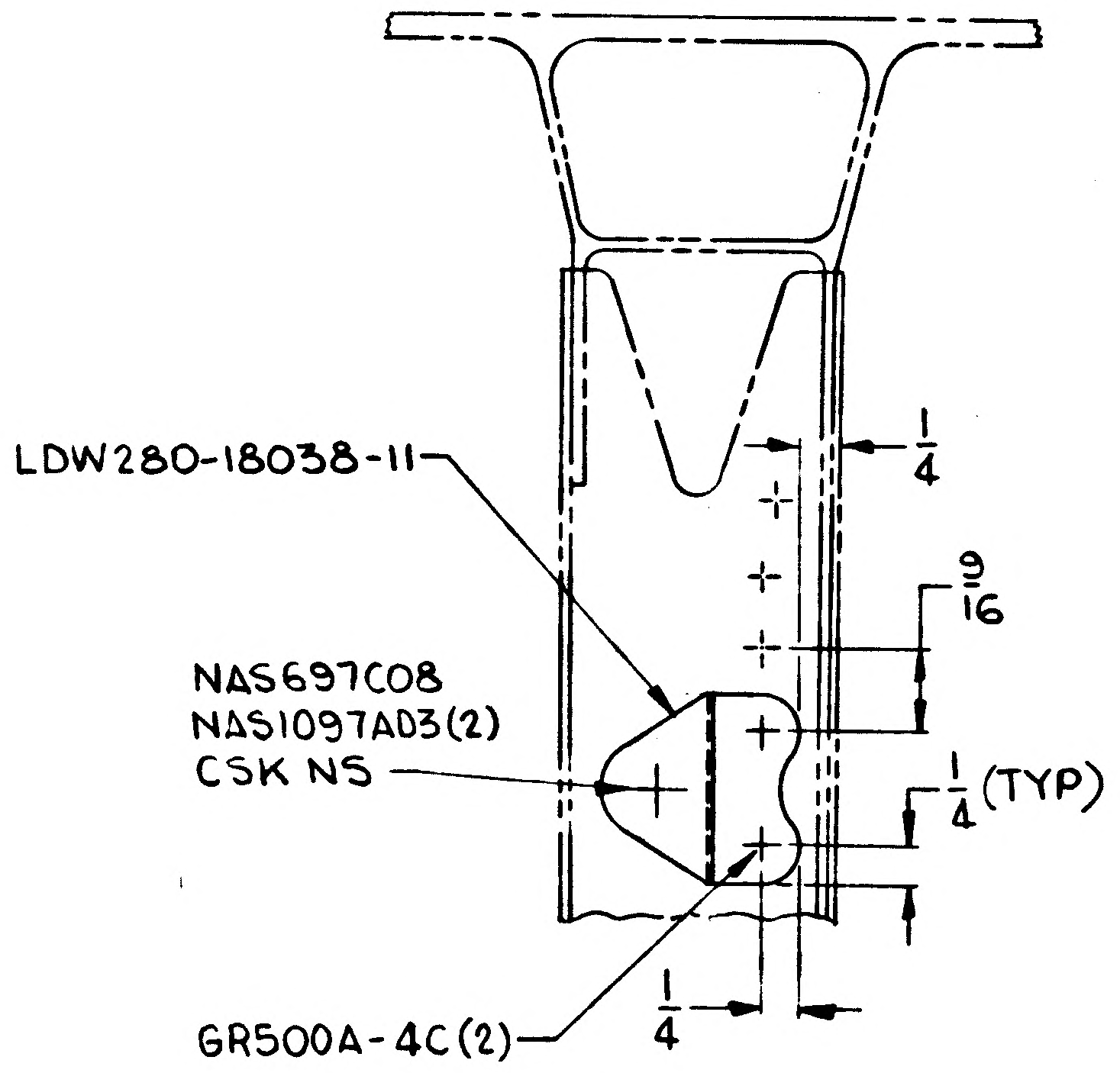
VIEW T-T
(ZONE 3C SH 3)


.08(2)(FS)
.03(4)
REF)
.00(REF)
QTY GAGE
IT(REF)
.165-.171 (#19 DRILL) SEE NOTE #2
EF)
3/16 (MIN)

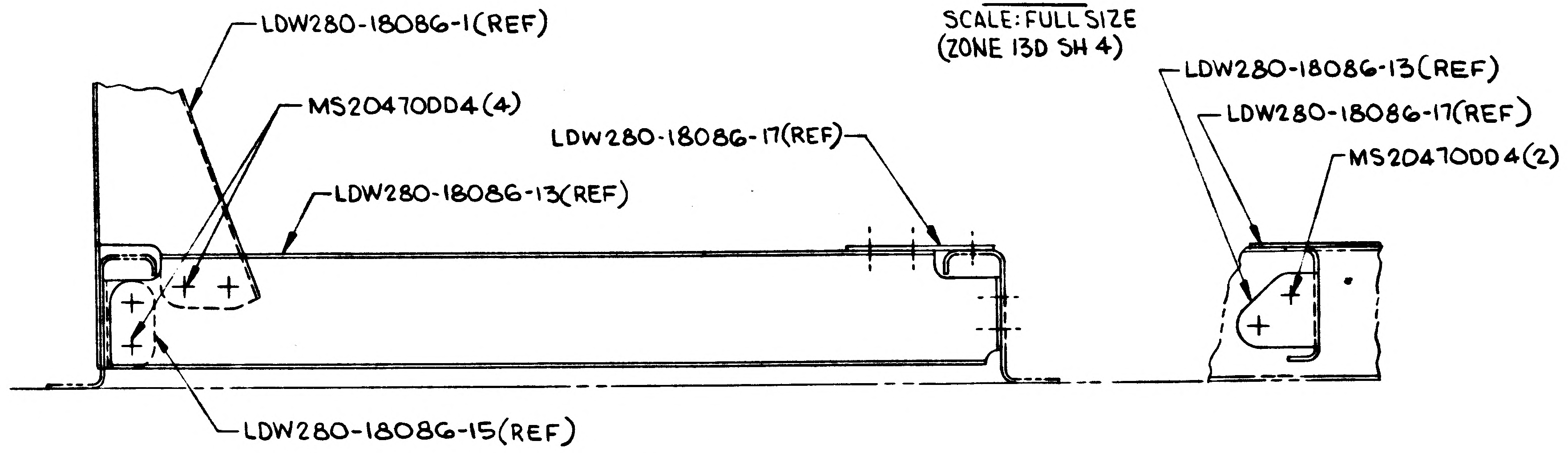
(B1) VIEW AJ-AJ (2 PLACES)
SCALE: FULL SIZE
(ZONE 6B SH 3 & 16A SH 4)


LDW280-18086-17(REF)
LDW280-18086-14(REF)
MS20470DD4(13)
LDW280-18086-19
LDW280-18086-15(2)
LDW280-18086-13(REF)
LDW280-18086-17(REF)
1 5/16

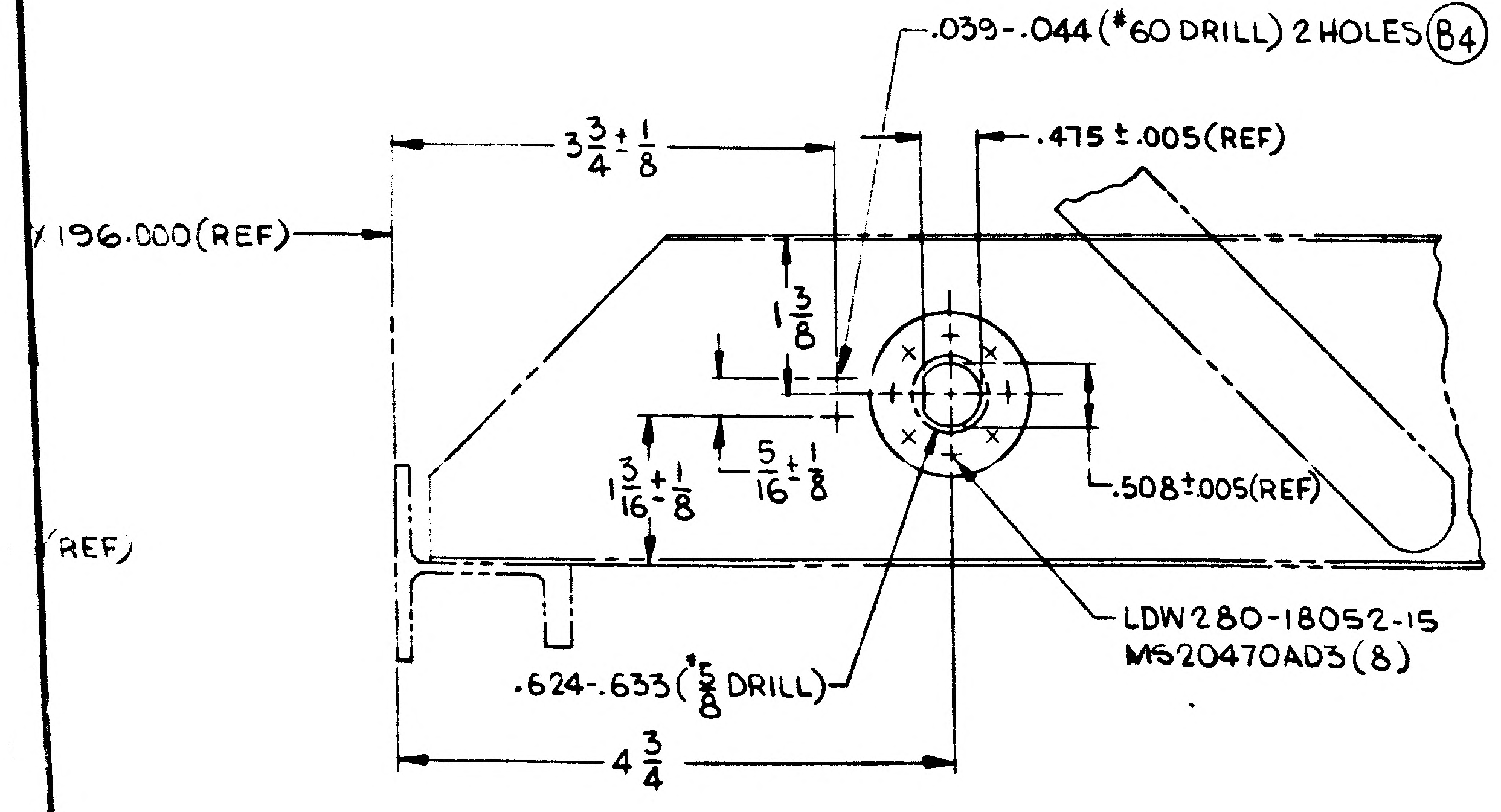
VIEW L-L (A1)
SCALE: FULL SIZE
(ZONE 14D SH 4)


LDW280-18038-11
1/4
9/16
NAS697C08
NAS1097AD3(2)
CSK NS
1/4 (TYP)
GR500A-4C(2)
1/4

VIEW K
SCALE: FULL SIZE
(ZONE 13D SH 4)


LDW280-18086-1(REF)
MS20470DD4(4)
LDW280-18086-17(REF)
LDW280-18086-13(REF)
LDW280-18086-15(REF)
LDW280-18086-13(REF)
LDW280-18086-17(REF)
MS20470DD4(2)

(A1) SECTION AF-AF (SHOWN)
AG-AG (OPP)
SCALE: FULL SIZE
(ZONE 14D SH 4)


.039-.044 (#60 DRILL) 2 HOLES (B4)
3 3/4 ± 1/8
.475 ± .005(REF)
Y196.000(REF)
1 3/8
1 3/16 ± 1/8
5/16 ± 1/8
.508 ± .005(REF)
(REF)
LDW280-18052-15
MS20470AD3(8)
.624-.633 (5/8 DRILL)
4 3/4

SECTION E-E
SCALE: FULL SIZE
(ZONE 16B SH 4)

02/02

NAS 9-1100

0-28791B SHEET 4

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL ✓ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 112

D

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 110) - 27.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) - 6.87 SQ. FT.

PRINT TRIM LINE

C

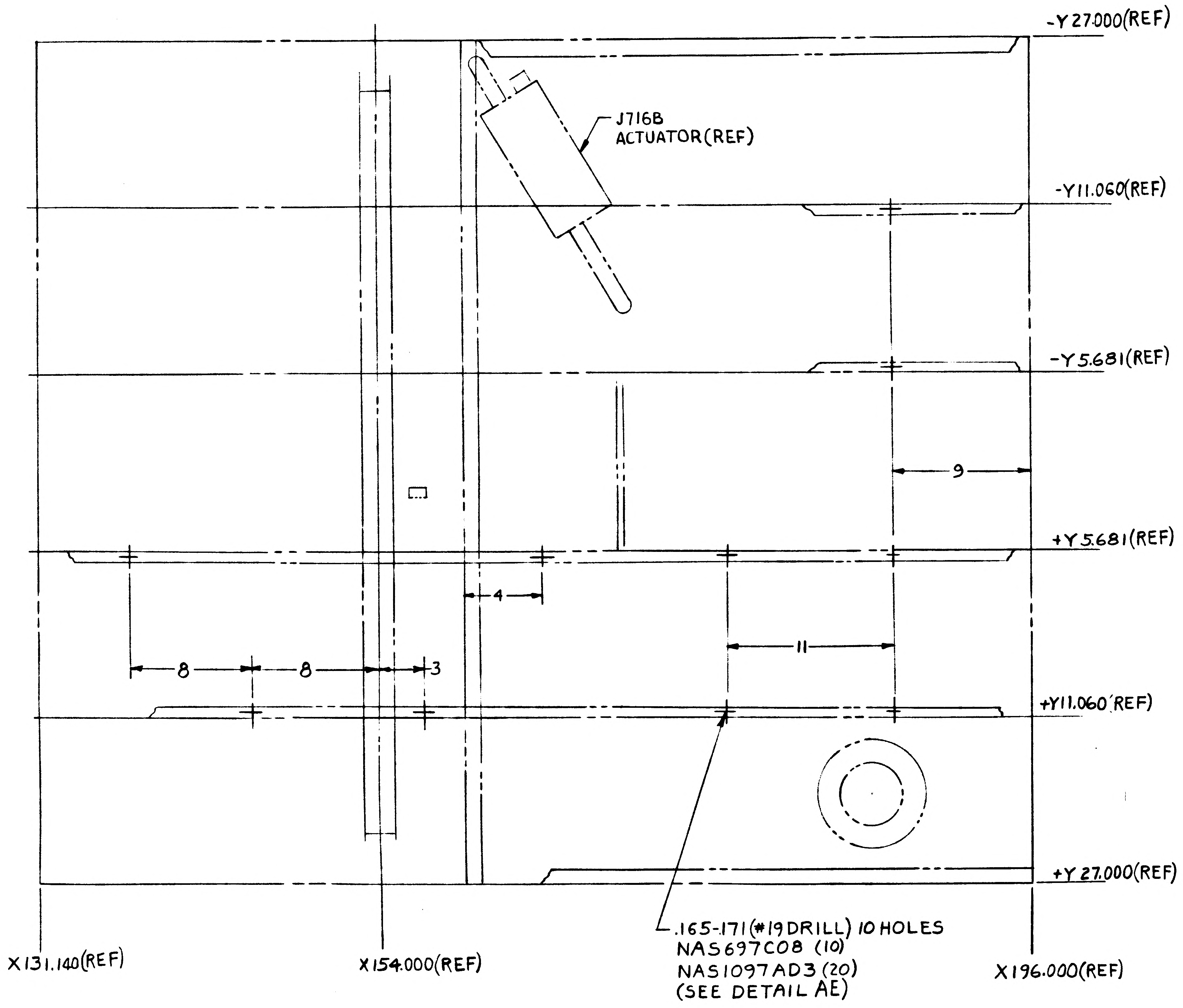
B LDW280-28791 B

A LDW280-28791 B

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-28791	B
LM				
MODEL OR END ITEM	SCALE AS NOTED		SHEET 4.00	

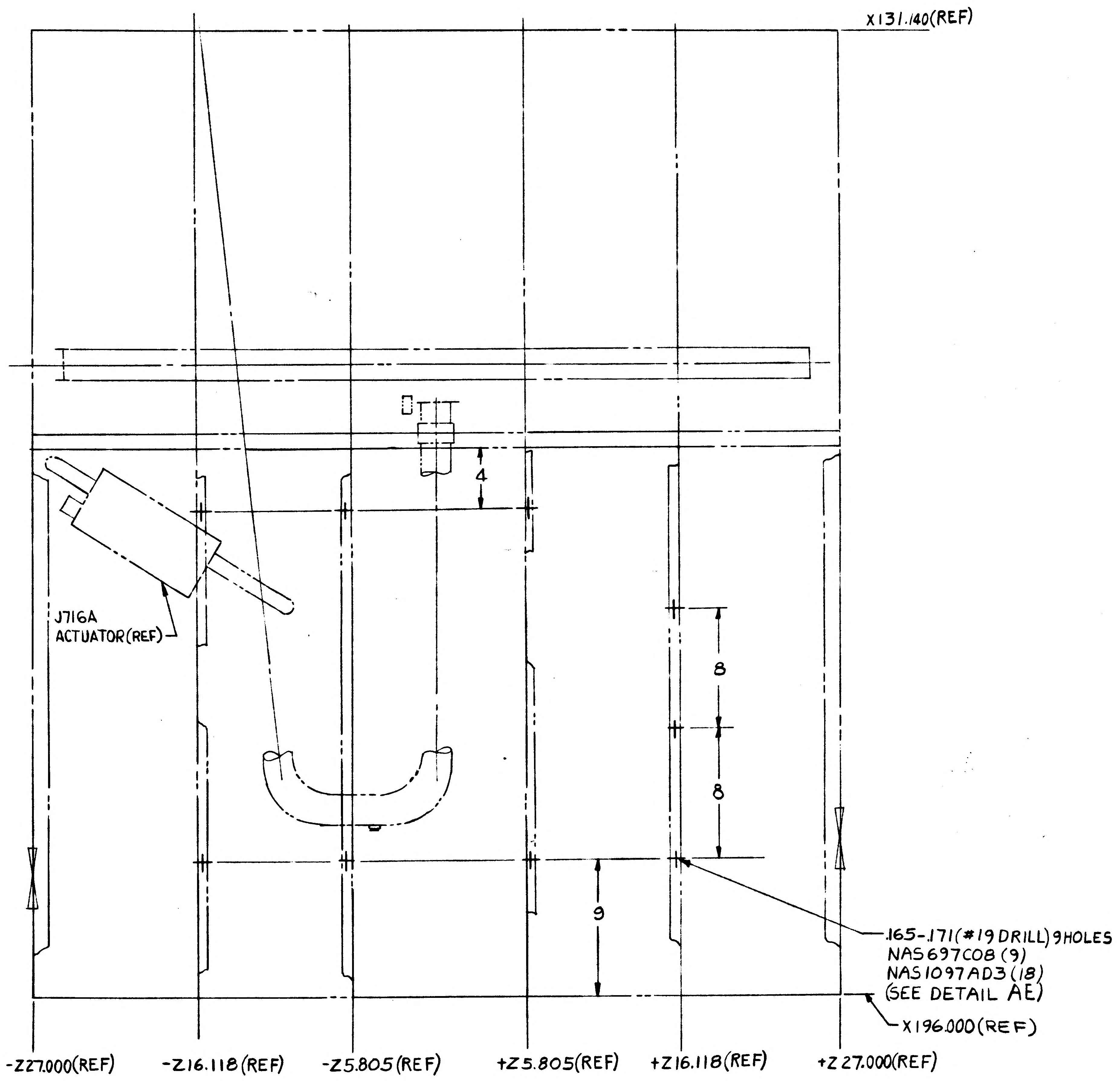
(B)

3 FR



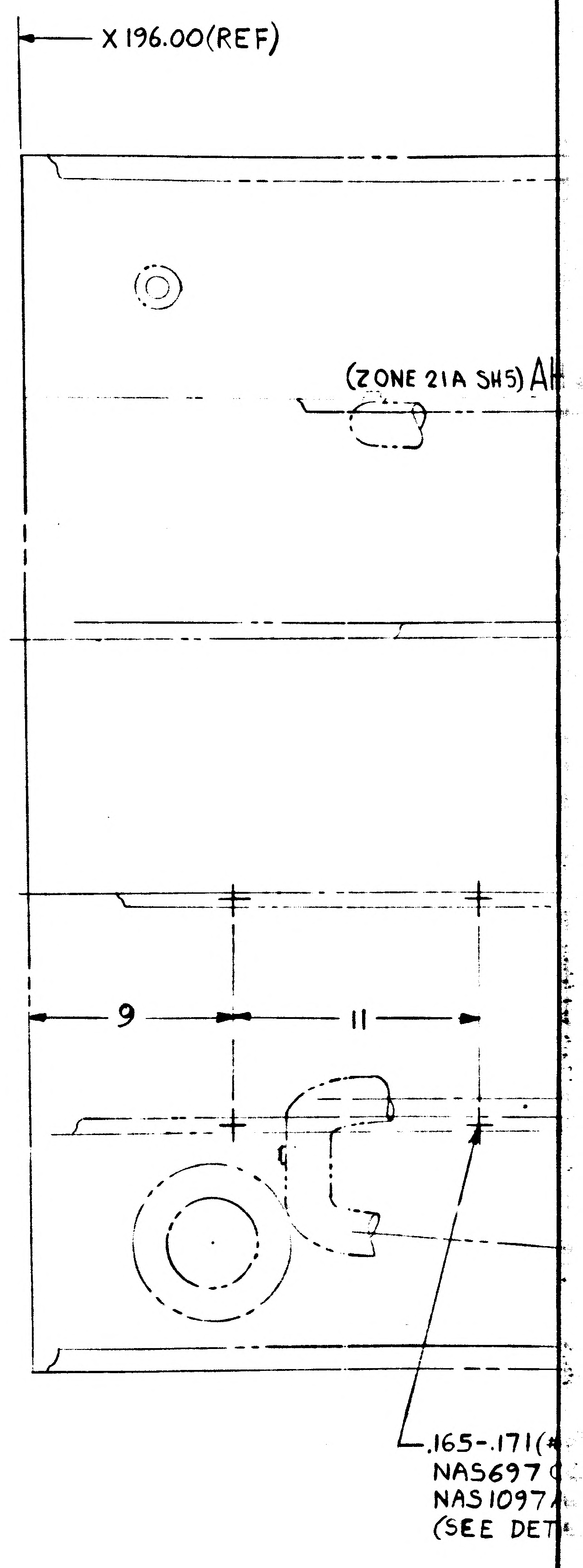
-Y27.000(REF)
J716B
ACTUATOR(REF)
-Y11.060(REF)
-Y5.681(REF)
9
+Y5.681(REF)
4
8
8
3
11
+Y11.060(REF)
+Y27.000(REF)
.165-.171(#19 DRILL) 10 HOLES
NAS697C08 (10)
NAS1097AD3 (20)
(SEE DETAIL AE)
X131.140(REF)
X154.000(REF)
X196.000(REF)

VIEW AA-AA
(ZONE 3D SH 3)
VIEW OF PANEL LOOKING OUTBOARD (+Z 27.00)



X131.140(REF)
4
J716A
ACTUATOR(REF)
8
8
9
.165-.171(#19 DRILL) 9 HOLES
NAS697C08 (9)
NAS1097AD3 (18)
(SEE DETAIL AE)
X196.000(REF)
-Z27.000(REF)
-Z16.118(REF)
-Z5.805(REF)
+Z5.805(REF)
+Z16.118(REF)
+Z27.000(REF)

VIEW AB-AB
(ZONE 3D SH3)
VIEW OF PANEL LOOKING OUTBOARD (-Y 27.00)



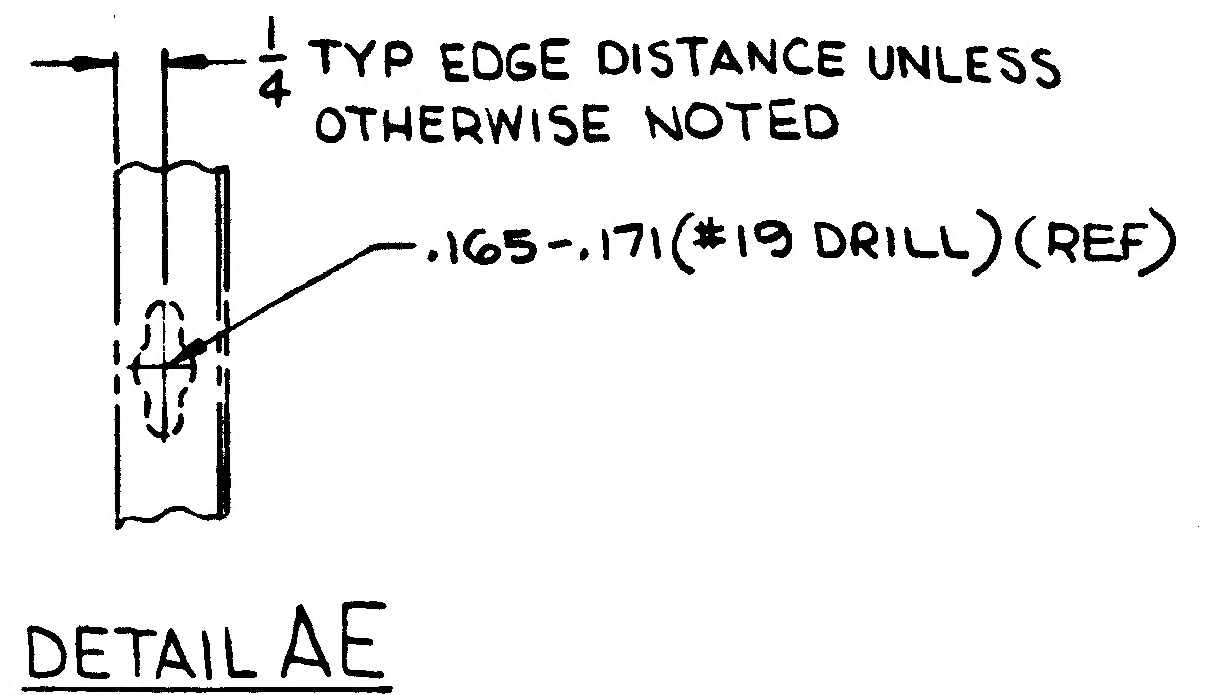
X196.00(REF)
(ZONE 21A SH5) AH
9
11
.165-.171(#
NAS697
NAS1097
(SEE DET

VIE
(ZO
VIEW CR

01/02 NAS 9-1100

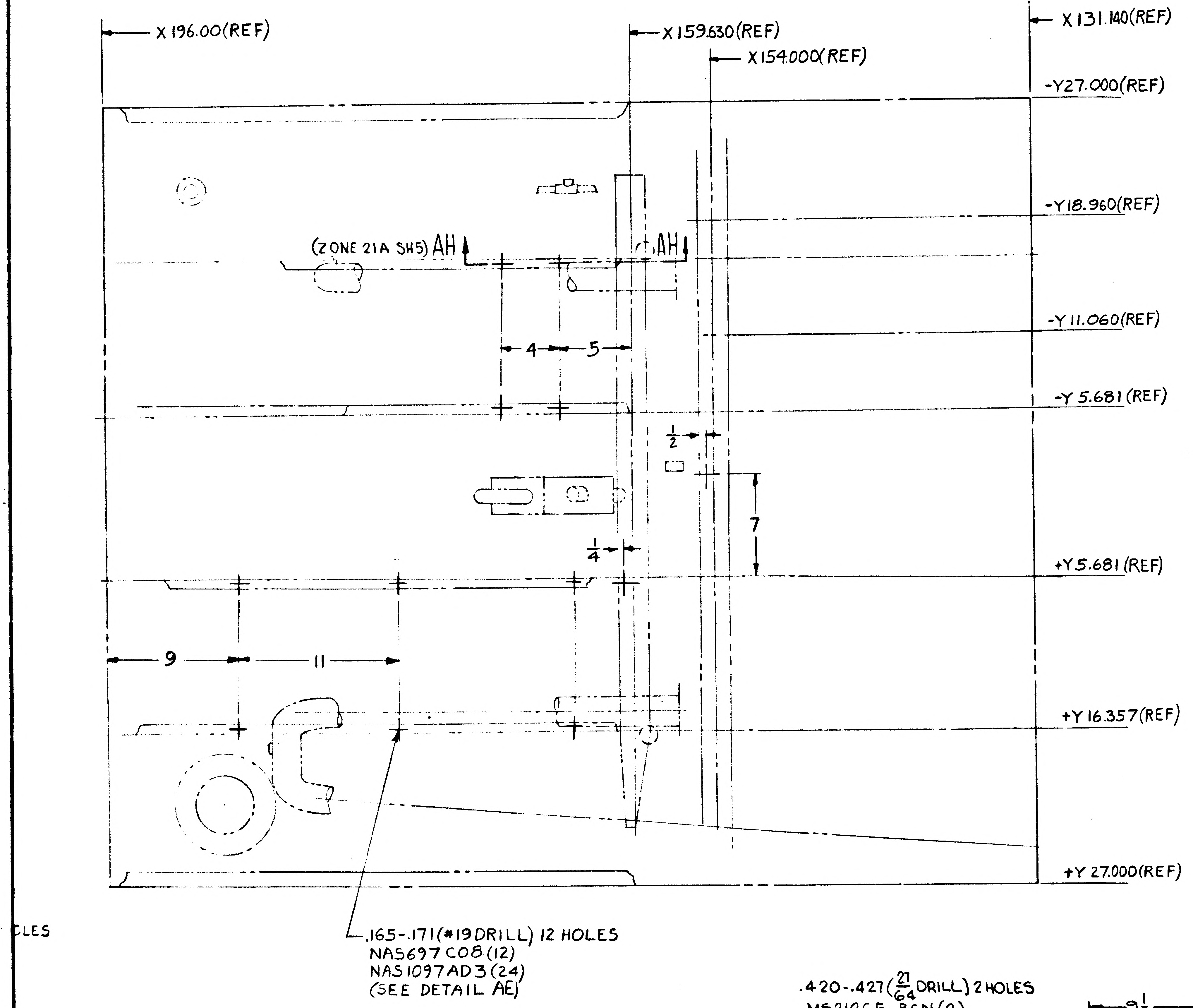
LDW280-28791 B SHEET 5

22 21 20 19



1/4 TYP EDGE DISTANCE UNLESS OTHERWISE NOTED
.165-.171(#19 DRILL)(REF)

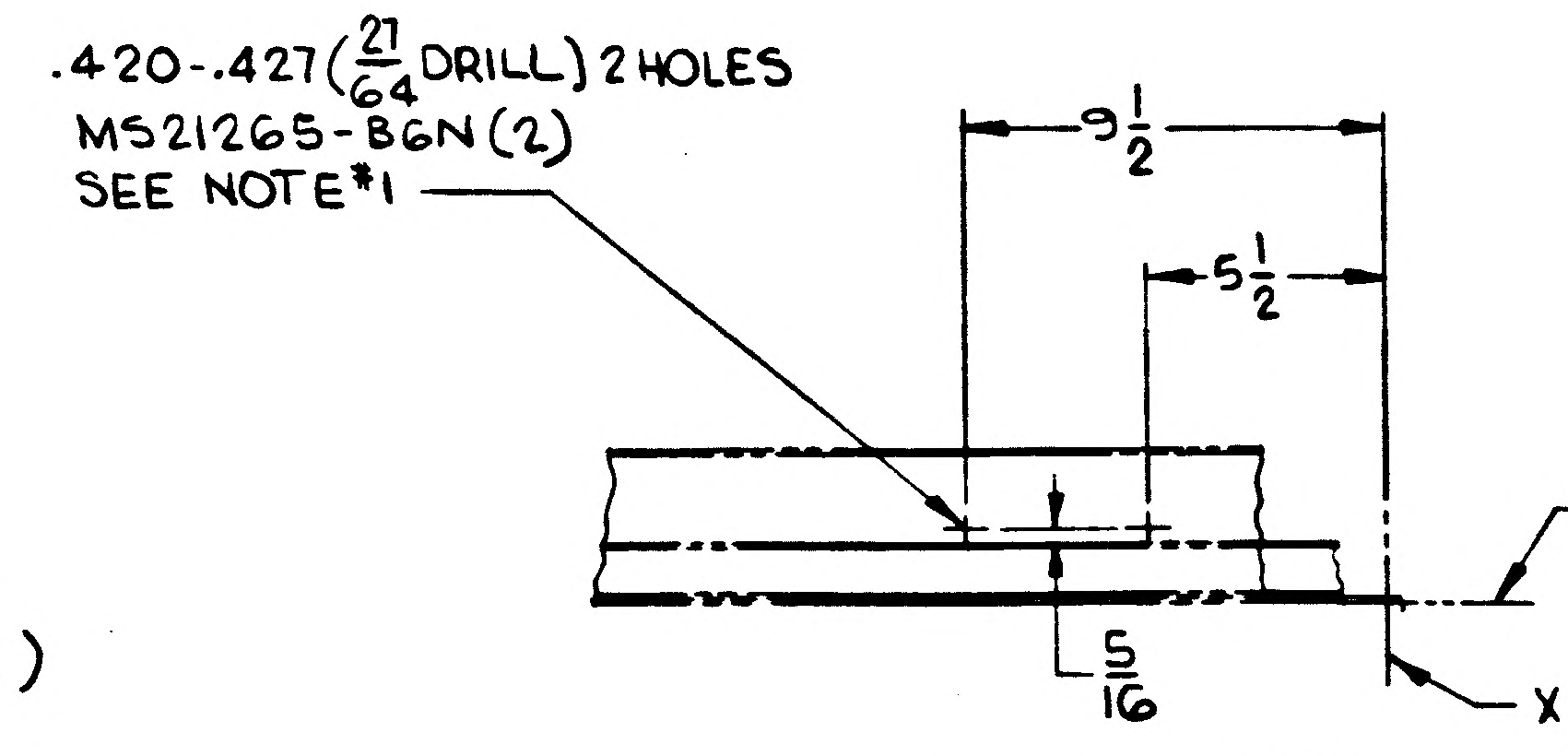
DETAIL AE
SCALE: FULL SIZE



X196.00(REF)
X159.630(REF)
X154.000(REF)
X131.140(REF)
-Y27.000(REF)
-Y18.960(REF)
(ZONE 21A SH5) AH
AH
-Y11.060(REF)
4
5
-Y5.681(REF)
1/2
7
1/4
+Y5.681(REF)
9
11
+Y16.357(REF)
+Y27.000(REF)
CLES
.165-.171(#19 DRILL) 12 HOLES
NAS697C08(12)
NAS1097AD3(24)
(SEE DETAIL AE)

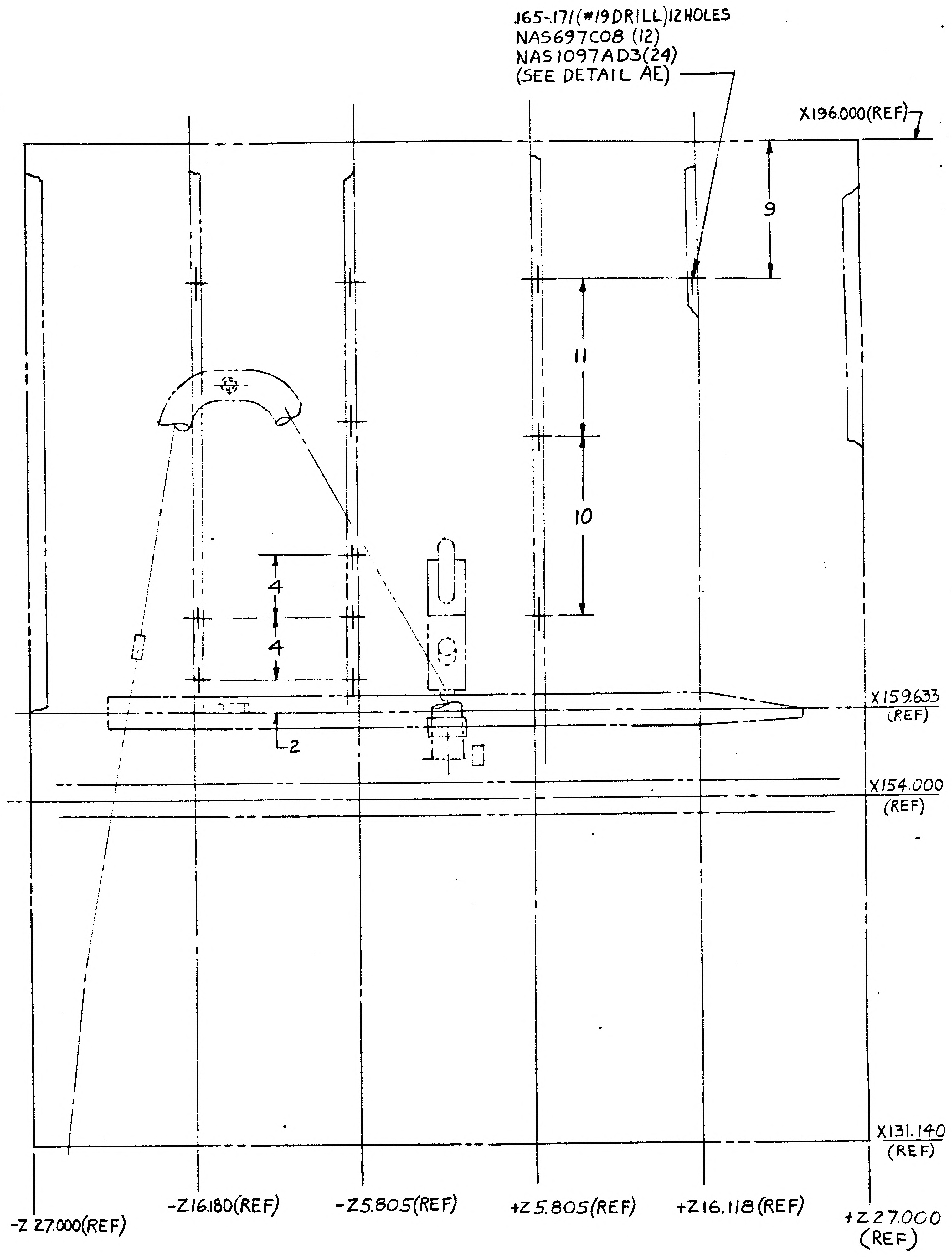
VIEW AC-AC
(ZONE 3D SH 3)

VIEW OF PANEL LOOKING OUTBOARD(-Z27.00)



.420-.427(21/64 DRILL) 2 HOLES
MS21265-B6N(2)
SEE NOTE #1
9 1/2
5 1/2
5/16
-Z27.000(REF)
X159.630(REF)

SECTION AH-AH
SCALE: FULL SIZE
(ZONE 22C SH 5)



.165-.171(#19 DRILL) 12 HOLES
NAS697C08 (12)
NAS1097AD3(24)
(SEE DETAIL AE)
X196.000(REF)
9
11
10
4
4
2
X159.633 (REF)
X154.000 (REF)
X131.140 (REF)
-Z27.000(REF)
-Z16.180(REF)
-Z5.805(REF)
+Z5.805(REF)
+Z16.118(REF)
+Z27.000 (REF)

VIEW AD-AD
(ZONE 3D SH 3)

VIEW OF PANEL LOOKING OUTBOARD (-Y27.00)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 90)= 22.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 5.625 SQ. FT.

PRINT TRIM LINE

D
C
B
A

LDW280-28791 B
LDW280-28791 B

02/02
NAS 9-1100

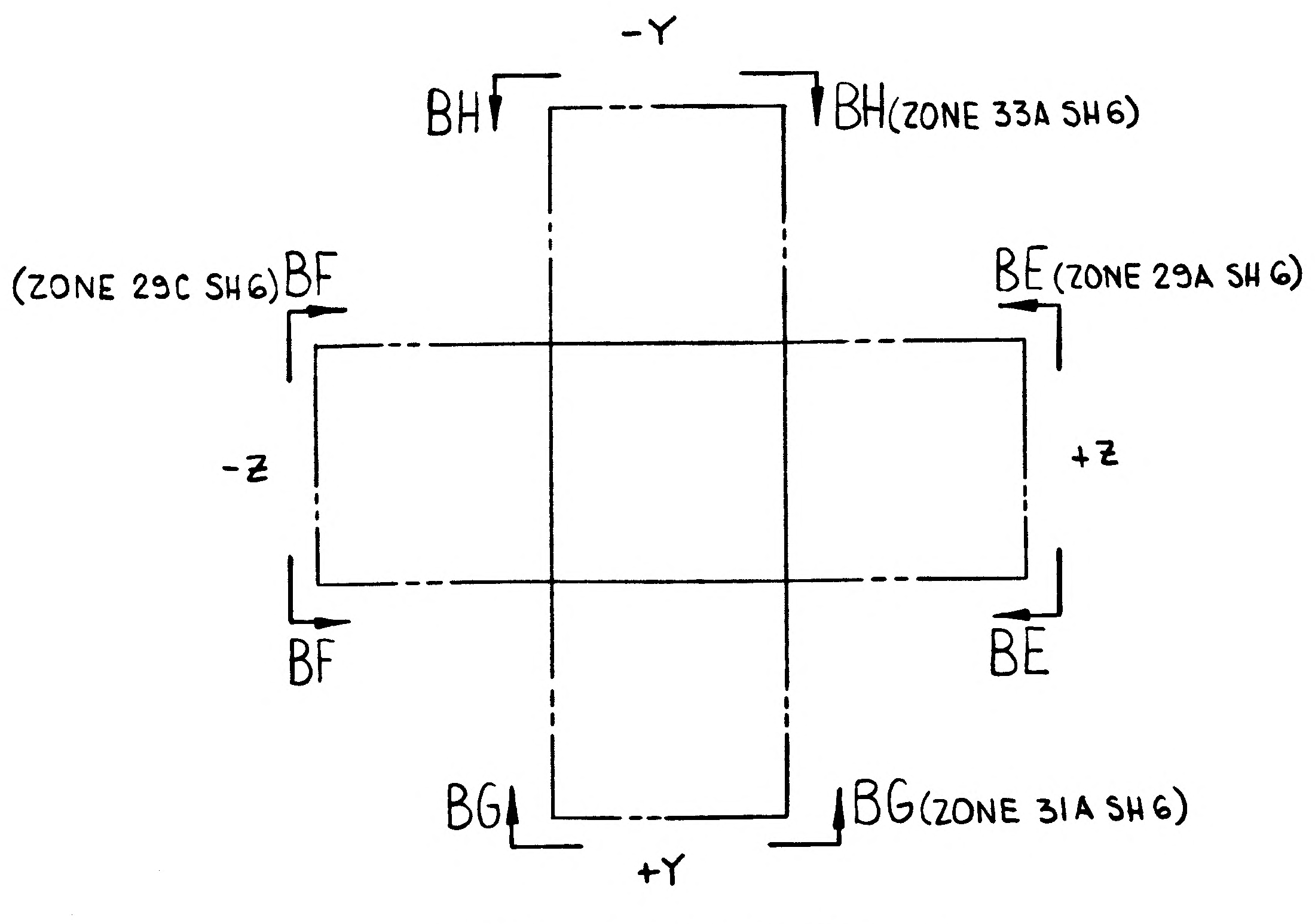
W280-28791 B SHEET 5

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

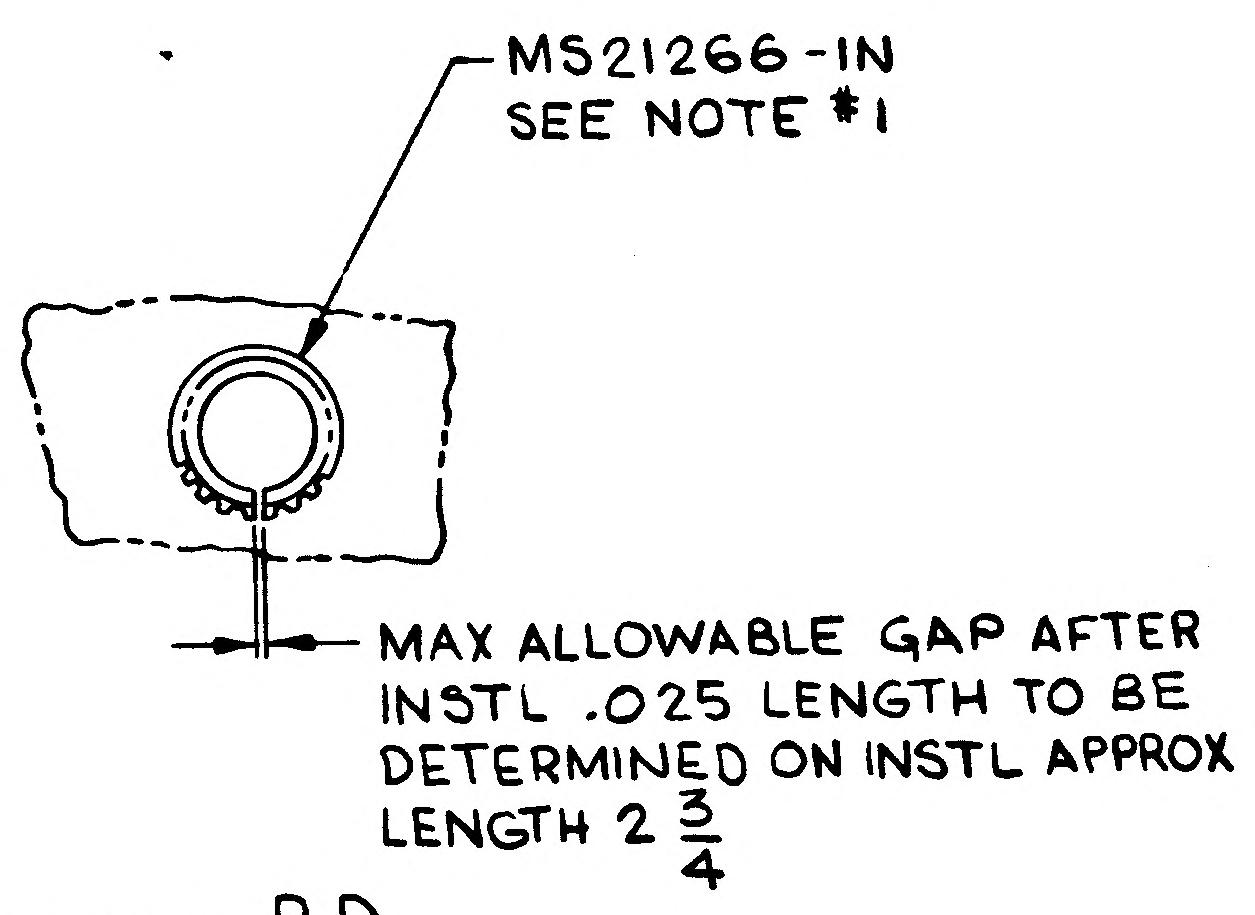
SIZE	CODE IDENT NO.		
J	26512	LDW280-28791	B

LM
MODEL OR END ITEM
SCALE 1/4 & NOTED
SHEET 5.00

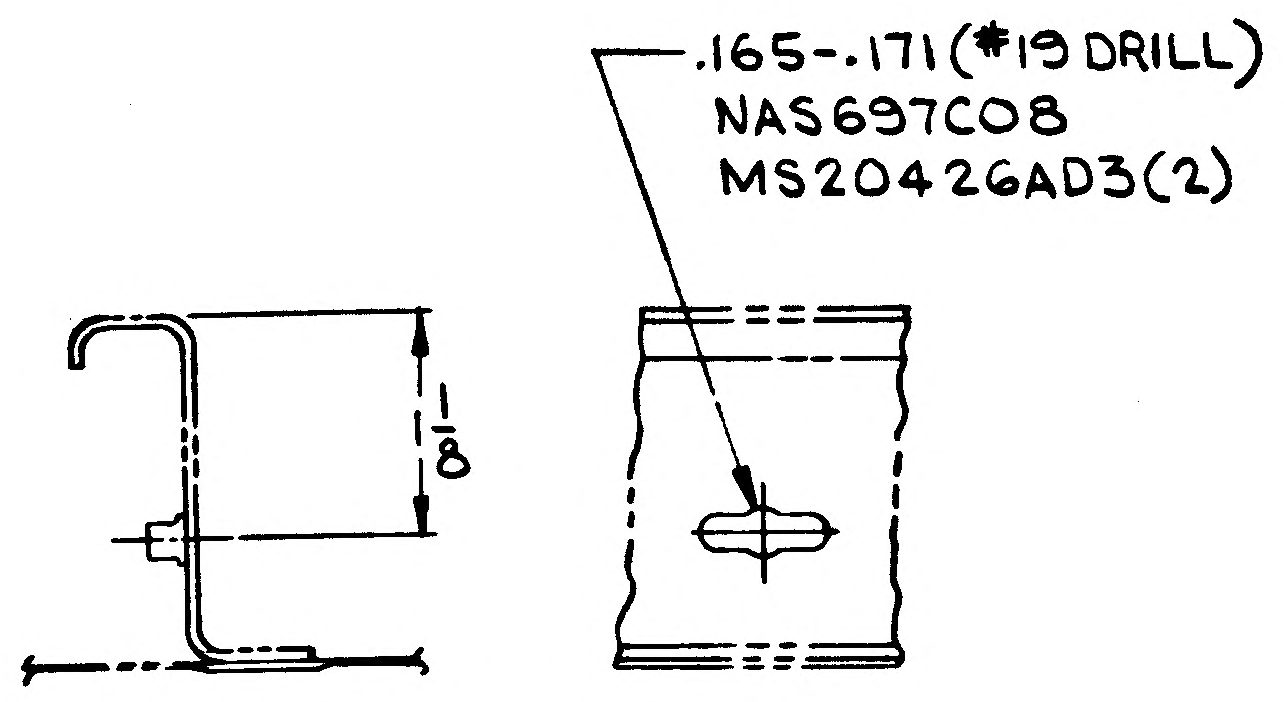
22 21 20 19 2FR


-Y
BH
BH(ZONE 33A SH6)
(ZONE 29C SH6) BF
BE (ZONE 29A SH 6)
-Z
+Z
BF
BE
BG
BG (ZONE 31A SH 6)
+Y

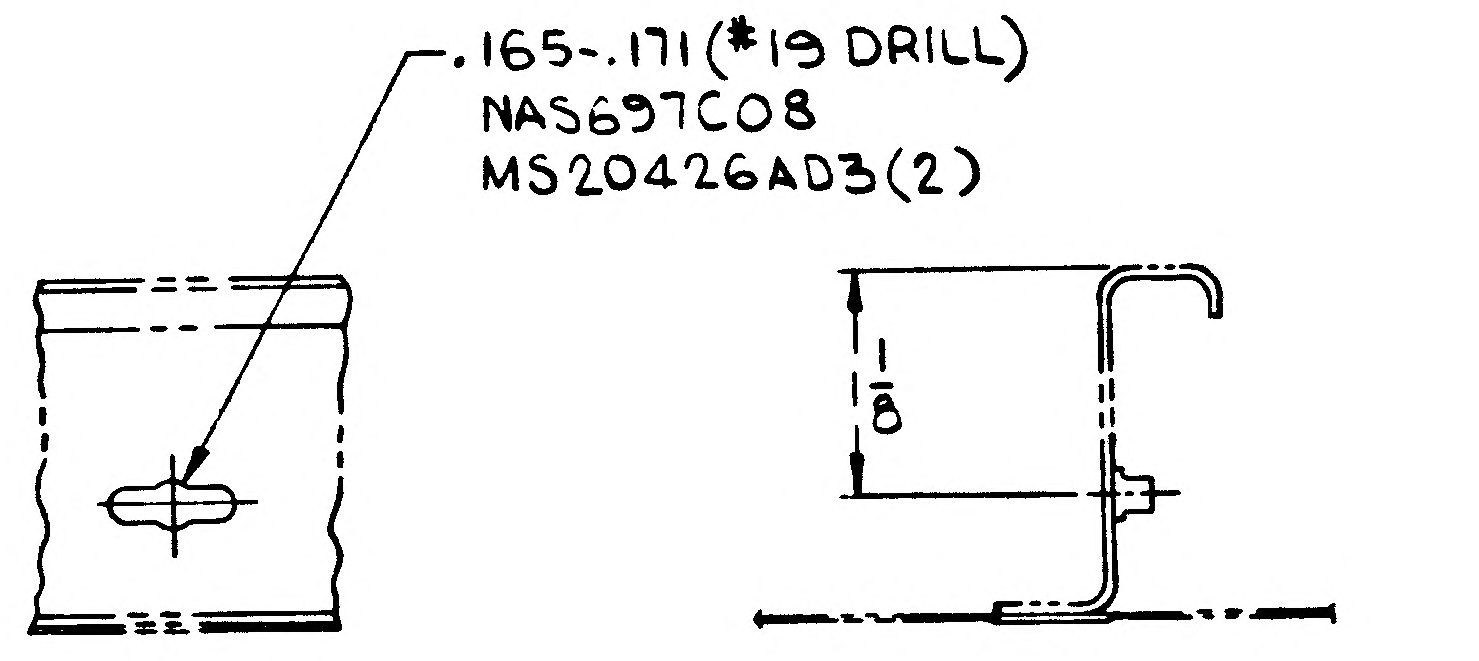
LDW280-28791-5 (REF) -7 (REF) (A5)


MS21266-1N
SEE NOTE #1
MAX ALLOWABLE GAP AFTER INSTL .025 LENGTH TO BE DETERMINED ON INSTL APPROX LENGTH 2 3/4

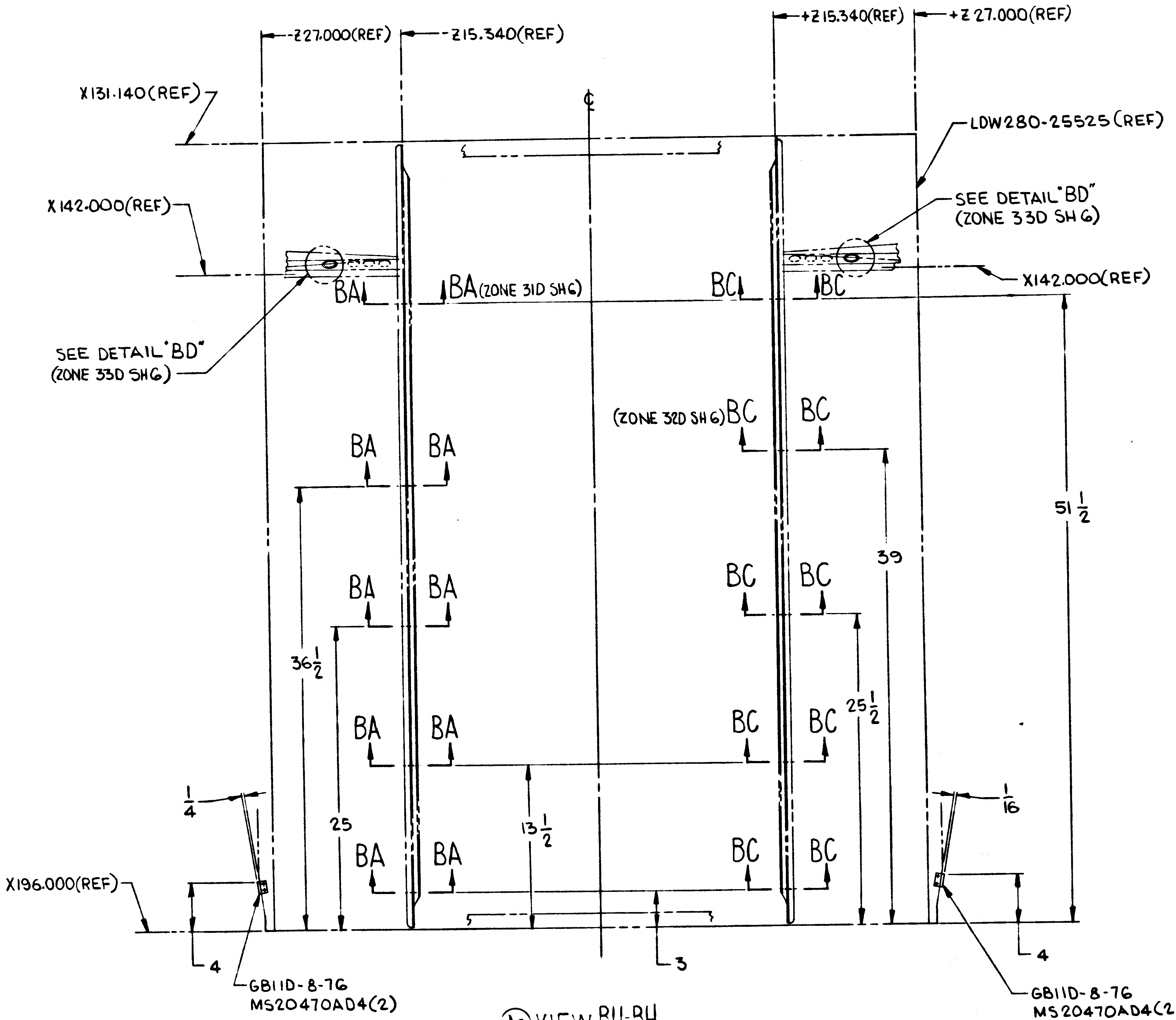
DETAIL BD
NO SCALE
(8 PLACES SH6)


.165-.171 (#19 DRILL)
NAS697C08
MS20426AD3(2)
1/8

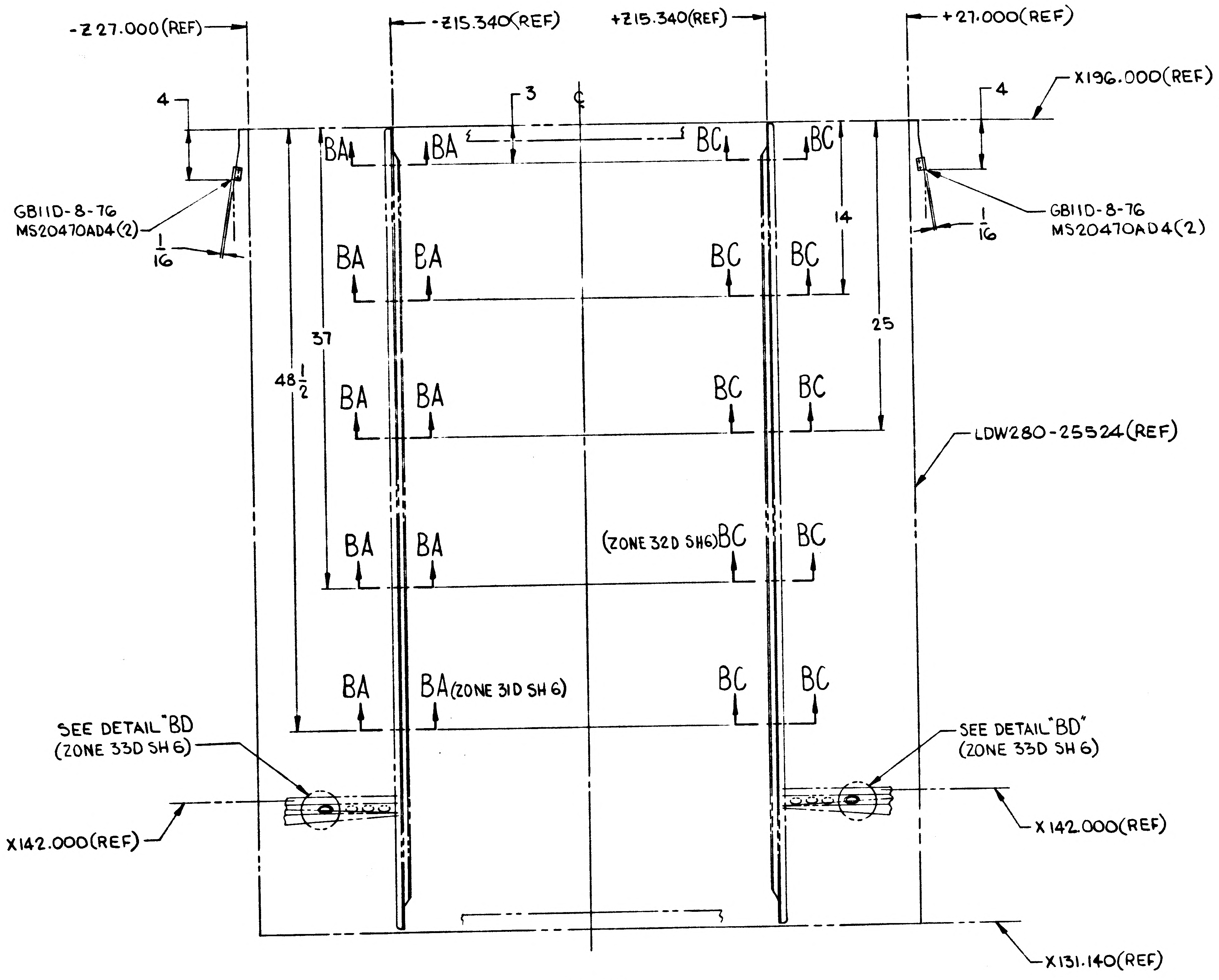
(A5) SECTION BC-BC
SCALE: FULL SIZE
(20 PLACES SH 6)
ROTATED 90° CCW FOR VIEW BF-BF
ROTATED 90° CW FOR VIEW BE-BE


.165-.171 (#19 DRILL)
NAS697C08
MS20426AD3(2)
1/8

(A5) SECTION BA-BA
SCALE: FULL SIZE
(20 PLACES SH 6)
ROTATED 90° CCW FOR VIEW BF-BF
ROTATED 90° CW FOR VIEW BE-BE


-Z27.000(REF)
-Z15.340(REF)
+Z15.340(REF)
+Z 27.000(REF)
X131.140(REF)
LDW280-25525(REF)
X142.000(REF)
SEE DETAIL "BD" (ZONE 33D SH 6)
X142.000(REF)
BA
BA(ZONE 31D SH6)
BC
BC
SEE DETAIL "BD" (ZONE 33D SH6)
(ZONE 32D SH6) BC
BC
BA
BA
51 1/2
39
BC
BC
BA
BA
36 1/2
25 1/2
BA
BA
BC
BC
1/4
1/16
25
13 1/2
BA
BA
BC
BC
X196.000(REF)
4
3
4
GB11D-8-76
MS20470AD4(2)
GB11D-8-76
MS20470AD4(2)

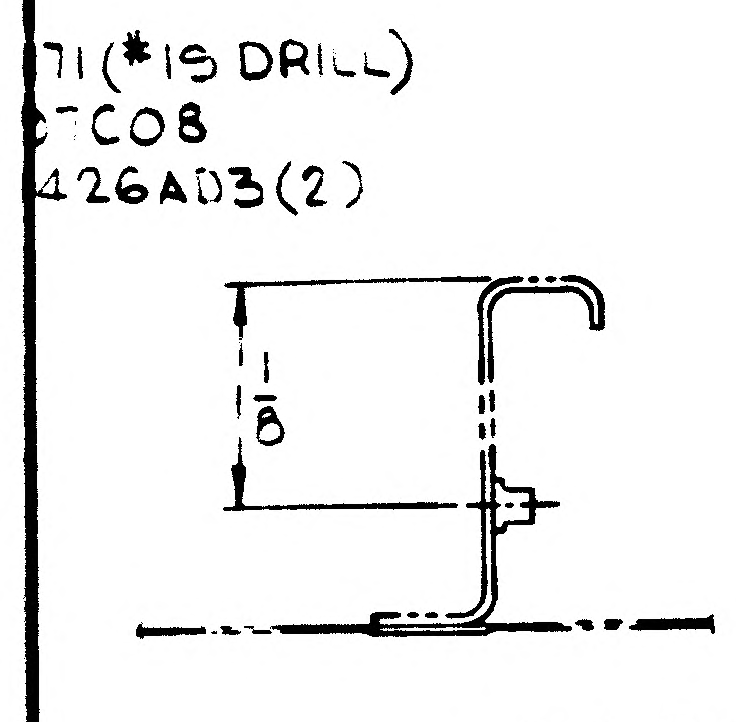
(A5) VIEW BH-BH
(ZONE 33D SH 6)


-Z 27.000(REF)
-Z15.340(REF)
+Z15.340(REF)
+27.000(REF)
X196.000(REF)
4
3
4
BA
BA
BC
BC
GB11D-8-76
MS20470AD4(2)
1/16
GB11D-8-76
MS20470AD4(2)
1/16
14
BA
BA
BC
BC
37
25
48 1/2
BA
BA
BC
BC
LDW280-25524(REF)
BA
BA
(ZONE 32D SH6) BC
BC
BA
BA(ZONE 31D SH 6)
BC
BC
SEE DETAIL "BD" (ZONE 33D SH 6)
SEE DETAIL "BD" (ZONE 33D SH 6)
X142.000(REF)
X 142.000(REF)
X131.140(REF)

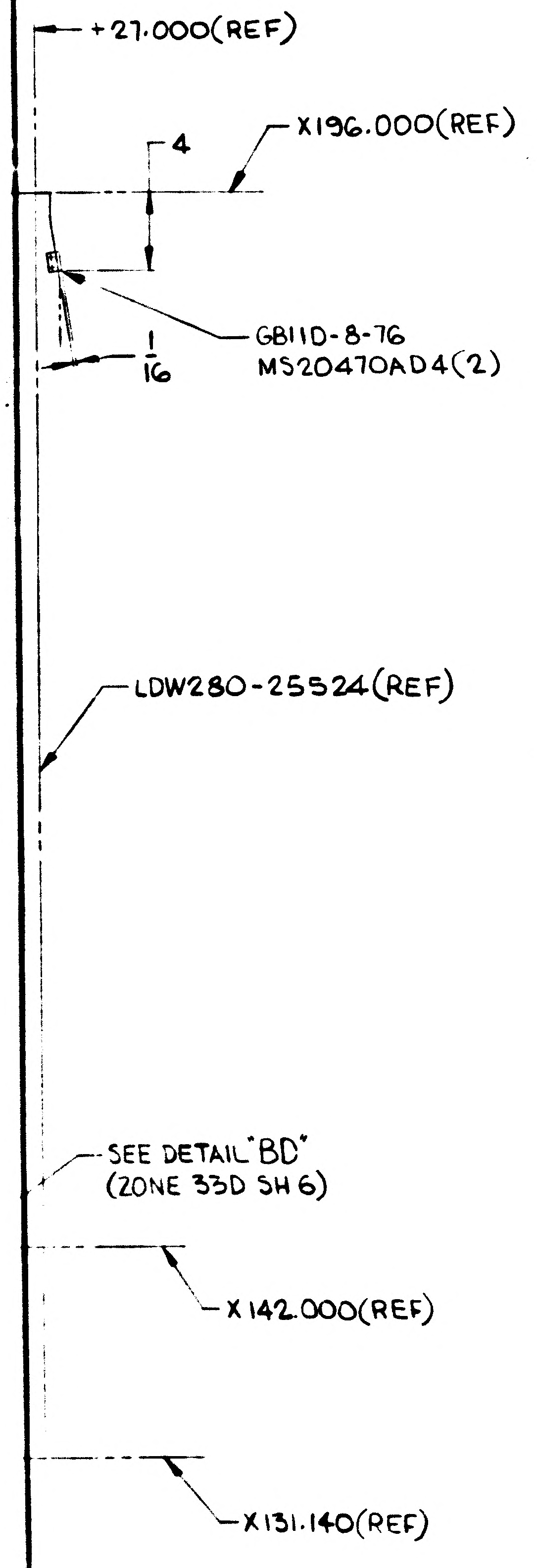
(A5) VIEW BG-BG
(ZONE 33C SH 6)

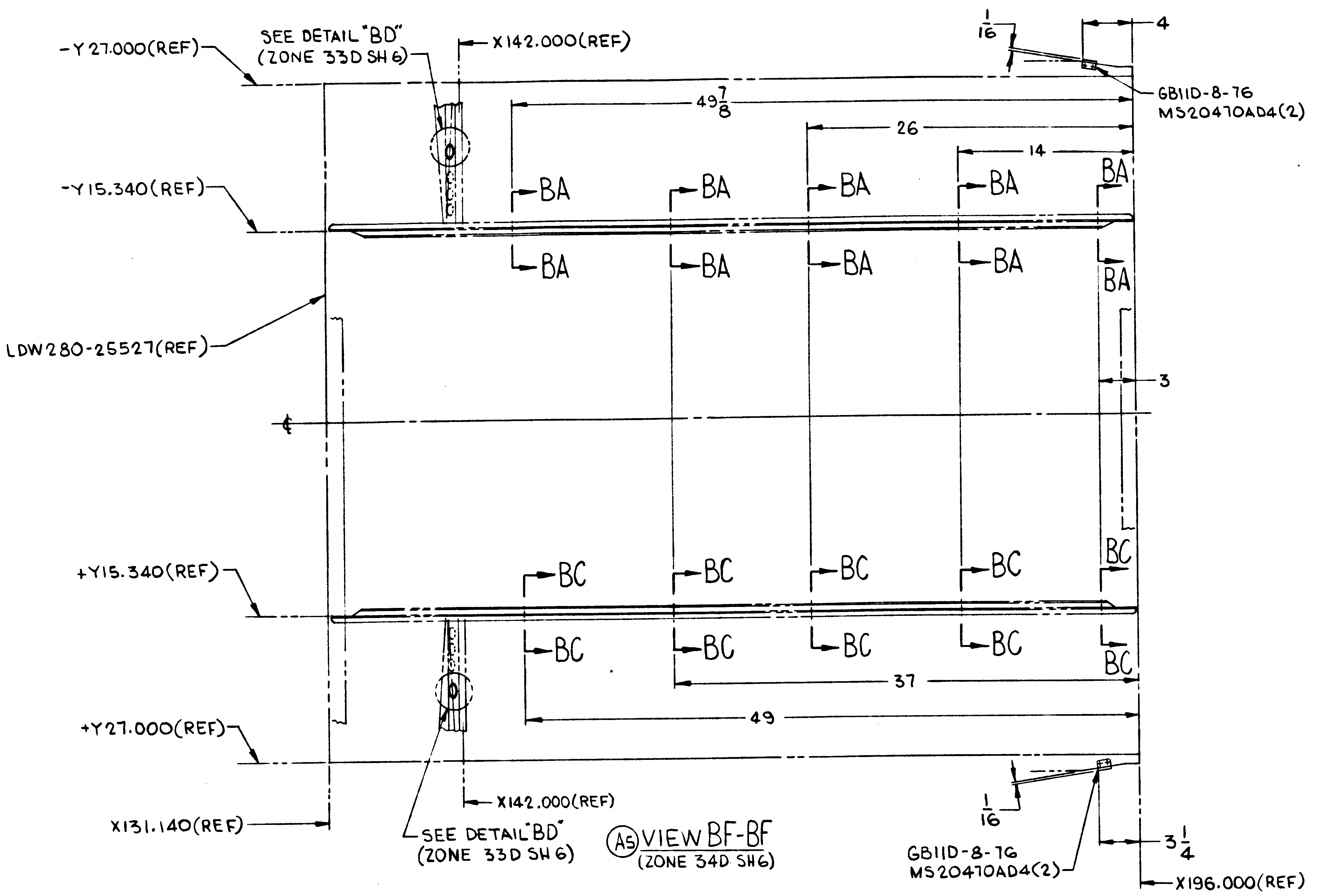
01/02 NAS 9-1100

LDW280-28791 B SHEET 6

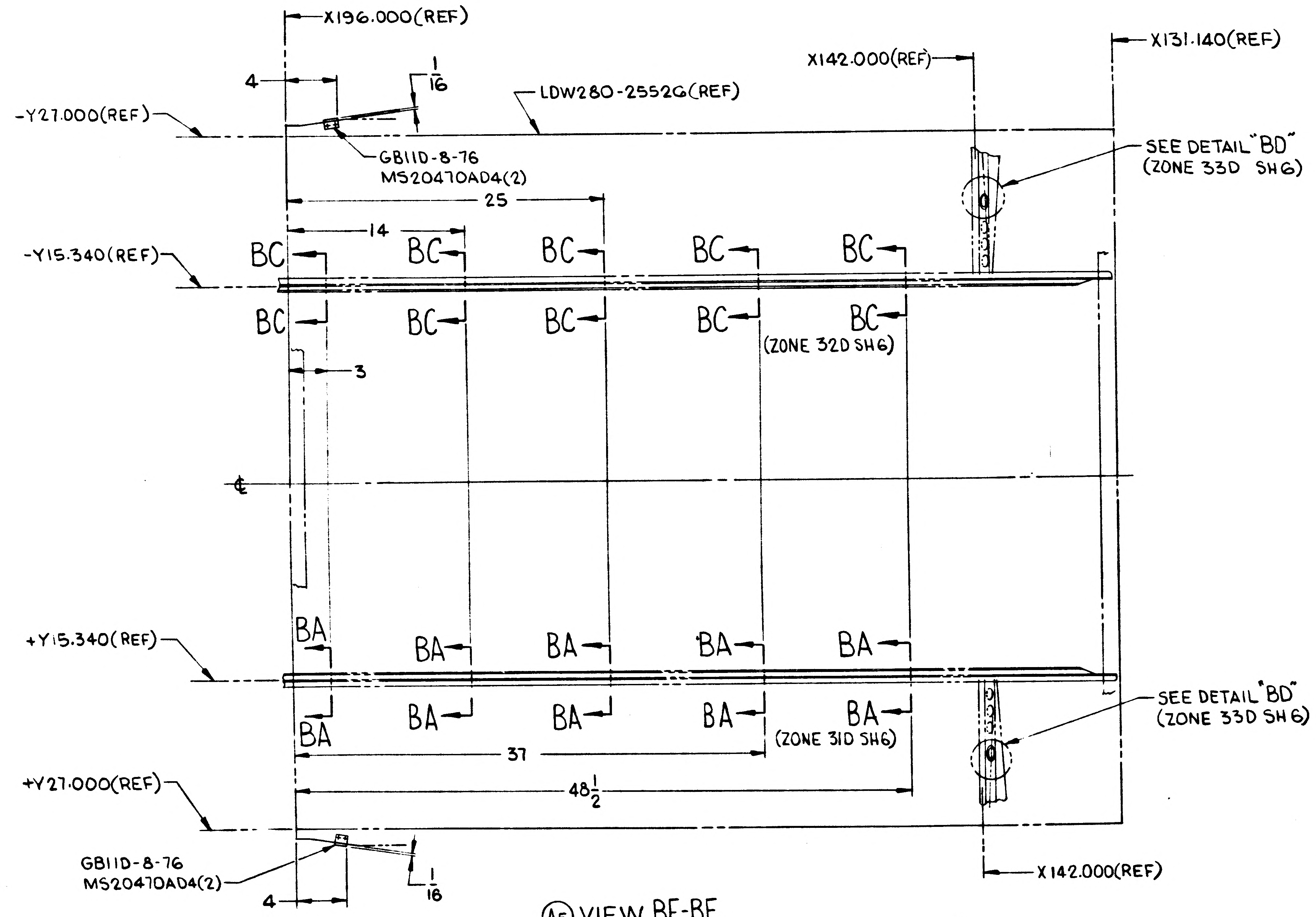

71 (#15 DRILL)
-C08
426AD3(2)
1/8

Ⓐ5 SECTION BA-BA
SCALE: FULL SIZE
(20 PLACES SH 6)
ROTATED 90° CCW FOR VIEW BF-BF
ROTATED 90° CW FOR VIEW BE-BE


+27.000(REF)
4
X196.000(REF)
GB11D-8-76
MS20470AD4(2)
1/16
LDW280-25524(REF)
SEE DETAIL "BD"
(ZONE 33D SH 6)
X142.000(REF)
X131.140(REF)


-Y27.000(REF)
SEE DETAIL "BD"
(ZONE 33D SH 6)
X142.000(REF)
1/16
4
GB11D-8-76
MS20470AD4(2)
49 7/8
26
14
-Y15.340(REF)
BA
BA
BA
BA
BA
BA
BA
BA
BA
BA
LDW280-25527(REF)
3
+Y15.340(REF)
BC
BC
BC
BC
BC
BC
BC
BC
BC
BC
37
49
+Y27.000(REF)
X131.140(REF)
X142.000(REF)
SEE DETAIL "BD"
(ZONE 33D SH 6)
1/16
GB11D-8-76
MS20470AD4(2)
3 1/4
X196.000(REF)

Ⓐ5 VIEW BF-BF
(ZONE 34D SH 6)


X196.000(REF)
X142.000(REF)
X131.140(REF)
4
1/16
LDW280-25526(REF)
-Y27.000(REF)
GB11D-8-76
MS20470AD4(2)
SEE DETAIL "BD"
(ZONE 33D SH 6)
25
14
-Y15.340(REF)
BC
BC
BC
BC
BC
BC
BC
BC
BC
BC
(ZONE 32D SH 6)
3
+Y15.340(REF)
BA
BA
BA
BA
BA
BA
BA
BA
BA
BA
(ZONE 31D SH 6)
SEE DETAIL "BD"
(ZONE 33D SH 6)
37
48 1/2
+Y27.000(REF)
X142.000(REF)
GB11D-8-76
MS20470AD4(2)
4
1/16

Ⓐ5 VIEW BE-BE
(ZONE 33D SH 6)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 33

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 90)= 22.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 5.625 SQ. FT.

PRINT TRIM LINE

D
C
B LDW230-28791 B
A LDW280-28791 B

02/02 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-28791	B
LM MODEL OR END ITEM	SCALE AS NOTED		SHEET 6.00	

80-28791 B SHEET 6

ENG 32.1 REV 3-65

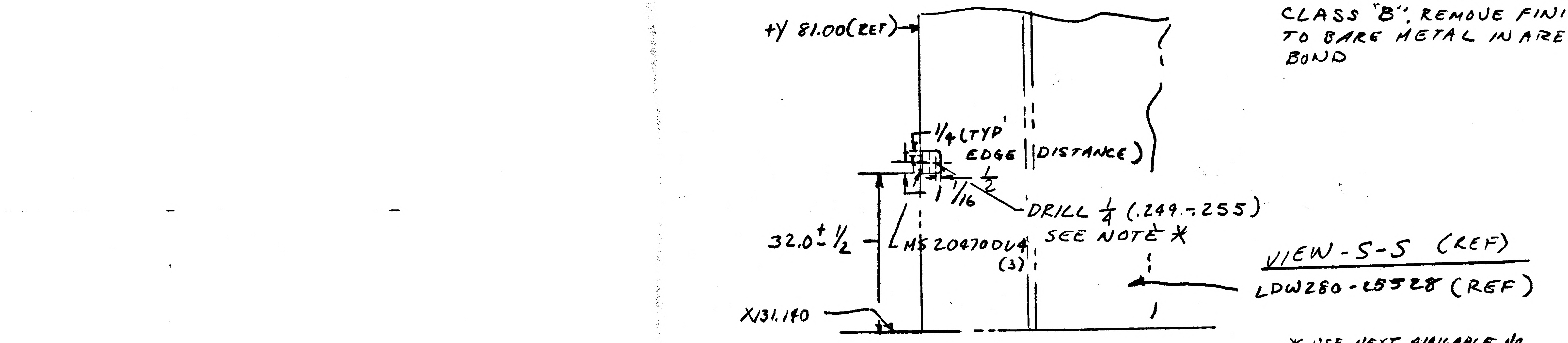
*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 28791		EO NO. B2
CONTROL INFO NO. LM-5-11102		

ON-5§-7 INSTL
ADD LDW280-18064-13 AS SHOWN:

IN NOTES
ADD *. - DRILL HOLES TO BE PREPARED FOR ELECT. GROUNDING PER LSP-14-13302 CLASS "B". REMOVE FINISH TO BARE METAL IN AREA OF BOND


+Y 81.00(REF)
1/4 (TYP EDGE DISTANCE)
1/2
1/16
DRILL 1/4 (.249-.255)
SEE NOTE *
32.0 ± 1/2
MS20470DD4 (3)
VIEW-S-S (REF)
LDW280-25528 (REF)
X131.140

* USE NEXT AVAILABLE NO.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDITIONAL CLIP REQD FOR GROUND HOLE	ON-5§-7 ADDED LDW280-18064-13, & MS20470DD4(3), NOTE *	5

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	
LM		LM 1 (31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT				NM	DV	RME	CL
				DATE	11-15				11-15-66	11/15	11-21-66	11-16-66
REVISE DWG ✓	RECORD EO	REWORK ✓	SCRAP	5		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BEAM PANEL D/S - BATTERY COMP	LDW280-28791	B2

ISSUED BY D. RAGAS X6454 SECTION UDI GROUP NO. 335 PL 5

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

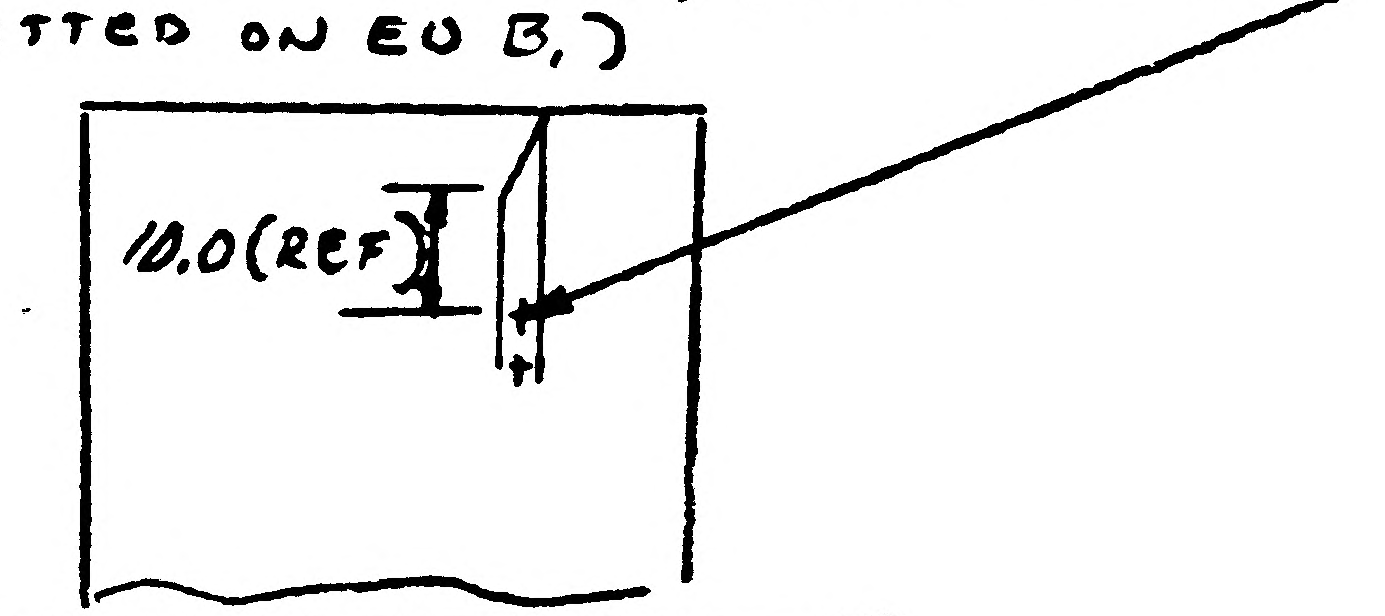
ENG 32.1 REV 3-65

DWG. NO. LDW280-28791		EO NO. B3
CONTROL INFO NO. LM 5-11238		

THIS IS A REVISION OF EO B1

IN VIEW U-U: ADD TO CALLOUT DRILL #19 (.165-.171) (2 HOLES)
ADD NAS 617 C08 (2)
NAS 1097 AD3 (6)
CSK NR SIDE.
REVISE DIM. 9.0 WAS 7 1/2
(EXTRANEOUS HOLE MAY BE LEFT OPEN)

IN VIEW S-S ADD: DRILL #19 (.165-.171) (2 HOLES)
(CALLOUT OMITTED ON EO B.)



IN VIEW W-W: ADD TO 1 1/2 (ADD) ± 1/2 TOL.

5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: TO ADD MISSING HARDWARE CALLOUTS & DIM.

DESCRIPTION OF EO: REF EO B.
IN VIEW U-U ADDED NAS 617 C08 (2) NAS 1097 AD3 (6)
REVISED DIM. 9.0 WAS 7 1/2
IN VIEW S-S. ADDED DRILL #19 (.165-.171) (2 HOLES)
IN VIEW W-W ADDED ± 1/2 TOL TO 1 1/2 DIM.

GAEC EO RELEASE: LE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	
LM		LM 1 (31)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ✓ SCRAP ☐

APPROVED BY	WT			~	DR	CH		NP
DATE	11/30/66			~	11/30/66	11-30	12-2-66	12/1/66
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRKT INSTL D/S - ELECT LINES - SUPT BEAM PANEL	LDW280-28791	B3

ISSUED BY RAGAS x6454 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

ENG 32.1 REV 3-65

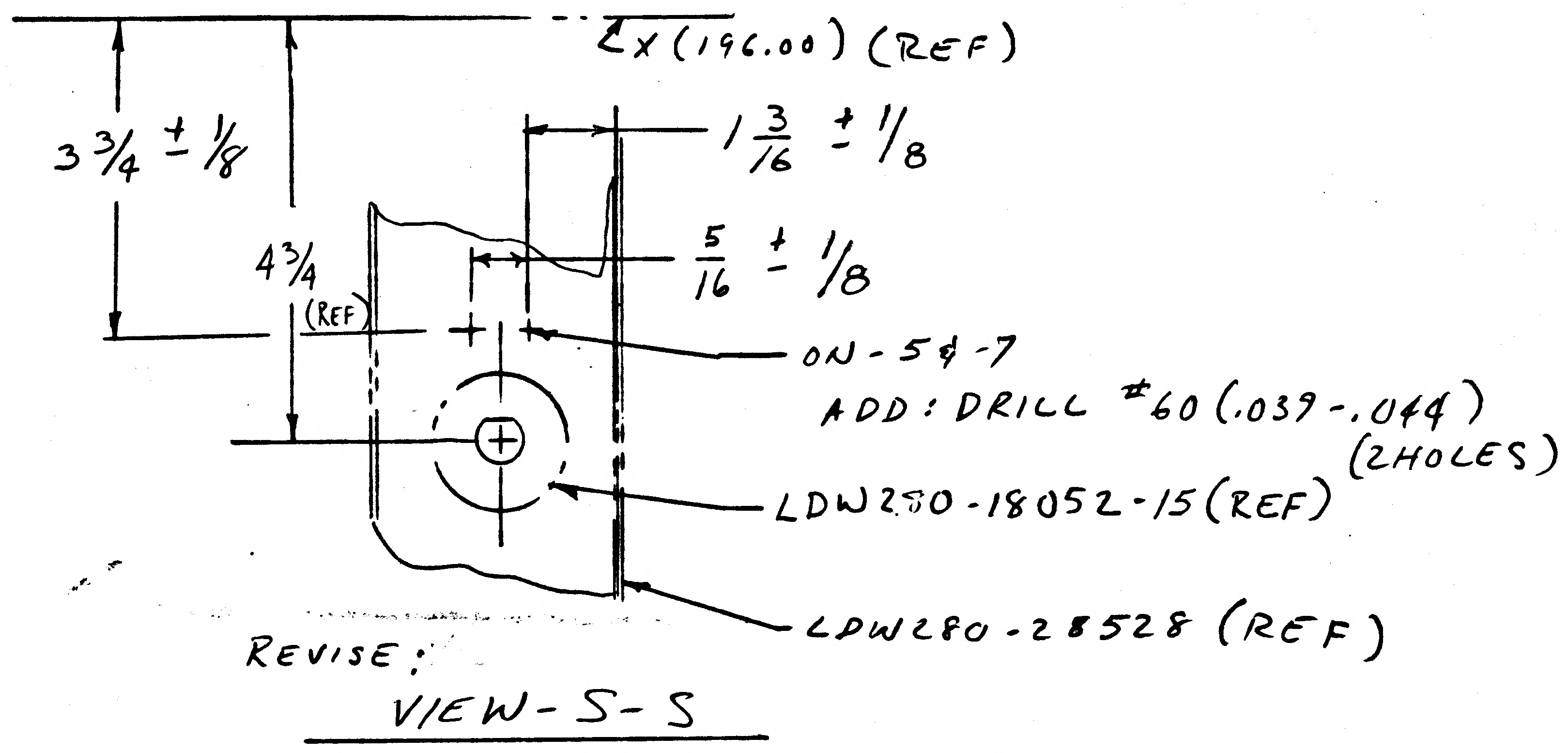
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28791

EO NO. B4

CONTROL INFO NO. LM5-11360



Zx (196.00) (REF)
3 3/4 ± 1/8
1 3/16 ± 1/8
4 3/4 (REF)
5/16 ± 1/8
ON-5 & -7
ADD: DRILL #60 (.039-.044) (2 HOLES)
LDW280-18052-15 (REF)
LDW280-28528 (REF)

REVISE:
VIEW-S-S

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		5

REASON FOR EO
TO FACILITATE INST'L
OF ELECT. LOCKWIRE

DESCRIPTION OF EO
ON-5-&-7
ADDED DRILL #60 (.039-.044) (2 HOLES)

GAEC C EO RELEASE: LE

EFFECTIVITY

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	
LM		LM1 (31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	WT			—	NM	CH	RMcE	
DATE	12/10/66			—	12-10-66	12-11	12-16-66	12-11-66
1	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET INST'L D/S-BEAM PANELS-ELECT LINES	LDW280-28791	B4

ISSUED BY Don Ragas x6454 SECTION VD1 GROUP NO. 335 PL. 5

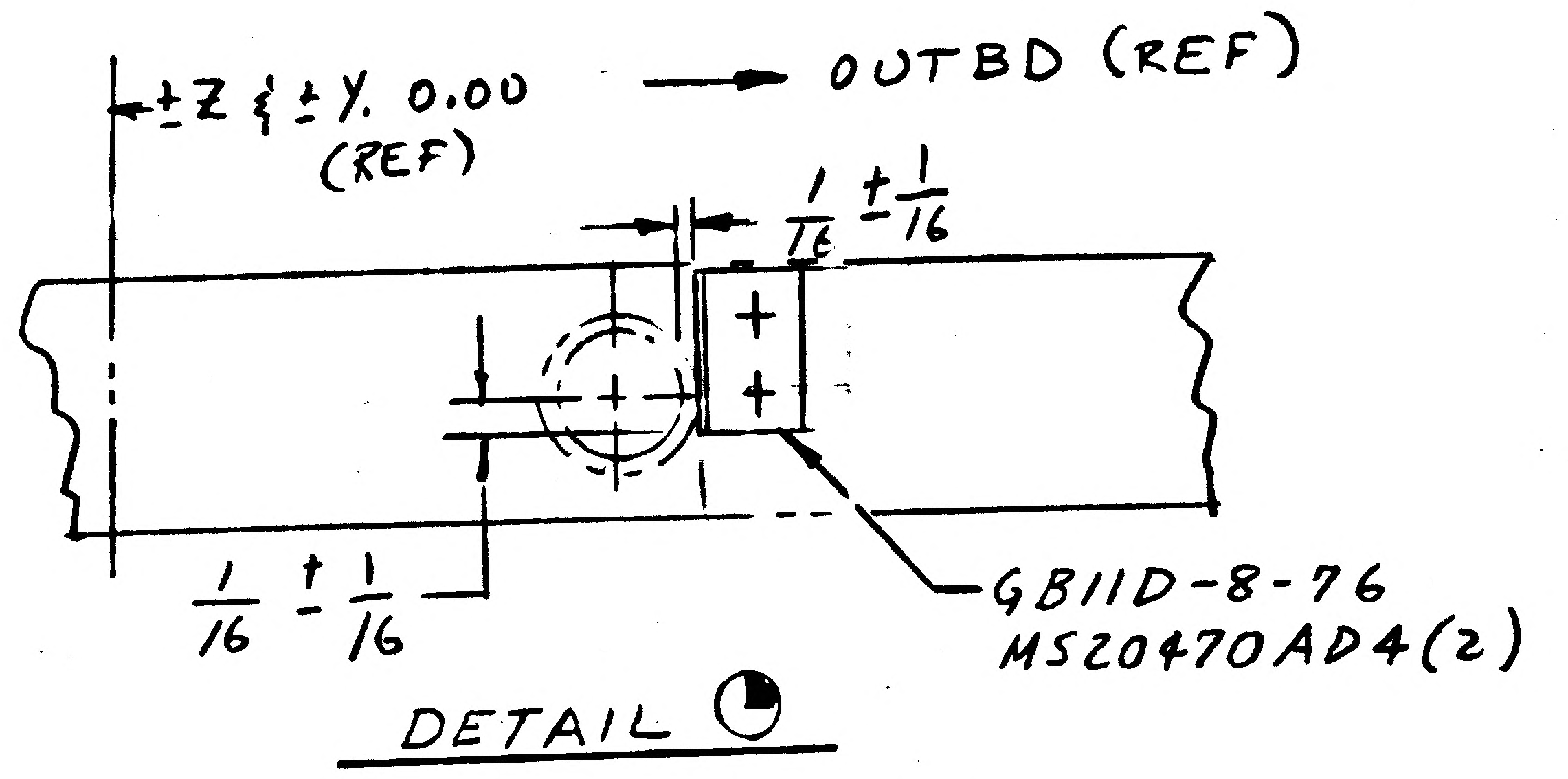
01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LDW280-28791		EO NO. C1
CONTROL INFO NO. LM5-13223		

ON-7
ADD GB11D-8-76 AS SHOWN!



DETAIL ◔

(TYP 8 PLACES)

RELEASED BY LIAiSON

◔ (DETAIL ADDED ON EO A5)

5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDITIONAL CLIPS REQD FOR ELECT. LINES (NASA CRAB #1292)	ON-7 ADDED GB11D-8-76(8), MS20470AD4(16)	JK LT

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM1(31)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	WT			~	JFY	CH	LH	AC
DATE	4/20/67			~	4-20-67	4-20	4-20-67	4-20-67
1	VD1							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRKT ISTL D/S- BEAM PANELS-ELECT LINES	LDW280-28791	C1

ISSUED BY DON RAGAS X6510 SECTION VD1 GROUP NO. 335 PL 5

01 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LDW280-28791 | EO NO. C2
CONTROL INFO NO. LM5-13232

CANCELL EO C1

RELEASED BY LIAISON

SHOP NOTE: (DO'NOT INCORP ON DWG): EXTRANEOUS HOLE MAY BE LEFT OPEN

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	GAEC EC RELEASE 5 C

REASON FOR EO	DESCRIPTION OF EO	GAEC EC RELEASE
CLIPS ARE NOT REQ'D	CANCELLED EO C1	JK —

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM1(31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT			~		CH	DAME	
✓		✓		DATE	4/22/67			~	4-22-67	4-22	4-24-67	4/22/67
REVISE DWG	RECORD EO	REWORK	SCRAP	/	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BRACKET INSTL D/S- BEAM PANELS-ELECTLINES	LDW280-28791	C2

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

01 NAS 9-1100

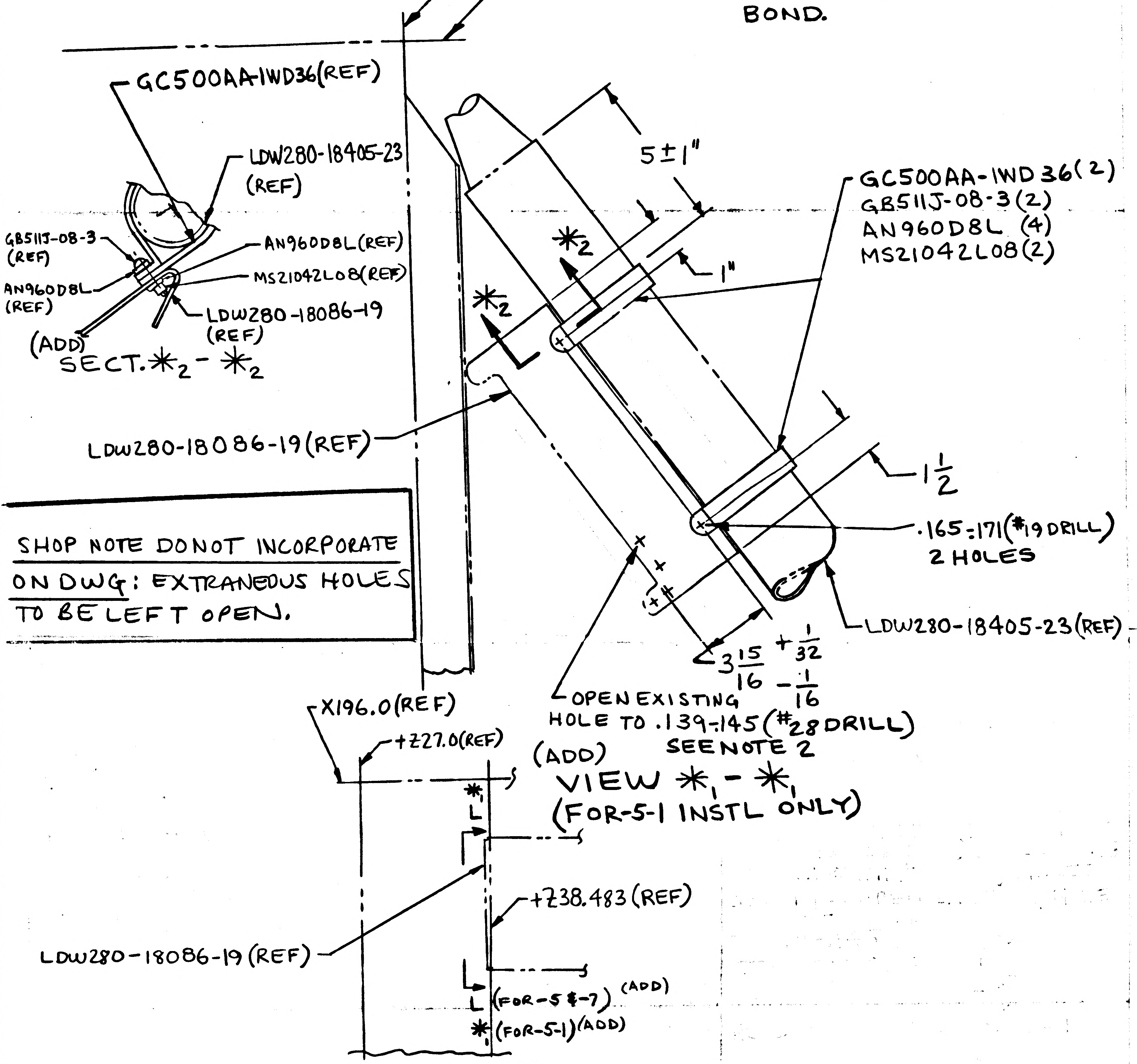
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28791
EO NO. C3
CONTROL INFO NO. LM52-2387

ON -5-1 INSTL IN F/D & B/M
REIDENTIFY -5 TO -5-1
-5-1 MAY BE MADE BY REWORKING -5
-5 TO BE RETAINED FOR
RECORD PURPOSES ONLY

E.O. REF NOTE 2 DRILL HOLES TO BE PREPARED FOR ELECTRICAL GROUNDING PER LSP14-13302 CLASS B REMOVE FINISH TO BARE METAL IN AREA OF BOND.


+Y27.0 (REF)
X196.0 (REF)
GC500AA-1WD36(REF)
LDW280-18405-23 (REF)
GB511J-08-3 (REF)
AN960D8L (REF)
AN960D8L(REF)
MS21042L08(REF)
LDW280-18086-19 (REF)
(ADD)
SECT. ✱2 - ✱2
LDW280-18086-19(REF)
5±1"
✱2
✱2
1"
GC500AA-1WD36(2)
GB511J-08-3(2)
AN960D8L (4)
MS21042L08(2)
1 1/2
.165-.171(#19 DRILL) 2 HOLES
LDW280-18405-23(REF)
3 15/16 +1/32 -1/16
OPEN EXISTING HOLE TO .139-.145 (#28 DRILL) SEE NOTE 2
(ADD)
VIEW ✱1 - ✱1
(FOR-5-1 INSTL ONLY)
X196.0(REF)
+Z27.0(REF)
✱1
+Z38.483 (REF)
LDW280-18086-19 (REF)
(FOR-5 & -7) (ADD)
(FOR-5-1)(ADD)
VIEW T-T (SH4, ZONE 14C)

SHOP NOTE DO NOT INCORPORATE ON DWG: EXTRANEOUS HOLES TO BE LEFT OPEN.

CREATE -5-1 IDENTICAL TO -5 EXCEPT AS NOTED: RELOCATE LDW280-18086-19 (REF) BRACKET ADD GC500AA-1WD36(2), GB511J-08-3(2), AN960D8L (4), MS21042L08 (2)

✱1-✱1, ✱2-✱2 USE NEXT HIGHER AVAILABLE LETTERS.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD1021-5C CCA 498	(52)

REASON FOR EO
TO RECONFIGURE LTA-8 D/S PER LCR1021-5C LFM III

DESCRIPTION OF EO
ADDED -5-1 WAS -5,

GAEC EO RELEASE C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM III	LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	DMW	Jaf	AB	—	[illegible]	[illegible]	R1+	[illegible]
DATE	8/14/68	8/26/68	8/26/68	—	[illegible]	[illegible]	8-13-68	[illegible]
	MSC 006	~~SUPPORT~~ VDI	RELIAB.	GROUP LEADER	STRESS GROUP	~~LIAISON~~ ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: BRACKET INSTL D/S-BEAM PANELS-ELECTRICAL LINES SUPPORT
DRAWING NO.: LDW280-28791
EO NO.: C3

ISSUED BY R.EBERLE X84662 8/12/68 SECTION VDI (EQUIP LINES) GROUP NO. 332 PL 25

LDW280-28792

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25662	LTA-8 (18)	1
PART NO. LDW280-28792-3		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-25662	LTA-8(18)	3
PART NO. LDW280-28792-1		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00				
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED	B	GRUMMAN REL INFO	
LAST DASH NO. USED	-7	PRIM NO. 207	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY	R.VAN COTT	THERMO	TARVIL 8/2/66
LAYOUT BY			
CHECKED BY			
GR LEADER	J.STRAKOSCH 7/7/66		
VEH DES INT	W.BISCHOFF 7/8/66		
STRUCTURES	F.BUNCE 7/9/66	PROJ ENGR	PLUNKETT 7/14/66
STRUCTURES	HILDERMAN 7/11/66	REL GROUP	BOTTI 8/11/66
WEIGHTS	ROBESCH 7/14/66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN INSTL
DESCENT STAGE - RIGHT BASE HEAT SHIELD - THERMAL CONTROL

SIZE B
CODE IDENT NO. 26512
LDW280-28792
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
	RETRACED NO CHG LAST REV NC ADDED SH 1.10										L.BRIDA 9-27-66				

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28792
SCALE NONE		SHEET 1.10

ENG 77.16 3-66

01 NAS 9-1100

-7	-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					ADHESIVE	E	SEE NOTE 2							
					MS20470 A3		RIVET	STD PART						
		98	101		AN504C4-4		SCREW	STD PART						
		13	14		LDW280P18042-15		SPACER	SEE DWG						6A
		13	13		LDW280P18042-13		SPACER							6C
		72	74		LDW280P18042-11		SPACER							7C
	1				LDW280-18033-23		SKIN							3B
			1		-21		SKIN							4A
9	9				-19		SPLICE							3B
		1	1		-17		SKIN							4C
		1	1		-15		SKIN							3B
1					-13		SKIN							3B
		1			LDW280-18033-11		SKIN	SEE DWG						4A
		1			LDW280-28792-7		SKIN ASSY							4A
			1		-5		SKIN ASSY							4A
					-3		SKIN INSTL							4A
					LDW280-28792-1	E	SKIN INSTL							4A

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

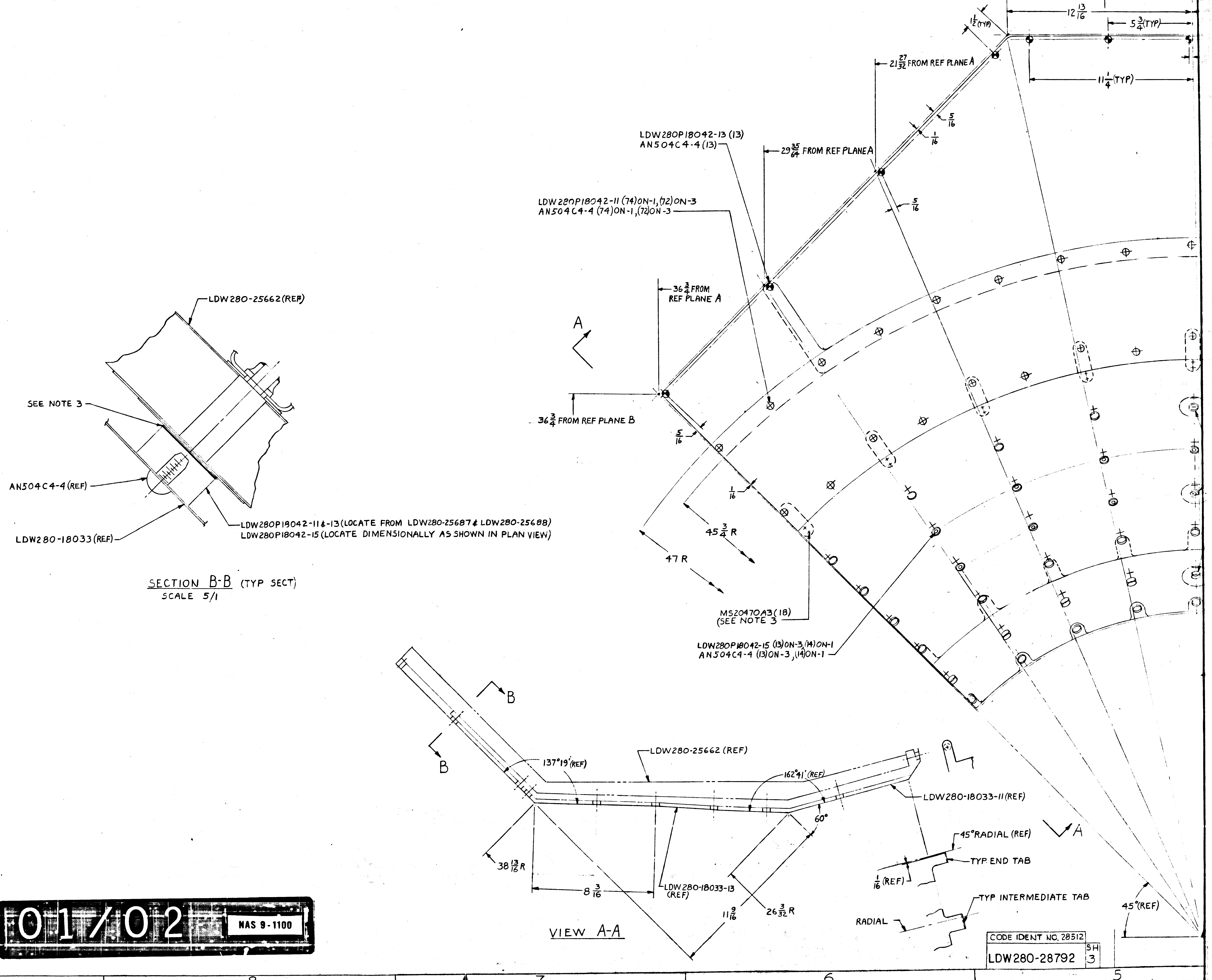
SIZE	CODE IDENT NO.	
B	26512	LDW280-28792

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



1/2 (TYP)
12 13/16
5 3/4 (TYP)
21 27/32 FROM REF PLANE A
11 1/4 (TYP)
5/16
1/16
LDW280P18042-13 (13)
AN504C4-4 (13)
29 35/64 FROM REF PLANE A
5/16
LDW280P18042-11 (74) ON-1, (72) ON-3
AN504C4-4 (74) ON-1, (72) ON-3
36 3/4 FROM REF PLANE A
A
36 3/4 FROM REF PLANE B
5/16
1/16
45 3/4 R
47 R
MS20470A3 (18)
(SEE NOTE 3
LDW280P18042-15 (13) ON-3, (14) ON-1
AN504C4-4 (13) ON-3, (14) ON-1
LDW280-25662 (REF)
SEE NOTE 3
AN504C4-4 (REF)
LDW280-18033 (REF)
LDW280P18042-11 & -13 (LOCATE FROM LDW280-25687 & LDW280-25688)
LDW280P18042-15 (LOCATE DIMENSIONALLY AS SHOWN IN PLAN VIEW)
B
B
137°19' (REF)
LDW280-25662 (REF)
162°41' (REF)
LDW280-18033-11 (REF)
60°
45° RADIAL (REF)
TYP END TAB
1/16 (REF)
TYP INTERMEDIATE TAB
RADIAL
45° (REF)
A
38 13/16 R
8 3/16
LDW280-18033-13 (REF)
11 9/16
26 3/32 R

SECTION B-B (TYP SECT)
SCALE 5/1

VIEW A-A

01/02 NAS 9-1100

CODE IDENT NO. 28512	
LDW280-28792	SH 3

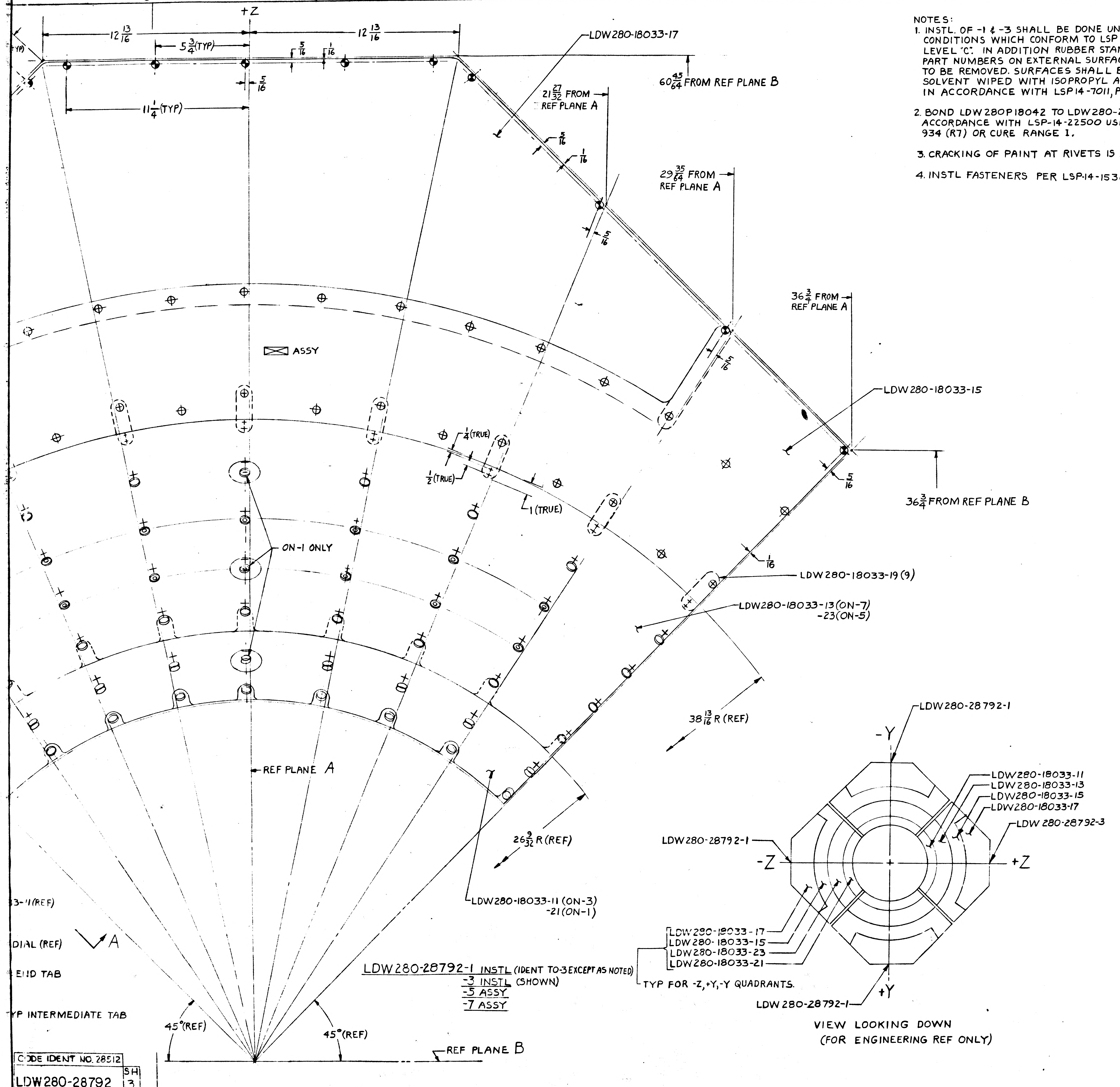
MF

NOTES:
1. INSTL. OF -1 & -3 SHALL BE DONE UNDER CONDITIONS WHICH CONFORM TO LSP14-0011, LEVEL "C". IN ADDITION RUBBER STAMPED PART NUMBERS ON EXTERNAL SURFACES ARE TO BE REMOVED. SURFACES SHALL BE HAND SOLVENT WIPED WITH ISOPROPYL ALCOHOL IN ACCORDANCE WITH LSP14-7011, PARA 3.4.2.

2. BOND LDW280P18042 TO LDW280-25662 IN ACCORDANCE WITH LSP-14-22500 USING EPON 934 (R7) OR CURE RANGE I.

3. CRACKING OF PAINT AT RIVETS IS PERMISSIBLE.

4. INSTL FASTENERS PER LSP-14-15302.


+Z
12 13/16
5 3/4 (TYP)
5/16
1/16
12 13/16
(TYP)
5/16
11 1/4 (TYP)
LDW280-18033-17
21 27/32 FROM REF PLANE A
60 45/64 FROM REF PLANE B
5/16
1/16
29 35/64 FROM REF PLANE A
5/16
36 3/4 FROM REF PLANE A
5/16
ASSY
LDW280-18033-15
1/4 (TRUE)
1/2 (TRUE)
1 (TRUE)
5/16
36 3/4 FROM REF PLANE B
ON-1 ONLY
1/16
LDW280-18033-19 (9)
LDW280-18033-13 (ON-7)
-23 (ON-5)
38 13/16 R (REF)
REF PLANE A
26 9/32 R (REF)
LDW280-18033-11 (ON-3)
-21 (ON-1)
3-11 (REF)
DIAL (REF)
A
END TAB
P INTERMEDIATE TAB
45° (REF)
45° (REF)
REF PLANE B
LDW280-28792-1
-Y
LDW280-18033-11
LDW280-18033-13
LDW280-18033-15
LDW280-18033-17
LDW 280-28792-3
LDW280-28792-1
-Z
+Z
LDW280-18033-17
LDW280-18033-15
LDW280-18033-23
LDW280-18033-21
TYP FOR -Z, +Y, -Y QUADRANTS.
LDW280-28792-1
+Y

LDW280-28792-1 INSTL (IDENT TO -3 EXCEPT AS NOTED)
-3 INSTL (SHOWN)
-5 ASSY
-7 ASSY

VIEW LOOKING DOWN
(FOR ENGINEERING REF ONLY)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBERSTAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 90) = 22.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 5.625 SQ. FT.

PRINT TRIM LINE

LDW280-28792

LDW280-28792

02/02 NAS 9-1100

CODE IDENT NO. 26512
LDW280-28792 SH 3

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM MODEL OR END ITEM	SIZE J	CODE IDENT NO. 26512	LDW280-28792
	SCALE 1/2 & NOTED		SHEET 3.00

2FR

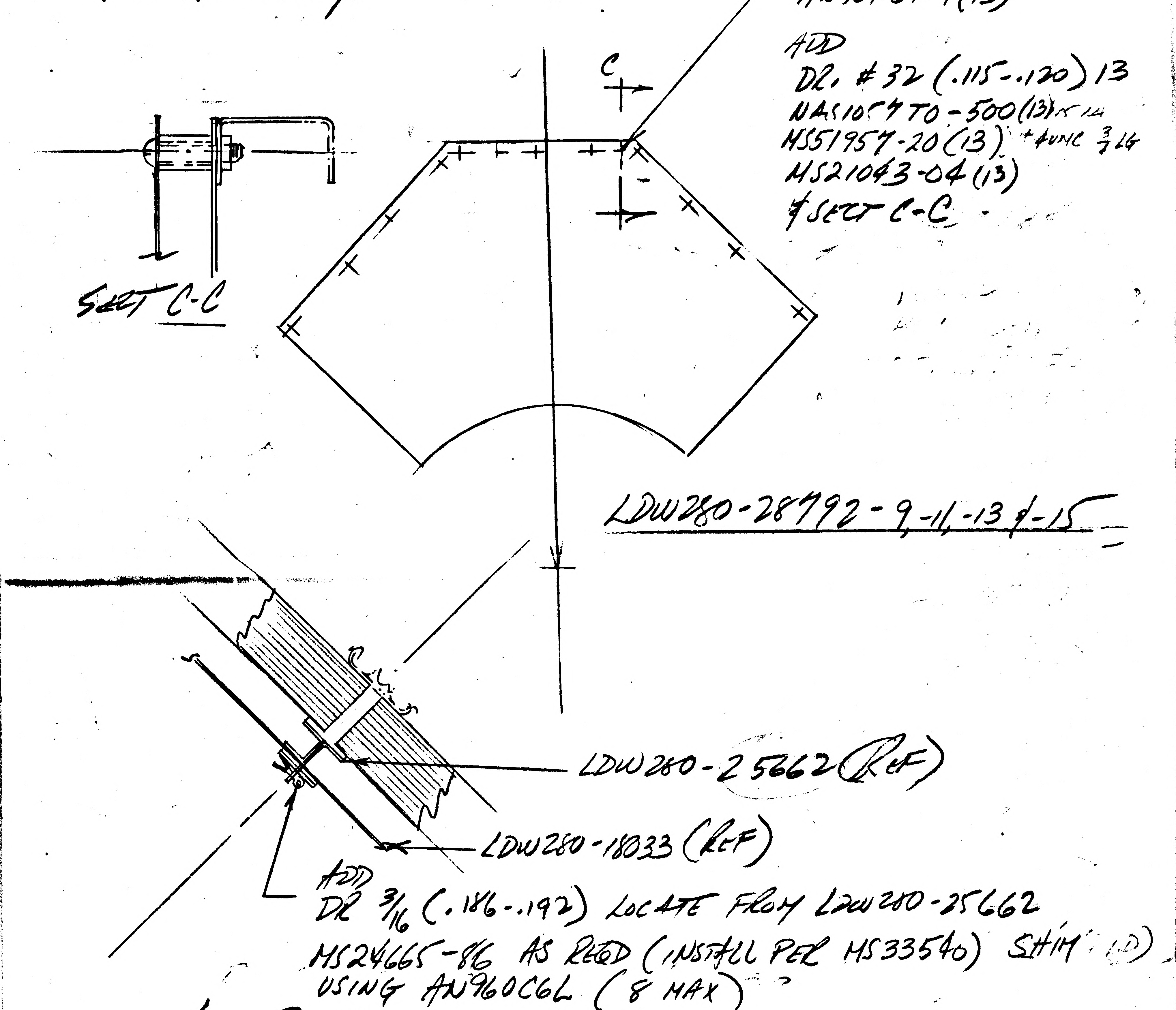
ENG 32.2 REV 3-66 *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28792	EO NO. A1
CONTROL INFO NO. LDW280A-2066	

1. REMOVE LDW280P18042-11, -13 & -15, AN504C4-4 (ALL) & NOTE #4

2. ~~ADD~~ -9, -11, -13 & -15 IDENTICAL TO & REPLACE -1, -3, -5 & -7 RESPECTIVELY EXCEPT THAT LDW280-18033-25, -27, -29, -31 -33, -35 & -37 REPLACE -11, -13, -15, -17, -19, -21 & -23 RESPECTIVELY.



3. REMOVE
LDW280P18042-13 (13)
AN504C4-4 (13)

ADD
DR. #32 (.115-.120) 13
NAS1054T0-500 (13) × 1/4
MS51957-20 (13) + UNC 3/16
MS21043-04 (13)
& SECT C-C

ADD
DR 3/16 (.186-.192) LOCATE FROM LDW280-25662
MS24665-86 AS REQD (INSTALL PER MS33540) SHIM (.D)
USING AN960C6L (8 MAX)

4. REVISE SECT B-B & SHN

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG							
REASON FOR EO: STAINLESS STEEL SKINS REPLACE ALUMINUM SKINS (TEMP. INCREASE)				DESCRIPTION OF EO: REMOVE LDW280P18042 -11, -13 & -15, AN504C4-4 NOTE #4, -1, -3-5-7 & LDW280-18033-11, -13, -15, -17, -19, -21 & -23, ADD AN960C6L, MS24665-86, -9, -11, -13 & -15 & LDW280-18033-25, -27, -29, -31, -33, -35 & -37							GAEC C EO RELEASE: VE 10/17
MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG ✓	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP ✓	APPROVED BY / DATE: ✓	VD1 HLS 10/13/66	THERMO ~~SUPPORT~~ 10/14/66	RELIAB. GROUP
LEM		LTA-8 (18)									

GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
	WJH 10/12/66		RMC (WB) 10-12-66	10/14/66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN INSTL DESCENT STAGE RBHS - THERMAL CONTROL	LDW280-28792	A1

ISSUED BY Roy VAN COTT X1153 SECTION VD1 GROUP NO 335 PL 35

01

NAS 9-1100

H G.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28792
EO NO. A2
CONTROL INFO NO. LM-2-2993

THIS IS A REVISION OF EO-A1

ON-13 &-15 IN B/M. & F/D.

MS20615-3M (18) (WAS) MS20470-A3 (18)

SHEET-3 F/D

REMOVE NOTE *5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

2

REASON FOR EO: ~STAINLESS STEEL SKINS REPLACE ALUMINUM SKINS (TEMP. INCREASE)

DESCRIPTION OF EO: REF. EO-A1 MS20615-3M (18) WAS MS20470-A3(18) REMOVED NOTE *5

GAEC EO RELEASE: P C FR

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LTA-8 (18	

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
✓		✓	

APPROVED BY	JJS				CAW	CAW	RMC	JRP
DATE	12/15				11/10/66	11/10/66	11-14-66	11/10/66
-1-	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C2
DRAWING TITLE: SKIN INSTL-DESCENT STAGE~ RBHS-THERMAL CONTROL
DRAWING NO.: LDW280-28792
EO NO.: A2

ISSUED BY LIAISON -T.J. MARTIN -X3604 11-10-66 SECTION V.D.I. GROUP NO. 335 PL 35

0 1 NAS 9-1100

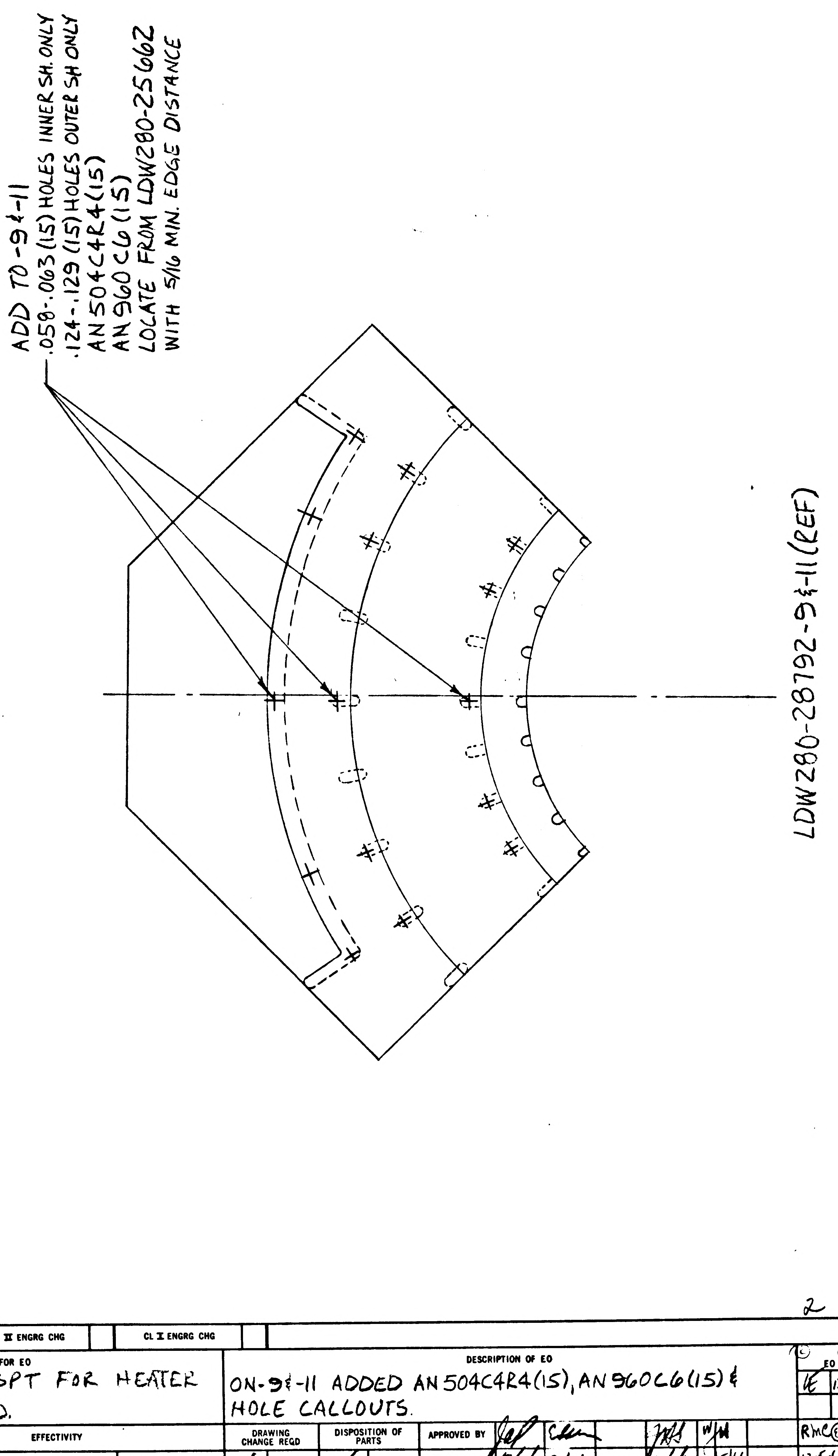
NG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28792	EO NO. A3
CONTROL INFO NO. LDW280A3996	

01

NAS 9-1100



ADD TO -9&-11
.058-.063 (15) HOLES INNER SH. ONLY
.124-.129 (15) HOLES OUTER SH ONLY
AN504C4R4(15)
AN960C6 (15)
LOCATE FROM LDW280-25662
WITH 5/16 MIN. EDGE DISTANCE
LDW280-28792-9&-11(REF)

2

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG

REASON FOR EO: ADDITIONAL SPT FOR HEATER SKINS REQ'D.

DESCRIPTION OF EO: ON-9&-11 ADDED AN504C4R4(15), AN960C6(15) & HOLE CALLOUTS.

GAEC EO RELEASE: 12/5

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY					W/M		RMC	
DATE	12/3/66	12/5/66		12/5/66	12/5/66		12-5-66	12/5/66
	V.D.							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN INSTL.~DES. STG~R.B.HS.~THERM. CONTROL	LDW280-28792	A3

ISSUED BY R. WINK/J. STRAKOSCH SECTION VEH. DES. INT. GROUP NO. 335 PL 35

ENG 32.1 REV 3-65 B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28792
EO NO. A4
CONTROL INFO NO. LM5-12314

THIS IS A REVISION OF EO A1
ON -9, -11, -13, & -15 F/D + B/M

ON EOA1 SPACER NAS1057T0-500(13)
SHOULD BE
NAS 1057T0-050(13)

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: INCORRECT LENGTH OF SPACER CALLED OUT

DESCRIPTION OF EO: REF EO A1 ON -9, -11, -13, & -15 NAS1057T0-050(13) WAS NAS1057T0-500(13).

GAEC EO RELEASE: 6 C 18 05 025

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY					WPB			
DATE	2/20				2/3/67	2-3-67	2-9-67	2/9/67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~QUT~~

PRIORITY: C
DRAWING TITLE: SKIN INSTL DESCENT STAGE RBHS - THERMAL CONTROL
DRAWING NO.: LDW280-28792
EO NO.: A4

ISSUED BY LIAISON J. GRASSIANO X6216 SECTION V DI GROUP NO. 335 PL 35

01

NAS 9-1100

LDW280-28803

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28804	LEM-6(36	2
↕	↕	LEM-5(35)	2
		LEM-4(34)	2
		LEM-3(33)	2
		LEM-2 (32)	2
		LEM-1 (31)	2
LEM	LDW280-28804	LTA-8(18	2
PART NO. LDW280-28803-1		GAEC SCH NO. 521	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED A

LAST DASH NO. USED -5

GRUMMAN REL^G INFO

PRIM NO. VE(001)

207 MP-9 12-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED

FRACTIONS - DECIMALS - ANGLES

± 1/16 ±.030 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM # 1

DOCUMENTATION TYPE II

DRAWN BY	MAJUK 9-8-66	THERMO	9/13/66
LAYOUT BY	MAJUK 9-8-66	RELIABILITY	
CHECKED BY			
GRP LEADER	9/8/66		
VEH.DES.INT	9/9/66		
STRUCTURES	9/9/66	PROJ ENGR	R.M. Carbee 9-10
STRUCTURES	Alderman 9/9	REL GROUP	Botti 10-5-66
WEIGHTS	L. Garcia 9/16/66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL ASSY
DESCENT STAGE-QUAD III-AMBIENT He
ACCESS-PLUME IMPINGEMENT SHIELD

SIZE B

CODE IDENT NO. 26512

LDW280-28803

SCALE NONE

SHEET 1.00 OF 3

ENG 77.1 12-65

01 NAS 9-1100

						AS REQ'D	94725	MESH		INCONEL KNIT	SLEEVING						
				2				LDW280-17950-43	E	FOIL SHEET	SEE DWG						
					1			LDW280-18125-13	E	ANGLE	SEE DWG						
					1			LDW280-18125-11	E	ZEE	SEE DWG						
C					1			LDW280-28805-5	E	FOIL SHEET ASSY					FLW		
C						1		LDW280-28805-3	E	FOIL ASSY					FLW		
C								LDW280-28805-1	E	FOIL ASSY (WELD)					FLW		
C.L.				-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	QTY PER ASSEMBLY																

C.L. = CLEANLINESS LEVEL PER LSP 14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELDING	LSP 14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

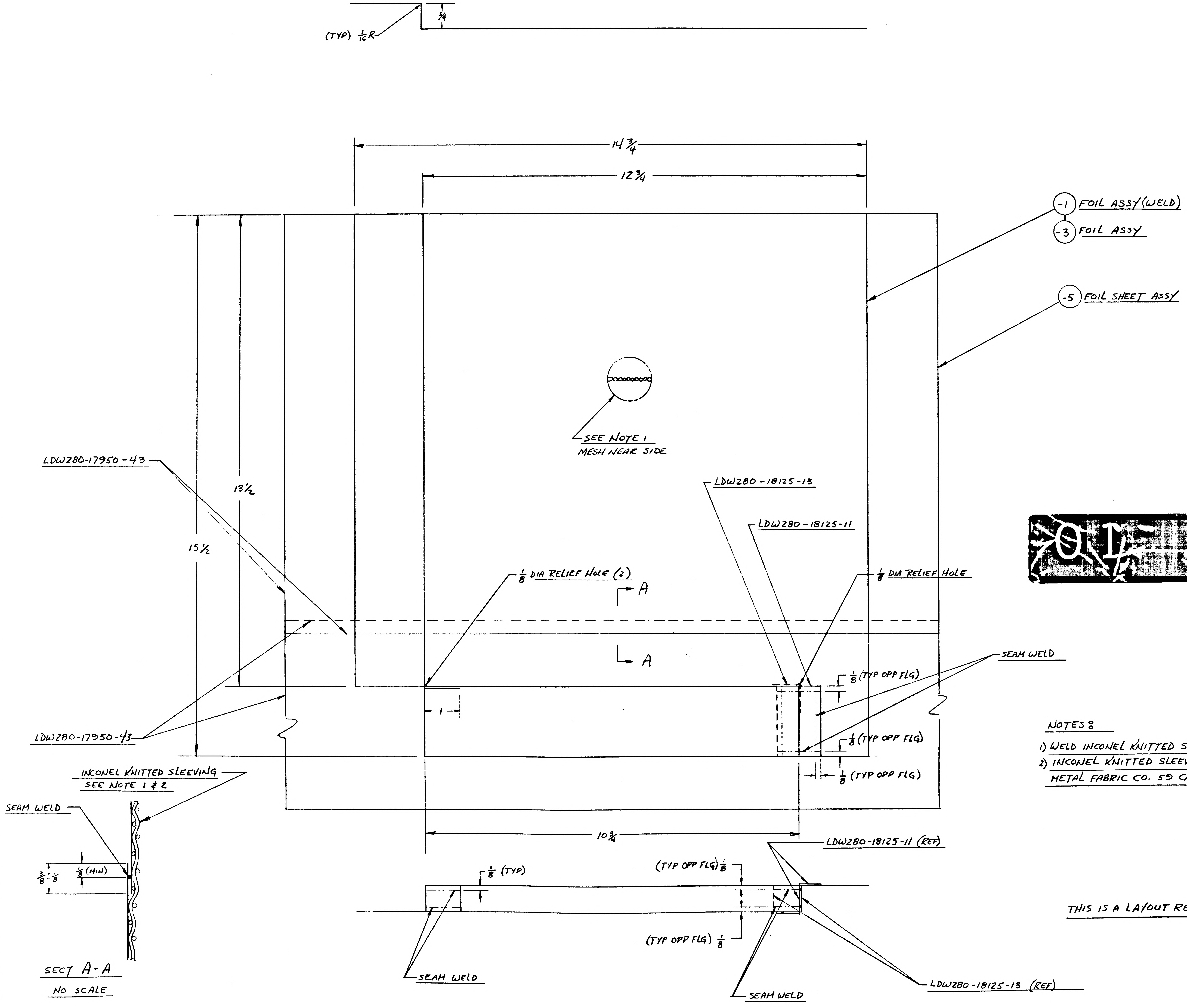
SIZE	CODE IDENT NO.	
B	26512	LDW280-28803

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01 NAS 9-1100


(TYP) 1/16 R
1/4
14 3/4
12 3/4
-1 FOIL ASSY (WELD)
-3 FOIL ASSY
-5 FOIL SHEET ASSY
SEE NOTE 1
MESH NEAR SIDE
LDW280-17950-43
13 1/2
15 1/2
LDW280-18125-13
LDW280-18125-11
1/8 DIA RELIEF HOLE (2)
1/8 DIA RELIEF HOLE
A
A
SEAM WELD
1/8 (TYP OPP FLG)
1/8 (TYP OPP FLG)
1/8 (TYP OPP FLG)
1
LDW280-17950-43
INCONEL KNITTED SLEEVING
SEE NOTE 1 & 2
SEAM WELD
3/8 ± 1/8
1/8 (MIN)
10 3/4
LDW280-18125-11 (REF)
1/8 (TYP)
(TYP OPP FLG) 1/8
(TYP OPP FLG) 1/8
SEAM WELD
SEAM WELD
LDW280-18125-13 (REF)
SECT A-A
NO SCALE

NAS 9-1100

NOTES:

1) WELD INCONEL KNITTED SLEEVING TO -3 FOIL ASSY AS PER LDW280-17522.
2) INCONEL KNITTED SLEEVING MAY BE PURCHASED FROM MONTGOMERY METAL FABRIC CO. 59 CANEL ST, WINDSOR LOCKS, CONN. (CODE IDENT. 94725)

THIS IS A LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED

TOLERANCE ON LOFTED DELINEATIONS IS

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK
SIZE E
CODE IDENT NO. 26512
LDW280-28803
LEM
MODEL OR END ITEM
SCALE FULL & NOTED
SHEET 3 - 0

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LEO 280	EO NO. 316
CONTROL INFO NO. LDW 280A 0936	

ON THE FOLLOWING DRAWINGS ADD NOTE *:
*) INCONEL KNITTED SLEEVNG TO BE OXIDIZED BY EXPOSURE TO 1650 ±50°F IN AIR FOR FOUR (4) HOURS. FOR LTA5 (15) AND LTA 8 (18) OXIDIZATION IS OPTIONAL

DRAWING:	EFF	CHANGE NO.	TITLE
LDW280-25708	QUAL TEST LM1 THRU LM6 LTA5 & 8	B3	SEE DRAWING
LDW280-28735	LM1 THRU LM6 LTA8	C1	
LDW280-28737	"	A4	
LDW280-28740	"	B1	
LDW280-28743	"	A4	
LDW280-28746	"	B1	
LDW280-28749	"	A6	
LDW280-28752	"	B1	
LDW280-28755	LTA-8 & LM-1	A5	
LDW280-28759	LTA-8 LM-1 THRU LM-6	B1	
LDW280-28764	"	B1	
LDW280-28768	" & LM-1	B1	
LDW280-28771	LTA-8, LM-1 THRU LM-6	B1	
LDW280-28774	"	A6	
LDW280-28803	"	A1	SEE DRAWING
LDW280-28819	"	A1	SEE DRAWING

* - USE NEXT AVAILABLE NUMBER

3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: THERMO REQUIREMENT

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: C 10/18

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		NOTED ABOVE	
LM			
LM			

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

	VDI	SUPPORT	RELIAB. GROUP	~~GROUP~~ LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY				KGM				
DATE				MAT'LS 10/7/66			10/12/66	10/15/66

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO 280

EO NO.: 316

ISSUED BY AMBRUSIO / STRAKOSCH X1153 SECTION V. D. 1 GROUP NO. 335 PL 35 EMF

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ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMP-A

DWG. NO. LEO 280 | EO NO. 421
CONTROL INFO NO. LDW280A-4411

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
— — —			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM6	B 2	
LDW280-28734	"	A 8	
LDW280-28735	"	C 3	
LDW280-28746	LTA8(18) LM-1 (31) THRU LM-15(45)	B 3	
LDW280-28747	LTA8 (18) LM-1 (31) THRU LM-6(36)	B 1	
LDW280-28749	"	A 7	
LDW280-28750	"	B 3	
LDW280-28752	"	B 2	
LDW280-28753	"	A 3	
LDW280-28755	LTA 8 (18) LM-1 (31)	A 7	
LDW280-28756	LTA8(18) LM-1(31) THRU LM-15(45)	A 6	
LDW280-28759	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28760	"	B 1	
LDW280-28768	LM-1(31)	B 2	
LDW280-28769	LM-1(31)	B 1	
LDW280-28771	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28772	"	B 1	
LDW280-28774	"	A 7	
LDW280-28775	"	B 2	
LDW280-28803	"	A 2	
LDW280-28805	"	A 1	
LDW280-51824	LM-1(31) THRU LM-15(45)	A 1	
LDW280-51825	"	A 2	
LDW280-51829	"	A 1	
LDW280-51830	"	A 1	
LDW280-51834	"	A 1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC280-19

2

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: K 12/20

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REWORK | REQ'D SCRAP

APPROVED BY								
	Gap	AB		JKS				
DATE	12/6/66	12/16/66		12/16/66	12/16/66		12/20	12-20-66
/	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 421

ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

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GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMP-4

DWG NO. LEO280 | EO NO. 476
CONTROL INFO NO. LDW280 A 5542

TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH* NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45). QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280 - 25703 ✓	A6	SEE DRAWING
-25704 ✓	B1	
-25706 ✓	B1	
-25707 ✓	B4	
-25708 ✓	B6	
-28647 ✓	C1	
-28652 ✓	B8	
-28669 ✓	A3	
-28672 ✓	C1	
-28721 ✓	A2	
-28727 ✓	B2	
-28752 ✓	B3	
-28761 ✓	A4	
-28762 ✓	A1	
-28771 ✓	B5	
-28774 ✓	A8	
-28776 ✓	A1	
-28778 ✓	A1	
-28779 ✓	A4	
-28803 ✓	A3	
-28816	A2	
-28819	A2	
-51560	C1	
-51818	A3	
-51823	A1	
-52723	A5	
LDW280		SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
ADDITIONAL REQUIREMENTS	FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.	FR 2/23/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM-9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT REQ'D	

PRIORITY: C

APPROVED BY	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
					WJH		RAM	
DATE 0	2/16/67				2/15/67		2-16-67	2-17-67

DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 476

ISSUED BY M. GREY / J. STRAKOSCH X-1153   SECTION VEHICLE DESIGN INT.   GROUP NO. 280 / PL 35

B P.S.

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 530
CONTROL INFO NO. LM-2-3459

IN MODEL BLOCK, FOR DRAWINGS & DASH NUMBERS LISTED BELOW, DELETE LTA-8(18) EFFECTIVITY.

DRAWING NUMBER	DASH NUMBER	CHANGE NUMBER	TITLE
LDW280-28772 ✓	-5	B5	SEE DRAWING
LDW280-28803 ✓	-1	A4	↕
LDW280-28804	-1	A5	
LDW280-28805	-1	A5	SEE DRAWING

(*) ADD APPLICABLE DASH NUMBER IN DESCRIPTION OF CHANGE

DETAIL SPEC REQ ☐ CL II ENGRG CHG ✓ CL I ENGRG CHG ☐

2 C

REASON FOR EO: LTA-8(18) EFFECTIVITY NO LONGER REQUIRED

DESCRIPTION OF EO: IN MODEL BLOCK, FOR DASH (*), DELETED LTA-8(18) EFFECTIVITY.

R GAEC EO RELEASE: JK 02131

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓

				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	J.J.R.			~		CCf	RMC	
DATE	4/13/67			~	3/29/67	3/29/67	4-3-67	3/29/67
-1-	V.D.I.	SUPPORT	RELIAB. GROUP					

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO. LE0280
EO NO. 530

ISSUED BY LIAISON J. MALONEY 3/28/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

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GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 912
CONTROL INFO NO. LDW280B2751

ON DASH NOS. NOTED * WITH N/A NOTED ** RESTRICT EFFECTIVITY REQUIREMENTS ON THE FOLLOWING DWG. TO LM-1(31) & LM-2(32). PARTS WERE USED ON LM-1(31) THRU LM-15(45)

DWG NO	DASH NO. *	TITLE	N/A **	CHANGE NO.
✓ LDW280-28803	-1	SEE DWG	LDW280-28804	A5
-28805	-7		-28804	A7
-28771	-9		-28770	B6
-28772	-11		-28770	B7
-18083	-15		-28772	A7
-18083	-17		-28772	
-18083	-15		-28805	
-18083	-17		-28805	
-18125	-11		-28771	B3
-18125	-13		-28771	
-18125	-11		-28803	
LDW280-18125	-13	SEE DWG.	LDW280-28803	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD2360 PKG 18 (6)

REASON FOR EO: PLUME IMPINGEMENT PROTECTION

DESCRIPTION OF EO: RESTRICTED - * WAS USED ON LM-1(31) THRU LM-15(45)

GAEC EO RELEASE: VC 4/8/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY									
DATE	4/3/68	4/3/68		4-4-68	4/3/68		4/3/68	4-8-68
P	VDI	THERMO SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY C
DRAWING TITLE: SEE ABOVE
DRAWING NO. LEO 280
EO NO. 912

4.2
ISSUED BY F. LANZARO/P. THORJUSEN X1153 SECTION VDI GROUP NO 335 PL 25
040568

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1

LDW280-28804 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

LEM	LDW280-28815	LEM-3(31)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28804-7		GAEC SCH NO.	

LEM	LDW280-28815	LEM-2(32)	1
LEM	LDW280-28815	LEM-1(31)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28804-5		GAEC SCH NO. 521	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	C	GRUMMAN REL INFO A		
LAST DASH NO. USED	-17	PRIM NO. 207	SK(001) ME-16	A-3/18/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/16 ±.030 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100		LINE ITEM #1	DOCUMENTATION TYPE II	
DRAWN BY	MAJUK 9-9-66	THERMO	R. Haslett 9/9/66	GRUMMAN AIRCRAFT ENGRG CORP BETHPAGE, L. I., NEW YORK
LAYOUT BY	MAJUK 9-9-66	RELIABILITY		
CHECKED BY				SHIELD ASSY DESCENT STAGE~QUAD III~AMBIENT He ACCESS~PLUME IMPINGEMENT SHIELD
GRP LEADER	9/9/66			
VEH DES. INT	9/9			
STRUCTURES	WB 9/10/66	PROJ ENGR	R M. Carbee (E) 9-12	SIZE B · CODE IDENT NO. 26512 · LDW280-28804 · A
STRUCTURES	R. HALDERMAN	REL GROUP	9-20-66	SCALE NONE · SHEET 1.00 OF 4
WEIGHTS	9/15			

G 77.1 12-65

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NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 3.00							INC EO A1 ADDED SH 1.10	LTA-8, LM-1 THRU LM-15			D. STELLABOTTE 2-26-69		
	2	2.00, 3.00							INC EO A2						
	3	1.00, 2.00 3.00		S					INC EO A3	LM-1 THRU LM-15					
	4	1.00, 2.00 3.00		S					INC EO A4	LM-1					
	5	1.00							INC LEO 280-530	LTA-8					
	6	2.00 3.00							INC LEO 280-589	LM-1 THRU LM-15					
	7	1.00, 2.00 3.00		S					INC EO A7	LM-3 THRU LM-15			E.C.G.		
	8								REF. EO A2: IN FLD & DESCRIPTION OF EO. "REMOVE -7" NOT APPLICABLE.	NOT REQ'D					
	9	3.00 2.00				✓		LCD 2360 Ⓡ	REF. EO A7: ON-7 GB 13-1 (4) N.S. & GB 13-4 (4) F.S. SHOULD BE GF 13B-1 (4) N.S. & GF 13B-11 (4) F.S.	LM-3 THRU LM-15		H.D.	3/17/69	F. Zukas 2-26-69	3-16-69

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	THERMO
	A	RC 3/10/69	3/12/69		3/14/69		MR 3/14/69

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW 280-28804	A
SCALE NONE			SHEET 1.10

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ENG 77.16 3-66

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C.L.	QTY PER ASSEMBLY			-13	-7	-5	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				1			94725	LDW280-28804 -17	E	MESH	SEE NOTES 4 & 7						
				1				LDW280-28804 -15	E	FOIL	SEE NOTES 4 & 6						
					2	2		LDW280-28804-13	E	FOIL ASSY	SEE NOTE 4						
					1	1		LDW280-28804-11	E	SKIN	SEE NOTES 4 & 8						
					4			GF13B-11	E	FASTENER ASSY	GRUMMAN STD						
					4			GF13B-1	E	FASTENER ASSY	GRUMMAN STD						
						A/R		GT835P-8	E	TAPE	GRUMMAN STD						
					A/R	A/R		GS577A-4	E	STAPLE							
					1	1		GS11K-3-096	E	STRIP							
					1	1		GS11K-3-036	E								
					1	1		GS11K-3-023	E								
					1	1		GS11K-3-022	E								
						1		GS11K-2-096	E								
						1		GS11K-2-036	E								
					1	1		GS11K-1-7	E								
					1	1		GS11K-1-3	E								
					1	1		GS11K-1-2	E								
					1	1		GS11K-1-1	E	STRIP	GRUMMAN STD						
						4		LDW280-17932-13	E	WASHER	SEE DWG						
						4		LDW280-23720-3	E	BUTTON	SEE DWG						
						2		LDW280-28803-1	E	FOIL ASSY	SEE DWG						
						1		LDW280-28805-7	E	SKIN ASSY	SEE DWG						
C								LDW280-28804-7	E	SHIELD ASSY							
C								LDW280-28804-5	E	SHIELD ASSY							

C.L. = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28804	A
SCALE NONE		SHEET 2.00	

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ENG 77.2 7-65

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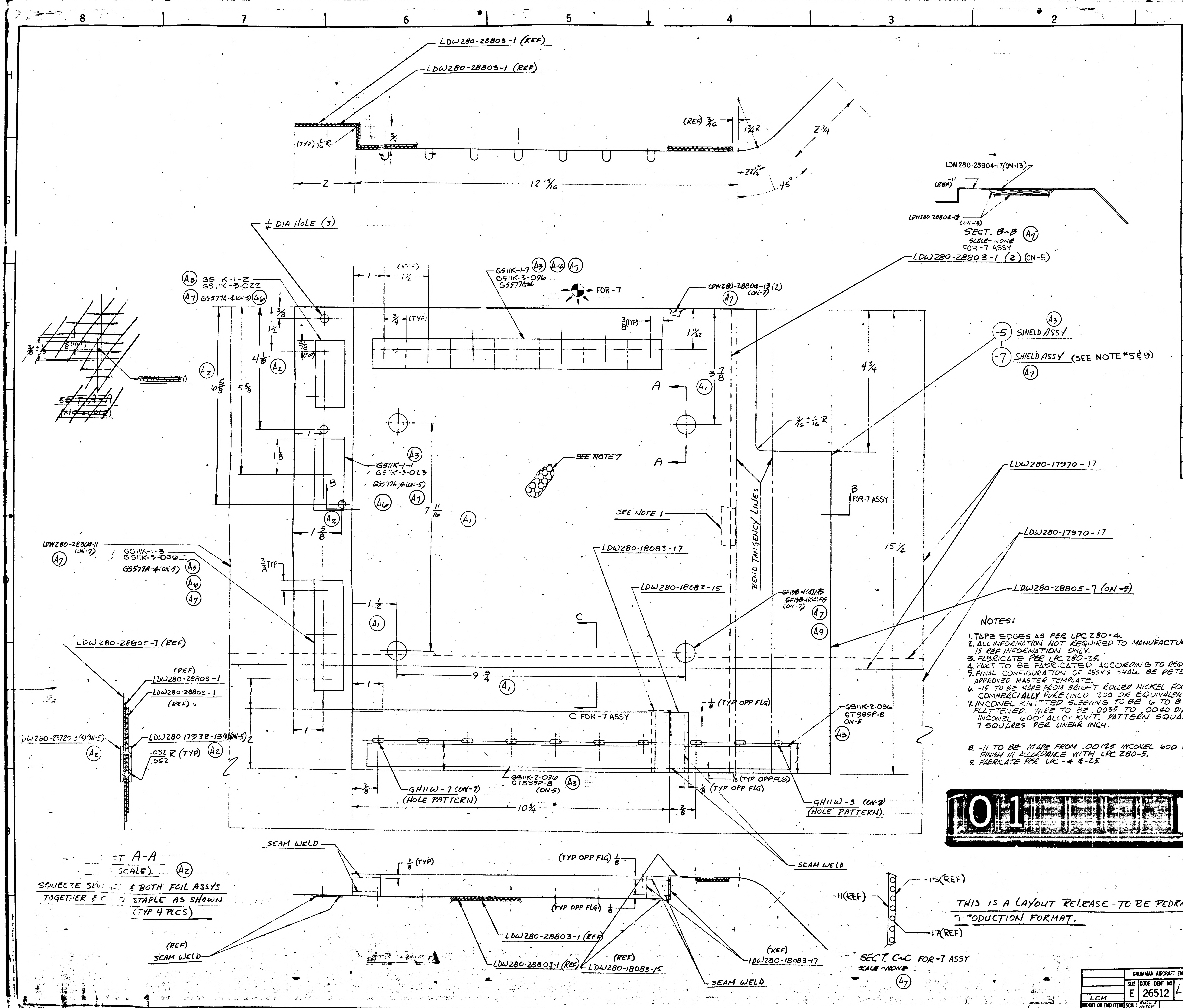
NAS 9-1100


LDW280-28803-1 (REF)
LDW280-28803-1 (REF)
(TYP) 1/16 R
3/4
(REF) 3/16
1 3/4 R
2 3/4
22½°
45°
2
12 5/16
LDW280-28804-17(ON-13)
(REF) -11
LDW280-28804-13 (ON-13)
SECT. B-B
SCALE-NONE
FOR-7 ASSY
A7
1/4 DIA HOLE (3)
GS11K-1-7
GS11K-3-096
GS577A
A3 A6 A7
FOR-7
LDW280-28804-13 (2) (ON-7)
LDW280-28803-1 (2) (ON-5)
A3 GS11K-1-2
GS11K-3-022
A7 GS577A-4(ON-5) A6
SEAM WELD
SECT A-A (NO SCALE)
3/8
1 1/2
4 1/8
6 5/8
5 5/8
1 1/8
A2
A1
3/16 - 1/16 R
4 3/4
3 7/8
A
A
SEE NOTE 7
GS11K-1-1
GS11K-3-023
GS577A-4(ON-5)
B
B FOR-7 ASSY
7 11/16
1 5/8
SEE NOTE 1
BEND TANGENCY LINES
15 1/2
LDW280-17970-17
LDW280-17970-17
LDW280-28804-11 (ON-7)
GS11K-1-3
GS11K-3-036
GS577A-4(ON-5)
LDW280-18083-17
LDW280-18083-15
GF13B-1(4)-5
GF13B-1(4)F5 (ON-7)
LDW280-28805-7 (ON-5)
A9
3/8 TYP
1 1/2
C
9 3/4
C FOR-7 ASSY
LDW280-28805-7 (REF)
(REF) LDW280-28803-1
LDW280-28803-1 (REF)
LDW280-23720-3(4)(ON-5)
LDW280-17932-13(4)(ON-5)
.032 R (TYP)
.062
1/8 (TYP OPP FLG)
GS11K-2-036
GT835P-8 ON-5
GH11W-7 (ON-7) (HOLE PATTERN)
GS11K-2-096
GT835P-8 (ON-5)
1/8 (TYP OPP FLG)
GH11W-3 (ON-7) (HOLE PATTERN)
10 3/4
2/8
SEAM WELD
SECT A-A (NO SCALE)
SQUEEZE SKINS & BOTH FOIL ASSYS TOGETHER & STAPLE AS SHOWN. (TYP 4 PLCS)
SEAM WELD
1/8 (TYP)
(TYP OPP FLG) 1/8
(TYP OPP FLG) 1/8
(REF) SEAM WELD
LDW280-28803-1 (REF)
LDW280-28803-1 (REF)
(REF) LDW280-18083-15
(REF) LDW280-18083-17
SEAM WELD
-15 (REF)
-11 (REF)
-17 (REF)
SECT. C-C FOR-7 ASSY
SCALE-NONE
A7
-5 SHIELD ASSY A3
-7 SHIELD ASSY (SEE NOTE #5 & 9) A7

NOTES:

1. TAPE EDGES AS PER LPC 280-4.
2. ALL INFORMATION NOT REQUIRED TO MANUFACTURE LDW280-28804-5 & -7 IS REF INFORMATION ONLY.
3. FABRICATE PER LPC 280-25.
4. PART TO BE FABRICATED ACCORDING TO REQUIREMENTS OF LPC-280-12.
5. FINAL CONFIGURATION OF ASSY'S SHALL BE DETERMINED FROM APPROVED MASTER TEMPLATE.
6. -15 TO BE MADE FROM BRIGHT ROLLED NICKEL FOIL .0005 COMMERCIALLY PURE (INCO 200 OR EQUIVALENT)
7. INCONEL KNITTED SLEEVING TO BE 6 TO 8 INCHES WHEN FLATTENED. WIRE TO BE .0035 TO .0040 DIA. ROUND "INCONEL 600" ALLOY KNIT. PATTERN SQUARE TYPE 5 TO 7 SQUARES PER LINEAR INCH.

8. -11 TO BE MADE FROM .00125 INCONEL 600 PER AMS5540E FINISH IN ACCORDANCE WITH LPC 280-5.
9. FABRICATE PER LPC-4 & -25.

THIS IS A LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT.

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MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS 2-3 IMP THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING THICKNESS OF PLATE .0003 MIN TO .0005 MAX MIN THICKNESS TO BE .0002 ON THREADED AREAS NO ALLOWANCES FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL STD 10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS BREAK ALL EDGES .015 .031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LEM	SIZE E	CODE IDENT NO. 26512	LDW280-28804	A
MODEL OR END ITEM	SCALE FULL / NOTED		SHEET 3 of 0	

THIS IS AN ORIGINAL DWG

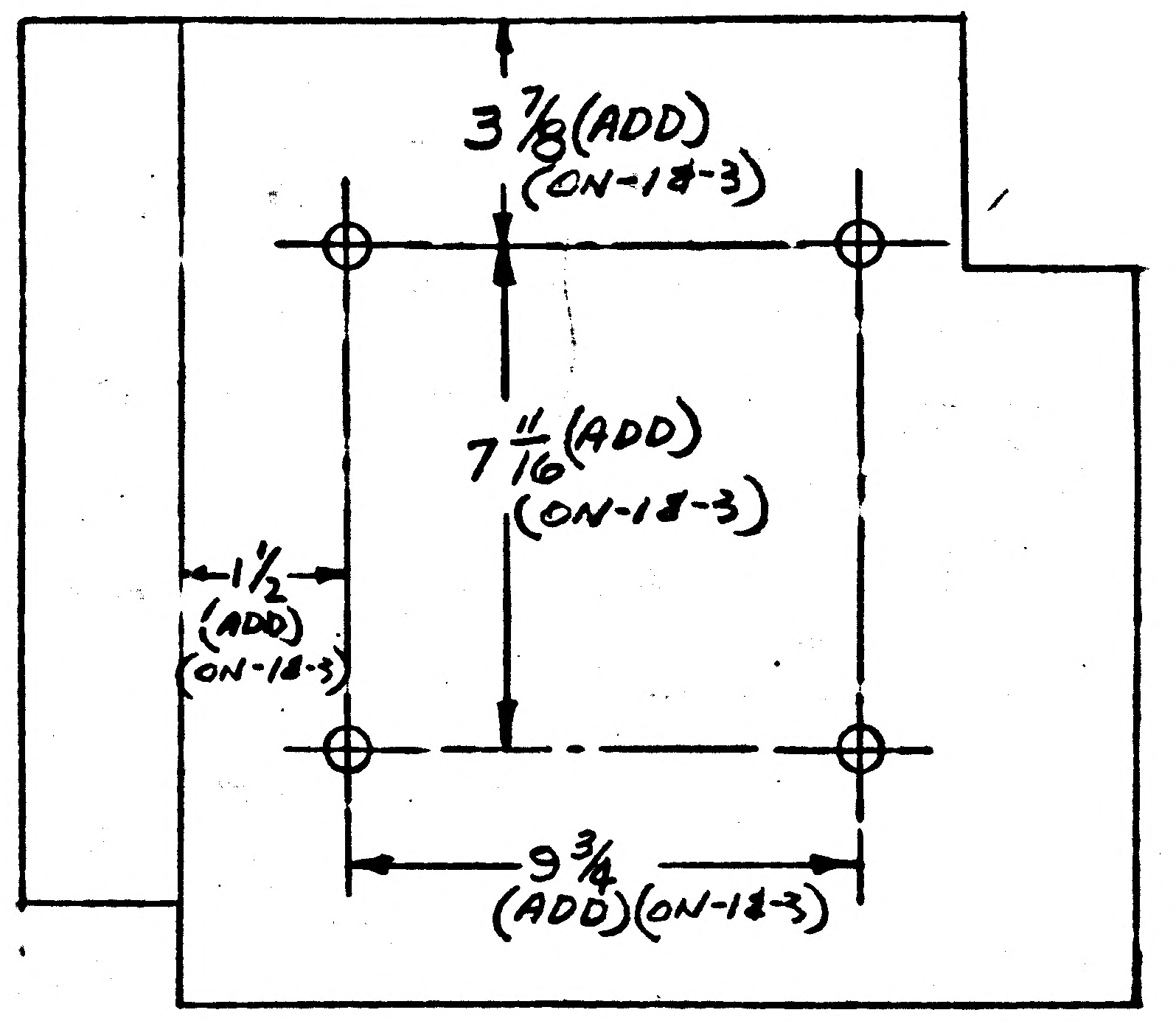
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

*

DWG. NO. LDW280-28804
EO NO. A1
CONTROL INFO NO. LDW280A2792

INF/D ADD DIM'S AS SHOWN BELOW
ADD ON-3 EFF LM-7(37) THRU LM-15(45) N/A LDW280-28815 1 REQ/MOD



2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		

REASON FOR EO
ADDED DIM'S NOT SHOWN ON ORIGINAL RELEASE

DESCRIPTION OF EO
ADDED DIM'S 3 7/8, 7 11/16, 1 1/2, 9 3/4 (ON-1 & -3)
ADDED ON-3 EFF. LM-7(37) THRU LM-15(45) N/A LDW280-28815

GAEC EO RELEASE: VE 11/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18) LM-1(31) THRU LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	JaP	VJL					RMC	
DATE	10/27/66	11/1		11/1/66	11/1/66		11-2	11-7-66
1	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SHIELD ASSY D/S QUAD III AMBIENT He ACCESS PLUME IMPINGEMENT SHIELD
DRAWING NO.: LDW280-28804
EO NO.: A1

ISSUED BY R CLARK/J STRAKOSCH SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

B

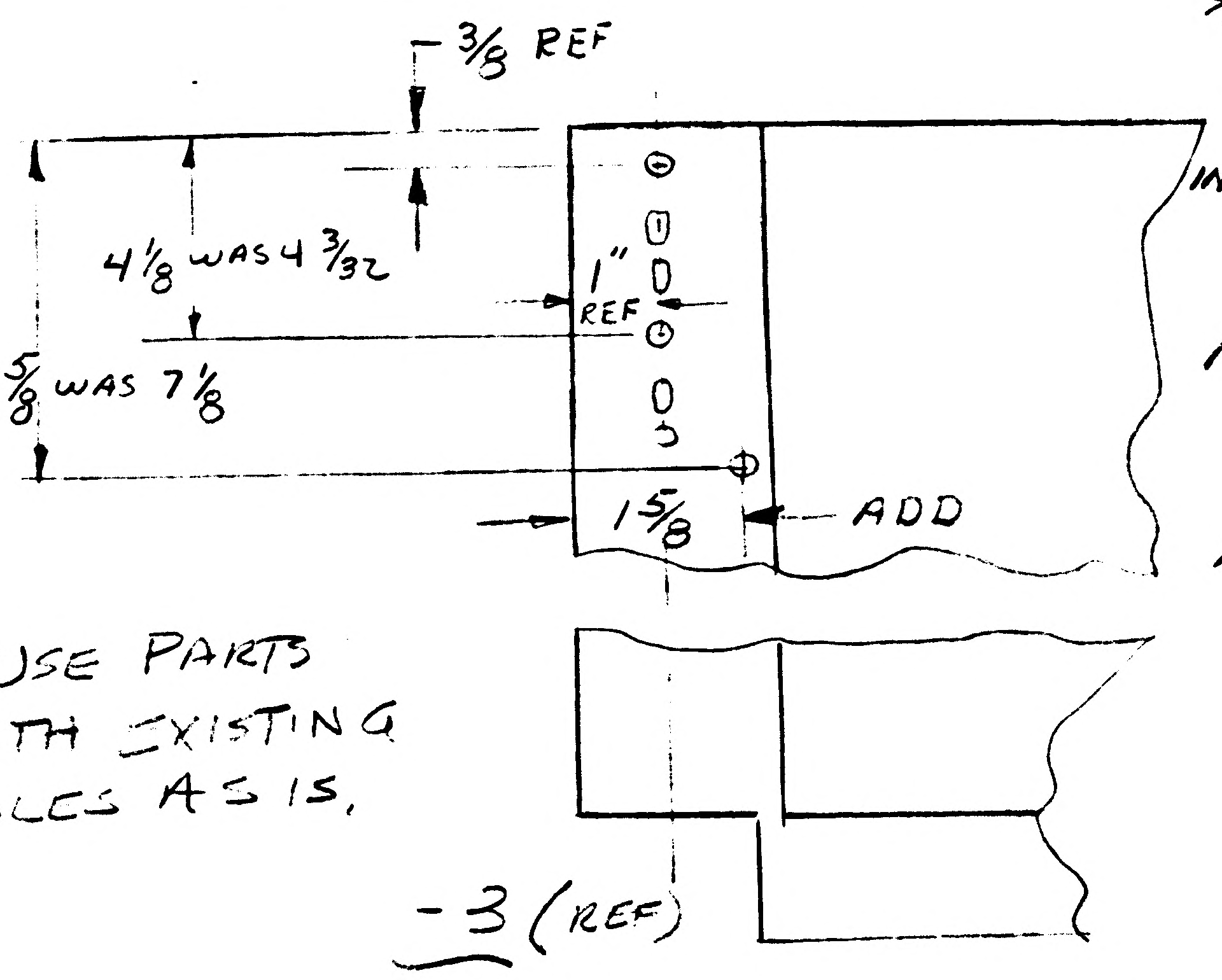
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER EMF A

DWG. NO. LDW280-28804		EO NO. A2	
CONTROL INFO NO. LM-29-1040			



* IN F/D ELIM LDW280-23720-3
WAS LDW280-23720-1
IN L/M LDW280-17932-13 WAS
LDW280-17932-11
IN F/D LDW280-17932-13 WAS
LDW280-17932-11
IN F/D SECT A-A REMOVE
"DIRECTION OPTIONAL"

** USE PARTS
WITH EXISTING
HOLES AS IS.

DELETE -7 ASSY. (LTA-8: REF.)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: CORRECTED HOLE PATTERN TO AGREE WITH N/A. REVISED DWG NUMBERS TO REFLECT NEW PARTS. -7 ASSY NOT REQ'D.

DESCRIPTION OF EO: ON -3 $4\frac{1}{8}$ WAS $4\frac{3}{32}$, $6\frac{5}{8}$ WAS $7\frac{1}{8}$. ADDED $1\frac{5}{8}$ D.M. REMOVED -7. SEE * IN F/D FOR CONTINUATION OF DESCRIPTION.

GAEC EO RELEASE: R C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA 8/10	LM-1(3?)	
		THRU LM-	15(45)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		**	

APPROVED BY						CAW			
DATE	1/13					1/18/67	1-17-67	1-20-67	1/18
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER		STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C29

DRAWING TITLE: SHIELD ASSY DESCENT STAGE QUAD III - AMBIENT He ACCESS PLUME IMPINGEMENT SHIELD

DRAWING NO. LDW280-28804

EO NO. A2

ISSUED BY J ALTMAN Y7390 H. PALLMEYER X1159

SECTION VDI

GROUP NO. 335 PL 5

0 1

NAS 9-1100

A

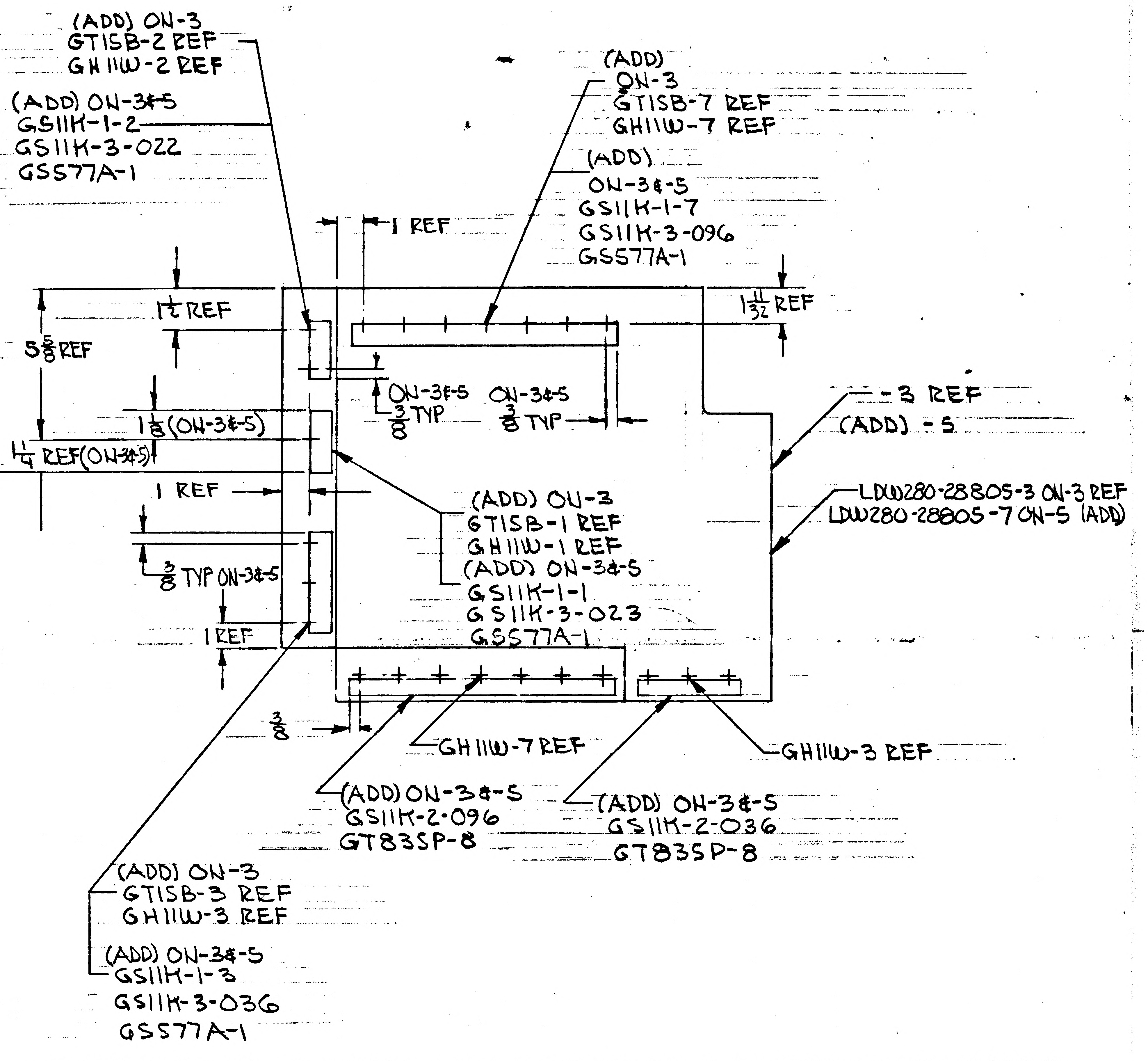
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-28804 | EO NO. A3
CONTROL INFO NO. LDW280A-5499

IN F/D & L/M FOR-3 ADD 'REF' TO GTISB--- & GH11W--- CALLOUTS, ADD GS11K-1-2, GS11K-3-022, GS11K-1-7, GS11K-3-096, GS11K-1-1, GS11K-3-023, GS11K-1-3, GS11K-3-036, GS11K-2-096, GS11K-2-036, GS577A-1 & GT83SP-8 AS SHOWN BELOW

IN M/B FOR-3 REMOVE LM2-(32) THRU LM-15(45) EFF


(ADD) ON-3
GTISB-2 REF
GH11W-2 REF
(ADD) ON-3&5
GS11K-1-2
GS11K-3-022
GS577A-1
(ADD)
ON-3
GTISB-7 REF
GH11W-7 REF
(ADD)
ON-3&5
GS11K-1-7
GS11K-3-096
GS577A-1
1 REF
1 1/2 REF
1 11/32 REF
5 5/8 REF
ON-3&5 3/8 TYP
ON-3&5 3/8 TYP
1 1/8 (ON-3&5)
1 1/4 REF (ON-3&5)
1 REF
-3 REF
(ADD) -5
LDW280-28805-3 ON-3 REF
LDW280-28805-7 ON-5 (ADD)
(ADD) ON-3
GTISB-1 REF
GH11W-1 REF
(ADD) ON-3&5
GS11K-1-1
GS11K-3-023
GS577A-1
3/8 TYP ON-3&5
1 REF
3/8
GH11W-7 REF
GH11W-3 REF
(ADD) ON-3&5
GS11K-2-096
GT83SP-8
(ADD) ON-3&5
GS11K-2-036
GT83SP-8
(ADD) ON-3
GTISB-3 REF
GH11W-3 REF
(ADD) ON-3&5
GS11K-1-3
GS11K-3-036
GS577A-1

IN F/D & L/M ADD -5 SHIELD ASSY IDENTICAL TO -3 EXCEPT LDW280-28805-7 SKIN ASSY REPLACES LDW280-28805-3. ADD GS11K-1---, GS11K-2---, GS11K-3--- GS577A-1 & GT83SP-8 ON -5 AS SHOWN ABOVE
EFF FOR -5 LM-2(32) THRU LM-15(45) 1 REQD
N/A FOR -5 LDW280-28815

ADD NOTE* FABRICATE PER LPC280-25 (USE NEXT AVAILABLE NOTE No (2)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LCR-928 IMPROVE PAINT ADHESION	IN F/D & L/M FOR-3 ADDED "REF" TO GTISB--- & GH11W--- CALLOUTS ADDED GS11K-1--, GS11K-2--, GS11K-3--, GS577A-1 & GT83SP-8 ON-3 FOR-3 REMOVED LM-2 THRU LM-15 EFF. ADDED -5. ADDED NOTE: FAB. PER LPC280-25	C 2/27/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
✓		✓	✓	APPROVED BY				—				
				DATE	2/24/67			—	2/24/67		2/25/67	2-27-67
				S	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY DES STAGE QUAD III AMB. He ACCESS	LDW280-28804	A3

ISSUED BY G. ZEMAN/J. STRATOSCH SECTION VDI GROUP NO. 335 PL35

01 NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28804
EO NO. A4
CONTROL INFO NO. LDW280A5835

REMOVE -3 ASSY.
ON-5 ADD LM-1 (31) REQMTS.

(NOTE -3 ASSY CAN BE REWORKED INTO -5 ASSY.)

(5)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCR-928

REASON FOR EO: IMPROVE PAINT ADHESION
LCR 928

DESCRIPTION OF EO: REMOVED -3 ASSY
ON-5 ADDED LM-1 (31) REQMTS.

GAEC EO RELEASE: C 3/14/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	-

5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					W/M			
DATE	3/7/67			3/7/67	3/8/67		3-14-67	3/14/67

PRIORITY: C
DRAWING TITLE: SHIELD ASSY ~ D.S. ~ QUAD III AMB He ACCESS
DRAWING NO.: LDW280-28804
EO NO.: A4

ISSUED BY Gus HANSHANN X1153 SECTION V.D.I. GROUP NO. 280 PL 35

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NAS 9-1100

B P.S.

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *

ENGINEERING ORDER

DWG. NO. LE0280		EO NO. 530	
CONTROL INFO NO. LM-2-3459			

IN MODEL BLOCK, FOR DRAWINGS & DASH NUMBERS LISTED BELOW, DELETE LTA-8(18) EFFECTIVITY.

DRAWING NUMBER	DASH NUMBER	CHANGE NUMBER	TITLE
LDW280-28772 ✓	-5	B5	SEE DRAWING
LDW280-28803 ✓	-1	A4	↕
LDW280-28804 ✓	-1	A5	
LDW280-28805	-1	A5	SEE DRAWING

(*) ADD APPLICABLE DASH NUMBER IN DESCRIPTION OF CHANGE

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

2

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LTA-8(18) EFFECTIVITY NO LONGER REQUIRED	IN MODEL BLOCK, FOR DASH (*), DELETED LTA-8(18) EFFECTIVITY.	R C JK 02131

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	J.D.R.			~	MSS	CTF	RMC
✓			✓	DATE	4/13/67			~	3/29/67	3/29/67	4-3-67
REVISE DWG	RECORD EO	REWORK	SCRAP	-1-	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

3/29/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LE0280	530

ISSUED BY LIAISON J. MALONEY 3/28/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280
EO NO. 589
CONTROL INFO NO. LDW280A6772

ON THE DWGS LISTED BELOW IN L/M & F/D AT INSTL OF ALL GS11K-1--- TAB STRIPS REMOVE GS577A-1 & ADD GS577A-4 STAPLE

DWG No *	EFF	CHANGE No	TITLE
LDW280-28559-5	LM-1(31)	B3	
LDW280-28665-5	LM-1(31)	B10	
LDW280-28733-3	LM-1(31) THRU LM-3(33)	A4	
LDW280-28736-5 & -7	LM-1(31) THRU LM-15(45)	A5	
LDW280-28748-11, -13 & -15	LM-1(31) THRU LM-15(45)	A10	
LDW280-28754-7 & -9	LM-1(31) THRU LM-15(45)	A9	
LDW280-28758-5 & -7	LM-1(31) THRU LM-3(33)	B3	SEE
LDW280-28770-5	LM-1(31) THRU LM-15(45)	B5	
LDW280-28773-11 & -13	LM-1(31) THRU LM-3(33)	A8	
LDW280-28804-5	LM-1(31) THRU LM-15(45)	A6	
LDW280-28817-7	LM-1(31) THRU LM-15(45)	A4	DWG
LDW280-51742-3	LM-1(31)	A4	
LDW280-51831-1	LM-1(31) THRU LM-15(45)	A2	
LDW280-52739-3	LM-2(32) THRU LM-15(45)	A2	
LDW280-52742-1, -3, -5, -7, -9 & -11	LM-2(32) THRU LM-15(45)	A7	
LDW280-52763-9 & -11	LM-2(32) THRU LM-15(45)	A5	
LDW280-52767-1 & -3	LM-2(32) THRU LM-15(45)	B3	
LDW280-53600-3 & -5	LM-3(33)	A3	
LDW280-54605-1	LM-4(34) THRU LM-15(45)	A2	
LDW280-54714-1	LM-4(34) THRU LM-15(45) & DES. VER. 70	A5	
LDW280-54733-1	LM-4(34) THRU LM-15(45)	A2	
LDW280-54758-1 & -3	LM-4(34) THRU LM-15(45)	A1	
LDW280-54784-1	LM-4(34) THRU LM-15(45) & DES. VER. 70	A2	
LSK280-10993-17, -19 & -21	DES. VER. 70	A4	

CDR = 5/10/67

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD 928

REASON FOR EO: TO PROVIDE CORRECT STAPLE CALLOUT

DESCRIPTION OF EO: ON * REPLACED GS577A-1 WITH GS577A-4

GAEC EO RELEASE: JK 5/12/7 2 C

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		(NOTED ABOVE)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP
PRIORITY: C

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY								
DATE	5/4/67				5/4/67		5/6/67	5/8/67
5	VDI							

DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 589

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

01

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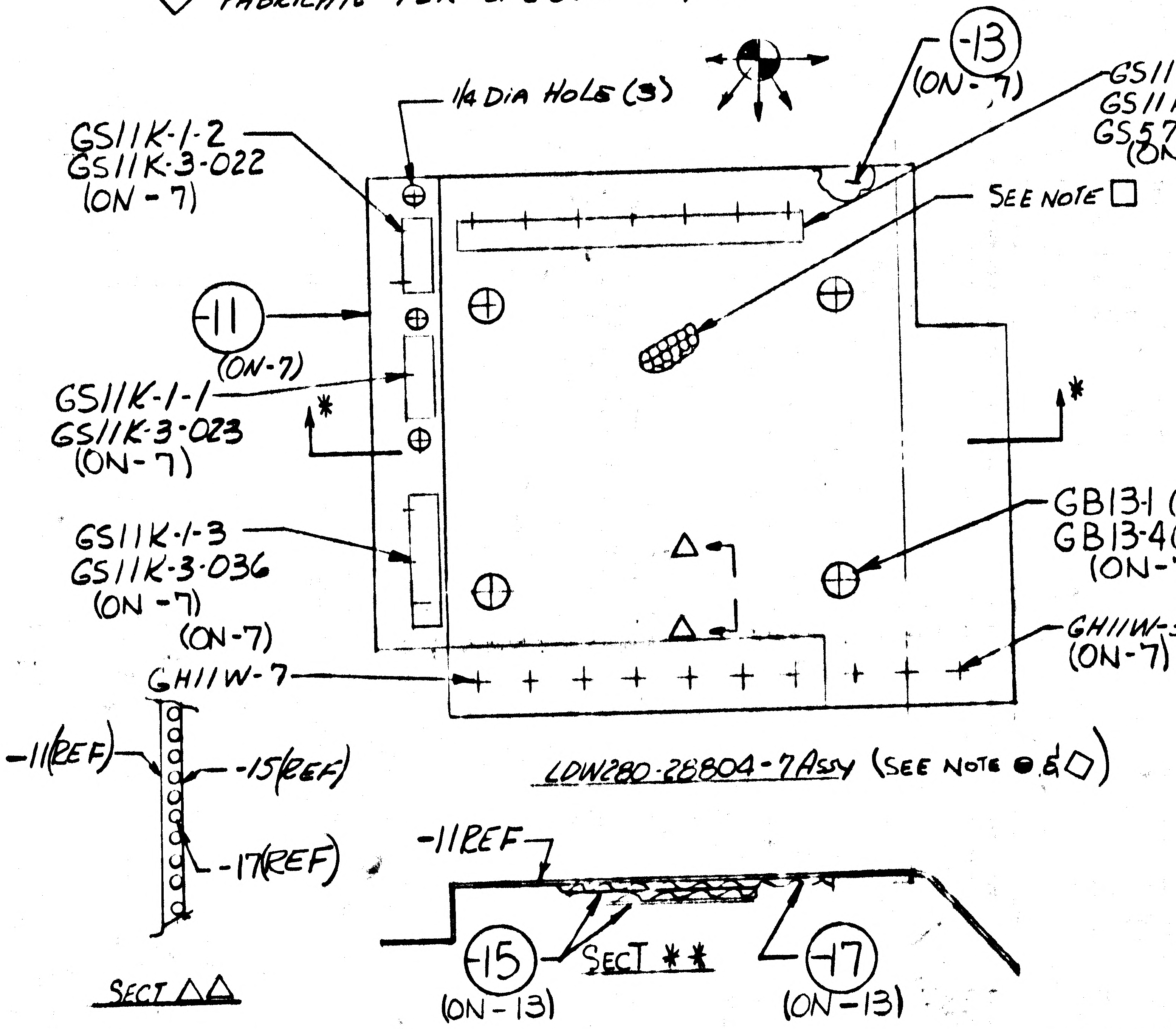
ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 28804		EO NO. A7
CONTROL INFO NO. LDW280 B2749		

RESTRICT -5 ASSY FOR USE ON LM-1(31) & LM-2(32)
ADD -7 ASSY EFF LM-3(33) ONLY N/A LDW280-28815 1 REQU'D
ADD -11 SKIN (SEE NOTES ◧ & △)
ADD -15 FOIL (SEE NOTES * & ◧)
ADD -17 MESH (SEE NOTES □ & ◧)
ADD -13 FOIL ASSY (SEE NOTE ◧) (2 REQ'D)
ADD NOTES
◧ PART TO BE FABRICATED ACCORDING TO REQUIREMENTS OF LPC 280-19.
◒ FINAL CONFIGURATION OF ASSY'S SHALL BE DETERMINED FROM APPROVED MASTER TEMPLATE.
* -15 TO BE MADE FROM BRIGHT ROLLED NICKEL FOIL .0005 COMMERICALLY PURE (INCO 200 OR EQUIVALENT)
□ INCONEL KNITTED SLEEVING TO BE 6 TO 8 INCHES WHEN FLATTENED. WIRE TO BE .0035 TO .0040 DIA. ROUND "INCONEL 600" ALLOY KNIT. PATTERN SQUARE TYPE 5 TO 7 SQUARES PER LINEAR INCH. MAY BE PURCHASED FROM MONTGOMERY METAL FABRIC CO. 59 CANAL ST. WINDSOR LOCKS. CONN. (CODE IDENT. 94725)

△ -11 TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E FINISH IN ACCORDANCE WITH LPC 280-5
◇ FABRICATE PER LPC 280-4 & -25



1/4 DIA HOLE (3)
-13
(ON-7)
GS11K-1-7
GS11K-3-096
GS577A-4(A/R)
(ON-7)
SEE NOTE □
GS11K-1-2
GS11K-3-022
(ON-7)
-11
(ON-7)
GS11K-1-1
GS11K-3-023
(ON-7)
*
GS11K-1-3
GS11K-3-036
(ON-7)
(ON-7)
GH11W-7
△
△
GB13-1 (4) N/S
GB13-4(4) F/S
(ON-7)
GH11W-3
(ON-7)
LDW280-28804-7 Assy (SEE NOTE ◒ & ◇)
-11(REF)
-15(REF)
-17(REF)
SECT △△
-11REF
-15
(ON-13)
SECT **
-17
(ON-13)

◇, ◒, ◧, *, □ & △ USE NEXT AVAILABLE NOTE NUMBER. **USE NEXT AVAILABLE SECT NUMBER

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD2360 PKG 18
REASON FOR EO	PLUME HEATING PROTECTION	DESCRIPTION OF EO	RESTRICTED -5 EFF. WAS LM-1(31) THRU LM-15(45) ADDED: -7, -11, -13, -15 & -17 & NOTES ◒, ◧, *, □, & △, ◇ ADDED SECT ** & △△		GAEC C EO RELEASE	4/1/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE								
✓		✓	-5 ✓	APPROVED BY					W/			
				DATE	3/28/68	4/1/68		3/28/68	3/28/68		3/29/68	
				S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY QUAD IV AMB. HE. ACCESS DES. STAGE	LDW280-28804	A7

G2
ISSUED BY FRANK LANZARO/PT HOP-JOSEN X-3 SECTION VDI GROUP NO. 335 PL 25
CDR 04051.8

01
NAS 9-1100

LDW280-28805 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28804	LEM-2(32)	1
LM	LDW280-28804	LEM-1(31)	1
PART NO. LDW280-28805-7		GAEC SCH NO. 521	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00						
REV	A	A	A	A						
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	A	GRUMMAN REL^c INFO, A	
LAST DASH NO. USED	-11	PRIM NO.	JK(001)
		207	ME-3A-1/17/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/16 ±.030 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY	MAJUK 9-8-66	THERMO	9/30/66
LAYOUT BY	MAJUK 9-8-66	RELIABILITY	
CHECKED BY			
GRP LEADER	9/8/66		
VEH.DES.INT	9/9/66		
STRUCTURES	JV 9/31/66	PROJ ENGR	9-10
STRUCTURES	9/9	REL GROUP	Botts 10-4-66
WEIGHTS	L. Garcia 9/16/66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ASSY
DESCENT STAGE ~ QUAD III ~ AMBIENT He
ACCESS ~ PLUME IMPINGEMENT SHIELD

SIZE	CODE IDENT NO.		
B	26512	LDW280-28805	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	3.00							INC. LEO 280-421. ADDED SH 1.10.	LTA-8, LM-1 THRU LM-6			R-NISBET 1-16-69 H.D. E.C.G.		
	2	1.00, 3.00	3H						INC. EO A2.	LM-1 THRU LM-15					
	3	1.00, 2.00, 3.00	3B	S					INC. EO A3.	LM-2 THRU LM-15					
	4		3B						INC. EO A4.	LM-1					
	5		3B						INC. LEO 280-530.	LTA-8					
	6	3.00							INC. LEO 280-559	LM-1 THRU LM-15					
	7	1.00		P				Ⓟ	INC. LEO 280-912	LM-3 THRU LM-15					

CHG APPROVED

LTR	GROUP LDR	V.D.I.	STRUCT	STRUCT	WEIGHTS	THERMO
A						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28805	A
SCALE NONE		SHEET 1.10	

Ⓐ

ENG 77.16 3-66

01

NAS 9-1100

C.L.	QTY PER ASSEMBLY					-7	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						1		LDW280-18083-17	E	ANGLE	SEE DWG						
						1		LDW280-18083-15	E	ZEE	SEE DWG						
						1		LDW280-28805-11	E	SKIN	SEE NOTE # 2						
C								LDW280-28805-7	E	SKIN ASSY					FLW	SEE NOTE 1	

C.L. = CLEANLINESS LEVEL PER LSP 14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELDING	LSP 14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28805	A
SCALE NONE		SHEET 2.00	

ENG 77.2 7-65

01

NAS 9-1100

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ☒
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED
HOLES IS FULL THDS. 2-3 IMP. THDS.
BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH
SHOWN INCLUDES
2 IMPERFECT THREADS MAX

DO NOT CADMIUM PLATE & PAINT
HOLES OR SURFACES MARKED
WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005
PERMISSIBLE DUE TO CHANGE
OF CUTTERS AT INSIDE
INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF
CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET
AFTER CADMIUM PLATING.
THICKNESS OF PLATE .0003 MIN
TO .0005 MAX. MIN THICKNESS TO
BE .0002 ON THREADED AREAS
NO ALLOWANCES FOR PLATING IN
HOLES

125 SURFACE ROUGHNESS
INCLUDING REAMED HOLES
PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

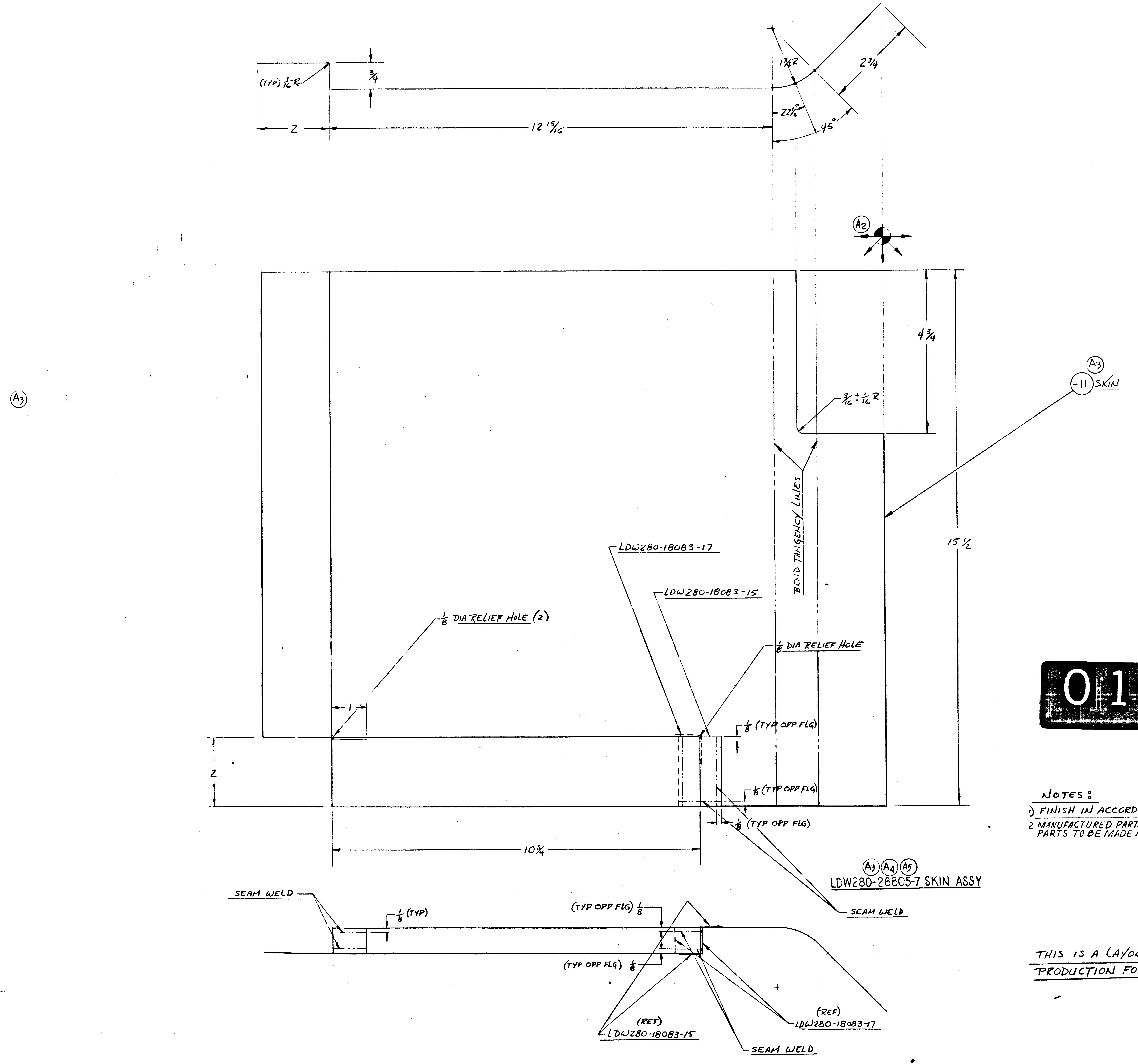
INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL ✓ DENOTES SURFACE
TO BE MACHINED

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY
RIVETS SHORTER THAN 1 INCH ARE
NOT SPECIFIED

TOLERANCE ON LOFTED
DELINEATIONS IS


(TYP) 1/16 R
3/4
Z
12 15/16
1 3/4 R
2 3/4
22 1/2°
45°
Ⓐ2
Ⓐ3
4 3/4
3/16 ± 1/16 R
Ⓐ3
-11 SKIN
BEND TANGENCY LINES
15 1/2
LDW280-18083-17
LDW280-18083-15
1/8 DIA RELIEF HOLE (2)
1/8 DIA RELIEF HOLE
1
1/8 (TYP OPP FLG)
1/8 (TYP OPP FLG)
1/8 (TYP OPP FLG)
Z
10 3/4
Ⓐ3 Ⓐ4 Ⓐ5
LDW280-28805-7 SKIN ASSY
SEAM WELD
SEAM WELD
1/8 (TYP)
(TYP OPP FLG) 1/8
(TYP OPP FLG) 1/8
(REF)
LDW280-18083-15
(REF)
LDW280-18083-17
SEAM WELD

01 NAS 9-1100

NOTES:

1) FINISH IN ACCORDANCE WITH LPC 280-5.
2. MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19.
PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E.

THIS IS A LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT.

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LEM	SIZE E	CODE IDENT NO. 26512	LDW280-28805	A
MODEL OR END ITEM	SCALE FULL & NOTED		SHEET 5.00	

01

NAS 9-1100

8

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EM* A

DWG. NO. LEO 280 EO NO. 421
CONTROL INFO NO. LDW280A-4411

ON THE FOLLOWING DRAWINGS ADD NOTE *

DRAWING NO.	EFF	CHANGE NUMBER	TITLE
			SEE DWG
LDW280-28730	LTA8 LM-1 THRU LM6	B 2	
LDW280-28734	"	A 8	
LDW280-28735	"	C 3	
LDW280-28746	LTA8(18) LM-1 (31) THRU LM-15(45)	B 3	
LDW280-28747	LTA8 (18) LM-1 (31) THRU LM-[illegible]	B 1	
LDW280-28749	"	A 7	
LDW280-28750	"	B 3	
LDW280-28752	"	B 2	
LDW280-28753	"	A 3	
LDW280-28755	LTA8 (18) LM-1 (31)	A 7	
LDW280-28756	LTA8(18) LM-1(31) THRU LM-15(45)	A 6	
LDW280-28759	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28760	"	B 1	
LDW280-28768	LM-1(31)	B 2	
LDW280-28769	LM-1(31)	B 1	
LDW280-28771	LTA8(18) LM-1(31) THRU LM-6(36)	B 2	
LDW280-28772	"	B 1	
LDW280-28774	"	A 7	
LDW280-28775	"	B 2	
LDW280-28803	"	A 2	
LDW280-28805	"	A 1	
LDW280-51824	LM-1(31) THRU LM-15(45)	A 1	
LDW280-51825	"	A 2	
LDW280-51829	"	A 1	
LDW280-51830	"	A 1	
LDW280-51834	"	A 1	SEE DWG

* MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: LPC 280-19 PROVIDES COMPLETE FABRICATION AND INSPECTION INFO

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: ① E 12/20

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT SCRAP REQ'D

APPROVED BY	Gap	AB							
DATE	12/16/66	12/16/66		12/16/66	12/16/66		12/20	12-20-66
/	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY C

DRAWING TITLE NOTED

DRAWING NO. LEO 280 EO NO. 421

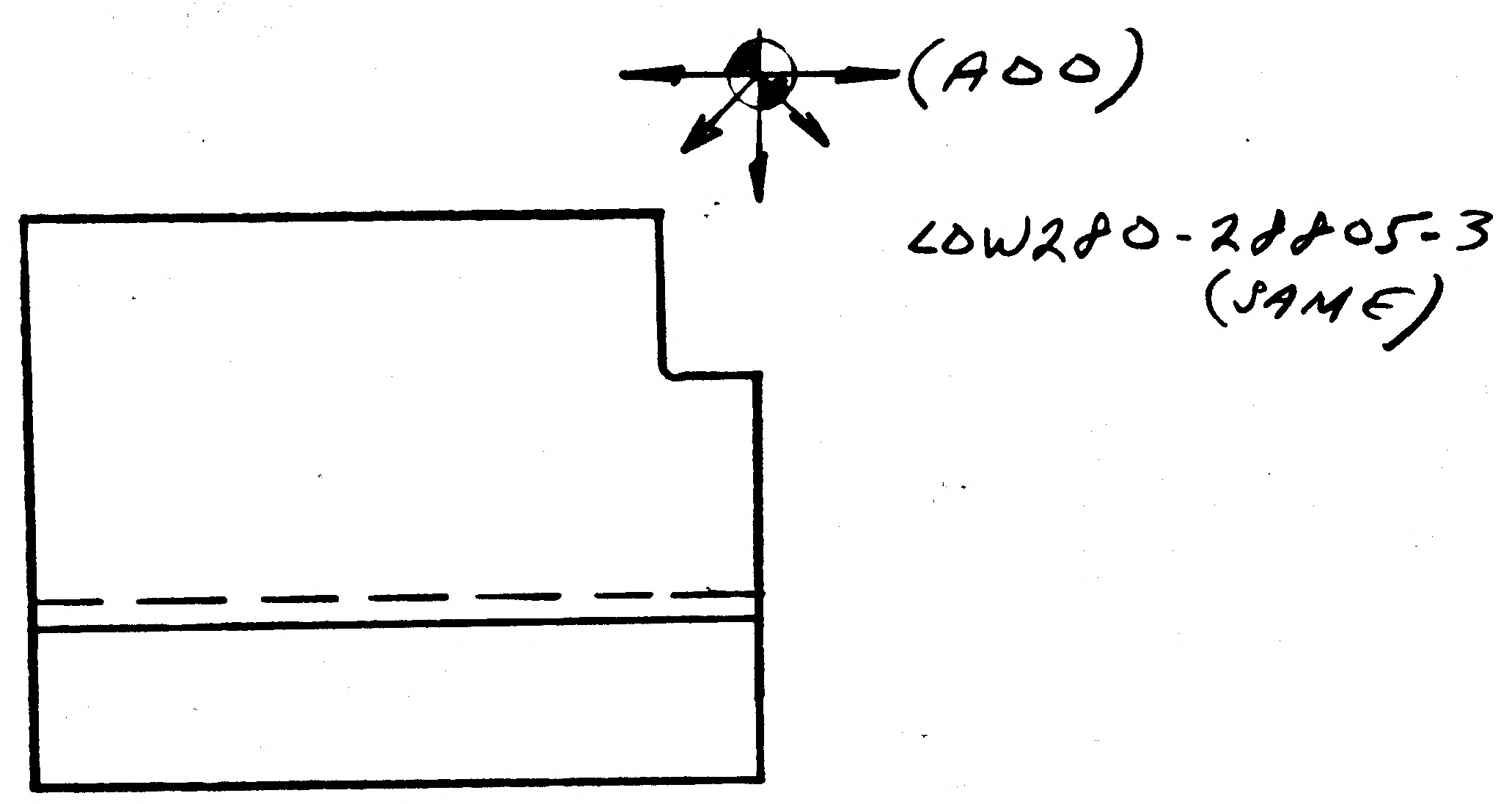
ISSUED BY T. AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

B

ENG 32.1 REV 3-65 *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28805		EO NO. A2
CONTROL INFO NO. LDW280 A4563		



IN MODEL BLOCK:
MODULE EFF.
FOR LDW280-28805-3
(WAS) LM-1(31) THRU LM-6(36)
(NOW) LM-1(31) THRU LM-15(45)

* THIS CHANGE HAS BEEN INCORPORATED ON LM-1

THERMAL SHLD

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE COMPLETE FABRICATION & INSPECTION INFO.	ON -3 ADDED LM-7 THRU LM-15 EFF. ADDED SYMBOL FOR LAP DIRECTION	(2) K 1/4/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQD		DATE	1/3/67	1/3/67		1/3/67	1/3/67		1-4-67	1/5/67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VOI	SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CEPT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY. D/S - QUAD III - AMBIENT He ACCESS PLUME IMPINGEMENT SHIELD	LDW280-28805	A2

ISSUED BY E. ROESSLER X1153 12-22-66 SECTION VEH DES GROUP NO. 335 PL 35

01 NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-28805
EO NO. A3
CONTROL INFO NO. LDW280A-5506

A) IN F/D & L/M:
REMOVE LM-2(32) THRU LM-15(45) EFF FROM -3
ADD -7 ASSY EFF LM-2(32) THRU LM-15(45) N/A LDW280-28804(1) REQD/MOD, I&T=E.
IDENT TO -3 EXCEPT REMOVE ALL GT15B & GHTIW-- E-11 SKIN
REPLACES -5 -11 SKIN IDENT TO -5 EXCEPT MAKE FROM -5
INCONEL 600 .00125 THICK PER AMS 5540E

B) ON F/D MAKE CORRECTIONS AS SHN. BELOW,

ZONE 6G	ZONE 8E	ZONE 8E	ZONE 7D
(ON-1 & -3) (ADD)	(ON-1 & -3) (ADD)	(ON-1 & -3) (ADD)	(ON-1 & -3) (ADD)
GT15B-7 TAPE (EXISTING)	GT15B-2 TAPE (EXISTING)	GT15B-1 TAPE (EXISTING)	GT15B-3 TAPE (EXISTING)

** USE NEXT AVAILABLE NOTE #

NOTE ** TO READ: FABRICATE PER LPC280-19

(2)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: LCR - 928
IMPROVE PAINT ADHESION

DESCRIPTION OF EO: REMOVED LM-2 THRU LM-15 EFF FROM -3. ADDED -7 ASSY
ADDED NOTE: FABRICATE PER LPC 280-19

GAEC EO RELEASE: C 1 E 2/27/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32) THRU	LM-15(45)

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓			✓	DATE	2/24/67			—	2/24/67		2/24/67	2-27-67
REVISE DWG	RECORD EO	REWORK	SCRAP	S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY D/S QUAD III PLUME SHIELD	LDW280-28805	A3

ISSUED BY V. PADDEN / J. STRAROSCH X1392 SECTION STRUCT. SYS. GROUP NO. 335 PL 35

01 NAS 9-1100

C

ENG 22.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28805
EO NO. A4
CONTROL INFO NO. LDW 280 A 5834

REMOVE -3 ASSY
ON-7 ADD LM-1 (31) REQMTS, N/A LDW 280-28804, 1 REQ'D/MODULE.

(5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

LCR-928

REASON FOR EO: IMPROVE PAINT ADHESION LCR-928

DESCRIPTION OF EO: REMOVED -3 ASSY. ON-7 ADDED LM-1 (31) REQMTS.

C/ GAEC EO RELEASE: C LE 3/14/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP -3

APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE 3/7/67			3/7/67	3/8/67		3-14-67	3/14/67
5 V.D.I.							

PRIORITY: C

DRAWING TITLE: SKIN ASSY ~ D.S. ~ QUAD III AMB He ACCESS

DRAWING NO. LDW280-28805

EO NO. A4

ISSUED BY Gus HANSMANN X1153 SECTION V.D.I. GROUP NO. 280 PL 35

01

NAS 9-1100

B P.S.

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280		EO NO. 530
CONTROL INFO NO. LM-2-3459		

IN MODEL BLOCK, FOR DRAWINGS & DASH NUMBERS LISTED BELOW, DELETE LTA-8(18) EFFECTIVITY.

DRAWING NUMBER	DASH NUMBER	CHANGE NUMBER	TITLE
LDW280-28772 ✓	-5	B5	SEE DRAWING
LDW280-28803 ✓	-1	A4	↕
LDW280-28804 ✓	-1	A5	↕
LDW280-28805 ✓	-1	A5	SEE DRAWING

(*) ADD APPLICABLE DASH NUMBER IN DESCRIPTION OF CHANGE

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	2 c

REASON FOR EO
LTA-8 (18) EFFECTIVITY NO LONGER REQUIRED

DESCRIPTION OF EO
IN MODEL BLOCK, FOR DASH (*), DELETED LTA-8 (18) EFFECTIVITY.

GAEC EO RELEASE: R JK 02131

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	APPROVED BY	DATE
		4/13/67
-1-	V.D.I	
SUPPORT		
RELIAB. GROUP		
GROUP LEADER	~	~
STRESS GROUP		3/29/67
LIAISON ENGRG	Ctf	3/29/67
PROJ ENGRG	RMC	4-3-67
~~GOVT~~		3/29/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LE0280	530

ISSUED BY LIAISON J. MALONEY 3/28/67 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01 NAS 9-1100

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280 | EO NO. 559
CONTROL INFO NO. LDW 280A 6306

C

ENG 32.2 REV 3-65

IN B/M FOR ALL DASH NUMBERS OF DRAWINGS LISTED BELOW. REMOVE LDW280-17970-ALL DASH NUMBERS AND ADD "SEE NOTE *"

IN F/D REMOVE LDW280-17970-ALL DASH NUMBERS

REVISE NOTE *
(REF) "MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19."
(ADD) PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

DRAWING No.	CHANGE #	SYMBOL	EFFECTIVITY	TITLE
LDW280-18130	A7	⬡	LTA-8 LM-1 THRU LM-15	SEE DWG
LDW280-18141	A3	⬡	LM-1 THRU LM-15	
LDW 280-28730	B7	☐	LTA-8 LM-1 THRU LM-3	
LDW 280-28734	B2	☐	LTA-8 LM-1 THRU LM-3	
LDW280-28738	A7	☐	LTA-8 LM-1 THRU LM-15	
LDW 280-28740	B3	☐	LTA-8 LM-1	
LDW 280-28741	A6	☐	LTA-8 LM-1 THRU LM-6	
LDW 280-28744	A7	☐	LTA-8 LM-1 THRU LM-6	
LDW 280-28747	B4	☐	LTA-8 LM-1 THRU LM-15	
LDW 280-28750	39	☐	LTA-8 LM-1 THRU LM-15	
LDW280-28753	A5	☐	LTA-8 LM-1 THRU LM-15	
LDW280-28756	B1	☐	LTA-8 LM-1 THRU LM-15	
LDW280-28760	B5	☐	LTA-8 LM-1 THRU LM-3	
LDW280-28765	A7	⬡	LTA-8 LM-1 THRU LM-6	
LDW280-28769	B2	☐	LM-1	
LDW 280-28772	B6	☐	LM-1 THRU LM-15	
LDW280-28775	B7	☐	LTA-8 LM-1 THRU LM-15	
LDW 280-28805	A6	☐	LM-1 THRU LM-15	
LDW 280-28806	A4	☐	LTA-8 LM-1 THRU LM-15	
LDW 280-51824	A3	☐	LM-1 THRU LM-15	SEE DWG

NOTE △ MANUFACTURED PARTS TO COMPLY WITH REQUIREMENTS OF LPC 280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

NOTE: ALL PARTS MADE USING LDW280-17970 COMPLY WITH LPC 280-19 AND ARE ACCEPTABLE AS IS.

FOR SYM ☐ REVISE NOTE *.
FOR SYM ⬡ ADD NOTE △ TO DWG

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: UPDATE DWG TO AGREE WITH MANUFACTURING PROCEDURE

DESCRIPTION OF EO: REMOVED LDW280-17970 FROM B/M & F/D (ALL DASH NO'S) FOR DWG'S ☐ REVISED EXISTING NOTE * BY ADDING "PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540E." FOR DWG'S ⬡ ADDED NOTE △

GAEC EO RELEASE: JS 4-19-7 5 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD	DISPOSITION OF PARTS
LM		NOTED ABOVE		✓ REVISE DWG	NOT REQ

APPROVED BY: Jap
DATE: 4/10/67
GROUP LEADER: 4/10/67
STRESS GROUP: 4/10/67
PROJ ENGRG: 4/13
GOVT: Bott 4-18-67
REWORK / SCRAP: 6
VD1

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 559

ISSUED BY H. PALLMEYER / J. STRAKUSCH SECTION VEH DES INT GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 912
CONTROL INFO NO. LDW280B2751

ON DASH NOS. NOTED * WITH N/A NOTED ** RESTRICT EFFECTIVITY REQUIREMENTS ON THE FOLLOWING DWG. TO LM-1(31) & LM-2(32). PARTS WERE USED ON LM-1(31) THRU LM-15(45)

DWG NO	DASH NO. *	TITLE	N/A **	CHANGE NO.
✓ LDW280-28803	-1	SEE DWG	LDW280-28804	A5
✓ -28805	-7		-28804	A7
-28771	-9		-28770	B6
-28772	-11		-28770	B7
-18083	-15		-28772	A7
-18083	-17		-28772	
-18083	-15		-28805	
-18083	-17		-28805	
-18125	-11		-28771	B3
-18125	-13		-28771	
-18125	-11		-28803	
LDW280-18125	-13	SEE DWG	LDW280-28803	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2360 PKG 18 (5)

REASON FOR EO: PLUME IMPINGEMENT PROTECTION

DESCRIPTION OF EO: RESTRICTED - * WAS USED ON LM-1 (31) THRU LM-15(45)

GAEC EO RELEASE: C VC 4/8/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: ☐ REWORK ✓ SCRAP

APPROVED BY								
DATE	4/3/68	4/3/68		4-1-68	4/3/68		4/3/68	4-8-68
P	VDI	THERMO SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO 280
EO NO.: 912

4.2
ISSUED BY F. LANZARO/P. THORJUSEN X1153 SECTION VDI GROUP NO 335 PL 25
040568

01

NAS 9-1100

LDW280-28806 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28817	LM-2 (32)	1
LM	LDW280-28817	LM-1 (31)	1
PART NO. LDW280-28806-11		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54817	LM-5 (35)	1
LM	LDW280-54817	LM-4 (34)	1
LM	LDW280-28817	LM-3 (33)	1
PART NO. LDW280-28806-13		GAEC SCH NO. 521	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	B	GRUMMAN REL° INFO A		
LAST DASH NO. USED	-19	PRIM NO. 207	JK (001) ME-16	A-1/23/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM I
DOCUMENTATION TYPE II

DRAWN BY		RELIABILITY	
LAYOUT BY	R. FLANDERS 9-8-66	THERMO	[illegible] 10/14/66
CHECKED BY			
GR. LEADER	J. Testa 9/8/66		
VEH. DES. INT.	[illegible]		
STRUCTURES	WB [illegible] 9/10/66	PROJ ENGR	R M Carbee (E) 9-12
STRUCTURES	Z. ALLERMAN	REL GROUP	Booth 10-17-66
WEIGHTS	[illegible]		

® GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ASSY
D.S. QUAD II CONTROL
BOX ACCESS

SIZE B
CODE IDENT NO. 26512
LDW280-28806 A
SCALE NONE
SHEET 1.00 OF 4

CDR = 8/26/66

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
									RETRACED SH.3.00NC-LAST REV. NC (SH. SIZE 30X72 WAS"F")	H. MUPPHY		1-16-	69.		
A	1	1.00, 2.00 3.00							INC. EO A1. ADDED SH. 1.10.	LTA-8 LM-1 THRU LM-15.			H. MURPHY 1-17-69		
	2	1.00, 2.00 3.00							INC. EO A2.	LM-2 THRU LM-15					
	3	1.00, 2.00 3.00							INC. EO A3.	LM-1.					
	4	2.00, 3.00							INC. LEO 280-559.	LM-1 THRU LM-15					
	5	1.00, 2.00 3.00		P					INC. EO A5.	LM-3 THRU LM-15					
	6	1.00, 2.00 3.00		S					INC. EO A6.						
	7	1.00,		P					INC EO A7.	LM-4 THRU LM-15			H.D.		
	8	1.00							INC LEO 280-1172.	LM-6 THRU LM-15			E.C.G.		
	9					✓		LCD 3179 Ⓟ	REF LEO 28-1172: RESTRICTED FOR USE ON LM-4 & LM-5 SHOULD BE RESTRICTED FOR USE ON LM-3, LM-4 & LM-5	LM-3 LM-4 & LM-5		✓	DEUTSCH 1-17-69	F Zukas 1-17-69	

CHG APPROVED

LTR	GROUP LDR	V.D.I	STRUCT	STRUCT	WEIGHTS	THERMO					
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28806	A

SCALE NONE SHEET 1.10

A

ENG 77.16 3-66

01

NAS 9-1100

C.L.	QTY PER ASSEMBLY			-15	-13		CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					A/R			GS577A-4	E	STAPLE	GRUMMAN STD						
					1			GS11K-3-090		STRIP							
					1			GS11K-3-120									
					1			GS11K-3-054									
					1			GS11K-1-5									
					1			GS11K-1-8									
					1			GS11K-1-4									
					4			GF13B-11									
					4			GF13B-1		STRIP	GRUMMAN STD						
				A/R				MESH		INCONEL SLEEVING	SEE NOTE 5					NOTE 6	
C					1			LDW280-28806-19		SKIN						NOTE 1&3	
				1				-17		FOIL						NOTE 4	
					1			-15		WELD ASS'Y					FLW		
C								-13		SKIN ASS'Y						NOTE 7	
C								LDW280-28806-11	E	SKIN					FLW	NOTE 1&3	

C.L. = CLEANLINESS LEVEL PER LSP 14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELD	LSP-14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28806	A Ⓐ

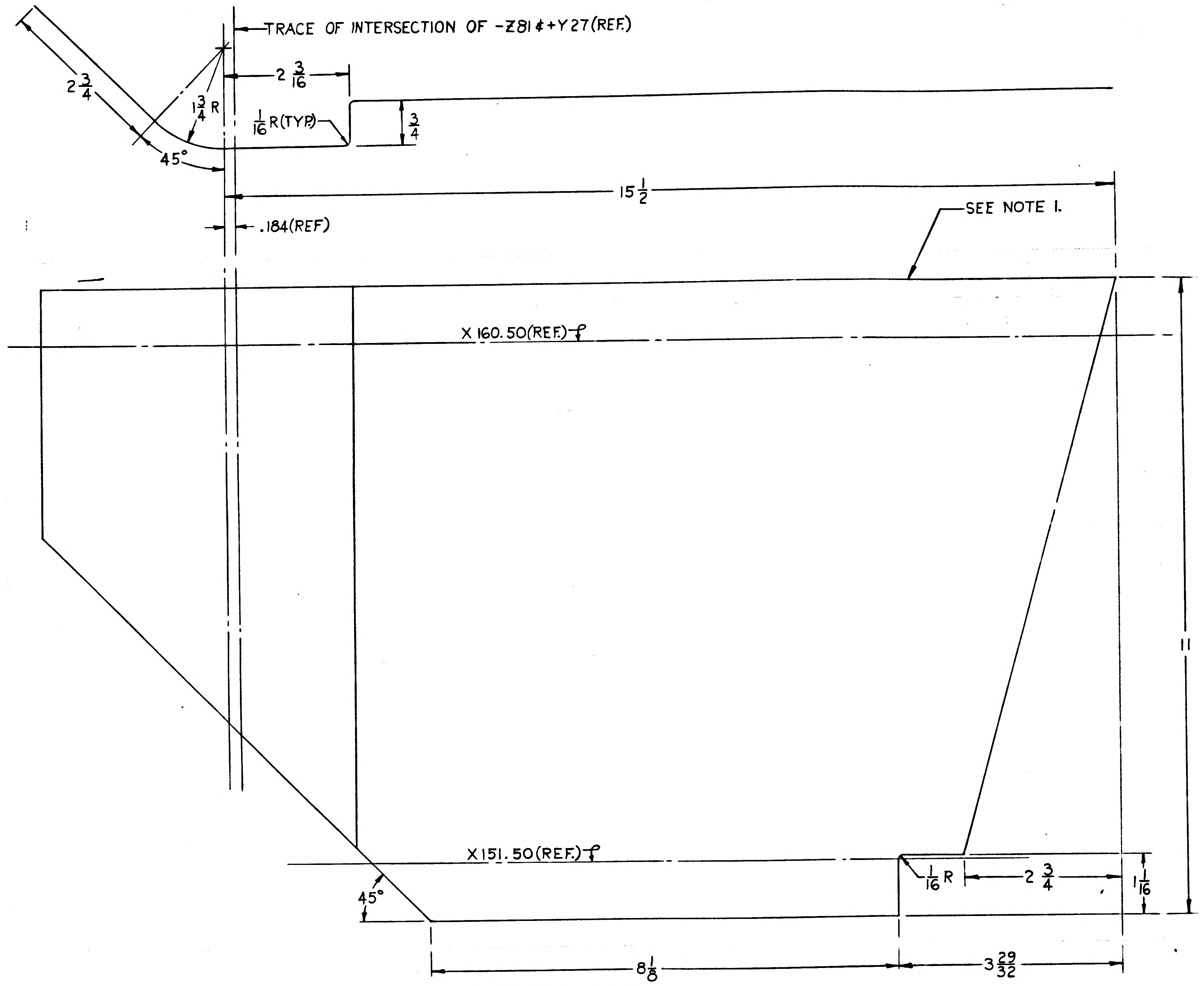
SCALE NONE

SHEET 2.00

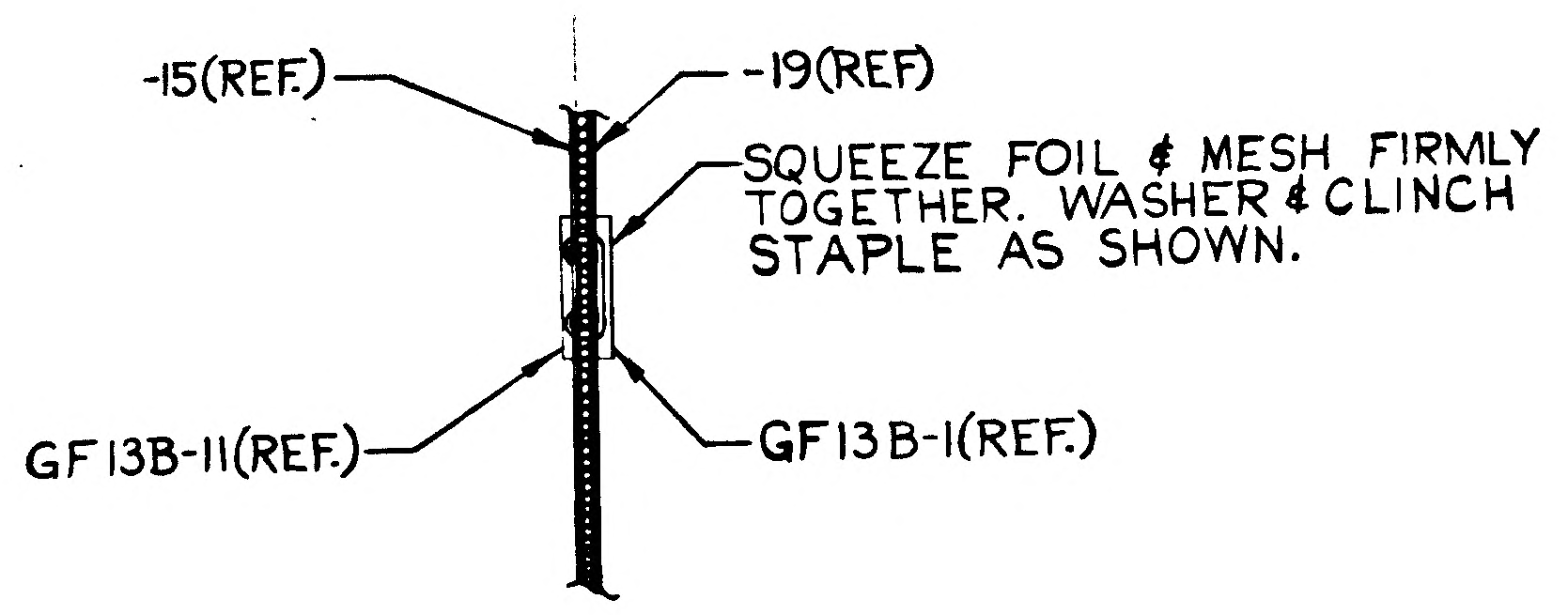
ENG 77.2 7-55

01

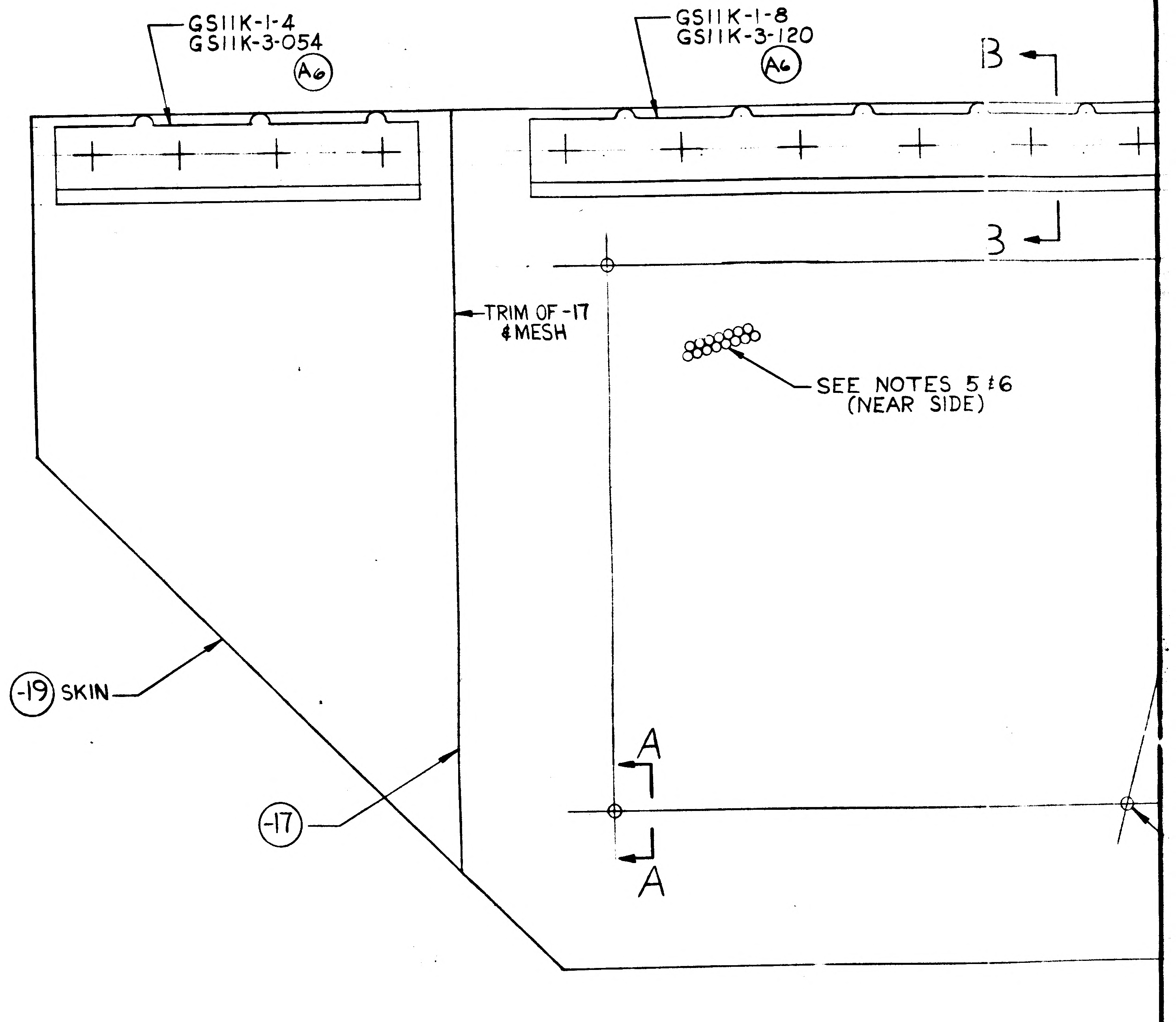
NAS 9-1100


TRACE OF INTERSECTION OF -Z81 ¢ + Y27 (REF.)
2 3/4
1 3/4 R
45°
2 3/16
1/16 R (TYP)
3/4
15 1/2
.184 (REF)
SEE NOTE 1.
X 160.50 (REF.) ¢
11
X151.50 (REF.) ¢
45°
1/16 R
2 3/4
1 1/16
8 1/8
3 29/32

LDW280-28806-11 SKIN (A2)


-15 (REF.)
-19 (REF)
SQUEEZE FOIL & MESH FIRMLY TOGETHER. WASHER & CLINCH STAPLE AS SHOWN.
GF13B-11 (REF.)
GF13B-1 (REF.)

SECTION A-A
SCALE: NONE


GS11K-1-4
GS11K-3-054
(A6)
GS11K-1-8
GS11K-3-120
(A6)
B
B
TRIM OF -17 & MESH
SEE NOTES 5 & 6 (NEAR SIDE)
(-19) SKIN
(-17)
A
A

LDW280-28806-13 SKIN ASS'Y
-15 WELD ASS'Y (A5)

01/02 NAS 9-1100

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-28806	3.00

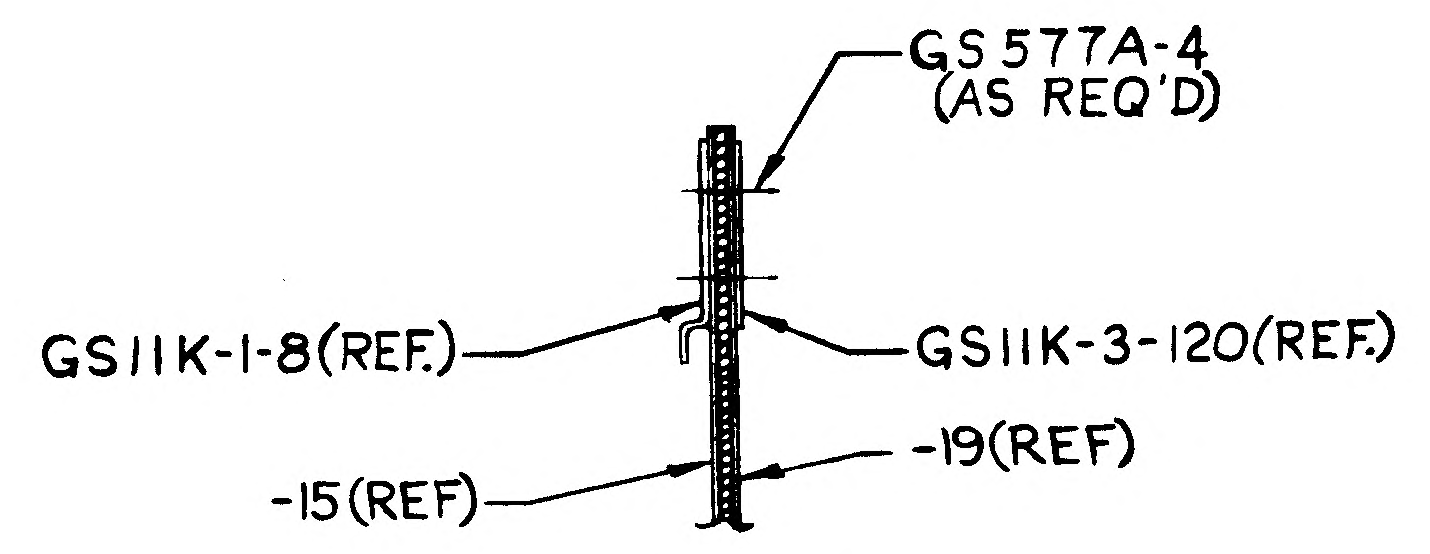
FRAME 1 FRAME 2

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

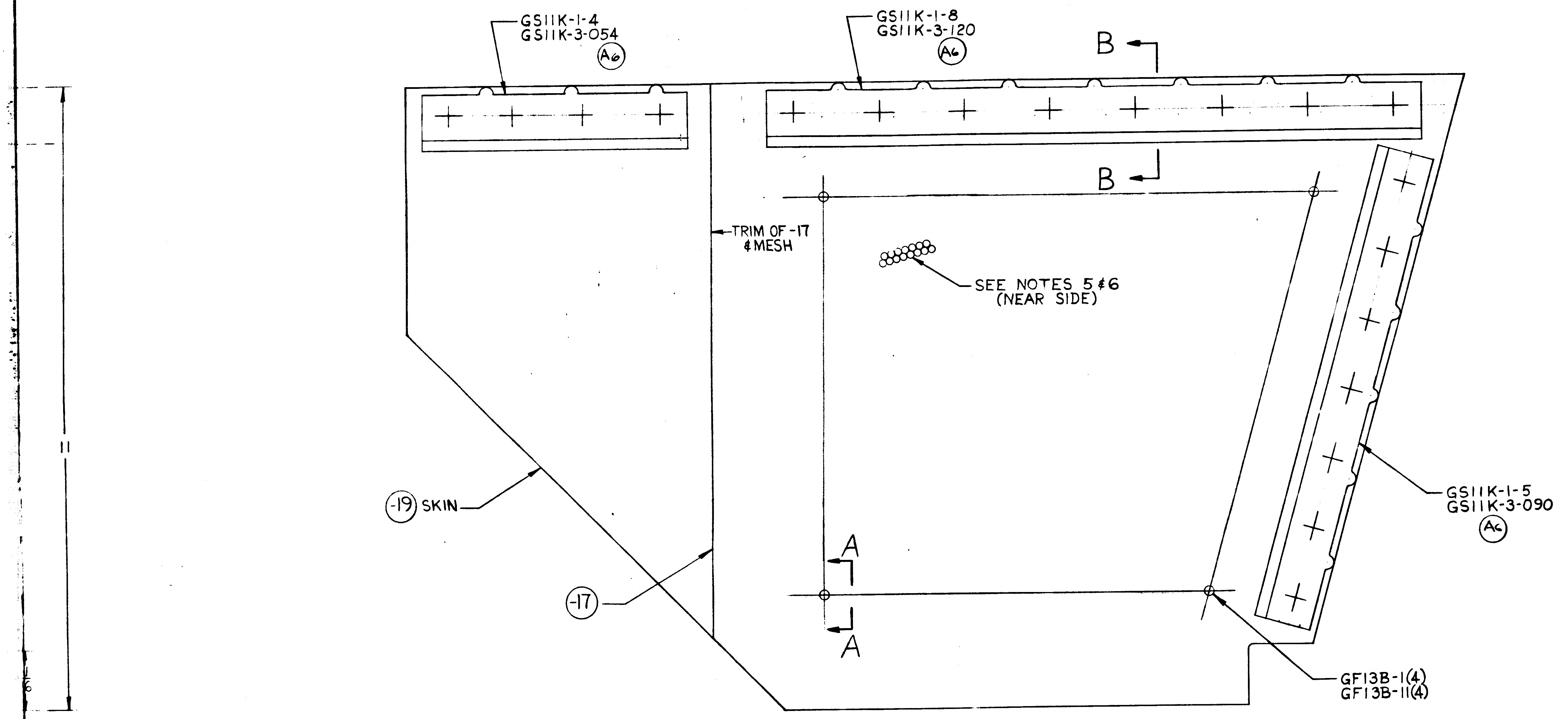
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

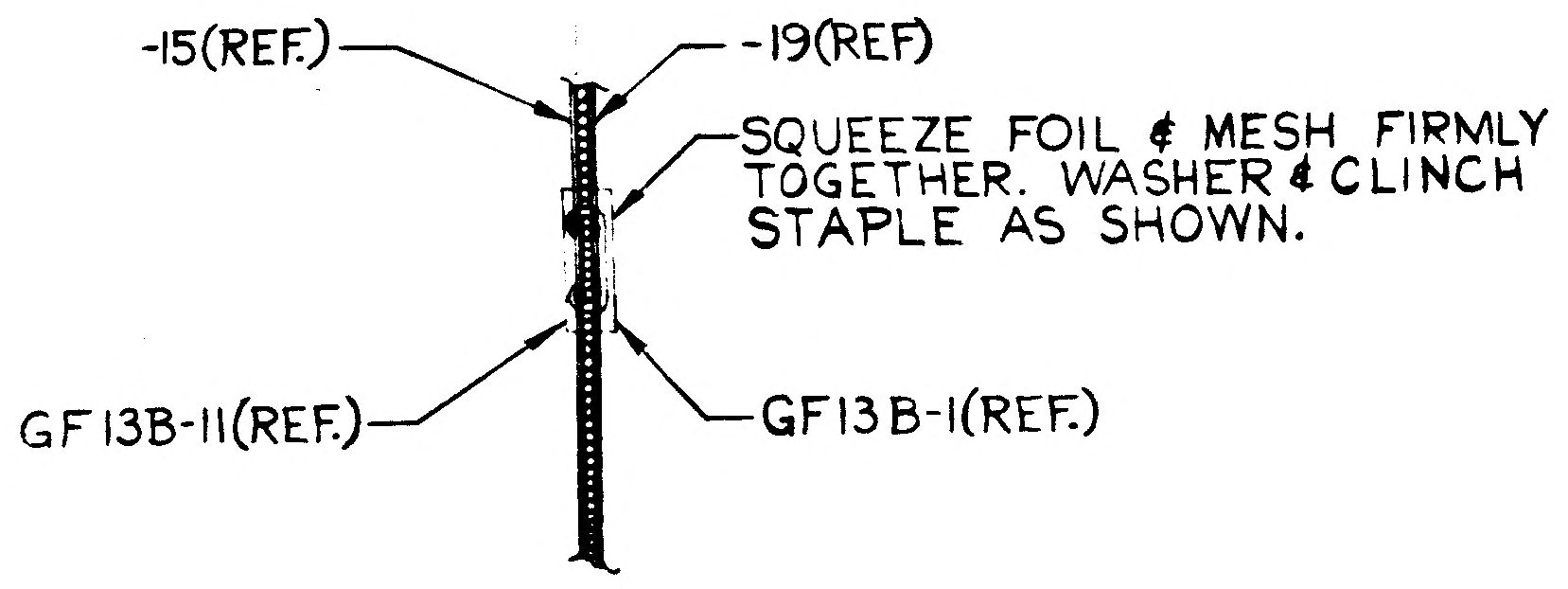
ENG 771.2 4-67

DWG SIZE 30X72
PRINTING INFO ONLY
PRINT TRIM LINE
FULL SIZE SHEET AREA (2.5 X 6.0) 15.0 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) 3.75 SQ FT


GS577A-4
(AS REQ'D)
GS11K-1-8(REF.)
GS11K-3-120(REF.)
-15(REF)
-19(REF)

SECTION B-B
SCALE: NONE


GS11K-1-4
GS11K-3-054
A6
GS11K-1-8
GS11K-3-120
A6
B
B
TRIM OF -17
& MESH
SEE NOTES 5&6
(NEAR SIDE)
11
(-19) SKIN
(-17)
A
A
GS11K-1-5
GS11K-3-090
A6
GF13B-1(4)
GF13B-11(4)


-15(REF.)
-19(REF)
SQUEEZE FOIL & MESH FIRMLY TOGETHER. WASHER & CLINCH STAPLE AS SHOWN.
GF13B-11(REF.)
GF13B-1(REF.)

SECTION A-A
SCALE: NONE

LDW280-28806-13 SKIN ASS'Y
-15 WELD ASS'Y Ⓐ5

NOTES:

1. FINISH IN ACCORDANCE WITH LPC280-5.

2. PAINTED SURFACE OF LDW280-28806-11 & -13 TO BE NEAR SIDE.

3. MANUFACTURED PARTS OF LDW280-28806-11&-19 TO COMPLY WITH REQUIREMENTS OF LPC280-19. PARTS TO BE MADE FROM .00125 INCONEL 600 PER AMS 5540 E.

4. ON LDW280-28806-17, PART TO BE MADE FROM ANNEALED BRIGHT ROLLED NICKEL FOIL .0005 COMMERCIALLY PURE (INCO 200 OR EQUIVALENT).

5. INCONEL KNITTED SLEEVING TO BE SIX (6) TO EIGHT (8) INCHES WHEN FLATTENED. WIRE TO BE .0035 TO .0040 INCH DIA. ROUND "INCONEL 600" ALLOY KNIT. PATTERN SQUARE TYPE 5 TO 7 SQUARES PER LINEAR INCH.

6. INCONEL KNITTED SLEEVING TO BE OXIDIZED BY EXPOSURE TO 1650 ± 50° IN AIR FOR FOUR (4) HOURS.

7. MANUFACTURED PARTS OF LDW280-28806-13 TO COMPLY WITH REQUIREMENTS OF LPC280-19 & LPC280-25.

8. FINAL CONFIGURATION OF ASS'YS FOR LDW280-28806-13 SHALL BE DETERMINED FROM APPROVED MASTER TEMPLATE.

LDW280-28806 A
LDW280-28806 A

02/02 NAS 9-1100

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-28806	3.00

FRAME 1 FRAME 2

SUPERSEDES LDW280-28806 NC 10-17-66

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
H	26512	LDW280-28806	A
SCALE FULL		SHEET 3.00	

LDW280-28807

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51509	LEM1(31)	1
LEM	LDW280-28509	LTA8(18)	1
PART NO. LDW280-28807-3		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51509	LEM 1 (31)	1
LEM	LDW280-28509	LTA8(18)	1
PART NO. LDW280-28807-1		GAEC SCH NO. 50	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	A	GRUMMAN REL INFO		
		PRIM NO.	LE(001)	
LAST DASH NO. USED	-3	207	MP-8-7-6	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.030 ±1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100 | LINE ITEM 1 | DOCUMENTATION TYPE II

DRAWN BY	L. M Grieco 7-22-66	RELIABILITY	
LAYOUT BY		THERMO	EL/MT 8/18/66
CHECKED BY		MAT'LS	
GR LDR	8/3/66		
VDI	8/4/66		
STRUCT	M.S. W/H	PROJ ENGR	R. M. Carbee (EV) 8/7
STRUCT	8-6	REL GROUP	Botti 8-24-66
WTS	8-9		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STANDOFF INSTL-DESCENT STAGE
SCIENTIFIC EQUIPMENT BAY
RH & LH END CLOSURE

SIZE	CODE IDENT NO.	
B	26512	LDW280-28807
SCALE NONE		SHEET 1.00 OF 3

ENG 77.1 12-65

01 NAS 9-1100

QTY PER ASSEMBLY -3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
✓	✓		MS20470A3	E	RIVET	STD PART						
	✓		MS20470AD4	E	RIVET	STD PART						
✓			MS20470AD3	E	RIVET	STD PART						
1			LDW280-18088-13	E	PLATE	SEE DWG						
	1		LDW280-18088-11	E	BRACKET	SEE DWG						
2	1		LDW280-23712-1	E	STANDOFF ASSY							
2	2		LDW280-23713-7	E	STANDOFF ASSY							
			LDW280-28807-3	E	STANDOFF INSTL							
			LDW280-28807-1	E	STANDOFF INSTL							

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :

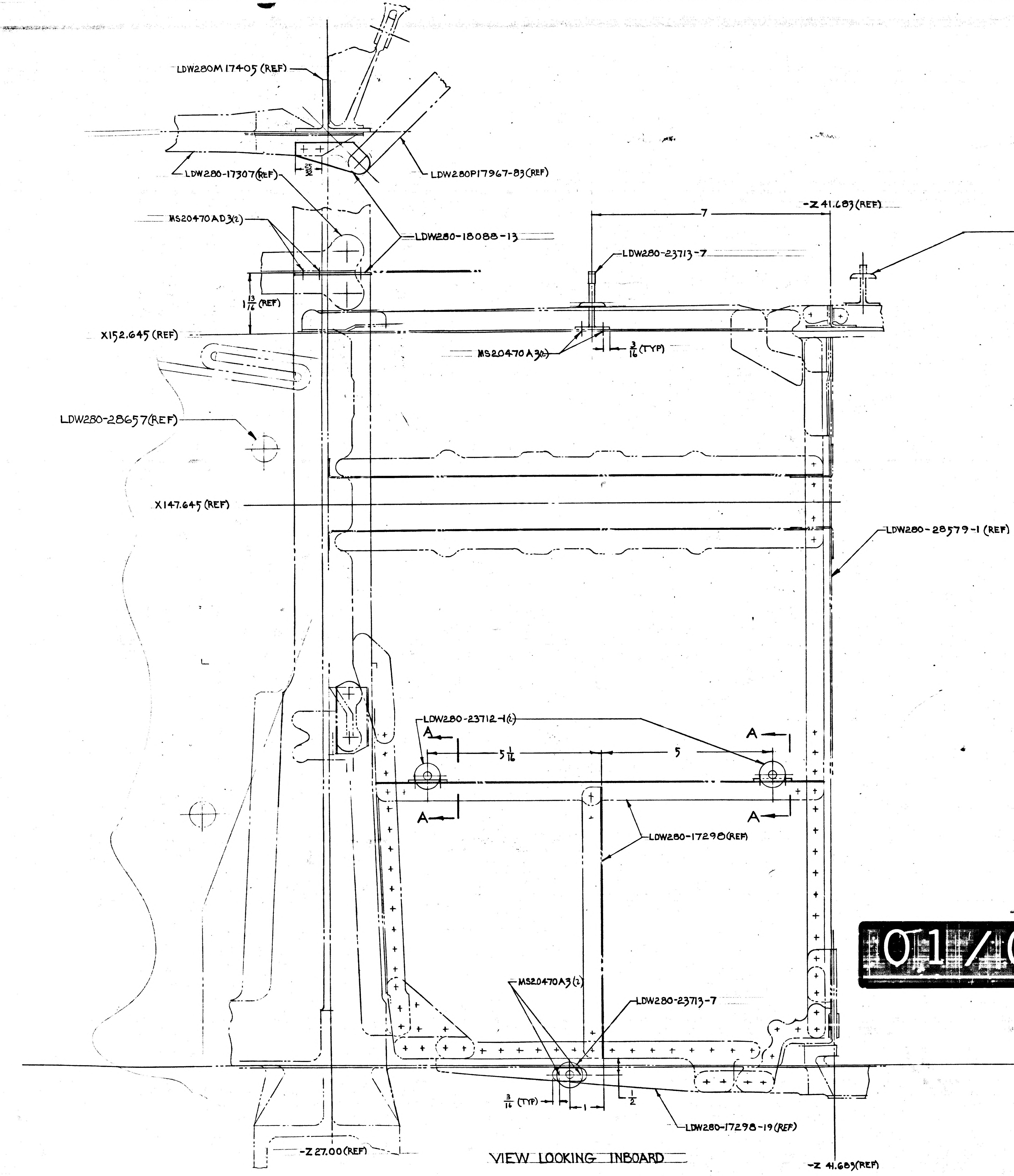
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28807
SCALE NONE
SHEET 200

ENG 77.2 7-65

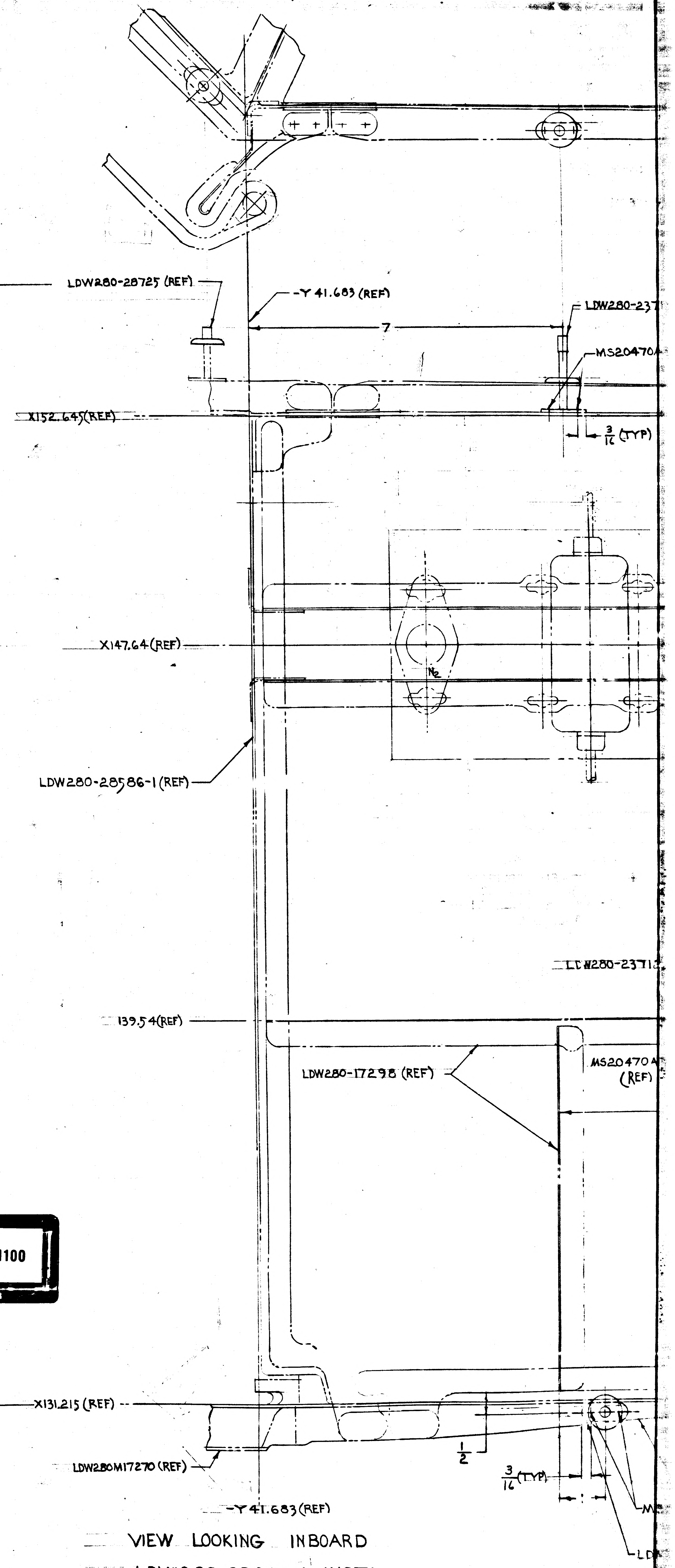
01

NAS 9-1100


LDW280M17405 (REF)
LDW280-17307(REF)
LDW280P17967-83(REF)
MS20470AD3(2)
LDW280-18088-13
LDW280-23713-7
7
-Z 41.683 (REF)
1 13/16 (REF)
X152.645 (REF)
MS20470A3(2)
3/16 (TYP)
LDW280-28725 (REF)
LDW280-28657(REF)
X147.645 (REF)
LDW280-28579-1 (REF)
LDW280-23712-1(2)
A
A
A
A
5 1/16
5
LDW280-17298(REF)
MS20470A3(2)
LDW280-23713-7
3/16 (TYP)
1
1/2
LDW280-17298-19 (REF)
-Z 27.00(REF)
-Z 41.683(REF)

VIEW LOOKING INBOARD

LDW280-28807 -3 INSTL

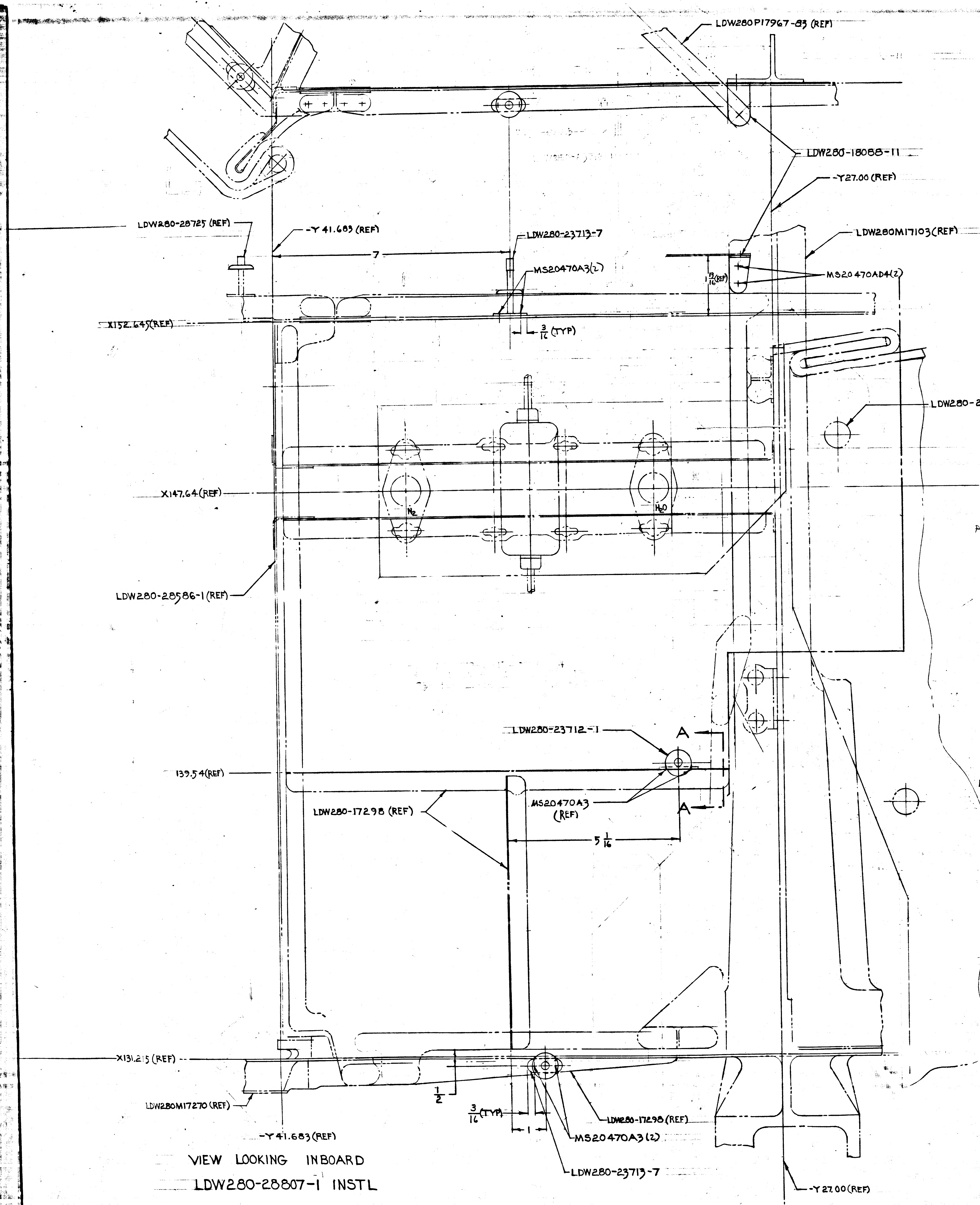

-Y 41.683 (REF)
7
LDW280-237
MS20470A
X152.645(REF)
3/16 (TYP)
X147.64(REF)
N2
LDW280-28586-1(REF)
LDW280-2371
139.54(REF)
LDW280-17298 (REF)
MS20470A (REF)
X131.215 (REF)
LDW280M17270 (REF)
1/2
3/16 (TYP)
-Y41.683 (REF)

VIEW LOOKING INBOARD

LDW280-28807-1 INSTL

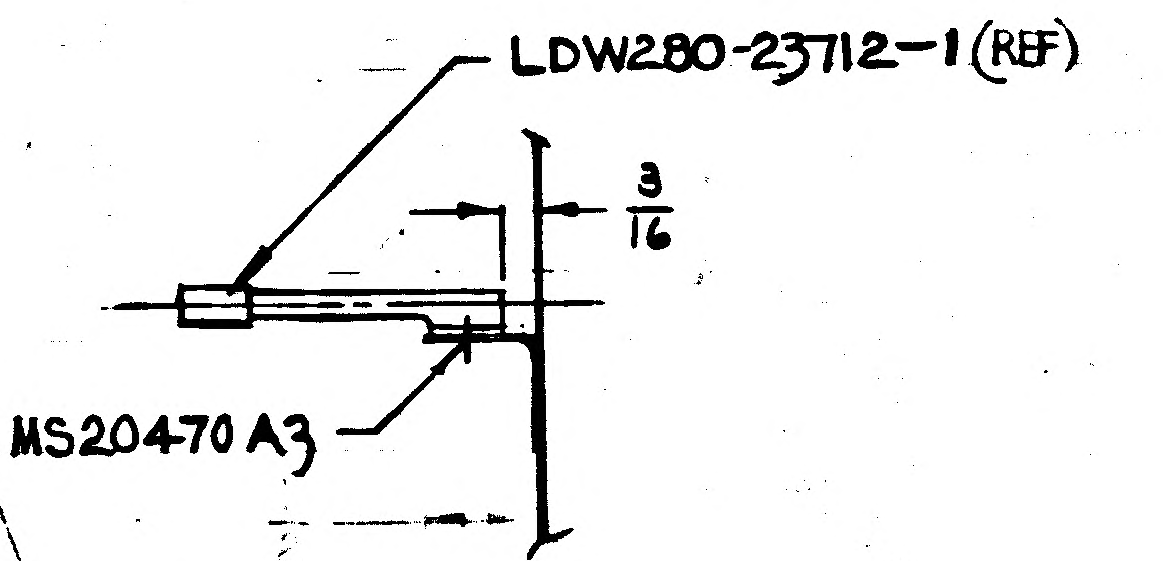
01/02 NAS 9-1100

NOTES:
1) INSTALL FASTENERS PER LSP14-15302



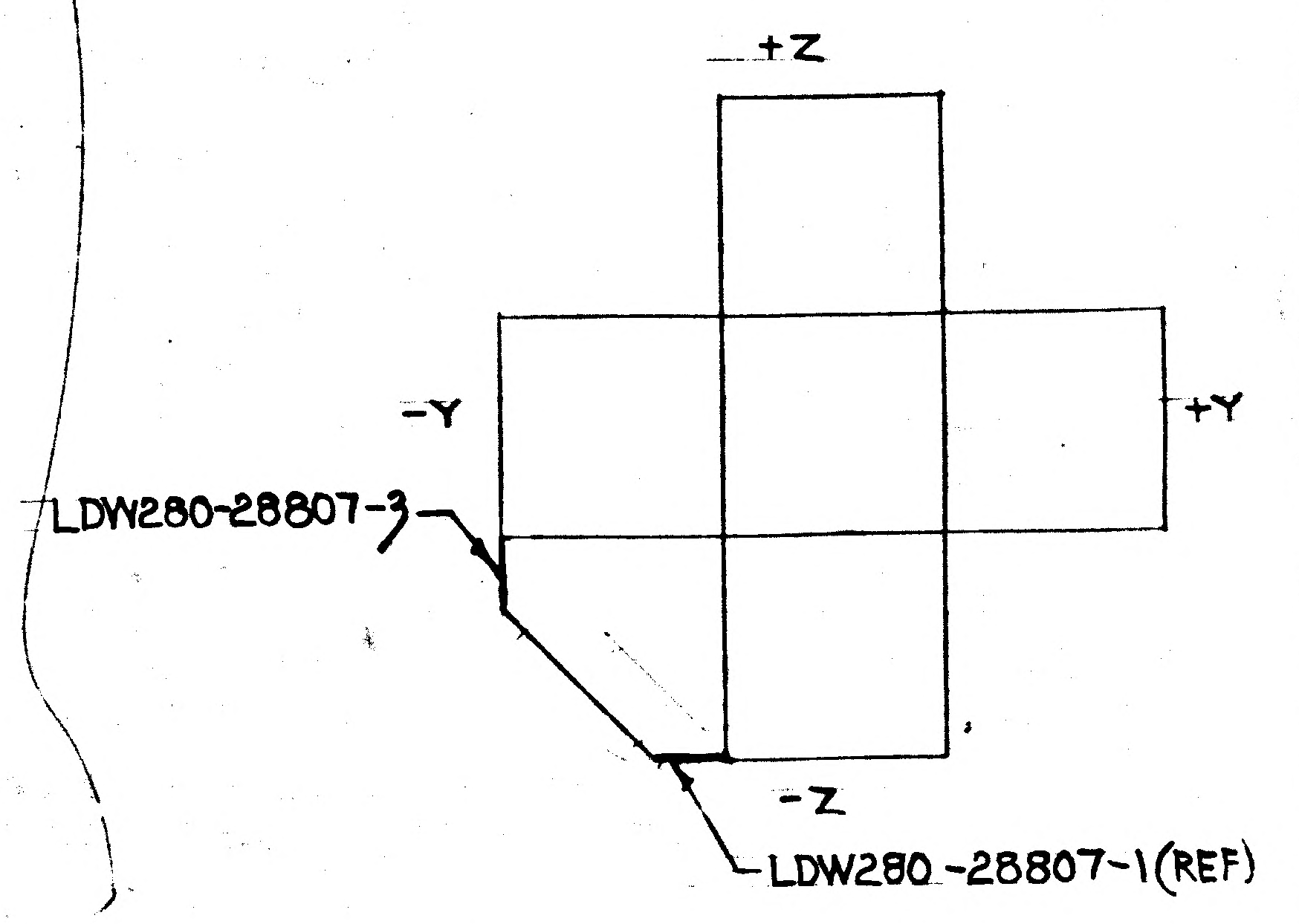
LDW280P17967-83 (REF)
LDW280-18088-11
-Y27.00 (REF)
LDW280M17103(REF)
LDW280-28725 (REF)
-Y 41.683 (REF)
7
LDW280-23713-7
MS20470A3(2)
MS20470AD4(2)
$\frac{13}{16}$(REF)
X152.645(REF)
$\frac{3}{16}$(TYP)
LDW280-28658(REF)
X147.64(REF)
N_2
H_2O
P17936-13
LDW280-28586-1(REF)
LDW280-23712-1
A
A
139.54(REF)
LDW280-17298 (REF)
MS20470A3 (REF)
5 $\frac{1}{16}$
X131.215 (REF)
LDW280M17270 (REF)
$\frac{1}{2}$
$\frac{3}{16}$(TYP)
1
LDW280-17298 (REF)
MS20470A3(2)
LDW280-23713-7
-Y41.683 (REF)
-Y27.00 (REF)

VIEW LOOKING INBOARD
LDW280-28807-1 INSTL



LDW280-23712-1 (REF)
$\frac{3}{16}$
MS20470A3

SECT A-A



+Z
-Y
+Y
-Z
LDW280-28807-3
LDW280-28807-1(REF)

FOR ENGRG REF ONLY
SCALE: NONE

02702 NAS 9-1100

LAYOUT RELEASE TO BE REDRAWN ON PROD FORMAT

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X) = SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = SQ. FT.

PRINT TRIM LINE

LDW280-28807

LDW280-28807

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
J	26512	LDW280-28807

MODEL OR END ITEM
SCALE FULL
SHEET 3.00

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	API
		RETRACED SH. 3.00						NO CHANGE.	LAST REVISION NO CHANGE. R.QUEVEDO 12/7/66 ADDED SH. 1.10						
A	1							A1	ADDED SH 10.00, SECTS AF, AG, AN, VIEWS AA, AB, AC, AD, AE, AJ, DETAILS AH, AK, AL, AM & NOTES 7, 8, 9, & 10.	LTA-8 (18)	✓		R.QUEVEDO 12-9-66	NM FOR RAH 12/9/66	12/10/66
	2	1.00 2.00 2.01 2.02 2.03 3.00							SH 1.00 OF 8 WAS SH 1.00 OF 12. ADDED SH 2.04. REVISED SH 2.00, 2.01, 2.02, & 2.03. REMOVED -1 INSTL. ADDED -5 & -7 INSTL. REMOVED NOTES 1 THRU 10 ADDED NOTES 11 THRU 20. REMOVED SHTS 4 THRU 10						
B	1	2.00, 3.00	7C					E.O. B1	ON-5 LDW280-18004-15 WAS LDW280-18004-13	LTA-8(18)	✓		R.CAPPADORO 7-26-67		
	2	2.03, 3.00	8A 5B&C				✓	E.O B2	TO B/M & FLD ADDED LDW280-18194-21, ADDED 1.0 & 3/16 LOCATING DIM.		✓				
	3	2.03, 2.04 3.00	12A 10A 10D					E.O. B3	ON-1 ADDED LDW280-18253-17 (24), MS20615-3M3 (72), NAS697C08L (24) & NAS1097AD3 (48). ADDED VIEWS H-H, J-J, K-K, L-L, M-M, R-R, & S-S. ADDED CUTOUT TO PICTURE OF LDW280-18194-11, -13, -15 & -17.		✓				
	4	2.03, 2.04 3.00	12A 10A 10D					E.O. B4	REF E.O. B3, ON-5: IN VIEWS H-H, R-R, & S-S G861-4-1(8) WAS MS206153M3(8). ADDED SECT N-N & PICTURE OF SLOT IN LDW280-18194-11, -13, -15, & -17.		✓				
	5	2.03, 2.04 3.00	3A 4A&D				✓	E.O B5	ON-5 INSTL: ADDED LDW280-18029-27(1) & -28(2). AN530C2R3(5) WAS (9), AN960C2(5) WAS (9). ADDED GT835J, & DETAIL "P". REMOVED LDW280-18029-15(1) & -16 (2).		✓				
	6	2.02, 2.04 3.00,	6A&B 8A&B					E.O. B6	ON-5 ADDED NOTE *21. ON QUAD III: ADDED LDW280-18020-17, -19, -21, & -23, AN530C2R3 (21), AN960C2(42) & MS20470A3 (AS REQ'D).		✓				
	7	2.01, 2.04 3.00	6C				✓	E.O B7	REF E.O B6, REVISED CALLOUT: AN504C5R4(39) & AN960-C5 (78) WAS AN504C4R4 (39) & AN960C4 (78). ADDED LDW280-18016-27 & -29, AN504C5R4 (10) AN960C5 (20), AN530C2R3 (7) AN960C2 (14) & MS20470A3 (7)		✓		S.J.		

FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28813	B
SCALE	NONE		SHEET 1.10

ENG 77.3 5-66

01

NAS 9-1100

LDW280-28813 C

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA-8(18)	1EA
PART NO. LDW280-28813-5-7		GAEC SCH NO. 523	

5.

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	1.11	1.12	2.00	2.01	2.02	2.03	2.04
REV	C	B	C	C	C	C	C	C	C
SHEET	3.00								
REV	C								
SHEET									
REV									

LAST SECT LTR USED S

LAST DASH NO. USED -7

GRUMMAN REL INFO

PRIM NO. VK(001) 207 MP-16 C-10/65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED

FRACTIONS - DECIMALS – ANGLES

± 1/8 ±.030 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE -

CONTRACT NO. NAS9-1100

LINE ITEM # 1

DOCUMENTATION TYPE II

DRAWN BY J. BACKOFEN 9/8

LAYOUT BY J. BACKOFEN 9/8/66

CHECKED BY

GR. LEADER

VEH DES 9/12

STRUCT. 9/12

STRUCT. Hilderman 9/12

WEIGHTS L. Garcia 9/20/66.

RELIABILITY

THERMO 12/9

PROJ ENGR R.M. Carbee 9-14

REL GROUP

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SKIN ASSEMBLY DESCENT STAGE HEATER

SIZE B

CODE IDENT NO. 26512

LDW280-28813 C

SCALE NONE

SHEET 1.00 OF 10

C.D.R. = 9/9/'66

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
B	8	2.03,2.04 3.00	10D 2C				✓	E.O. B8	REF E.O. B3 ON-5 REVISE CALLOUT FOR LDW280-18253-17(22) WAS (24) & REMOVED G861-4-1 (6)	LTA-8(18)	✓		P.CAPPADORO 7-26-67		
	9	2.04,3.00	6C				✓	E.O. B9	REF E.O. B7 REVISED CALLOUTS: AN504C5R4 S/B AN504C6R4, AN960C5 S/B AN960C6		✓				
	10	2.03,3.00	3C				✓	E.O. B10	ON-1 INSTL ADDED LDW280-18123-13 (2 PLACES)		✓				
C	1	2.03,3.00	3C				✓	E.O C1	REF E.O. B10, ON-5 INSTL WAS ON-1 INSTL	LTA-8(18)	✓		P.CAPPADORO 7-26-67		
	2	2.02,2.04 3.00	6B				✓	E.O C2	IN FLD ON-7 ADDED LDW280-18020-25&-27, AN530C2R3(7), AN960C2(14), MS20470A3(7), AN504C6R4(8), AN960C4(16), GT835-J (AS REQ'D). IN B/M ADDED LDW280-18020-25&-27, REVISED AN504C6R4(47) WAS (39).		✓				
	3	3.00						E.O C3	ADDED NOTE #22		NOT	REQ'D			
	4	2.04,3.00	6B				✓	E.O. C4	ON-7 AN960C6(8) AN504C6R4(4) WAS MS20470A4(4).		✓				
	5	2.02,2.04 3.00	6B				✓	E.O. C5	REF E.O. C2, ON-7 ADDED AN530C2R3 (8) WAS (7) AN960C2 (16) WAS (14) & MS20470A3(8) WAS (7) LDW280-18020-29 WAS -27.		NOT	REQ'D			
	6	3.00	1B				✓	E.O. C6	REF E.O.C3, NOTE #22 OIL CANS, BUCKLES & SAGS BETWEEN ADJACENT SKINS (2.0" MAX) OF HEATER INSTL, ITS ASSYS & SUB ASSYS IS AN ACCEPTABLE CONDITION. (WAS) OIL CANS, BUCKLES, SAGS AND APERTURES OF HEATER INSTL, ITS ASSYS, & SUB-ASSYS IS AN ACCEPTABLE CONDITION.						
	7	2.02,2.04 3.00	5A 5B				✓	E.O. C7	ON-7 ADDED LDW280-18020-29, -31, & -33. AN530C2R3(4) AN530C2R3 (8), AN960C2 (12), AN504C6R4 (7), AN960C6(7) MS20470A3 (12).		✓				
	8	1.11							REF E.O'S. B2, B5, & B6, IN FLD & DESCRIPTION OF E.O. REMOVED: ADDED VIEW *, AND VIEW *-*, SECT **, & VIEW X-X. RESPECTIVELY.		NOT	REQ'D			
	9	1.11 2.03 3.00	11A						IN FLD & DESCRIPTION OF E.O. B4 "REMOVED G861-4-1(2) & MS206153M3(2)." SHOULD BE GR500B-4 (2) WAS MS206153M3(2), QTY OF G861-4-1(6) & MS206153M3(6) WAS QTY(8) & QTY(8). GR500B-4-2 (6) WAS G861-4-1(6)		NOT	REQ'D	S.J.		

FOR CONTINUATION OF REVISIONS SEE SHEET 1.12

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-28813 | C

SCALE NONE | SHEET 1.11

ENG 77.3 5-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
C	10	3.00 2.03 2.04	3A&C 4A&C 5B&C 2B&C					B&C ©	DWG CORRECTION, ADDED LDW280-18029-19&-21 (6 EACH) & -23&-25 (1EACH) TO FLD. IN B/M-23&-25(1) REQ WAS(2) REQ. REMOVED LDW280-18123-11 FROM B/M. IN B/M REVISED QTY OF HARDWARE FOR-5&-7.	LTA-8(18)	NOT	REQ'D	RCAPPADORO 7-26-67		

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B	CODE IDENT NO. 26512	LDW280-28813	C ©
SCALE NONE			SHEET 1, 12

ENG 77.3 5-66

01

NAS 9-1100

QTY PER ASSEMBLY -7	QTY PER ASSEMBLY -5	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	1	LDW280-18004-15	E		SKIN-BKHD	SEE DRAWING						3A
	2	LDW280-18004-13	E		SKIN-BKHD	SEE DRAWING						3D
	1	LDW280-18004-11			SKIN-BKHD							8C
1		LDW280-18001-13			SKIN-DIAG (QIV)							8C
1		LDW280-18001-11			SKIN-DIAG. (QIV)							8D
	1	LDW280-18000-81			COVER (-Y)							4D
	1	-79			COVER (-Z)							5C
	1	-77			ZEE							3C
	1	-75			ZEE							3B
	1	-73			ANGLE							3D
	1	-67			DECK SKIN (QIII)							4B
	1	-65			DECK SKIN (QII)							4C
	1	-63			DECK SKIN (QI)							3D
	1	-61			DECK SKIN (-Z)							5B
	1	-59			DECK SKIN (QIII)							5B
	1	-57			DECK SKIN (+Y)							4A
	1	-55			DECK SKIN (QIV)							3B
	1	-53			DECK SKIN (+Z)							2C
	1	-51			DECK SKIN (+Z)							3B
	1	-49			PAN							4D
	1	-47			COVER							4D
	1	LDW280-18000-45			DECK SKIN (-Y)							3D
		LDW280-28813-7			SKIN INSTL							5A
		LDW280-28813-5	E		SKIN INSTL	SEE DRAWING				NONE	NONE	5A

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28813	C
SCALE NONE		SHEET 2.00	

0 1

NAS 9-1100

QTY PER ASSEMBLY -7	-5	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	1	LDW280-18016-19	E		SPLICE PLATE	SEE DRAWING						6D
	1	LDW280-18016-15			END PLATE							5C
	1	LDW280-18016-13			COVER							5C
	1	LDW280-18016-11			SKIN-DIAG. (Q II) UPR							5C
	1	LDW280-18016-29			DOUBLER							6C
	1	LDW280-18016-27			COVER							6C
	1	LDW280-18013-15			COVER							8B
	1	-14			END PLATE							8B
	1	-13			END PLATE							8B
	1	LDW280-18013-11			SKIN-DIAG (Q I)							8B
	4	LDW280-18006-47			PAN (CONE)							9A
	1	-45			COVER (L/R)							10A
	1	-43			COVER (L/R)							10B
	1	-41			DECK SKIN (Q IV)							9C
	1	-39			DECK SKIN (Q III)							10D
	3	-38			ZEE							9B
	3	-37			ZEE							9B
	3	-36			ZEE							9B
	3	-35			ZEE							9B
	1	-31			DECK SKIN (Q I)							9B
	4	-29			DECK SKIN (±Y & ±Z)							9B
	1	-27			DECK SKIN (Q II)							10B
	4	LDW280-18006-25			CONE (TANK)							9A
	1	LDW280-18005-15			ZEE							3C
	1	LDW280-18005-13			ZEE							3C
	1	LDW280-18005-11	E		SKIN- (ENG.COMP)	SEE DRAWING						3C

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28813	C
SCALE NONE		SHEET 2.01	

ENG 77.2 5-64

01

NAS 9-1100

QTY PER ASSEMBLY -7	QTY PER ASSEMBLY -5	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			E									
1		LDW280-18027-15			COVER (FWD INTSTGE)	SEE DRAWING						3C
1		-14										3C
1		-13										2B
1		LDW280-18027-11			COVER (FWD INTSTGE)							2B
1		LDW280-18026-13			COVER (R/H AFT INTSTGE)							4B
1		LDW280-18026-11			COVER (R/H AFT INTSTGE)							4A
1		LDW280-18020-33			DOUBLER							5B
1		LDW280-18020-31			COVER							5B
1		LDW280-18025-11			COVER (L/H AFT INTSTGE)							4D
1		LDW280-18020-29			DOUBLER							6B
1		LDW280-18020-25			COVER							6B
3		LDW280-18023-22			COVER-CHOCK							9B
3		-21										9B
1		-20										11B
1		LDW280-18023-19			COVER-CHOCK							10A
		LDW280-18020-23			DOUBLER							6B
		LDW280-18020-21			DOUBLER							6B
	1	LDW280-18020-15			COVER							6A
	1	LDW280-18020-13			CONE (TANK)							6A
	1	LDW280-18020-11			SKIN-DIAG (QIII)							5B
1		LDW280-18020-19			COVER							6B
1		LDW280-18020-17			COVER							6B
	1	LDW280-18016-25			SKIN-DIAG. (QII) LWR							6D
	1	LDW280-18016-23	E		SKIN-DIAG (QII) LWR	SEE DRAWING						6D

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28813	C
SCALE NONE			SHEET 2.02

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ENG 77.2 5-64

01

NAS 9-1100

QTY PER ASSEMBLY -7	QTY PER ASSEMBLY -5	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	12	GR500B-4-2	E		RIVET	GRUMMAN STD						
	A/R	GT835J	E		TAPE	GRUMMAN STD						
	22	LDW280-18253-17	E		SUPPORT	SEE DWG						10A
	251	LDW280P17575-11	E		CAP	SEE DRAWING						11A
	5	LDW280-18194-21	E		STRAP	SEE DWG						8A
	8	LDW280-18194-19	E		ANGLE	SEE DRAWING						9B
	2	-17			SKIN							9B
	1	-15			SKIN							10D
	1	-13			SKIN							9C
	4	LDW280-18194-11			SKIN							9A
	2	LDW280-18123-13			ANGLE							3B
	4	LDW280-18030-18			BOOT							8B
	4	LDW280-18030-17			BOOT							8C
	2	LDW280-18029-28			BOOT (+Y & -Y UPR)							3A
	1	LDW280-18029-27			BOOT (+Y UPR)							4A
	1	LDW280-18029-25			ANGLE							3C
	1	-23			ANGLE							3B
	6	-21			ANGLE							3A
	6	-19			ANGLE							3A
	1	-18			BOOT (R/H) UPR							2C
	1	-17			BOOT (L/H) "							2B
	1	-16			BOOT (R/H +Z) "							3A
	2	LDW280-18029-15	E		BOOT (L/H +Z) UPR	SEE DRAWING						5C

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28813	C
SCALE NONE		SHEET 2.03	

ENG 77.2 5-64

01

NAS 9-1100

QTY PER ASSEMBLY												
-7	-5	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	44	NAS1097AD3	E		RIVET	STD PART						
	22	NAS697C08L			NUT							
	18	NAS43DD1-48			SPACER							
	6	NAS43DD1-46			SPACER							
	215	NAS43DD1-32			SPACER							
	12	NAS43DD1-26			SPACER							
	24	MS35206-234			SCREW							
	215	MS35206-233			SCREW							
	12	MS35206-232			SCREW							
	36	MS20615-3M3			RIVET							
		MS20470A3			RIVET							
93	266	AN960C6			WASHER							
10		AN960C5			WASHER							
16		AN960C4			WASHER							
84	930	AN960C2			WASHER							
48	686	AN530C2R3			SCREW (TH'D CUT)							
58		AN504C6R4										
10		AN504C5R4										
	266	AN504C4R4	E		SCREW (TH'D CUT)	STD PART						

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

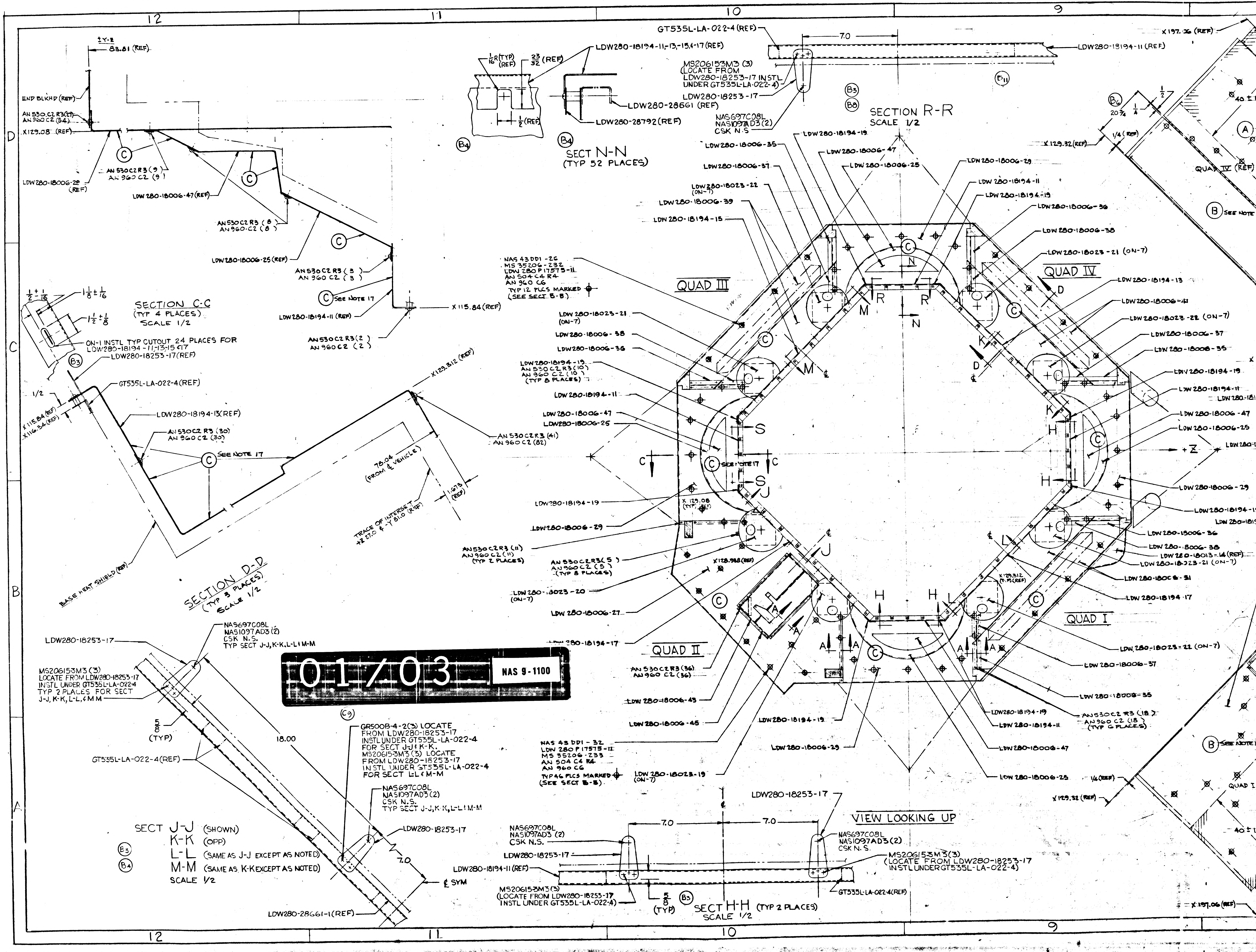
SIZE	CODE IDENT NO.		
B	26512	LDW280-28813	C
SCALE NONE		SHEET 2.04	

ENG 77.2 5-64

01

NAS 9-1100

LDW280-18813 2H3



12
11
10
9
D
C
B
A
GT535L-LA-022-4 (REF)
LDW280-18194-11 (REF)
X 197.06 (REF)
7.0
MS20615 3M3 (3)
(LOCATE FROM LDW280-18253-17 INSTL UNDER GT535L-LA-022-4)
LDW280-18253-17
NAS697C08L
NAS1097AD3 (2)
CSK N.S
SECTION R-R
SCALE 1/2
QUAD III
QUAD IV
QUAD I
QUAD II
SECTION C-C
(TYP 4 PLACES)
SCALE 1/2
SECTION D-D
(TYP 3 PLACES)
SCALE 1/2
SECT N-N
(TYP 52 PLACES)
LDW280-18194-11,-13,-15,&-17 (REF)
LDW280-28661 (REF)
LDW280-28792 (REF)
END BLKHD (REF)
AN 530 C2 R3 (34)
AN 960 C2 (34)
X 129.08 (REF)
83.81 (REF)
X 115.84 (REF)
LDW280-18006-47 (REF)
LDW280-18006-25 (REF)
LDW280-18194-11 (REF)
SEE NOTE 17
ON-1 INSTL TYP CUTOUT 24 PLACES FOR LDW280-18194-11,-13,-15 & 17
LDW280-18253-17 (REF)
GT535L-LA-022-4 (REF)
LDW280-18194-13 (REF)
AN 530 C2 R3 (41)
AN 960 C2 (82)
X 129.312 (REF)
78.04 (FROM ℄ VEHICLE)
1.073 (REF)
TRACE OF INTERSECT +Z 27.0 & -Y 81.0 (REF)
BASE HEAT SHIELD (REF)
NAS 43 DD1-26
MS 35206-232
LDW 280 P17575-11
AN 504 C4 R4
AN 960 C6
TYP 12 PLCS MARKED (SEE SECT B-B)
NAS 43 DD1-32
LDW 280 P17575-11
MS 35206-233
AN 504 C4 R4
AN 960 C6
TYP 46 PLCS MARKED (SEE SECT B-B)
LDW280-18006-35
LDW280-18006-37
LDW280-18023-22 (ON-7)
LDW280-18006-39
LDW280-18194-15
LDW280-18194-19
LDW280-18006-47
LDW280-18006-25
LDW280-18006-29
LDW280-18194-11
LDW280-18006-38
LDW280-18023-21 (ON-7)
LDW280-18194-13
LDW280-18006-41
LDW280-18006-36
LDW280-18006-27
LDW280-18023-20 (ON-7)
LDW280-18194-17
LDW280-18006-43
LDW280-18006-45
LDW280-18006-31
LDW280-18023-19 (ON-7)
AN 530 C2 R3 (36)
AN 960 C2 (36)
AN 530 C2 R3 (18)
AN 960 C2 (18)
(TYP 6 PLACES)
X 129.32 (REF)
B SEE NOTE
18.00
5/8 (TYP)
7.0
℄ SYM
GR500B-4-2(3) LOCATE FROM LDW280-18253-17 INSTL UNDER GT535L-LA-022-4 FOR SECT J-J & K-K. MS20615 3M3 (3) LOCATE FROM LDW280-18253-17 INSTL UNDER GT535L-LA-022-4 FOR SECT L-L & M-M
TYP SECT J-J, K-K, L-L & M-M
LDW280-28661-1 (REF)
SECT J-J (SHOWN)
K-K (OPP)
L-L (SAME AS J-J EXCEPT AS NOTED)
M-M (SAME AS K-K EXCEPT AS NOTED)
SCALE 1/2
VIEW LOOKING UP
SECT H-H (TYP 2 PLACES)
SCALE 1/2

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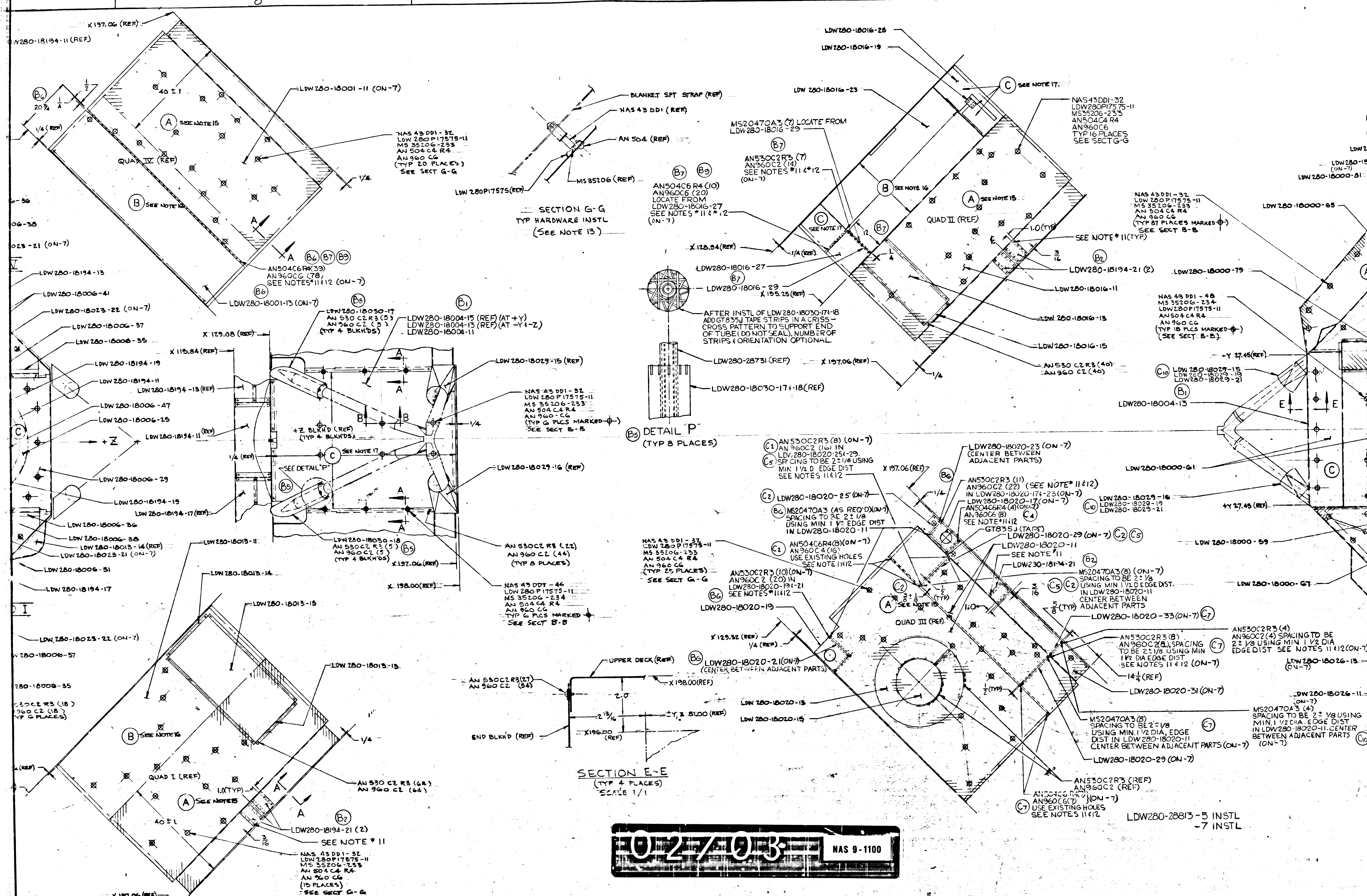
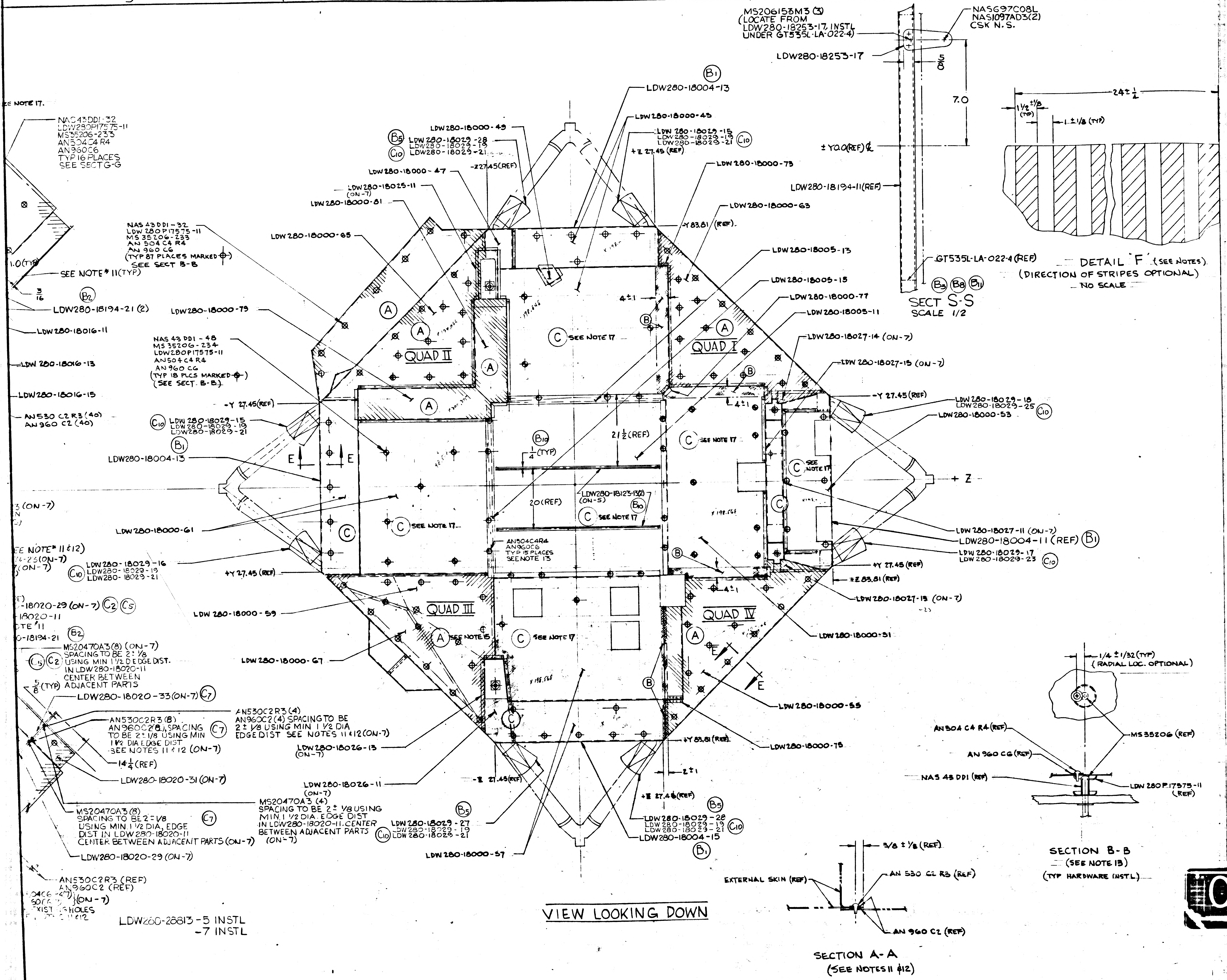

X 197.06 (REF)
LDW280-18194-11 (REF)
B6
20 3/4
1/4
1/2
1/4 (REF)
40 ± 1
A SEE NOTE 15
LDW280-18001-11 (ON-7)
NAS 43 DD1-32
LDW 280 P17575-11
MS 35206-233
AN 504 C4 R4
AN 960 C6
(TYP 20 PLACES)
SEE SECT G-G
QUAD IV (REF)
B SEE NOTE 16
A
AN504C6R4 (39)
AN960C6 (78)
SEE NOTES 11 & 12 (ON-7)
B6 B7 B9
LDW280-18001-13 (ON-7)
-36
-38
-21 (ON-7)
LDW280-18194-13
LDW280-18006-41
LDW280-18023-22 (ON-7)
LDW280-18006-37
LDW280-18008-35
LDW280-18194-19
LDW280-18194-11
LDW280-18006-47
LDW280-18006-25
LDW280-18194-11 (REF)
+Z
LDW280-18006-29
LDW280-18194-19
LDW280-18194-17 (REF)
LDW280-18006-36
LDW280-18006-38
LDW280-18013-14 (REF)
LDW280-18023-21 (ON-7)
LDW280-18006-51
LDW280-18194-17
LDW280-18023-22 (ON-7)
LDW280-18006-37
LDW280-18008-35
AN530C2R3 (18)
AN960C2 (18)
(TYP 6 PLACES)
BLANKET SPT STRAP (REF)
NAS 43 DD1 (REF)
AN 504 (REF)
LDW 280P17575 (REF)
MS35206 (REF)
SECTION G-G
TYP HARDWARE INSTL
(SEE NOTE 13)
X 129.08 (REF)
X 115.84 (REF)
LDW280-18194-13 (REF)
B5
LDW280-18030-17
AN 530 C2 R3 (5)
AN 960 C2 (5)
(TYP 4 BLKH'DS)
B1
LDW280-18004-15 (REF) (AT +Y)
LDW280-18004-13 (REF) (AT -Y & -Z)
LDW280-18004-11
LDW280-18029-15 (REF)
NAS 43 DD1-32
LDW 280 P17575-11
MS 35206-233
AN 504 C4 R4
AN 960-C6
(TYP 6 PLCS MARKED)
SEE SECT B-B
+Z BLKH'D (REF)
(TYP 4 BLKH'DS)
C SEE NOTE 17
1/4 (REF)
SEE DETAIL "P"
LDW280-18029-16 (REF)
LDW280-18030-18
AN 530C2 R3 (5)
AN 960 C2 (5)
(TYP 4 BLKH'DS)
X 197.06 (REF)
X 198.00 (REF)
AN 530C2 R3 (22)
AN 960 C2 (44)
(TYP 8 PLACES)
NAS 43 DD1-46
LDW 280 P17575-11
MS 35206-234
AN 504 C4 R4
AN 960 C6
TYP 6 PLCS MARKED
SEE SECT B-B
LDW280-18013-11
LDW280-18013-14
LDW280-18013-15
LDW280-18013-13
B SEE NOTE 16
QUAD I (REF)
A SEE NOTE 15
1.0 (TYP)
40 ± 1
AN 530 C2 R3 (64)
AN 960 C2 (64)
B2
LDW280-18194-21 (2)
SEE NOTE 11
3/16
NAS 43 DD1-32
LDW 280 P17575-11
MS 35206-233
AN 504 C4 R4
AN 960 C6
(15 PLACES)
SEE SECT G-G
X 197.06 (REF)
AN 530C2 R3 (27)
AN 960 C2 (54)
UPPER DECK (REF)
X 198.00 (REF)
2.0
2 13/16
±Y, Z 81.00 (REF)
END BLKH'D (REF)
X 196.00 (REF)
SECTION E-E
(TYP 4 PLACES)
SCALE 1/1
B5 DETAIL "P"
(TYP 8 PLACES)
LDW280-18016-27
B7
LDW280-18016-29
X 135.25 (REF)
X 128.94 (REF)
AFTER INSTL OF LDW280-18030-17 & -18
ADD GT835J TAPE STRIPS IN A CRISS-CROSS PATTERN TO SUPPORT END OF TUBE (DO NOT SEAL). NUMBER OF STRIPS & ORIENTATION OPTIONAL.
LDW280-28731 (REF)
X 197.06 (REF)
LDW280-18030-17 & -18 (REF)
B7 B9
AN504C6R4 (10)
AN960C6 (20)
LOCATE FROM
LDW280-18016-27
SEE NOTES 11 & 12
(ON-7)
MS20470A3 (7) LOCATE FROM
LDW280-18016-29
B7
AN530C2R3 (7)
AN960C2 (14)
SEE NOTES 11 & 12
(ON-7)
LDW280-18016-25
LDW280-18016-19
LDW280-18016-23
C SEE NOTE 17
NAS43DD1-32
LDW280P17575-11
MS35206-233
AN504C4R4
AN960C6
TYP 16 PLACES
SEE SECT G-G
B SEE NOTE 16
A SEE NOTE 15
QUAD II (REF)
C SEE NOTE 17
1/4 (REF)
1/4
1.0 (TYP)
SEE NOTE 11 (TYP)
3/16
B2
LDW280-18194-21 (2)
LDW280-18016-11
LDW280-18016-13
LDW280-18016-15
AN530 C2R3 (40)
AN960 C2 (40)
1/4
C2 AN530C2R3 (8) (ON-7)
AN960C2 (16) IN
LDW280-18020-25 & -29.
C5 SPACING TO BE 2 ± 1/8 USING
MIN 1 1/2 D EDGE DIST
SEE NOTES 11 & 12
X 197.06 (REF)
B6
LDW280-18020-23 (ON-7)
(CENTER BETWEEN ADJACENT PARTS)
C2 LDW280-18020-25 (ON-7)
B6 MS20470A3 (AS REQ'D) (ON-7)
SPACING TO BE 2 ± 1/8
USING MIN 1 1/2 EDGE DIST
IN LDW280-18020-11
AN530C2R3 (11)
AN960C2 (22) (SEE NOTE 11 & 12)
IN LDW280-18020-17 & -23 (ON-7)
LDW280-18020-17 (ON-7)
AN504C6R4 (4) (ON-7)
AN960C6 (8)
SEE NOTE 11 & 12
C4
GT835J (TAPE)
LDW280-18020-29 (ON-7) C2 C5
LDW280-18020-11
SEE NOTE 11
LDW280-18194-21
B2
MS20470A3 (8) (ON-7)
SPACING TO BE 2 ± 1/8
C5 C2 USING MIN 1 1/2 D EDGE DIST.
IN LDW280-18020-11
CENTER BETWEEN
5/8 (TYP) ADJACENT PARTS
LDW280-18020-33 (ON-7) C7
NAS 43 DD1-32
LDW 280 P17575-11
MS 35206-233
AN 504 C4 R4
AN 960 C6
(TYP 25 PLACES)
SEE NOTE 11 & 12
SEE SECT G-G
C2 AN504C6R4 (8) (ON-7)
AN960C4 (16)
USE EXISTING HOLES
AN530C2R3 (10) (ON-7)
AN960C2 (20) IN
LDW280-18020-19 & -21
SEE NOTES 11 & 12
B6
LDW280-18020-19
C2
A SEE NOTE 15
3/8 ± 1/8
1/2 (TYP)
3/16
1.0
QUAD III (REF)
X 129.32 (REF)
1/4 (REF)
B6 LDW280-18020-21 (ON-7)
(CENTER BETWEEN ADJACENT PARTS)
LDW 280-18020-13
LDW 280-18020-15
1/2 (TYP)
AN530C2R3 (8)
AN960C2 (8), SPACING
TO BE 2 ± 1/8 USING MIN
1 1/2 DIA EDGE DIST
SEE NOTES 11 & 12 (ON-7)
C7
14 1/4 (REF)
LDW280-18020-31 (ON-7)
MS20470A3 (8)
SPACING TO BE 2 ± 1/8
USING MIN 1 1/2 DIA, EDGE
DIST IN LDW280-18020-11
CENTER BETWEEN ADJACENT PARTS (ON-7)
C7
LDW280-18020-29 (ON-7)
AN530C2R3 (REF)
AN960C2 (REF)
AN504C6R4 (7)
AN960C6 (7) (ON-7)
C7 USE EXISTING HOLES
SEE NOTES 11 & 12
LDW280-28813-5 INSTL
-7 INSTL
LDW280-18000-81
LDW280-18000-65
NAS 43 DD1-32
LDW 280 P17575-11
MS 35206-233
AN 504 C4 R4
AN 960 C6
(TYP 87 PLACES MARKED)
SEE SECT B-B
LDW280-18000-79
NAS 43 DD1-48
MS 35206-234
LDW280P17575-11
AN504C4R4
AN960C6
(TYP 18 PLCS MARKED)
(SEE SECT. B-B)
-Y 27.45 (REF)
C10 LDW280-18029-15
LDW280-18029-19
LDW280-18029-21
B1
LDW280-18004-13
E E
LDW280-18000-61
C
C10 LDW280-18029-16
LDW280-18029-19
LDW280-18029-21
+Y 27.45 (REF)
LDW 280-18000-59
LDW 280-18000-67
AN530C2R3 (4)
AN960C2 (4) SPACING TO BE
2 ± 1/8 USING MIN 1 1/2 DIA
EDGE DIST SEE NOTES 11 & 12 (ON-7)
LDW280-18026-13
(ON-7)
LDW280-18026-11
(ON-7)
MS20470A3 (4)
SPACING TO BE 2 ± 1/8 USING
MIN 1 1/2 DIA. EDGE DIST
IN LDW280-18020-11. CENTER
BETWEEN ADJACENT PARTS
(ON-7)
C10

02703 NAS 9-1100


MS206153M3 (3)
(LOCATE FROM
LDW280-18253-17, INSTL
UNDER GT535L-LA-022-4)
LDW280-18253-17
NAS697C08L
NAS1097AD3(2)
CSK N.S.
5/8
7.0
±Y0.0(REF) ℄
LDW280-18194-11(REF)
GT535L-LA-022-4 (REF)
B3
B8
B11
24 ± 1/4
1 1/2 ±1/8 (TYP)
1 ± 1/8 (TYP)
LDW280-18004-13
B1
LDW280-18000-45
LDW280-18000-49
B5
LDW280-18029-28
LDW280-18029-19
C10
LDW280-18029-21
LDW280-18029-15
LDW280-18029-19
LDW280-18029-21
C10
+Z 27.45 (REF)
-Z 27.45 (REF)
LDW280-18000-47
LDW280-18025-11
(ON-7)
LDW280-18000-81
LDW280-18000-73
LDW280-18000-63
-Y 83.81 (REF).
LDW280-18000-65
LDW280-18005-13
LDW280-18005-15
LDW280-18000-77
LDW280-18005-11
LDW280-18027-14 (ON-7)
LDW280-18027-15 (ON-7)
SEE NOTE 17.
NAS43DD1-32
LDW280P17575-11
MS35206-233
AN504C4R4
AN960C6
TYP 16 PLACES
SEE SECT G-G
NAS 43 DD1-32
LDW 280 P17575-11
MS 35206-233
AN 504 C4 R4
AN 960 C6
(TYP 87 PLACES MARKED ⊕)
SEE SECT B-B
1.0 (TYP)
SEE NOTE # 11 (TYP)
3/16
B2
LDW280-18194-21 (2)
LDW280-18000-79
LDW280-18016-11
NAS 43 DD1-48
MS 35206-234
LDW280P17575-11
AN504C4R4
AN960C6
(TYP 18 PLCS MARKED ⊕)
(SEE SECT. B-B)
LDW 280-18016-13
LDW280-18016-15
AN530 C2R3 (40)
AN960 C2 (40)
-Y 27.45 (REF)
C10
LDW 280-18029-15
LDW280-18029-19
LDW280-18029-21
B1
LDW280-18004-13
E
E
A
B
C
SEE NOTE 17
QUAD II
QUAD I
QUAD III
QUAD IV
4 ± 1
21 1/2 (REF)
B10
1/4 (TYP)
20 (REF)
LDW280-18123-13(2)
(ON-5)
AN504C4R4
AN960C6
TYP 15 PLACES
SEE NOTE 13
SEE NOTE 15
LDW280-18029-18
LDW280-18029-25
LDW280-18000-53
+Z
LDW280-18027-11 (ON-7)
LDW280-18004-11 (REF)
LDW280-18029-17
LDW280-18029-23
+Y 27.45 (REF)
+Z 83.81 (REF)
LDW280-18027-13 (ON-7)
LDW280-18000-51
LDW280-18000-61
3 (ON-7)
SEE NOTE # 11 & 12)
-23 (ON-7)
(ON-7)
LDW280-18029-16
LDW280-18029-19
LDW280-18029-21
+Y 27.45 (REF)
-18020-29 (ON-7)
C2
C5
-18020-11
NOTE # 11
-18194-21
LDW280-18000-59
MS20470A3(8) (ON-7)
SPACING TO BE 2 ± 1/8
USING MIN 1 1/2 D EDGE DIST.
IN LDW280-18020-11
CENTER BETWEEN
ADJACENT PARTS
5/8 (TYP)
LDW280-18000-67
LDW280-18020-33 (ON-7)
C7
AN530C2R3(8)
AN960C2(8), SPACING
TO BE 2 ± 1/8 USING MIN
1 1/2 DIA EDGE DIST
SEE NOTES 11 & 12 (ON-7)
AN530C2R3 (4)
AN960C2 (4) SPACING TO BE
2 ± 1/8 USING MIN 1 1/2 DIA
EDGE DIST SEE NOTES 11 & 12 (ON-7)
14 1/4 (REF)
LDW280-18020-31 (ON-7)
LDW280-18026-13
(ON-7)
LDW280-18026-11
(ON-7)
MS20470A3 (8)
SPACING TO BE 2 ± 1/8
USING MIN 1 1/2 DIA, EDGE
DIST IN LDW280-18020-11
CENTER BETWEEN ADJACENT PARTS (ON-7)
MS20470A3 (4)
SPACING TO BE 2 ± 1/8 USING
MIN 1 1/2 DIA. EDGE DIST
IN LDW280-18020-11. CENTER
BETWEEN ADJACENT PARTS
(ON-7)
LDW280-18020-29 (ON-7)
AN530C2R3 (REF)
AN960C2 (REF)
(ON-7)
EXISTING HOLES
NOTES 11 & 12
LDW280-18000-55
+Y 83.81 (REF)
LDW280-18000-75
-Z 27.45 (REF)
+Z 27.45 (REF)
2 ± 1
LDW280-18029-27
LDW280-18029-19
LDW280-18029-21
LDW280-18029-28
LDW280-18029-19
LDW280-18029-21
LDW280-18004-15
LDW280-18000-57
1/4 ± 1/32 (TYP)
(RADIAL LOC. OPTIONAL)
AN504 C4 R4 (REF)
AN960 C6 (REF)
NAS 43 DD1 (REF)
MS35206 (REF)
LDW 280 P17575-11
(REF)
3/8 ± 1/8 (REF)
EXTERNAL SKIN (REF)
AN 530 C2 R3 (REF)
AN 960 C2 (REF)

SECT S-S
SCALE 1/2

DETAIL 'F' (SEE NOTES)
(DIRECTION OF STRIPES OPTIONAL)
NO SCALE

VIEW LOOKING DOWN

LDW280-28813-5 INSTL
-7 INSTL

SECTION B-B
(SEE NOTE 13)
(TYP HARDWARE INSTL)

SECTION A-A
(SEE NOTES 11 & 12)

NOTES:

1. THRU 10. DELETED

11. #53(.059-.063) DIA HOLES TO BE LOCATED AT APPROX 2 INCH SPACING ± 1/4 IN ALL FAYING SURFACES. EDGE DISTANCE TO BE 3/8 ± 1/8. (SEE SECTION A-A)

12. ON EXTERNAL OR VISIBLE FAYING SURFACES ONLY, EXPAND EXISTING HOLES TO .124-.129 DIA (1/8 DRILL) (SEE SECTION A-A)

13. AT STANDOFF LOCATIONS WHERE APPLICABLE, DRILL #43 (.088-.093) DIA HOLES THRU EXTERNAL SKIN AND LDW280P17575-11 AS SHOWN IN SECTION B-B & G-G. EXPAND HOLES IN SKINS TO .249-.255 DIA ('E' DRILL).

14. EXTRANEOUS HOLES PERMITTED IN PARTS. 1/4 DIA MAX.

15. PAINT AREAS MARKED Ⓐ WITH G.A.E.C. #1019 (FLAT BLACK EPOXY) PER LPC 280-13.

16. PAINT AREAS MARKED Ⓑ PER DETAIL 'F' WITH G.A.E.C. #1019 (FLAT BLACK EPOXY) PER LPC 280-13.

17. PAINT AREAS MARKED Ⓒ PER DETAIL 'F' USING SICON 3X245 (ALUM) PER LPC 280-13.

18. PAINTING OF RIVETS OR SCREW HEADS IS OPTIONAL.

19. PAINTING OF SKINS BETWEEN FAYING SURFACES IS OPTIONAL

20. MINOR SCRATCHES & CHIPPED AREAS ON PAINTED SURFACES ARE ACCEPTABLE PROVIDED THE SURFACE AREA OF THE DISCREPANCY DOES NOT EXCEED 1/4 SQUAR INCH. MAX FREQUENCY OF DISCREPANCY IS 1/2 SQUARE INCH PER SQUARE FOOT OF SKIN.

21. DURING INSTL OR ASSYS OF HEATER SKIN SUBASSYS OR DETAILS, PARTS MAY BE TRIMMED TO INSURE PROPER CLEARANCE WITH STRUCTURAL PENETRATIONS, BLANKET PENETRATIONS, ELECT. CABLES, & HEADS OF ADJACENT HARDWARE. MIN CLEARANCE AFTER TRIM TO BE 1/32, MAX CLEARANCE TO BE 1/4 PROVIDING A MIN FASTENER EDGE DISTANCE IS HELD AFTER TRIMMING. (1 1/2 FASTENER DIA)

22. OILCANS, BUCKLES & SAGS BETWEEN ADJACENT SKINS (2.0" MAX) OF HEATER INSTL, ITS ASSYS & SUB ASSYS IS AN ACCEPTABLE CONDITION.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
$\sqrt{125}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
$\sqrt{200}$ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL $\sqrt{}$ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 127

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 138) 34.8 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) 8.7 SQ. FT.
PRINT TRIM LINE

03/03
NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28813	C
MODEL OR END ITEM	SCALE		SHEET	

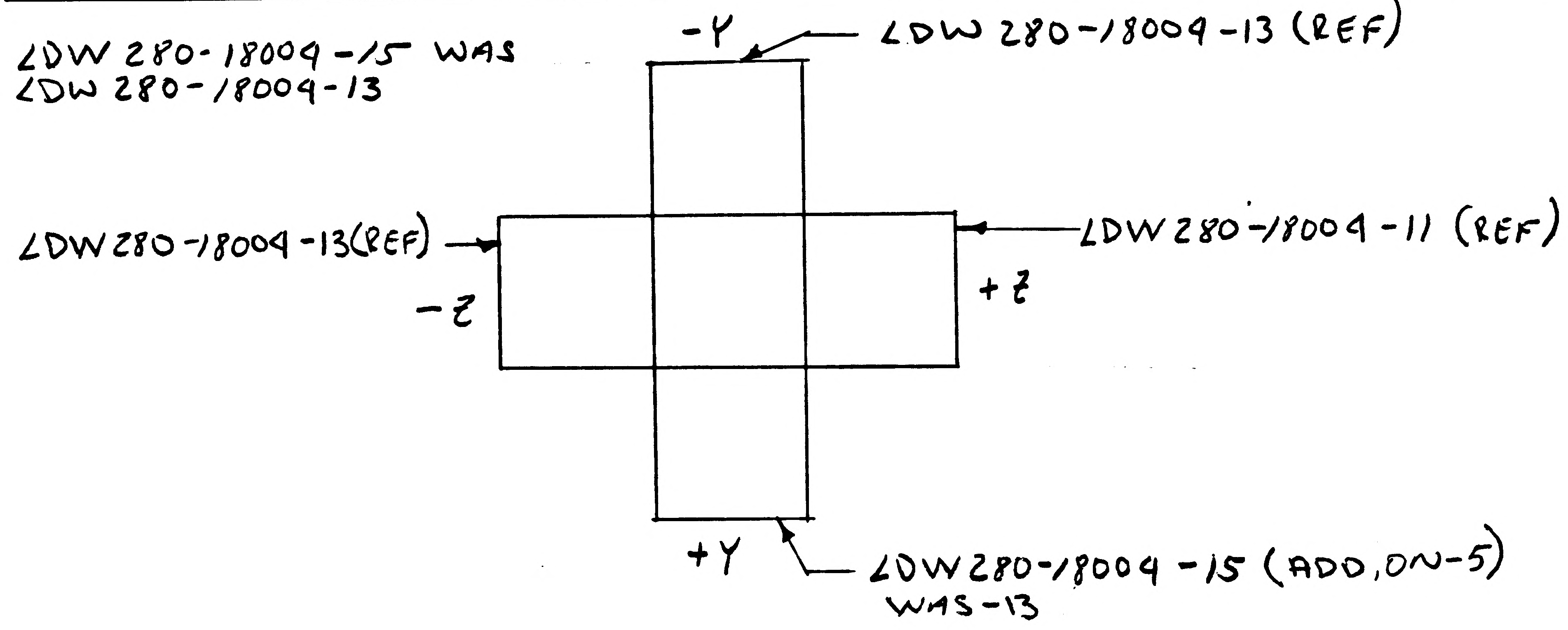
LDW280-28813 C
LDW280-28813 C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW 280-28813		EO NO.	B1
CONTROL INFO NO. LDW 280A-4272			


LDW 280-18004-15 WAS
LDW 280-18004-13
-Y
LDW 280-18004-13 (REF)
LDW 280-18004-13 (REF)
-Z
LDW 280-18004-11 (REF)
+Z
+Y
LDW 280-18004-15 (ADD, ON-5)
WAS-13

VIEW LOOKING DOWN

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE CLEARANCE FOR ION DETECTOR TUBE	LDW280-18004-15 WAS LDW280-18004-13 (ON-5)	LE 12/12

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY					NM			
DATE	12/10/66	12/12		12/12/66	12-12-66		12-12-66	12/12/66
5	VDI	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSEMBLY DESCENT STAGE HEATER	LDW 280-28813	B1

ISSUED BY T. IAMBROSIO/ STRAKOSCH X1153 SECTION V.D.I. GROUP NO. 335 PL 35

01 NAS 9-1100

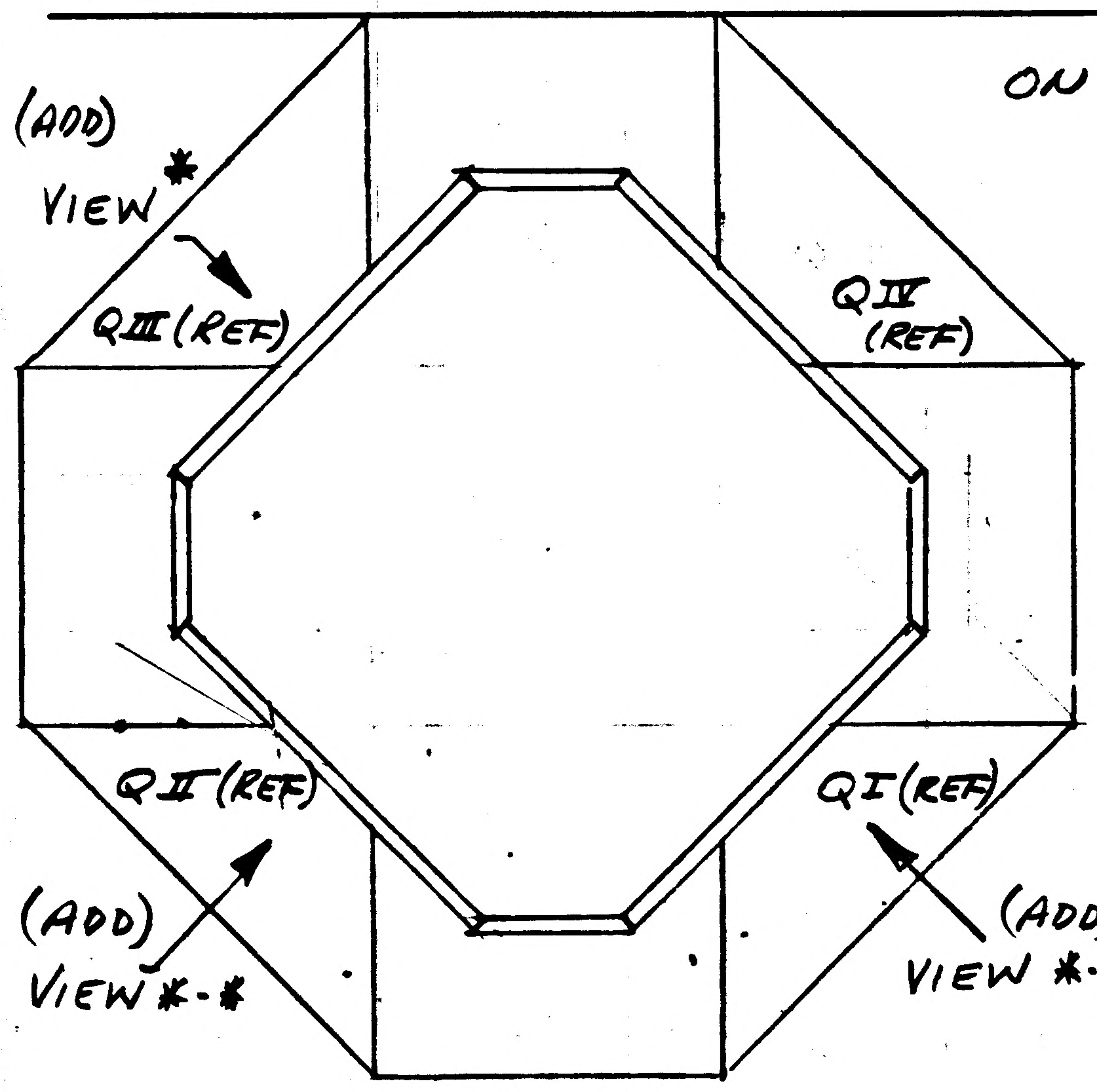
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

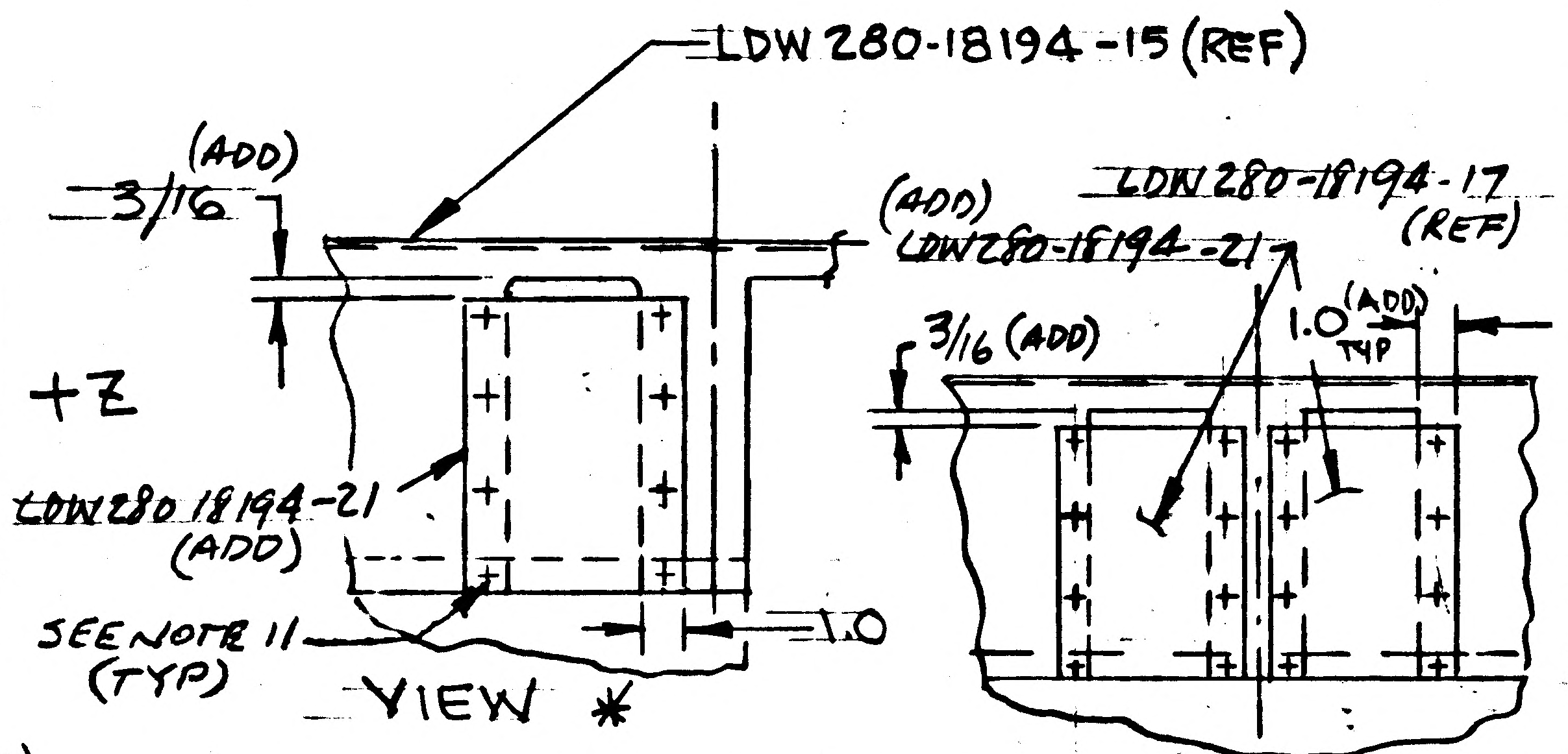
DWG. NO. LDW 280-28813		EO NO.	Bv
CONTROL INFO NO. LDW 280 A-4424			

ON -5 ADD LDW 280-18194-21 & VIEWS * & *-*:



(ADD)
VIEW *
QIII (REF)
QIV (REF)
QII (REF)
QI (REF)
(ADD)
VIEW *-*
(ADD)
VIEW *-*

VIEW LKG UP (REF)



LDW 280-18194-15 (REF)
(ADD)
3/16
+Z
LDW 280 18194-21
(ADD)
SEE NOTE 11
(TYP)
1.0
VIEW *
(ADD)
~~LDW 280-18194-21~~
~~LDW 280-18194-17~~
(REF)
3/16 (ADD)
1.0 (ADD)
TYP

TO B/M & F/D ADD LDW 280-18194-21
AS SHOWN.

* ~~USE NEXT AVAIL. SECT. LTR.~~

- USE NEXT AVAIL. SECTION LTR.

THERMAL SHIELD

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE WIRE EXIT FOR HEATER PANELS ON BASE HEAT SHIELD	TO B/M ~~& F/D~~ ADDED LDW 280-18194-21, ADDED VIEW * AND VIEW *-* ADDED 1.0 & 3/16 LOCATING DIMS.	① 4 FR 12/16/66

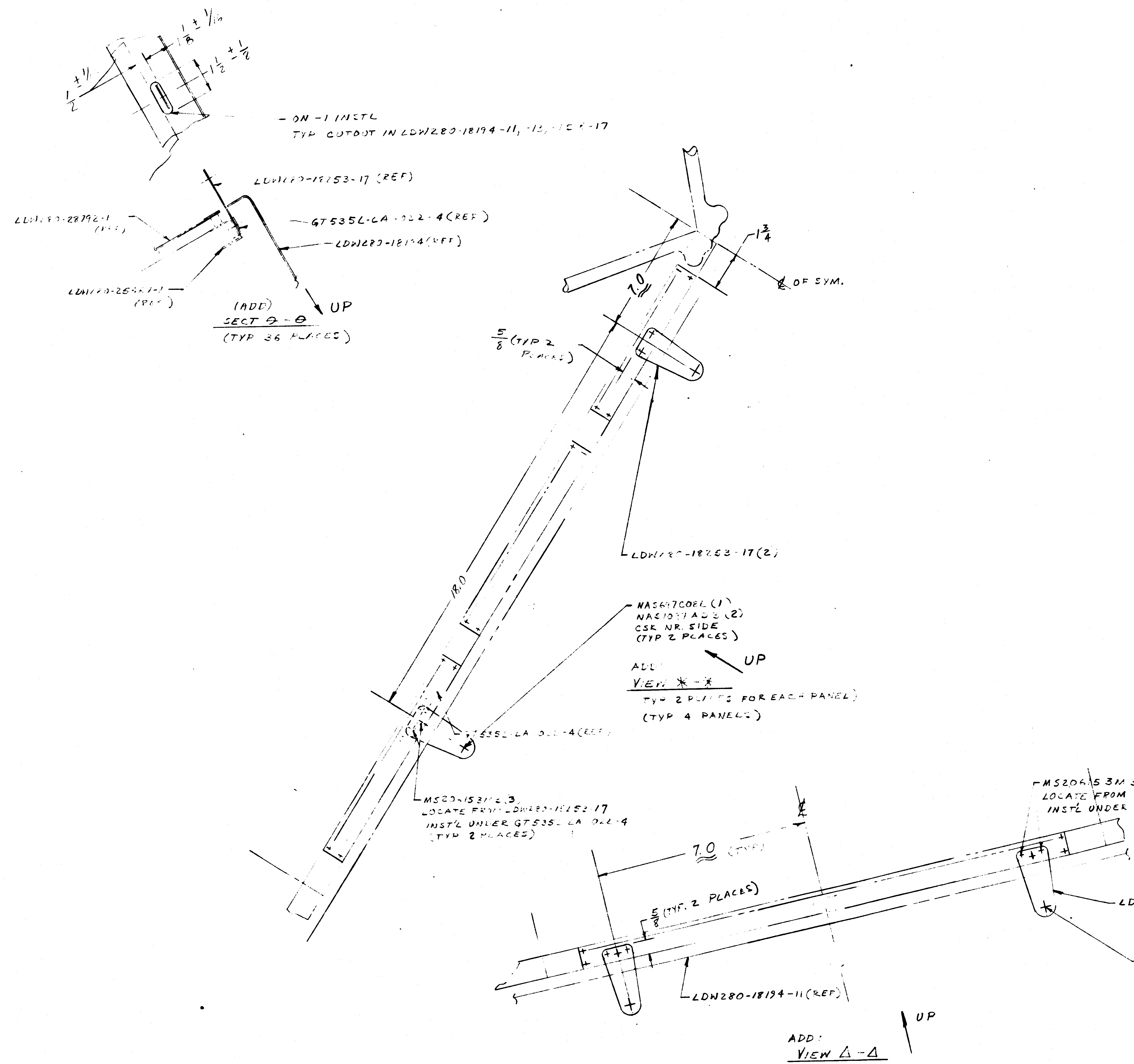
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY									
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		✓		DATE	12/15/66			12/15/66	12/15		12-16-66	12/16/66	
LM		LTA-8 (18)		REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

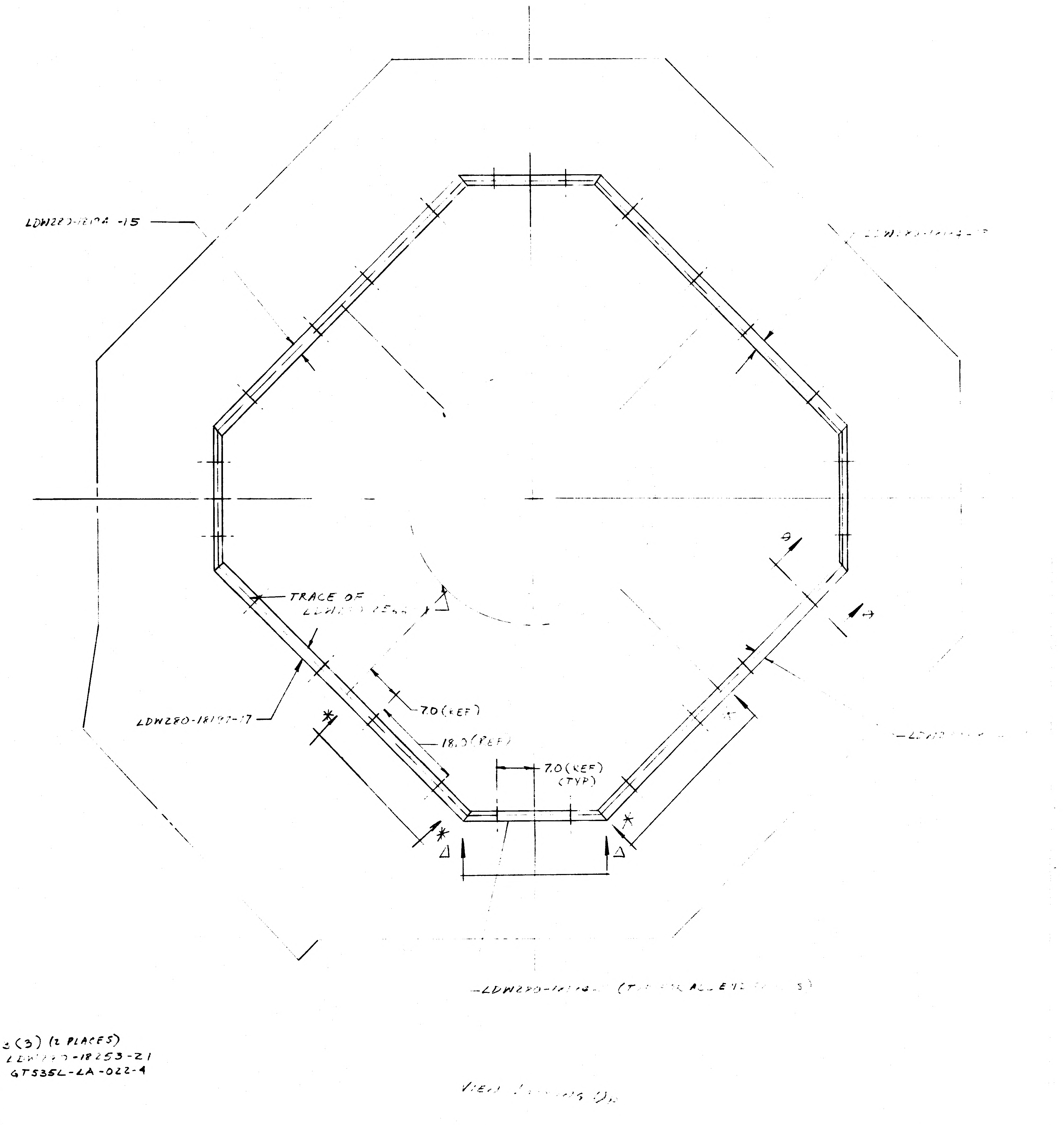
PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSEMBLY - D.S. - HEATER	LDW 280-28813	Bv

ISSUED BY QUEVEDO / STRAKOSCH X 1392   SECTION V. D1   GROUP NO. 335   PL 35

01

NAS 9-1100


$1\frac{1}{8} \pm 1/16$
$1\frac{1}{2} \pm \frac{1}{8}$
$\frac{1}{2} \pm 1/$
-ON -1 INSTL
TYP CUTOUT IN LDW280-18194-11, -13, -15 & -17
LDW280-18253-17 (REF)
LDW280-28792-1 (REF)
GT535L-LA-022-4 (REF)
LDW280-18194 (REF)
LDW280-25 -1 (REF)
(ADD)
SECT 9-9
(TYP 36 PLACES)
UP
1¾
℄ OF SYM.
7.0
$\frac{5}{8}$ (TYP 2 PLACES)
LDW280-18253-17 (2)
18.0
NAS697C08L (1)
NAS1097AD3 (2)
CSK NR. SIDE
(TYP 2 PLACES)
UP
ADD
VIEW ✱-✱
TYP 2 PLACES FOR EACH PANEL)
(TYP 4 PANELS)
GT535L-LA-022-4 (REF)
MS20615-3M3 (3)
LOCATE FROM LDW280-18253-17
INST'L UNDER GT535L-LA-022-4
(TYP 2 PLACES)
℄
7.0 (TYP)
$\frac{5}{8}$ (TYP. 2 PLACES)
MS20615-3M3 (3) (2 PLACES)
LOCATE FROM LDW280-18253-21
INST'L UNDER GT535L-LA-022-4
LDW280-18253-17 (TYP 2 PLACES)
NAS697C08L
NAS1097AD3 (2)
CSK NR. SIDE
(TIP 2 PLACES)
LDW280-18194-11 (REF)
UP
ADD:
VIEW Δ-Δ
(TYP 4 PANELS)


LDW280-18194-15
TRACE OF
9
7.0 (REF)
18.0 (REF)
7.0 (REF)
(TYP)
LDW280-18194-17
✱
Δ
LDW280-

VIEW

3

01/02 NAS 9-1100

DETAIL SPEC REQD		CLASS II ENGRG CHG		CLASS I ENGRG CHG

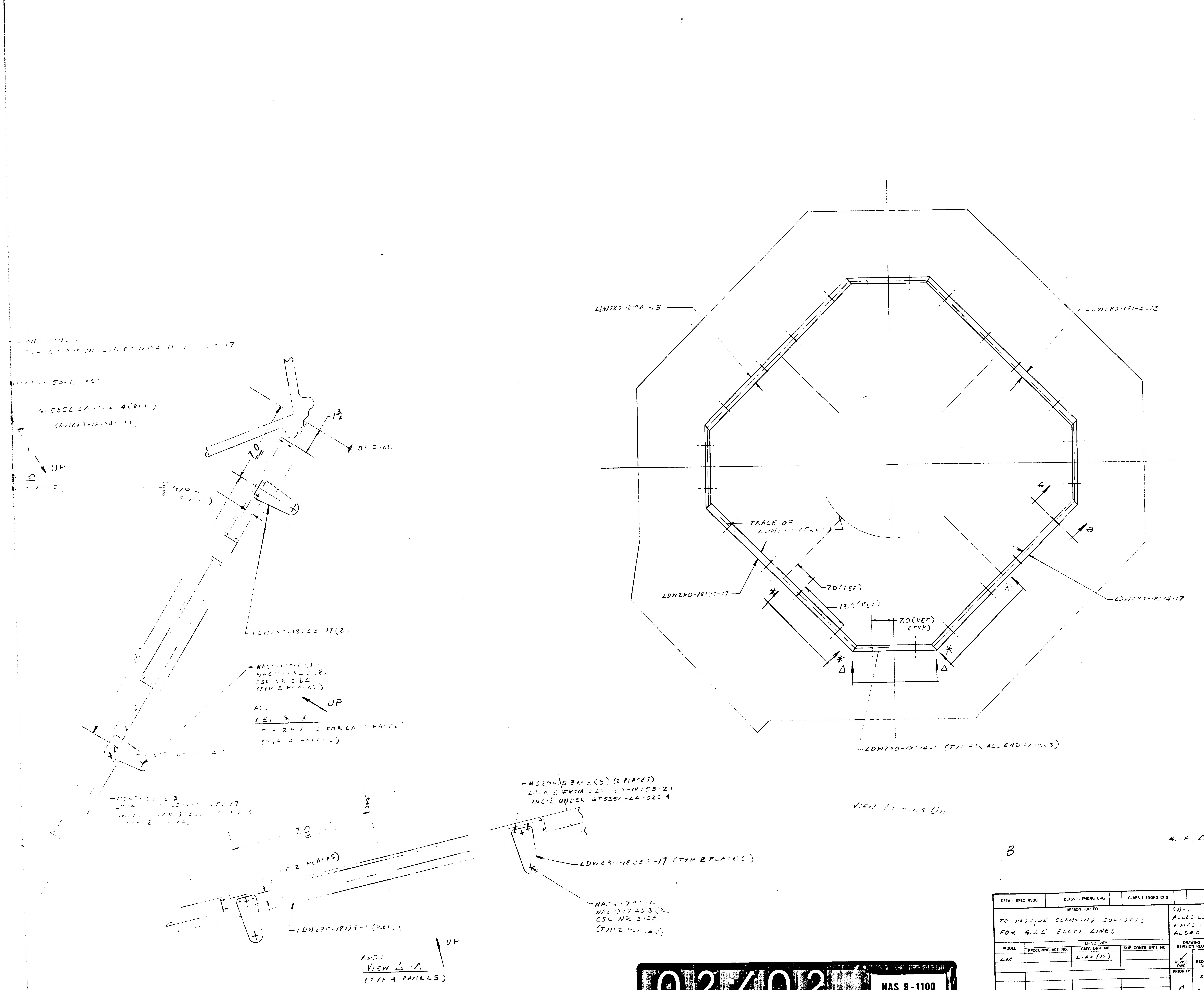
REASON FOR EO

TO PROVIDE CLAMPING
FOR

MODEL	PROCURING ACT. NO.	GAEC UNIT NO	SUB CONTR UNIT NO
LM			

ISSUED BY DON RAGAS SECTION GROUP NO

ENG 32-1 REV 3-65


LDW280-18194-15
LDW280-18194-13
TRACE OF
7.0 (REF)
18.0 (REF)
7.0 (REF) (TYP)
LDW280-18197-17
LDW280-18194-17
LDW280-18194-11 (TYP FOR ALL END PANELS)
Θ
Θ
*
*
Δ
Δ
VIEW LOOKING UP
17
53-11 (REF)
GT535L-LA-022-4 (REF)
LDW280-18194 (REF)
UP
1¾
℄ OF SYM.
7.0
5/8 (TYP 2 PLACES)
LDW280-18253-17 (2)
NAS1097AD3 (2)
CSK NR SIDE
(TYP 2 PLACES)
UP
ADD
VIEW * *
FOR EACH PANEL
(TYP 4 PANELS)
3
17
℄
7.0
2 PLACES)
MS20615-3M3 (3) (2 PLACES)
LOCATE FROM LDW280-18253-21
INSTL UNDER GT535L-LA-022-4
LDW280-18253-17 (TYP 2 PLACES)
NAS1097AD3 (2)
CSK NR SIDE
(TYP 2 PLACES)
LDW280-18194-11 (REF)
UP
ADD
VIEW Δ Δ
(TYP 4 PANELS)

-, Δ-Δ, SECT. LETTER

B

DETAIL SPEC REQD		CLASS II ENGRG CHG		CLASS I ENGRG CHG

CONTROL INFO NO. 55

REASON FOR EO: TO PROVIDE CLAMPING SUPPORTS FOR G.S.E. ELECT. LINES

DESCRIPTION OF EO:
CN-1
ADDED LDW280-18253-17, -21 MS20615-3M3 (72), NAS1097AD3 (48), ADDED VIEW *-* & Δ-Δ
ADDED CUTOUT TO LDW280-18194-11, -13, -15 & -17

GRUMMAN EO RELEASE

MODEL	EFFECTIVITY PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	

DRAWING REVISION REQD: ✓ REVISE DWG · RECORD EO

DISPOSITION OF PARTS: ✓ REWORK · SCRAP

DATE · BY · SUPPORT · RELIAB GROUP · GROUP LEADER · STRESS GROUP · LIAISON ENGRG · PROJ ENGR

PRIORITY: C

DRAWING TITLE: SKIN INSTL D/S - HEATER

ENGINEERING ORDER

DRAWING NO.: LDW280-28813

EO NO.: F3

CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ISSUED BY DON RAGAS · SECTION UDI · GROUP NO. 335 · PL 5

ENG 32.3 REV 3-65

02/02 NAS 9-1100

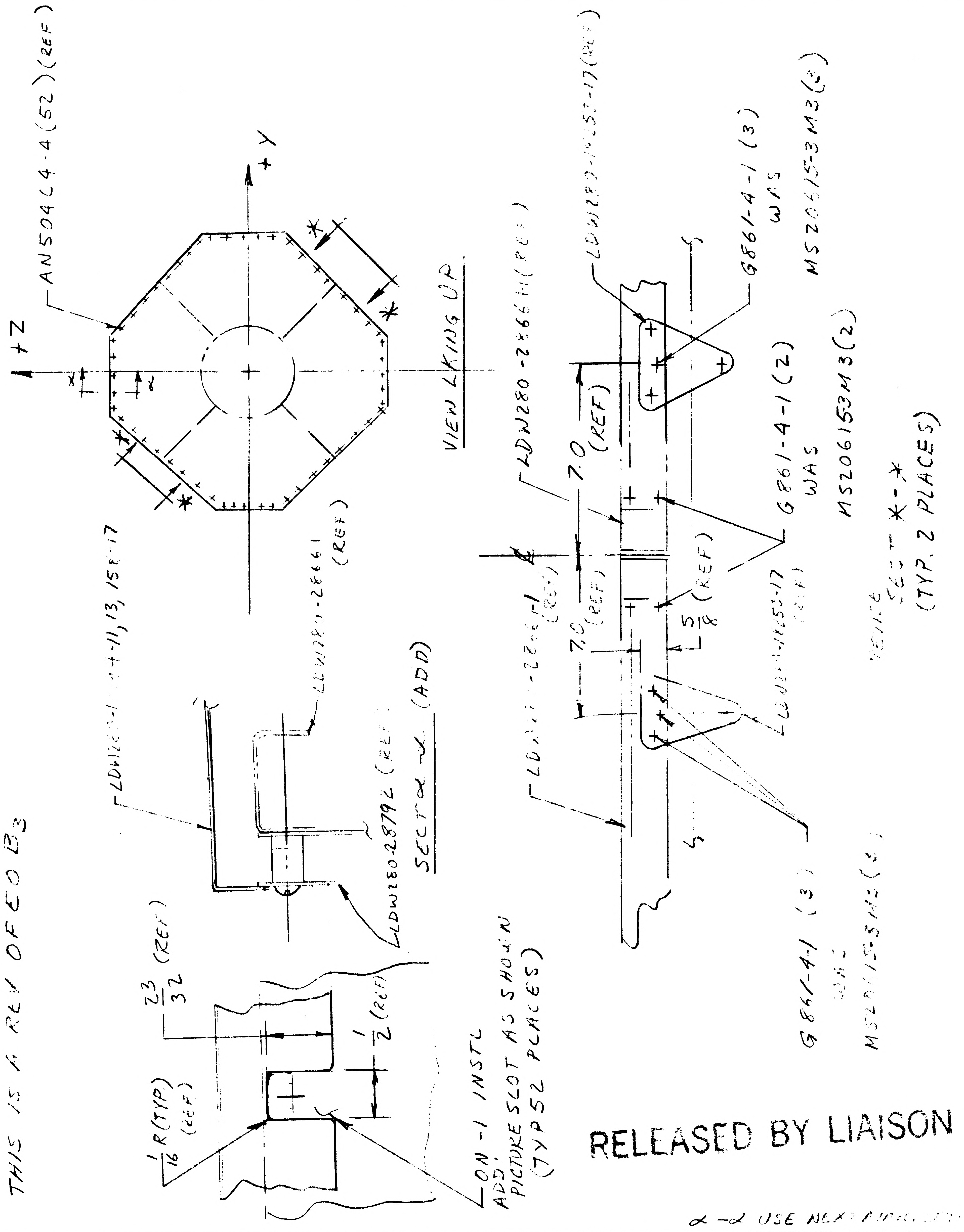
NG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28813
EO NO. E4
CONTROL INFO NO. LMS-11797

01

NAS 9-1100



AN504C4-4(52)(REF)
+Z
+Y
VIEW LKING UP
LDW280-2866H(REF)
LDW280-...-53-17(REF)
G861-4-1 (3)
WAS
MS20615-3M3(3)
7.0 (REF)
G861-4-1(2)
WAS
MS20615-3M3(2)
SECT *-*
(TYP. 2 PLACES)
LDW280-...-11, 13, 15 & -17
LDW280-2866-1 (REF)
LDW280-2879L (REF)
SECT α-α (ADD)
7.0 (REF)
5/8 (REF)
G861-4-1 (3)
WAS
MS20615-3M3(3)
23/32 (REF)
1/2 (REF)
1/16 R(TYP) (REF)
ON-1 INSTL
ADD: PICTURE SLOT AS SHOWN
(TYP 52 PLACES)

THIS IS A REV OF EO B3

RELEASED BY LIAISON

α-α USE NEXT ...

(5)

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	

REASON FOR EO: TO FACILITATE INSTL OF GSE SUPT PLATE, & SKINS

DESCRIPTION OF EO: REF EO B3 ON -5.
IN SECT ** G861-4-1(8) WAS MS20615-3M3(8), ADD
SECT α-α & PICTURE OF SLOT IN LDW280-18194
-11, -13, -15 & -17

GAEC EO RELEASE: C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO	SUB CONTR UNIT NO.
LM		LTA-8 (8)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

			SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	WT				~	WB	14		
DATE	2/3/67				~	2/3/67	2/1/67		
	1	VD1							

PRIORITY: C
DRAWING TITLE: SKIN INSTL
DRAWING NO.: LDW280-28813
EO NO.: E4

ISSUED BY Don Briggs X6510 SECTION VD1 GROUP NO. ___ PL 5

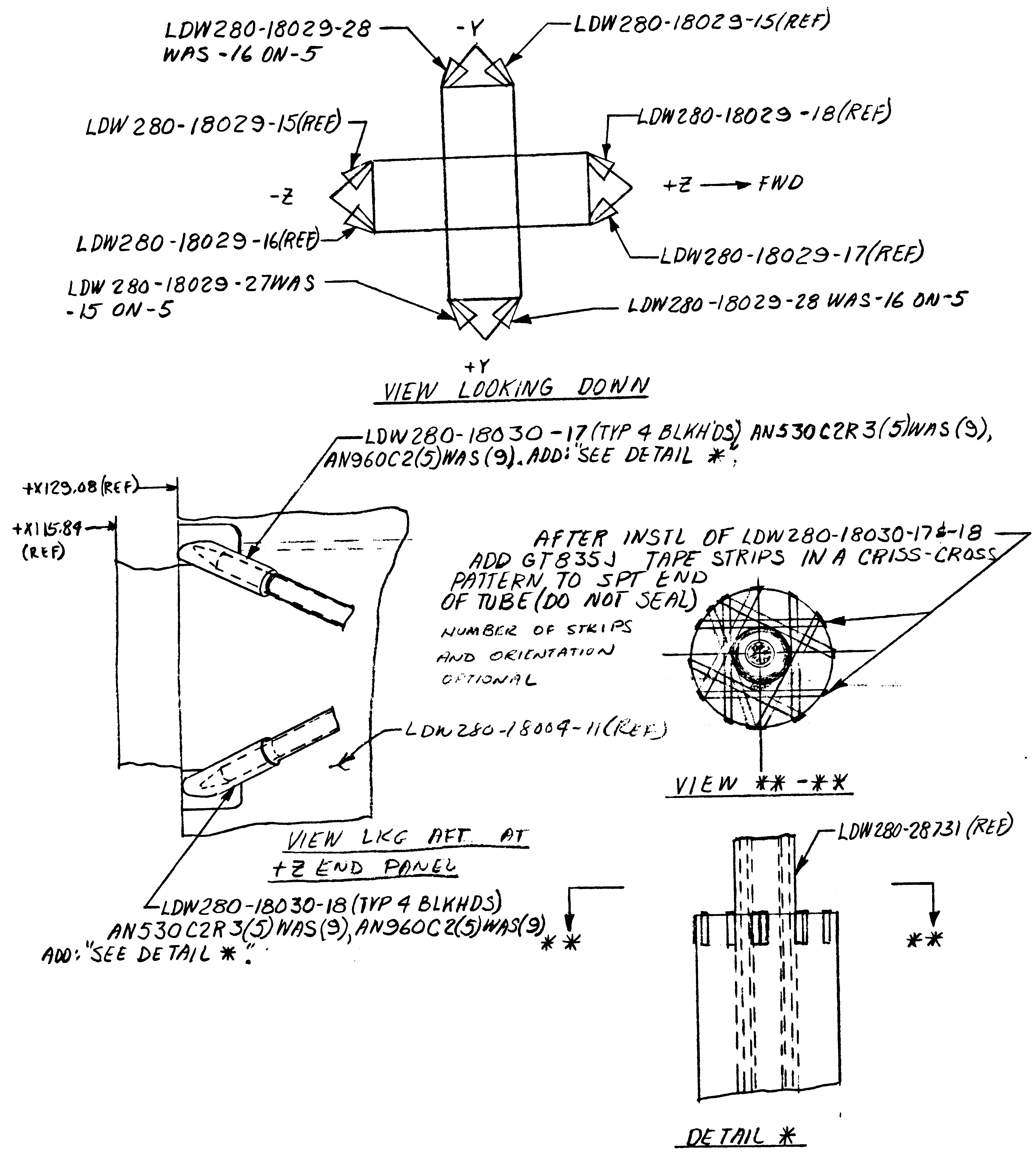
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28813	EO NO.
CONTROL INFO NO. LDW 280 A 4756	


LDW280-18029-28 WAS -16 ON-5
-Y
LDW280-18029-15(REF)
LDW 280-18029-15(REF)
LDW280-18029-18(REF)
-Z
+Z ⟶ FWD
LDW280-18029-16(REF)
LDW280-18029-17(REF)
LDW 280-18029-27WAS -15 ON-5
LDW280-18029-28 WAS-16 ON-5
+Y
VIEW LOOKING DOWN
LDW280-18030-17(TYP 4 BLKH'DS) AN530C2R3(5)WAS(9), AN960C2(5)WAS(9). ADD: "SEE DETAIL *"
+X129.08(REF)
+X115.89 (REF)
AFTER INSTL OF LDW280-18030-17 & -18 ADD GT835J TAPE STRIPS IN A CRISS-CROSS PATTERN TO SPT END OF TUBE (DO NOT SEAL)
NUMBER OF STRIPS AND ORIENTATION OPTIONAL
LDW280-18004-11(REF)
VIEW ** - **
VIEW LKG AFT AT +Z END PANEL
LDW280-28731(REF)
LDW280-18030-18(TYP 4 BLKHDS) AN530C2R3(5)WAS(9), AN960C2(5)WAS(9)
ADD: "SEE DETAIL *"
**
**
DETAIL *

*, ** ASSIGN NEXT AVAILABLE SECT LETTER.

2

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG											
REASON FOR EO: REVISED HTR SKIN SPT TO ACCOMODATE ADDITIONAL BLANKETS REQUIRED PER LCR 762				DESCRIPTION: ON-5 INSTL: ADDED LDW280-18029-27(1) & -28(2), AN530C7R3(5) WAS(9) AN960C2(5) WAS(9) & SECT **. ADDED GT835J, DETAIL *. REMOVED LDW280-18029-15(1) & -16(2).										GAEC EO RELEASE	FR 2/14/67
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		✓		DATE	2/9/67			2/1/67	2/1/67		2/10	2/13/67
LM		LTA-8(18)		REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	~~[illegible]~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~
				PRIORITY C	DRAWING TITLE SKIN ASSY ~ D. S. HEATER					DRAWING NO. LDW280-28813					EO NO.

ISSUED BY J. ROGERS/J. STRAKOSCH X1392 SECTION VEH DES & INT GROUP NO. ——— PL 33

01 NAS 9-1100

B

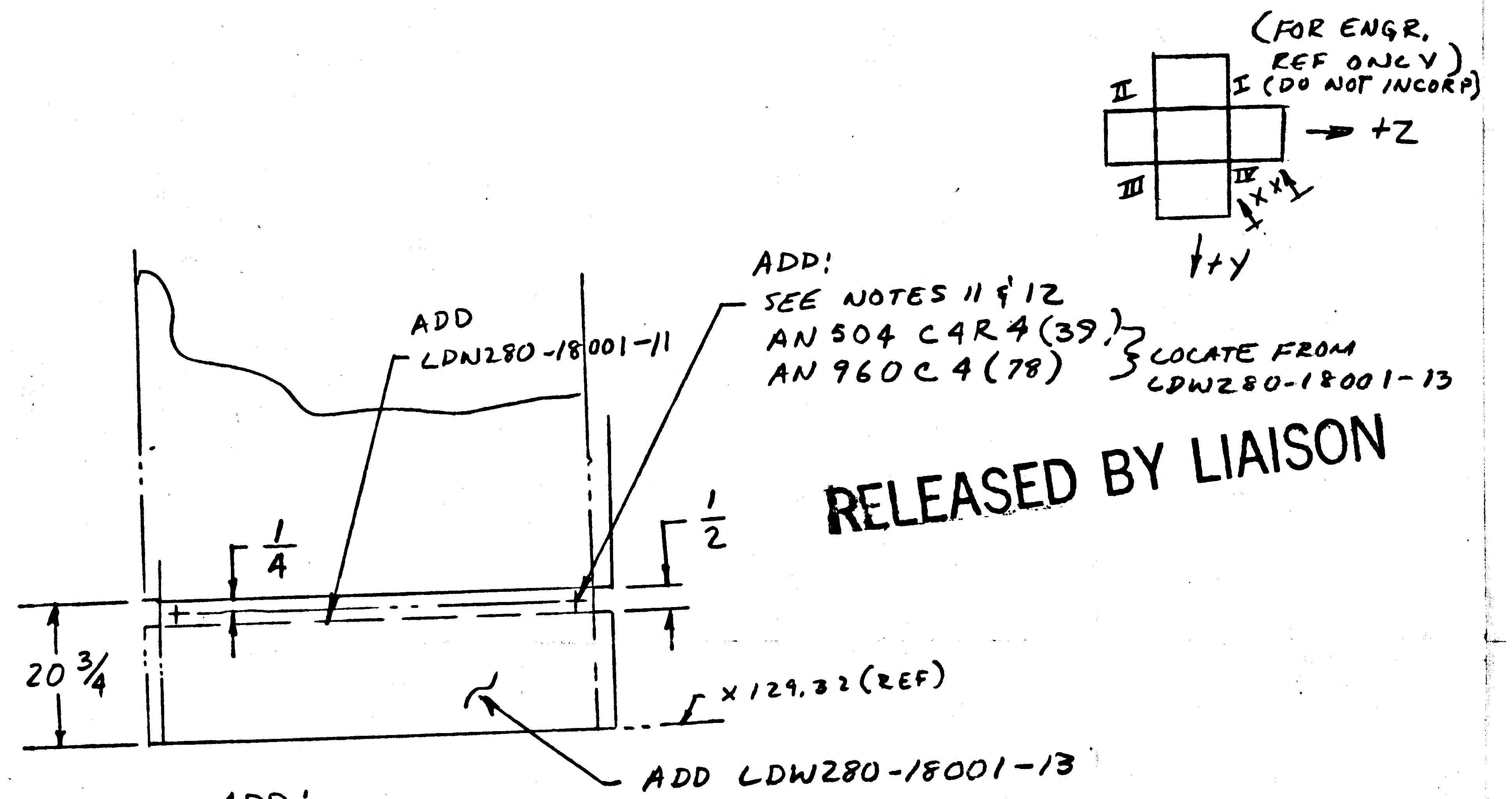
NG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER ✱

DWG. NO. LDW280-28813		EO NO. B6
CONTROL INFO NO. LM5-11817		

IN F/D ADD NOTE ✱ (USE NEXT AVAILABLE NO.)

✱ - DURING INSTL OR ASSYS OF HEATER SKIN SUB-ASSYS OR DETAILS, PARTS MAY BE TRIMMED TO INSURE PROPER CLEARANCE WITH STRUCTURAL PENETRATIONS, HEADS OF ADJACENT HARDWARE, BLANKET PENETRATIONS, ELECT. CABLES, & ADJACENT HARDWARE. MIN. CLEARANCE AFTER TRIM TO BE 1/32, MAX CLEARANCE TO BE 1/4 PROVIDING A MIN FASTENER EDGE DISTANCE IS HELD AFTER TRIMMING. (1 1/2 FASTENER DIA.)



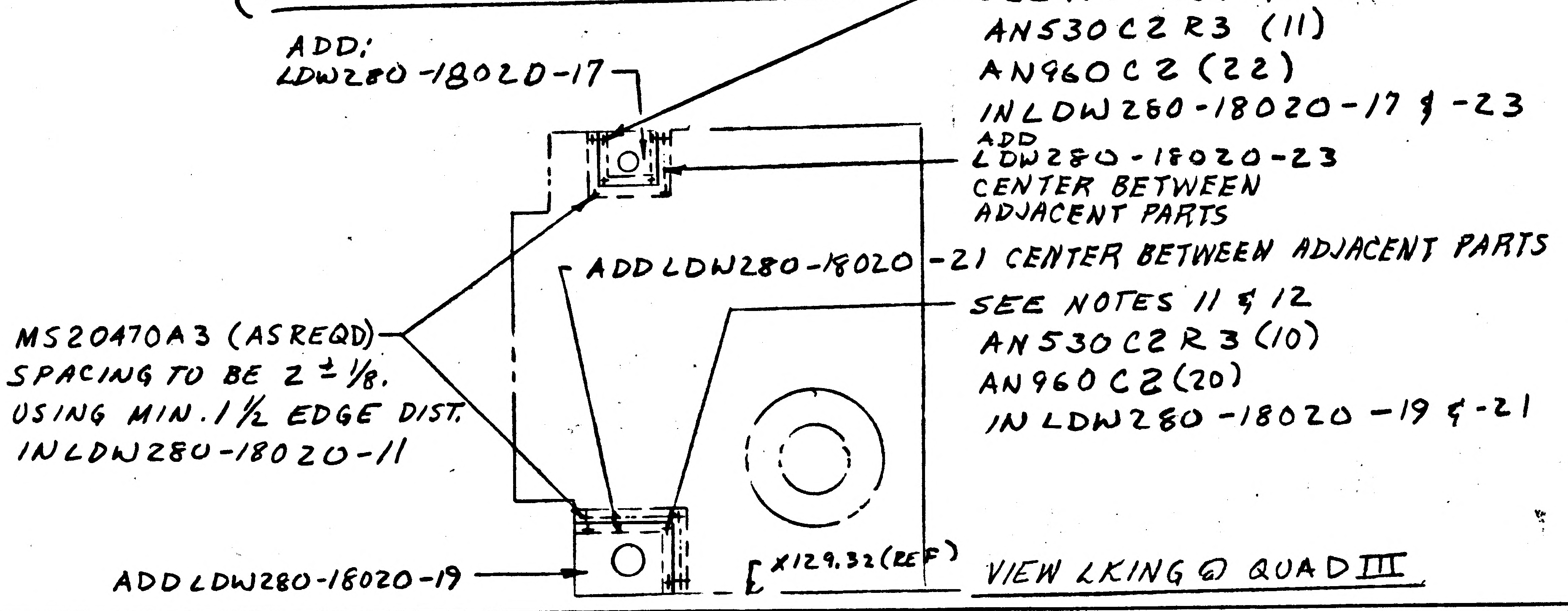
(FOR ENGR. REF ONLY) (DO NOT INCORP)
I
II
III
IV
X X
+Z
+Y
ADD LDW280-18001-11
ADD! SEE NOTES 11 & 12
AN504 C4R4 (39)
AN960 C4 (78)
LOCATE FROM LDW280-18001-13
1/4
1/2
20 3/4
X129.32 (REF)
ADD LDW280-18001-13

RELEASED BY LIAISON

ADD:

VIEW X-X (USE NEXT AVAILABLE LETTER)

(VIEW LKING @ BOT. OF QUAD IV)



ADD: LDW280-18020-17
SEE NOTES 11 & 12
AN530C2R3 (11)
AN960C2 (22)
IN LDW280-18020-17 & -23
ADD LDW280-18020-23 CENTER BETWEEN ADJACENT PARTS
ADD LDW280-18020-21 CENTER BETWEEN ADJACENT PARTS
SEE NOTES 11 & 12
AN530C2R3 (10)
AN960C2 (20)
IN LDW280-18020-19 & -21
MS20470A3 (AS REQD) SPACING TO BE 2 ± 1/8. USING MIN. 1 1/2 EDGE DIST. IN LDW280-18020-11
ADD LDW280-18020-19
X129.32 (REF)
VIEW LKING @ QUAD III

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO INSURE PROPER CLEARANCE & TO FACILITATE INSTL OF SKINS @ M.S.C.	ON-5 ADDED NOTE ✱ & VIEW X-X, ON QUAD III! ADDED LDW280-18020-17, -19, -21, & -23, AN530C2R3 (21) AN960C2 (42) & MS20470A3 (AS REQD)	0 C JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LM		LTA 8 (18)		✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	WT			~	JF	CH	RMC	
DATE	2/14/67			~	2-14-67	2-15-67	2-21-67	2-18-67
1	VD1							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY D/S - HEATER	LDW280-28813	B6

ISSUED BY DON RAGAS X6510 SECTION VD1 GROUP NO. 335 PL 5.

01

NAS 9-1100

RELEASED BY LIAISON

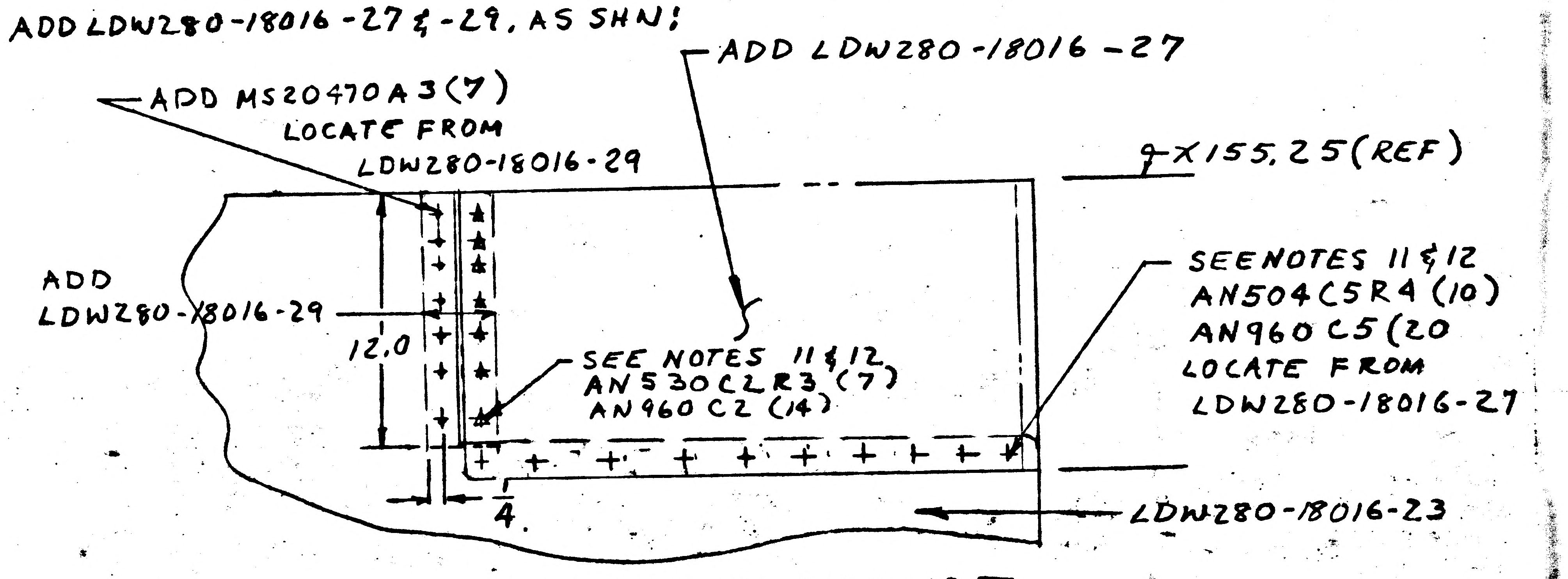
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW 280-28813		EO NO. B7
CONTROL INFO NO. LM 5-13024		

① THIS IS A REV OF EO B6 - REVISE CALLOUT.: AN504C5R4 (39) AN960C6(78) (WAS) AN504C4R4(39), AN960C4(78

② ADD LDW280-18016-27 & -29, AS SHN:


ADD LDW280-18016-27
ADD MS20470A3(7)
LOCATE FROM
LDW280-18016-29
X155.25(REF)
ADD
LDW280-18016-29
12.0
SEE NOTES 11 & 12
AN530C2R3 (7)
AN960 C2 (14)
SEE NOTES 11 & 12
AN504C5R4 (10)
AN960 C5 (20
LOCATE FROM
LDW280-18016-27
4.
LDW280-18016-23

VIEW LOOKING @ QUAD II

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐

5

REASON FOR EO: TO REVISE HARDWARE ON EO B6 & TO ADD ACCESS DOOR FOR H_2O CONNECTOR PER LCR1170

DESCRIPTION OF EO: REF EO B6 - REVISED CALLOUT: AN504C5R4 (39) & AN960C5(78) WAS AN504C4R4(39) & AN960C4(78) ADDED LDW280-18016-27 & -29, AN504C5R4(10) AN960C5(20), AN530C2R3(7), AN960C2(14) & MS20470A3(7)

GAEC EO RELEASE: C JS 3-29-7 18

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	WT			~		CH		
DATE	3/20/67			~	3-27-67	3-23	3-29-67	3-27-67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY D/S - HEATER	LDW280-28813	B7

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

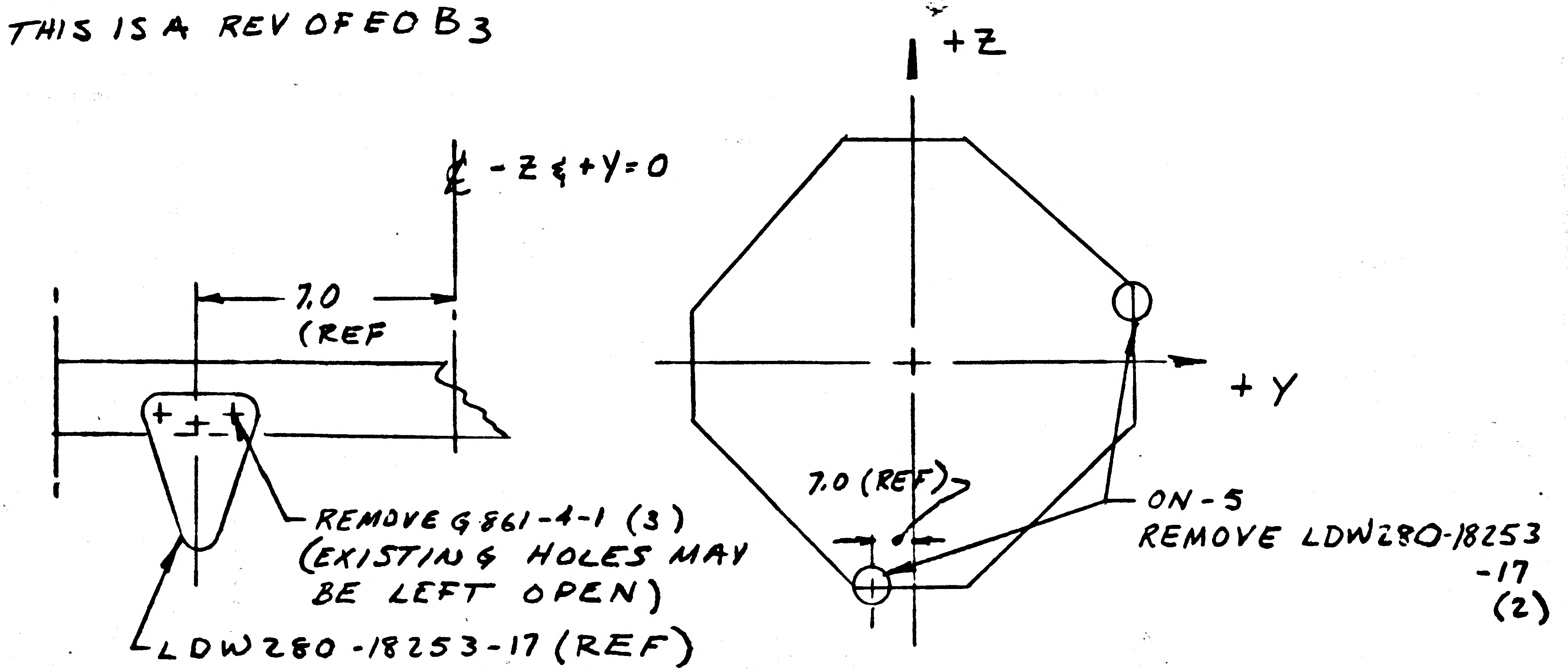
RELEASED BY LIAISON B

ENG 32.1 REV 3-63

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28813		EO NO. B8
CONTROL INFO NO. LM5-13120		

THIS IS A REV OF EO B3



+Z
℄ -Z & +Y=0
7.0 (REF
+Y
7.0 (REF)
REMOVE G861-4-1 (3)
(EXISTING HOLES MAY BE LEFT OPEN)
LDW280-18253-17 (REF)
ON-5
REMOVE LDW280-18253-17 (2)

VIEW Δ-Δ (REF)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

3

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
TO FACILITATE VEHICLE ON CARRIER	REF EO B3 ON-5 REVISE CALLOUT FOR LDW280-18253-17 (22) WAS (24) & REMOVED G861-4-1(6)	JK —

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	WT			~			RMC	
DATE	4/6/67			~	4-7-67	4-7	4-13-67	
1	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN INSTL D/S- HEATER	LDW280-28813	B8

ISSUED BY DON RAGAS X6510 SECTION VD1 GROUP NO. 335 PL 5

Q1

NAS 9-1100

ENG 32.1 REV 3-65 B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280 - 28813		EO NO. B9
CONTROL INFO NO. LM 5-13225		

THIS IS A REV OF EO B7

REVISE CALLOUTS: AN504C5R4 S/B AN504C6R4
AN960 C5 S/B AN960 C6

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE C
INCORRECT SIZE OF HRDWARE CALLOUT	REF EO B7 REVISED CALLOUTS: AN504C5R4 S/B AN504C6R4 AN960C5 S/B AN960C6	JK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	WT				Jfj	CH	DAM	
DATE	4/20/67				4-24	4-22	4-25-67	4/24/67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY D/S - HEATER	LDW280-28813	B9

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 331 PL 5

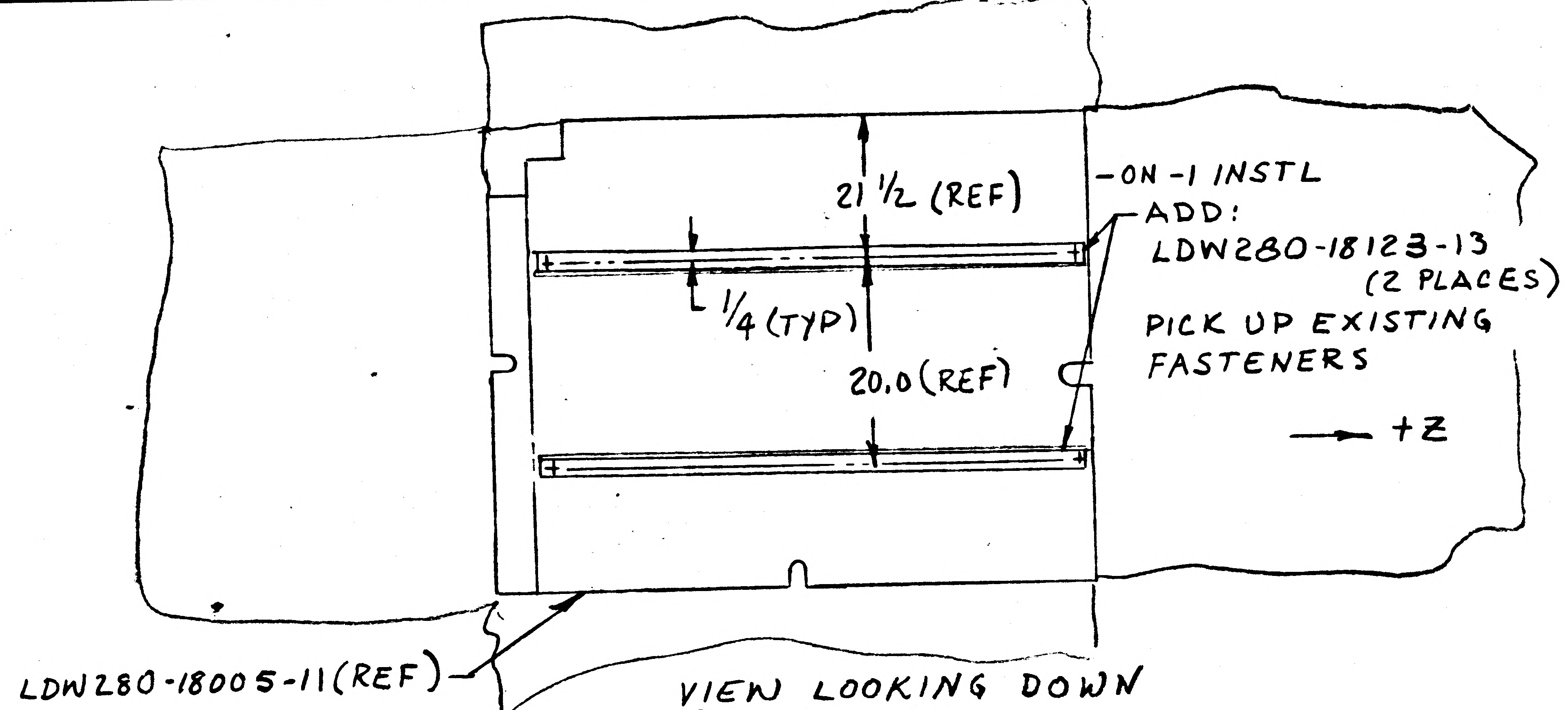
01 NAS 9-1100

B RELEASED BY LIAISON

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280 -28813		EO NO. B10
CONTROL INFO NO. LM5-13379		


21 1/2 (REF)
1/4 (TYP)
20.0 (REF)
-ON-1 INSTL
ADD:
LDW280-18123-13
(2 PLACES)
PICK UP EXISTING
FASTENERS
+Z
LDW280-18005-11 (REF)

VIEW LOOKING DOWN
@ TOP DECK

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE C
TO STIFFEN HEATER SKIN (BLAST DEFLECTOR)	ON-1 INSTL ADDED LDW280-18123-13 (2 PLACES)	JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	EFFECTIVITY		
LM		LTA 8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT							
				DATE	5-13-67				5/13/67	5-13-67	5-16-67	5/13/67
REVISE DWG ✓	RECORD EO	REWORK ✓	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN INSTL D/S - HEATER	LDW 280-28813	B10

ISSUED BY DON RAGAS X6510 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

ENG 32.1 REV 3-65 B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-28813
EO NO. C1
CONTROL INFO NO. LM-5-15126

THIS EO IS A REVISION OF EO B10
ON-1 INSTL. S/B ON-5 INSTL.

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: EO CORRECTION

DESCRIPTION OF EO: REF EO B10 ON-5 INSTL. WAS ON-1 INSTL.

GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	JaP			~	MBJ	EWB	DAM	JRP
DATE	7/6/67			~	5/15/67	5/15/67	5-18-67	5/15/67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SKIN INSTL D/S - HEATER
DRAWING NO. LDW280-28813
EO NO. C1

ISSUED BY LIAISON, P. HUSTED, 6216 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

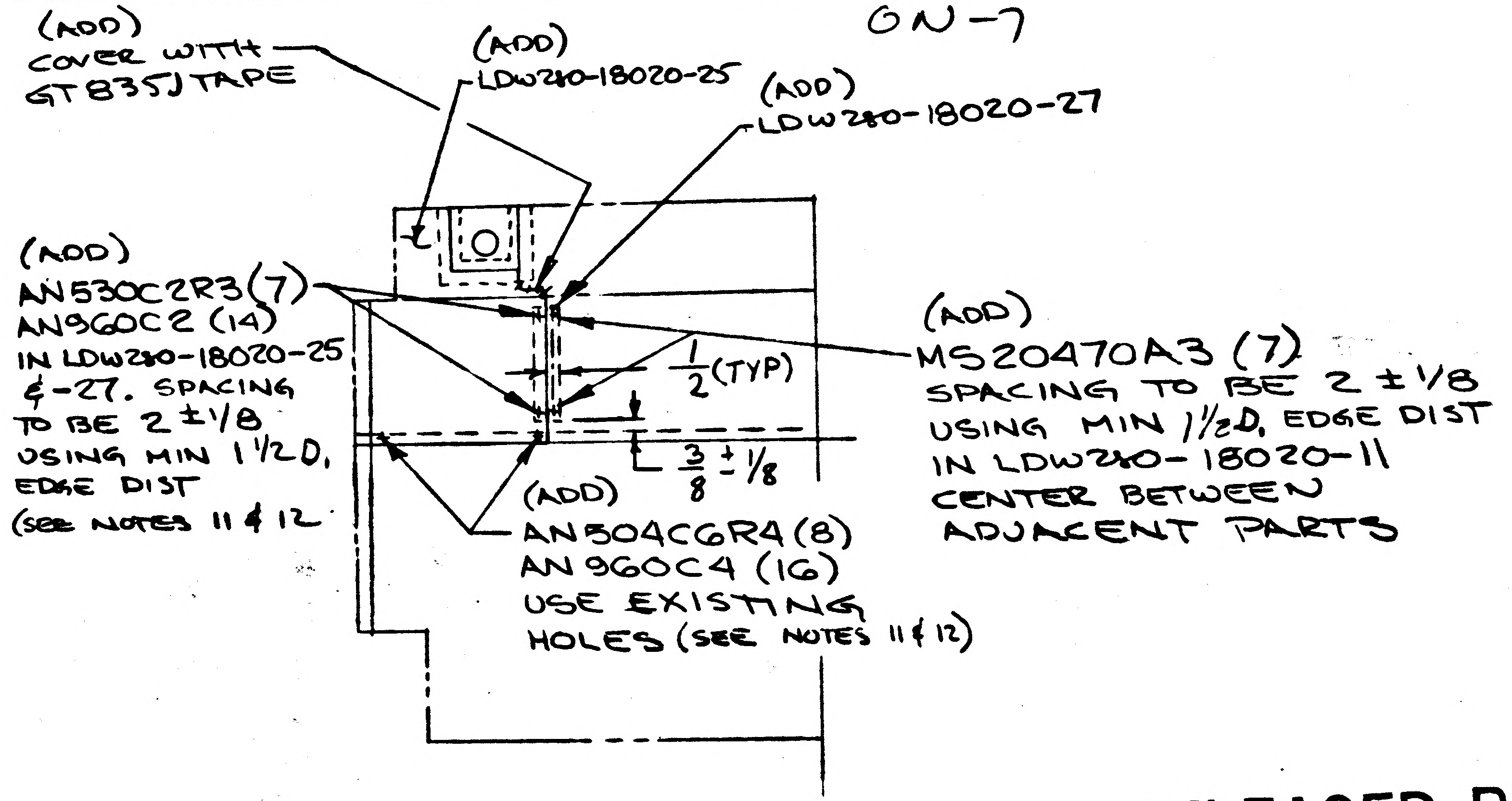
ENG 32.1 REV 3-65

B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28813
EO NO. C2
CONTROL INFO NO. LM-5- 13427

ON-7


(ADD)
COVER WITH
GT835J TAPE
(ADD)
LDW280-18020-25
(ADD)
LDW280-18020-27
(ADD)
AN530C2R3(7)
AN960C2 (14)
IN LDW280-18020-25
& -27. SPACING
TO BE 2 ±1/8
USING MIN 1 1/2 D,
EDGE DIST
(SEE NOTES 11 & 12
1/2 (TYP)
3/8 ± 1/8
(ADD)
MS20470A3 (7)
SPACING TO BE 2 ± 1/8
USING MIN 1 1/2 D, EDGE DIST
IN LDW280- 18020-11
CENTER BETWEEN
ADJACENT PARTS
(ADD)
AN504C6R4 (8)
AN960C4 (16)
USE EXISTING
HOLES (SEE NOTES 11 & 12)

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

5

REASON FOR EO: LARGER AXCESS PANEL REQD

DESCRIPTION OF EO:
IN F/D ON-7
ADDED LDW280-18020-25 & -27, AN530C2R3(7) AN960C4(16)
AN960C2(14), MS20470A3(7), AN504C6R4 (8), GT835J(AS REQD)
IN B/M ADDED LDW280-18020-25 & 27 REVISED AN504C6R4 (47) WAS (39)

GAEC EO RELEASE: C

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	WT			~	JA	JF	DAM©	JRF
DATE	5/24/67			~	5-24-67	5-24-67	5-26-67	5/24/67
1	VD1							

PRIORITY: C
DRAWING TITLE: SKIN ASSY D/S - HEATER
DRAWING NO.: LDW280-28813
EO NO.: C2

ISSUED BY DON RAGAS X6510 SECTION VD1 GROUP NO. 335 PL 5

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

ENG 32.1 REV 3-65

DWG. NO. LDW280-28813 | EO NO. C3
CONTROL INFO NO. LM-5-13300

IN FLD ADD NOTE * (USING NEXT AVAILABLE NO)

OIL CANS, BUCKLES, SAGS, AND APERTURES OF HEATER INSTL, ITS ASSYS & SUB ASSYS IS AN ACCEPTABLE CONDITION.

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
TO DESCRIBE INSTALLATION CONFIGURATION	ADDED NOTE *	JL

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		—	—

	5	VPI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY					~		CH		
DATE		7/6/67			~	6/8/67	6-6-67	5/26/67	[illegible]/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN INSTL D/S - HEATER	LDW280-28813	C3

ISSUED BY E J Comiskey, 6510 SECTION VPI GROUP NO. 335 PL 5

01 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG NO. LDW280-28813 | EO NO. C5
CONTROL INFO NO. LM-5-15268

THIS IS A REVISION OF E.O. C2.

DESCRIPTION OF E.O.

ON-7 ADDED AN530C2R3 (8) WAS (7)
AN960C2 (16) WAS (14)
MS20470A3 (8) WAS (7)

LDW 280-18020-29 WAS -27.

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO LDW280-18020-27 INCREASED 1 1/2" IN LGTH.	REF E.O. C2 DESCRIPTION OF EO NOTED ABOVE	® GAEC C EO RELEASE JL 18 05 025

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		✓		APPROVED BY	JAP				JFJ	EVB	WLB	
				DATE	7/6/67				6-5-67	6/3/67	7/6/67	7/6/67
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASSY. D/S - HEATER	LDW280-28813	C5

ISSUED BY LIAISON J. JARVIS SECTION V.D.I. GROUP NO. 335 PL 25

0 1 NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-28813		EO NO. C6
CONTROL INFO NO. LM5-13477		

THIS IS A REVISION OF EO C3

DESCRIPTION OF EO

REF EO C3

NOTE *

(NOW) OIL CANS, BUCKLES & SAGS BETWEEN ADJACENT SKINS (2.0" MAX.) OF HEATER INSTL, ITS ASSYS & SUB-ASSYS IS AN ACCEPTABLE CONDITION.

(WAS) OIL CANS, BUCKLES, SAGS AND APERTURES OF HEATER INSTL, ITS ASSYS, & SUB-ASSYS IS AN ACCEPTABLE CONDITION

RELEASED BY LIAISON

5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO
TO DESCRIBE INSTALLATION CONFIGURATION	NOTED ABOVE

GAEC EO RELEASE: C, K

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT	RS		~				
				DATE	6/2/67	6/7/67		~	6/8/67	6-6-67	6-21-67	6/9/67
✓ REVISE DWG	RECORD EO	NOT REQ'D REWORK	SCRAP	5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
LM		LTA-8(18)		C	SKIN INSTALLATION DESCENT STAGE ~ HEATER	LDW280-28813	C6

ISSUED BY W. TRAUT x6510 SECTION VDI GROUP NO. 335 PL 5

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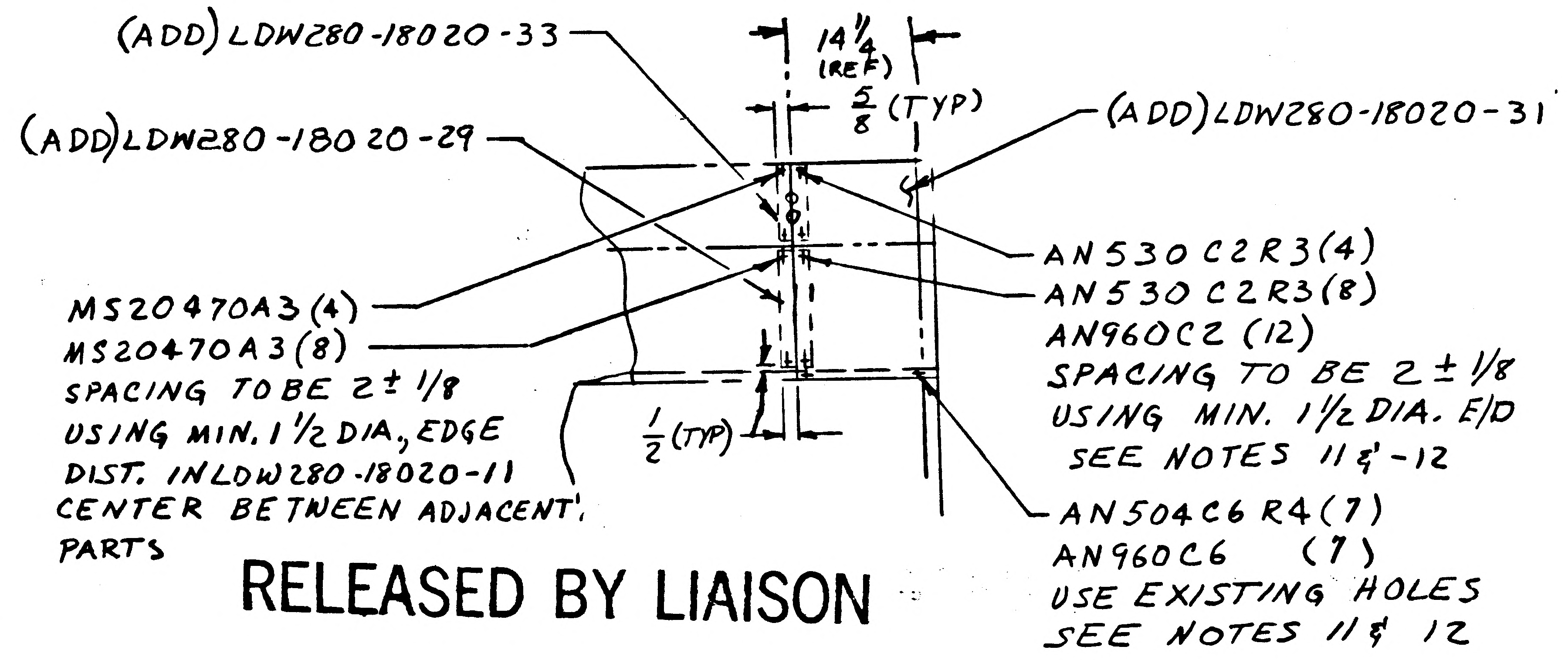
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28813
EO NO. C7
CONTROL INFO NO. LM5-13502

ON-7:



(ADD) LDW280-18020-33
(ADD) LDW280-18020-29
14 1/4 (REF)
5/8 (TYP)
(ADD) LDW280-18020-31
AN530C2R3(4)
AN530C2R3(8)
AN960C2 (12)
SPACING TO BE 2 ± 1/8
USING MIN. 1 1/2 DIA. E/D
SEE NOTES 11 & -12
MS20470A3(4)
MS20470A3(8)
SPACING TO BE 2 ± 1/8
USING MIN. 1 1/2 DIA., EDGE
DIST. IN LDW280-18020-11
CENTER BETWEEN ADJACENT
PARTS
1/2 (TYP)
AN504C6R4(7)
AN960C6 (7)
USE EXISTING HOLES
SEE NOTES 11 & 12

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		5

REASON FOR EO: ACCESS PANEL REQD TO AGREE WITH THERM. BLK'T

DESCRIPTION OF EO: ON-7 ADDED LDW280-18020-29, 31 & -33. AN530C2R3(4) AN530C2R3(8), AN960C2(12), AN504C6R4(7) AN960C6(7) MS20470A3(12)

GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	WT			~		EVB		
DATE	6/7/67			~	6/8/67	6/8/67	6-21-67	6-7-67
/	VDI							

PRIORITY: C
DRAWING TITLE: SKIN INSTL D/S - HEATER
DRAWING NO. LDW280-28813
EO NO. C7

ISSUED BY DON RAGAS X86510 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

ENG 22.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28813
EO NO. D1
CONTROL INFO NO. LM 52-0567

ON-5 IN F/D & B/M -

ADD - LDW 280-18000-83
Remove-LDW 280-18000-79

ADD - LDW 280-18000-85
Remove-LDW 280-18000-81

52
LCR 20177

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: INSTALLATION OF D/S COLD PLATE

DESCRIPTION OF EO: IN F/D & B/M ON-5
LDW280-18000-83 WAS LDW280-18000-79
LDW 280-18000-85 WAS LDW 280-18000-81

GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ☑ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☑ SCRAP ☐

APPROVED BY	RKW			—	RKW		Both
DATE	10/9/67	11/11/67		—	10/9/67	10-9-67	10-10-67
	MSC COG. ENG	SUPPORT VDT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SKIN ASSEMBLY DESENT STAGE HEATER
DRAWING NO.: LDW280-28813
EO NO.: D1

ISSUED BY WHITSIT/VOIT SECTION PROJ. ENG. GROUP NO. 827 PL 52

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NAS 9-1100

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NAS 9-1100

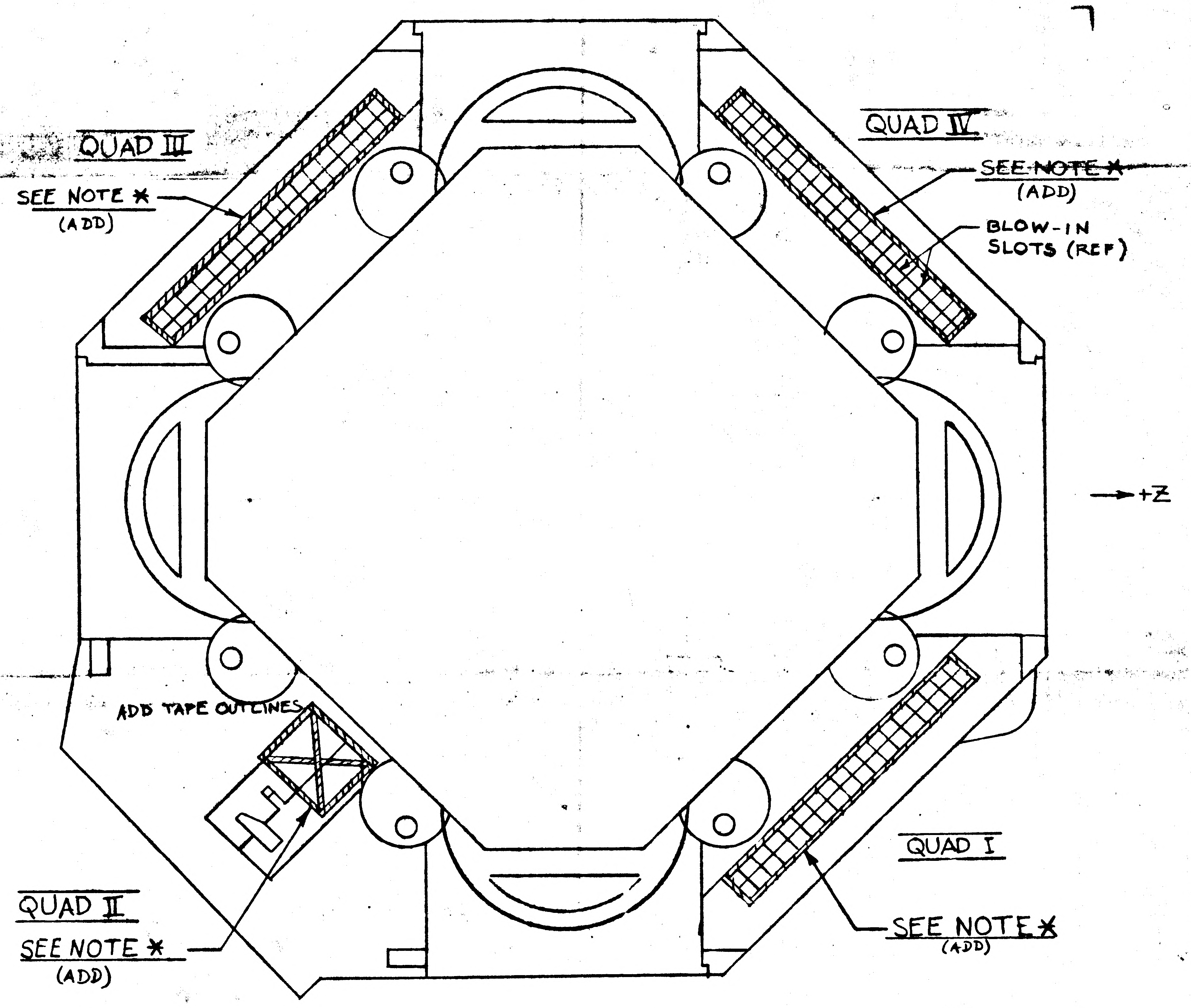
ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-28813
EO NO. D2
CONTROL INFO NO. LM 52-1070

ON -5 INSTL.

ADD NOTE ✱: APPLY GT835 J-8 TAPE AROUND BLOW-IN SLOTS AND LANDING RADAR ANTENNA AS REQUIRED.


QUAD III
SEE NOTE ✱
(ADD)
QUAD IV
SEE NOTE ✱
(ADD)
BLOW-IN
SLOTS (REF)
→ +Z
ADD TAPE OUTLINES
QUAD II
SEE NOTE ✱
(ADD)
QUAD I
SEE NOTE ✱
(ADD)

VIEW LOOKING UP

-5 INSTL.

✱ = NEXT AVAILABLE NOTE NO.

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG ✓	LCD 20263 (52)

REASON FOR EO	DESCRIPTION OF EO
APPLY MARKINGS TO VEHICLE SURF. TO INDICATE FIRE EXTINGUISHING ACCESS LOCATIONS. MSC/SESL/ORI CHIT 35	ON -5 INSTL, ADDED "SEE NOTE ✱" 4 PLACES. ADDED NOTE ✱.

GAEC EO RELEASE: JC 3/11

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

	MSC CNG ENGR	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY		JHS						Both
DATE	3/2/68	3/4/68					3-4-68	3-4-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SKIN ASS'Y DESCENT STAGE HEATER	LDW280-28813	D2

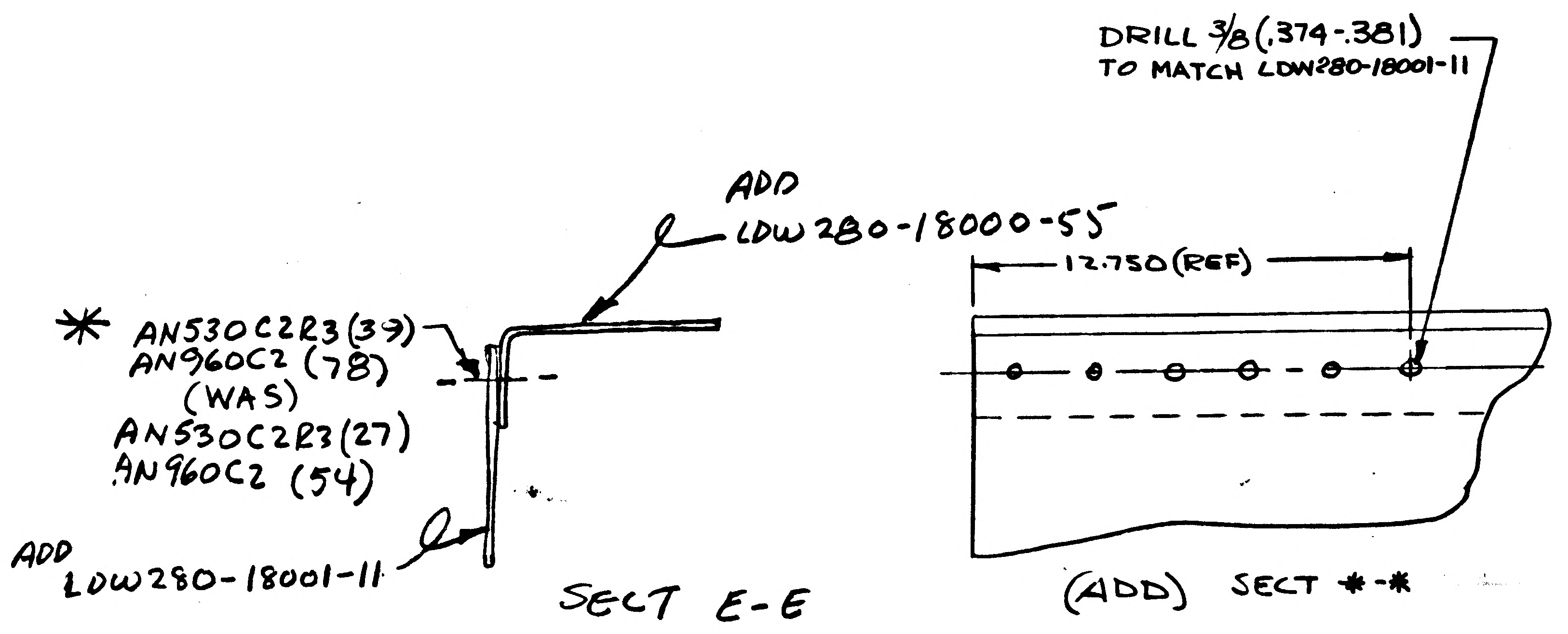
ISSUED BY E. MORRISON 713-HU3-5947 SECTION MSC/PE GROUP NO. 827 PL 52

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28813
EO NO. D3
CONTROL INFO NO. LM 52-2204

ON -5-7



DRILL 3/8 (.374-.381) TO MATCH LDW280-18001-11
ADD LDW280-18000-55
12.750 (REF)
* AN530C2R3 (39) AN960C2 (78) (WAS) AN530C2R3 (27) AN960C2 (54)
ADD LDW280-18001-11
SECT E-E
(ADD) SECT *-*

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD-2813

REASON FOR EO: TO FACILITATE INSTALLATION OF H_2 VENT SYSTEM IN DESCENT STAGE

DESCRIPTION OF EO: ON -5-7 AN530C2R3 (39) WAS (27) & AN960C2 (78) WAS (54) & ADDED SKIN NOS & SECT *-*

GAEC EO RELEASE: VK 6/14/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 154	LTA 8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
*		1	

	MSC CDG ENG	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	MSC DES INTEG	PROJ ENGRG	~~GAEC~~
APPROVED BY	RLW			Z	RKW			
DATE	5-23-68	6/7			5-23-68	5-23-68	5-23-68	5/24/68

PRIORITY: C
DRAWING TITLE: SKIN ASSY DESCENT STAGE HEATER
DRAWING NO.: LDW280-28813
EO NO.: D3

ISSUED BY G. EPSTEIN X4606 SECTION MSC PROJ ENG'G GROUP NO. 827 PL 52

01

NAS 9-1100

LDW280-28815 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LFM-155	LDW280-53553	SEE NOTE 3	1

PART NO. LDW280-28815-13

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53553	LM-3 (33)	1

PART NO. LDW280-28815-9

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52553	LEM-2 (32)	1
LM	LDW280-51553	LEM-1 (31)	1

PART NO. LDW280-28815-7

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA-8 (18)	1

PART NO. LDW280-28815-1 GAEC SCH NO. 521

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	C	GRUMMAN REL INFO A	
LAST DASH NO. USED	-15	PRIM NO. 207	LK (001) MP-1A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
$\pm\frac{1}{16}$ $\pm .030$ $\frac{1}{2}°$

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-100 LINE ITEM #1 DOCUMENTATION TYPE II

DRAWN BY	MAJUK 9-12-66	THERMO	11/18/66
LAYOUT BY	MAJUK 9-12-66	REL	
CHECKED BY			
GRP LEADER	9/13/66		
VDL	9/15		
STRUCT	W/H E 9/15/66	PROJ ENGR	R M Carfee 9-16
STRUCT	9/16	REL GROUP	11/18/66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTL
DESCENT STAGE - QUAD III
AMBIENT He ACCESS

SIZE	CODE IDENT NO.		
B	26512	LDW280-28815	A
SCALE NONE		SHEET 1.00 OF 4	

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ________

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00 1.10 2.00						EO A1	IN FLD/DWG & B/M ON-5 LDW280P18080-3 WAS-1 (ADDED SH 1.10)	LTA-8, LM-1 THRU LM-6	✓		HERB. SCHWETER 9-26-68		
	2	1.00 1.10 2.00 3.00					✓	EO A2	ON-1 LDW280-28804-1 (WAS ON-3) ON-3 ADDED LDW280-28804-3, REMOVED LM-2(32) THRU LM-6(36) EFF. ADDED -7 INSTL AND LDW 280-28804-5.	LTA-8, LM-1 THRU LM-15					
	3	1.00 1.10 2.00 3.00					✓	EO A3 LCD 928	REMOVED -3 INSTL ON-7 ADDED LM-1(31) REQ'MTS (-7 MAY BE MADE BY REWORKING-3)	LM-1	NOTED				
	4	2.00 3.00					✓	EO A4	ON-1 REMOVED SHIELD ASSY REQUIREMENTS. LDW280-28804-1	LTA-8	✓				
	5	1.00 1.10 2.00 3.00		P		✓		EO A5 LCD 2360	IN MOD/BLK FOR-7 REMOVED LM-3 THRU LM-15. ADDED-9 INSTL.	LM-3 THRU LM-15		-7			
	6	1.00 1.10 2.00		P		✓		EO A6 LCD 2360	RESTRICTED -9 WAS USED ON LM-3(33) THRU LM-15 (45). ON-9 LDW280-28804-7 REPLACES LDW 280-28804-5			-9			
	7	1.00 1.10 2.00 3.00		LFM-155		✓		EO A7 LCD 2899 ①	ADDED -13 & -15, & NOTE 3	LM-3	NOT	REQD	H.D.		

CHG APPROVED												
LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO					
A												

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28815	A Ⓐ
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

▨	15	13	-11	-9	-7	-5	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		14		14	14		14		GT535B-2-1.00	E	TAPE	GRUMMAN STD						
		3		3	3				GT15C-3	↑	TAPE	↑						
	3		3						GT15C-2		TAPE							
												↓						
	7		7			7			GR11B-1		RETAINER	GRUMMAN STD						
	1								LDW280P18080-5		BLANKET	SEE DWG						
			1			1			LDW280P18080-3		BLANKET	SEE DWG						
												↑						
		1		1					LDW280-28804-7		SHIELD ASSY	↓						
					1				LDW280-28804-5		SHIELD ASSY	SEE DWG						
		1							LDW280-28815-15		BLANKET ASSY					NONE	NONE	
				1					↑ -11		BLANKET ASSY					↑	↑	
					1		1		-5		BLANKET ASSY							
C									-13		SHIELD INSTL	SEE NOTE 3						
C									-9		↑							
C									↓ -7	↓	↓					↓	↓	
C									LDW280-28815-1	E	SHIELD INSTL					NONE	NONE	

QTY PER ASSEMBLY

C.L.= CLEANLINESS LEVEL PER LSP-14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28815	A

SCALE NONE

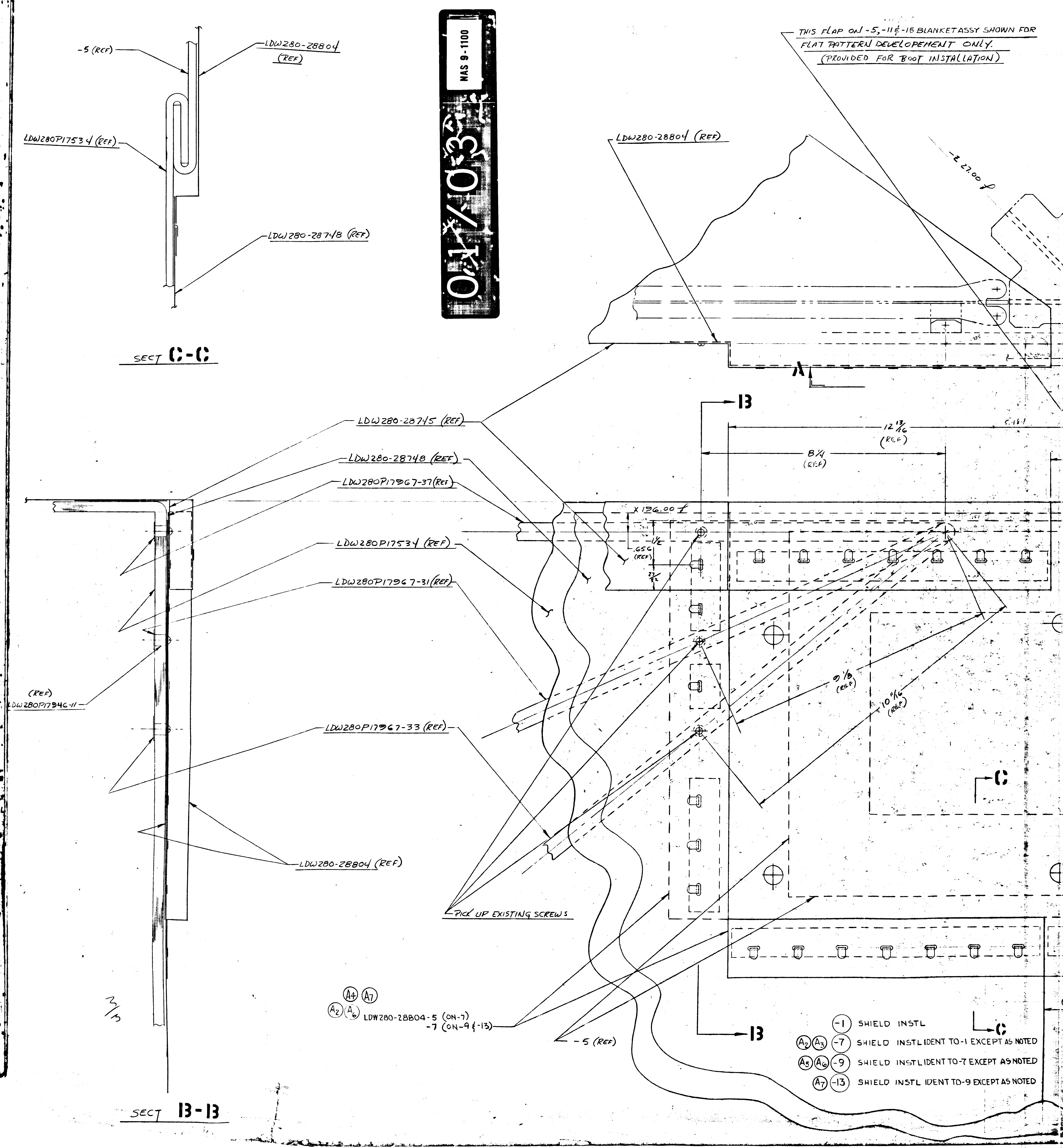
SHEET 2.00

ENG 77.2 7-65

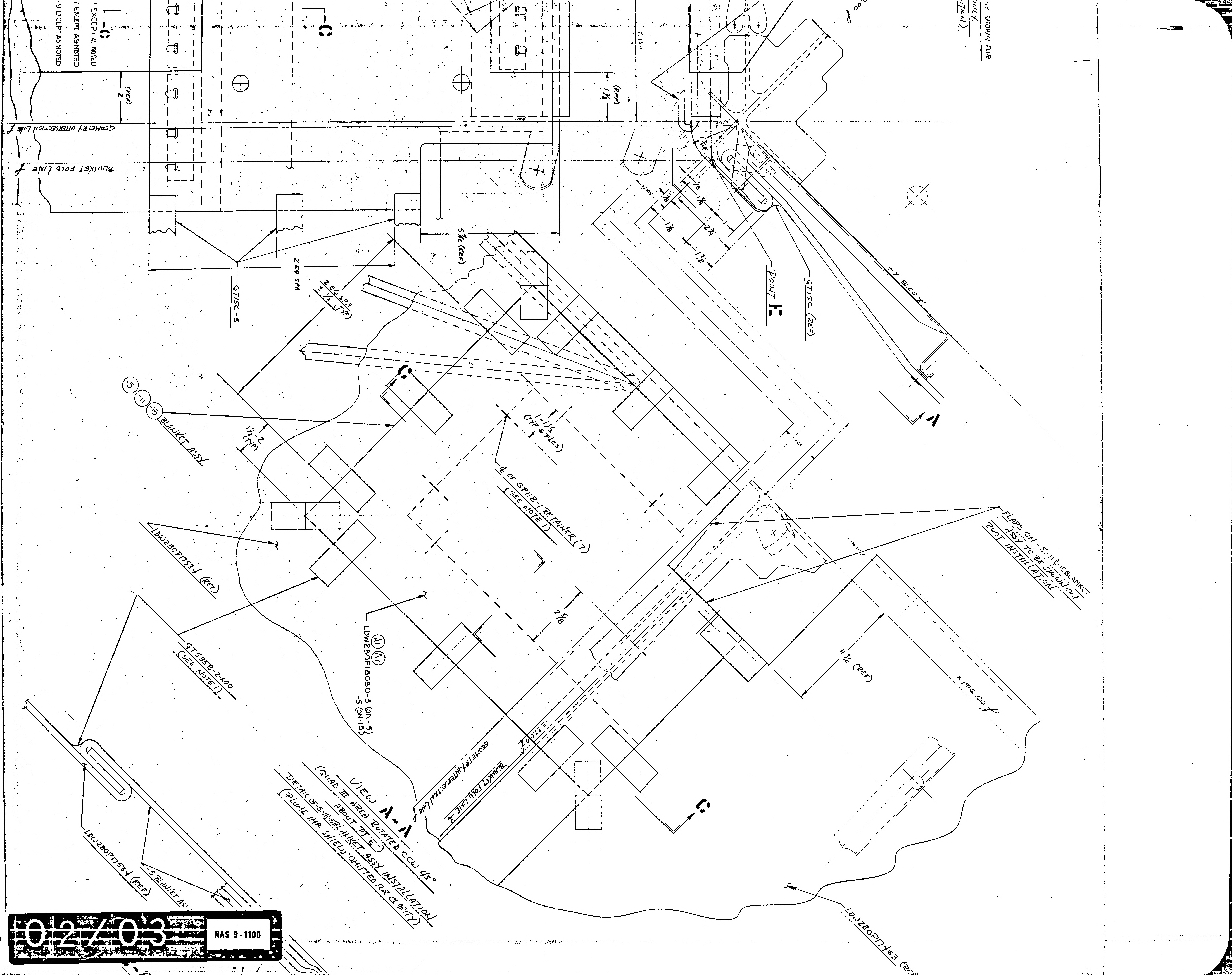
01

NAS 9-1100

01/03 NAS 9-1100

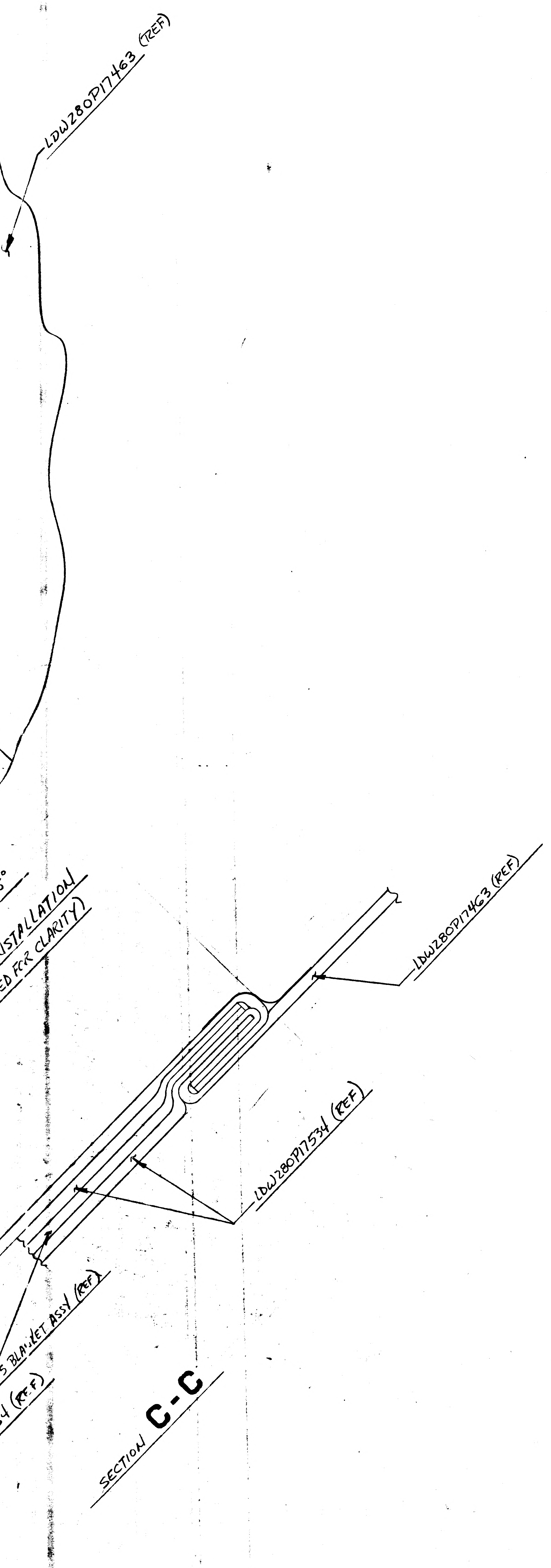


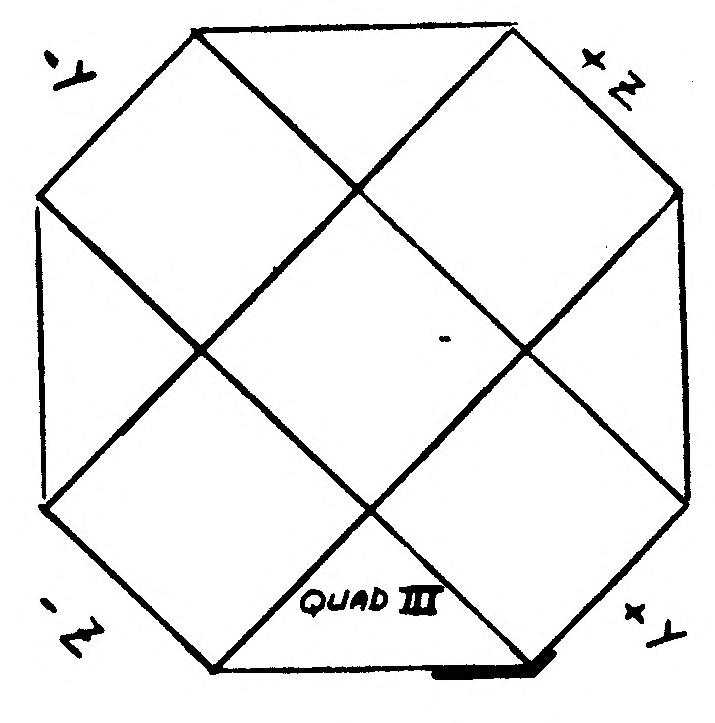
-5 (REF)
LDW280-28804 (REF)
LDW280P17534 (REF)
LDW280-28748 (REF)
SECT C-C
THIS FLAP ON -5, -11 & -15 BLANKET ASSY SHOWN FOR FLAT PATTERN DEVELOPEMENT ONLY. (PROVIDED FOR BOOT INSTALLATION)
LDW280-28804 (REF)
27.00 ℄
A
B
12 13/16 (REF)
8 1/4 (REF)
LDW280-28745 (REF)
LDW280-28748 (REF)
LDW280P17967-37 (REF)
LDW280P17534 (REF)
LDW280P17967-31 (REF)
X 136.00 ℄
1/2
.656 (REF)
27/32
(REF) LDW280P17946-11
LDW280P17967-33 (REF)
9 1/8 (REF)
10 11/16 (REF)
C
LDW280-28804 (REF)
PICK UP EXISTING SCREWS
A4 A7
A2 A6 LDW280-28804-5 (ON-7)
-7 (ON-9 & -13)
-5 (REF)
B
C
-1 SHIELD INSTL
A2 A3 -7 SHIELD INSTL IDENT TO-1 EXCEPT AS NOTED
A5 A6 -9 SHIELD INSTL IDENT TO-7 EXCEPT AS NOTED
A7 -13 SHIELD INSTL IDENT TO-9 EXCEPT AS NOTED
3/3
SECT B-B


VIEW A-A
(QUAD III AREA ROTATED CCW 45° ABOUT PT "E")
DETAIL OF -5,-11&-15 BLANKET ASSY INSTALLATION
(PLUME IMP. SHIELD OMITTED FOR CLARITY)

-1 EXCEPT AS NOTED
-7 EXCEPT AS NOTED
-9 EXCEPT AS NOTED
C
GEOMETRY INTERSECTION LINE
BLANKET FOLD LINE
2 (REF)
1 7/8 (REF)
5 5/16 (REF)
2 EQ SPA
GT15C-3
2 EQ SPA
1 1/2 (TYP)
POINT E
GT15C (REF)
+Y B600
A
-5 -11 -15 BLANKET ASSY
1 1/2 (TYP)
1 1/2 (TYP 6 PLCS)
℄ OF GR11B-1 RETAINER (7) (SEE NOTE 1)
LDW280P17534 (REF)
FLAPS ON -5,-11 & -15 BLANKET ASSY TO BE SHOWN ON BOOT INSTALLATION
A1 A7 LDW280P18080-3 (ON -5) -5 (ON -15)
GT535B-2-100 (SEE NOTE 1)
2 1/8
4 7/16 (REF)
X196.00
Z00.22
GEOMETRY INTERSECTION LINE
BLANKET FOLD LINE
C
LDW280P17534 (REF)
-5 BLANKET ASSY
LDW280P17463 (REF)

02/03
NAS 9-1100





ENG'R REF ONLY

NOTES:

1) TAPE & RETAINERS TO BE INSTALLED AS PER LPC 280-3.
2) ALL INFORMATION NOT REQ'D TO MANUFACTURE & COMPLETE LDW280-28815 INSTALLATION IS REFERENCE INFORMATION ONLY.
3) THIS DWG AFFECTED BY LFM-155 WHICH MAY BE USED ON LM-3 (33)

THIS IS A LAYOUT RELEASE - TO BE REDRAWN ON PRODUCTION FORMAT

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 40 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (42 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

03703

NAS 9-1100

LDW280-28815 A

LDW280-28815 A

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE K	CODE IDENT NO. 26512	LDW280-28815	A
LM MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

Ⓐ

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER CHG A

DWG. NO. LDW280-28815
EO NO. A1
CONTROL INFO NO. LM-5-11679

IN F/O & B/M ON-5 LDW280P18080-3 WAS -1

RELEASED BY LIAISON

(REF)
HAS BEEN ACCOMPLISHED ON LTA-8(11)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: DASH NUMBER CHANGE CORRECTION ON NEXT ASSY

DESCRIPTION OF EO: IN F/O & B/M ON -5, LDW280P18080-3 WAS -1

GAEC EO RELEASE: C 5 18 025

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (13)	
		LM-1(31) THRU LM-6(36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	WT			~	H.B.	14	RMC		
DATE	1/21/67			~		-5-67	1-27-67		
5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY: C

DRAWING TITLE: SHIELD INSTL - DESCENT STAGE - QUAD III - AMBIENT He ACCESS

DRAWING NO.: LDW280-28815

EO NO.: A1

ISSUED BY: H [illegible] 1153 SECTION: VEH DES INT GROUP NO. 335 PL 5

01 NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF. A

DWG. NO. LDW280-28815
EO NO. A2
CONTROL INFO NO. LDW280A-5498

IN B/M & F/D: LDW280-28804-1 ON-1, WAS ON-3.
ADD LDW280-28804-3 SHIELD ASSY ON-3.
ON-3 REMOVE LM-2 THRU LM-6 EFF.
ADD -7 INSTL EFF LM-2(32) THRU LM-15(45) (1) REQD/MOD. -7 IDENT TO -3
EXCEPT LDW280-28804-5 REPLACES -LDW280-28804-3. -7 I&T=E.
N/A-7 LDW280-52553 LM-2(32)
-53553 LM-3(33)
-54553 LM-4(34) THRU LM-15(45)

(2)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO
LCR 928
IMPROVE PAINT ADHESION

DESCRIPTION OF EO
ON-1 LDW280-28804-1 (WAS ON-3). ON-3 ADDED LDW 280-28804-3, REMOVED LM-2(32) THRU LM-6(36) EFF. ADDED -7 INSTL & LDW280-28804-5.

GAEC EO RELEASE C/P C
2/27/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
LM		LM-1(31) THRU	LM-15(45)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		-3	
REVISE DWG	RECORD EO	REWORK	SCRAP

	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	Jaf			—	N/H			
DATE	2/24/67			—	2/24/67		2/24/67	2-27-67
5								

PRIORITY C
DRAWING TITLE SHIELD INSTL D/S QUAD III AMBIENT HE. ACCESS
DRAWING NO. LDW280-28815
EO NO. A2

ISSUED BY V. PADDEN/J. STRAHOSCH X1392 SECTION STRUCT. SYS. GROUP NO. 335 PL 35

01

NAS 9-1100

C

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-28815		EO NO. A3
CONTROL INFO NO. LDW280A 5836		

REMOVE -3 INSTL
OH-7 INSTL ADD LM-1 (31) REQMTS, W/ LDW 280-51553, (1) REQ'D/MOD.

NOTE:
-7 MAY BE MADE BY REWORKING -3

(5)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCR #928

REASON FOR EO: IMPROVE PAINT ADHESION LCR 928

DESCRIPTION OF EO: REMOVED -3 INSTL OH-7 MODED LM-1 (31) REQMTS.

C1 - GAEC EO RELEASE C: LE 3/4/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	[illegible]
APPROVED BY								
DATE	3/7/67			3/7/67	3-7-67		3-14-67	3/14/67
5	V.D.I.							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL ~D.S.~ QUAD III AMBIENT He ACCESS	LDW280-28815	A3

ISSUED BY Gus HANSMANN X1153 SECTION V.D.I. GROUP NO. 280 PL 35

01 NAS 9-1100

RJ
B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-28815
EO NO. A4
CONTROL INFO NO. LM-29-1060

ON-1 F/D & B/M REMOVE ALL APPLICABLE CALLOUTS FOR LDW280-28804-1.

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: NOT REQUIRED FOR THIS EFFECTIVITY

DESCRIPTION OF EO: ON-1 REMOVED SHIELD ASSY REQUIREMENTS. LDW 280-28804-1

① GAEC EO RELEASE: JL

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-8(18)		

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO

DISPOSITION OF PARTS: REWORK ✓ / SCRAP

APPROVED BY				~	~	W.J.		
DATE	7/6/67			~	~	6/13/67	7/6/67	7/6/67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C29

DRAWING TITLE: SHIELD INSTL DESCENT STAGE-QUAD III AMBIENT He ACCESS

DRAWING NO.: LDW280-28815

EO NO.: A4

ISSUED BY LIAISON C.J. MONTEBELLO X7930 SECTION VDI GROUP NO. 335 PL 35

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28815
EO NO. A5
CONTROL INFO NO. LDW280B0637

1. IN M/B FOR -7 ASSY REMOVE EFFECTIVITY LM-3 (33) THRU LM-15 (45)

2. IN FIELD & B/M ADD -9 ASSY IDENTICAL TO -7 EXCEPT THAT -11 BLANKET ASSY REPLACES -5 BLANKET ASSY.
ADD -11 BLANKET IDENTICAL TO -5 BLANKET EXCEPT THAT (MAKE FROM LDW280P18080-3 & GT15C-2) WAS (MAKE FROM LDW280P18080-3 & GT15C-3)

3. EFFECTIVITY FOR -9 LM-3(33) THRU LM 15(45) N/A LDW280-53553 (LM-3) LDW280-54553 (LM-4 THRU LM 15) 1 REQ/MOD.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCR2380

REASON FOR EO: PLUME HEATING PROTECTION

DESCRIPTION OF EO: IN M/B FOR -7 REMOVED LM-3 THRU -LM-15 ADDED -9 ASSY.

GAEC EO RELEASE: JK 12/14/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-3 (33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			✓

APPROVED BY	JAS			RJF	WH		JAP	
DATE	12/13/67			12/12/67	12/13/67		12/13/67	12-14-67
P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SHIELD INSTAL. D.S. QUAD III AMBIENT He ACCESS
DRAWING NO. LDW280-28815
EO NO. A5

14 DEC 67
ISSUED BY E.V.R. CASE/P. THORJUSEN X1153 SECTION 335 VDI GROUP NO. 335 PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280 28815
EO NO. A6
CONTROL INFO NO. LDW280B2767

RESTRICT -9 INSTL FOR USE ON LM-3 (33) ONLY

ON-9 INSTL LDW280-28804-7
SHIELD ASSY REPLACES LDW280-28804-5 SHIELD ASSY

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCR 2360	PK 18	(5)

REASON FOR EO: PLUME HEATING PROTECTION

DESCRIPTION OF EO: RESTRICTED -9 WAS USED ON LM-3(33) THRU LM-15(45). ON-9 LDW280-28804-7 REPLACES LDW280-28804-5

GAEC EO RELEASE: C 4/4/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	4/2/68	4/1/68		4-1-68	4/3/68		4/3/68	4-4-
P	VDI	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: SHIED INSTL ~ D/S QUAD III AMBIENT He ACCESS

DRAWING NO. LDW280-28815

EO NO. A6

G.2.
ISSUED BY F. LANZARO / P. THOR-JUSEN X1153 SECTION VDI GROUP NO. 335 PL 25
CDR 040568

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28815
EO NO. A7
CONTROL INFO NO. LDW280B3064

CREATE -13 SHIELD INSTL IDENTICAL TO -9 SHIELD INSTL EXCEPT -15 BLANKET ASSY REPLACES -11 BLANKET ASSY

-15 IDENTICAL TO -11 EXCEPT LDW280P18080-5 REPLACES LDW280P18080-3

FOR -13, N/A LDW280-53553 1EA.

ADD NOTE * (USE NEXT AVAILABLE NOTE NUMBER)
THIS DWG. AFFECTED BY LFM-155 WHICH MAY BE USED ON LM-3(33).

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2899

PKG 1 (5)

REASON FOR EO: PLUME IMPINGEMENT PROTECTION 7 SECOND DOCKING

DESCRIPTION OF EO: ADDED -13 & -15, & NOTE *

GAEC EO RELEASE: K 4/24/68

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM	LFM-155	LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D — REWORK SCRAP

	VDI	THERM SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				PSF	WJH			
DATE	4/1/68	4/17/68		4/19/68	4/22/68		4/22/68	4-24-68

PRIORITY: C
DRAWING TITLE: SHIELD INSTL D/S ~ QUAD III ~ AMBIENT He - ACCESS
DRAWING NO.: LDW280-28815
EO NO.: A7

042668
ISSUED BY D.SHAPIRO/P.THORJUSEN X-1153 SECTION VDI GROUP NO. 335 PL. 25

01

NAS 9-1100

LDW280-28816 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-56553	LM-15(45)	1
		THRU	
LM	LDW 280-56553	LM-6(36	1
LM	LDW 280-54553	LM-5(35)	1
LM	LDW280-54553	LM-4(34)	1
LM	LDW280-53553	LM-3 (33	1
PART NO. LDW 280-28816-17			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52553	LM-2 (32)	1
LM	LDW280-51553	LM-1 (31)	1
PART NO. LDW 280-28816-11			

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LFM 155	LDW280-53553	SEE NOTE 5	1
LDW280-28816-23			
LM	LDW280-28553	LTA8 (18)	1
PART NO. LDW280-28816-9			

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10		2.00		3.00		
REV	A	A		A		A		
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED	A	GRUMMAN REL INFO A	
LAST DASH NO. USED	-25	PRIM NO.	JK(001) ME-3A 1/24/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ± .020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM I
DOCUMENTATION TYPE II

DRAWN BY	J. ROGERS 9/17	THERMO	Eqr MT 10/21
LAYOUT BY	J. ROGERS 9/17		
CHECKED BY			
GR LEADER	J. STRAKOSCH 9/18/66		
VEH DESIGN	W. BISCHOFF 9/20		
STRUCT.	W.H. F.E.B. 9/20	PROJ ENGR	R. CARBEE 9/21
STRUCT.	HILDERMAN 9/20	REL GROUP	TAKLIAVIA 9/27
WEIGHTS	ALBANESE 9/27		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSY & INSTL
DS~LH AFT TERM SHLD~He TEST
POINT ACCESS

SIZE B
CODE IDENT NO. 26512
LDW280-28816 A
SCALE NONE
SHEET 1.00 OF 4

ENG 77.1 12-65

SUPERSEDES LDW280-28816 NO CHANGE 9-28-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE. LAST REV. NO CHANGE. ADDED SH. 1.10, 2.00, 3.00. DIONISIO. 1-22-69.						
A	1	1.00, 2.00 3.00.	4A 4D						INC. EO A1.	LTA-8, LM-1 THRU LM-6			DIONISIO 1-22-69		
	2	1.00							INC. LEO 280-476.	LM-7 THRU LM-15					
	3	2,00, 3.00	3D						INC. EO A3.	NOT REQ'D					
	4	2.00, 3.00	4A	P					INC. EO A4.	LM-3 THRU LM-15.					
	5	2.00, 3.00	4C	P					INC. EO A5.	LM-3 THRU LM-15.					
	6	2.00, 3.00	4A 4C	LFM 155					INC. EO A6.	LM-3					
	7	1.00							INC. LEO 280-1170	LM-6 THRU LM-15.		H.D.	J.V.		

CHG APPROVED	LTR	GROUP LDR	V. D. I.	STRUCT.
	A			

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28816	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

				-25	-23	-21	-17	-15	-13	-11	-9	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				11	11	11	11	11	11	11	11		GW10H-3	E	SNAP	GRUMMAN STD						3D
				11	11	11	11	11	11	11	11		GR11B-1	E	RETAINER	GRUMMAN STD						3D
				1									LDW280P18126-29	E	BLANKET ASSY	SEE DWG						4C
						1							LDW280P18126-21	E	BLANKET ASSY	SEE DWG						4C
								1					LDW280P18126-7	E	BLANKET ASSY	SEE DWG						4C
									1				LDW280P18126-5	E	BLANKET ASSY	SEE DWG						4C
C					1								LDW280 28816-25	E	SHIELD ASSY					NONE	NONE	4A
C													LDW280-28816-23	E	SHIELD INSTL							
C							1						LDW280-28816-21	E	SHIELD ASSY							
C													LDW280-28816-17	E	SHIELD INSTL							
C										1			LDW280-28816-15	E	SHIELD ASSY							
C											1		LDW 280-28816-13	E	SHIELD ASSY							
C													LDW280-28816-11	E	SHIELD INSTL							
C													LDW280-28816-9	E	SHIELD INSTL					NONE	NONE	4A

QTY PER ASSEMBLY

CL= CLEANLINESS LEVEL PEP LSP 14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

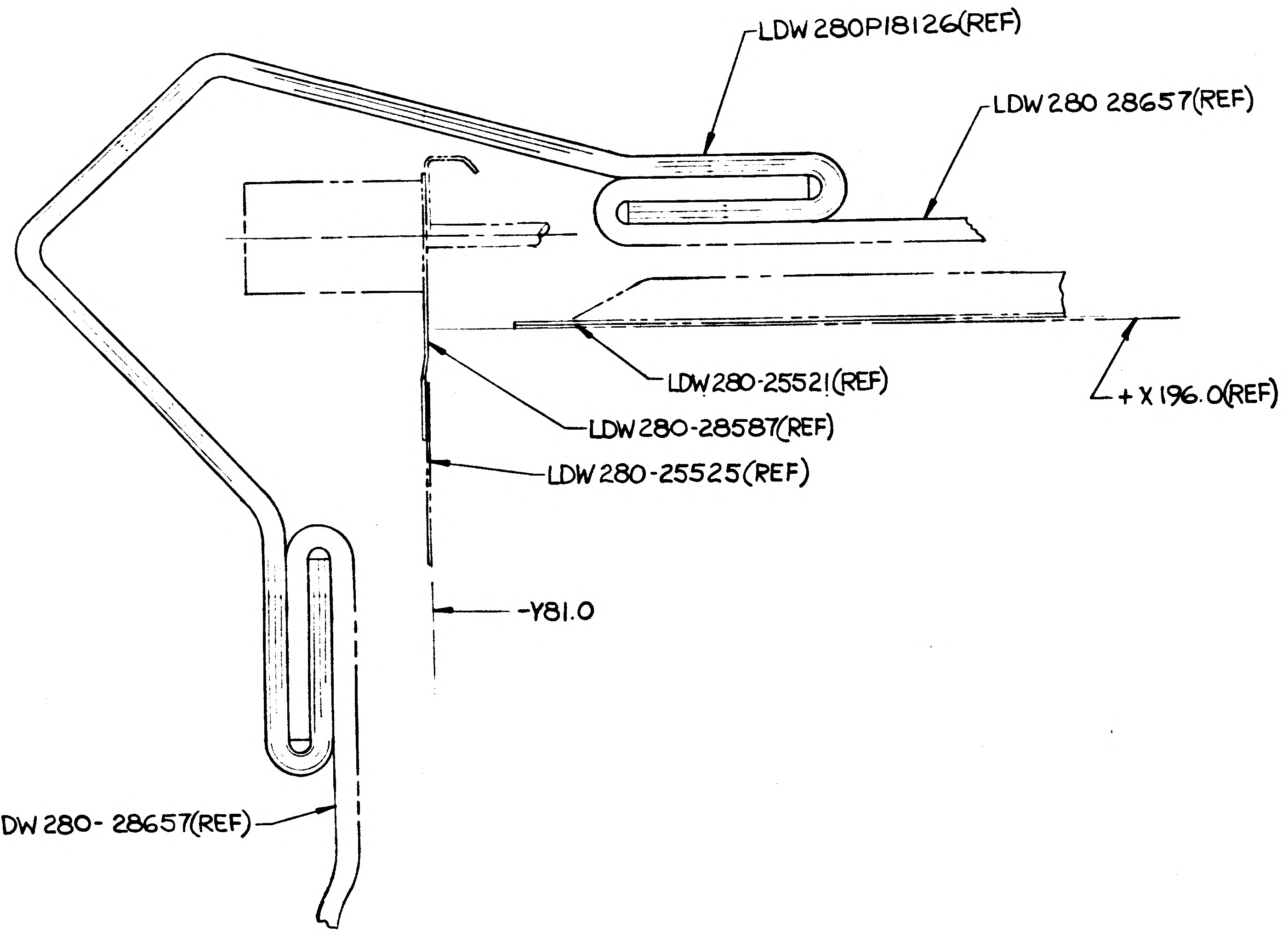
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28816	A
SCALE NONE			SHEET 2.00

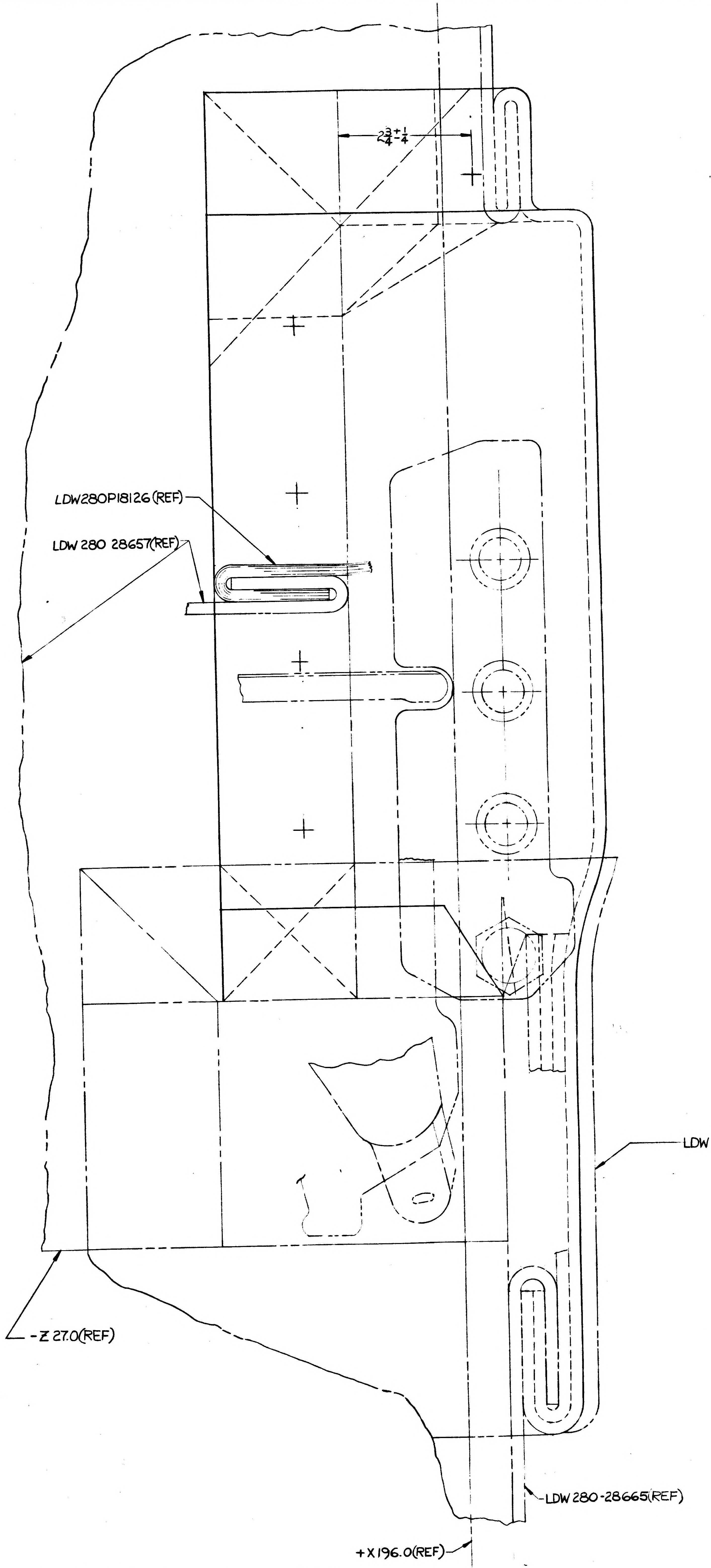
ENG 77.2 7-65

01

NAS 9-1100


LDW280P18126(REF)
LDW 280 28657(REF)
LDW280-25521(REF)
+X196.0(REF)
LDW280-28587(REF)
LDW280-25525(REF)
-Y81.0
LDW 280- 28657(REF)

SECTION A-A


$2\frac{3}{4}\pm\frac{1}{4}$
LDW280P18126(REF)
LDW 280 28657(REF)
LDW 280-28672(REF)
-Z 27.0(REF)
LDW 280-28665(REF)
+X196.0(REF)

Ⓐ1 LDW 280P18126-5
LDW 280P18126-7
LDW 280P18126-2
LDW 280P18126-

LDW 280 2

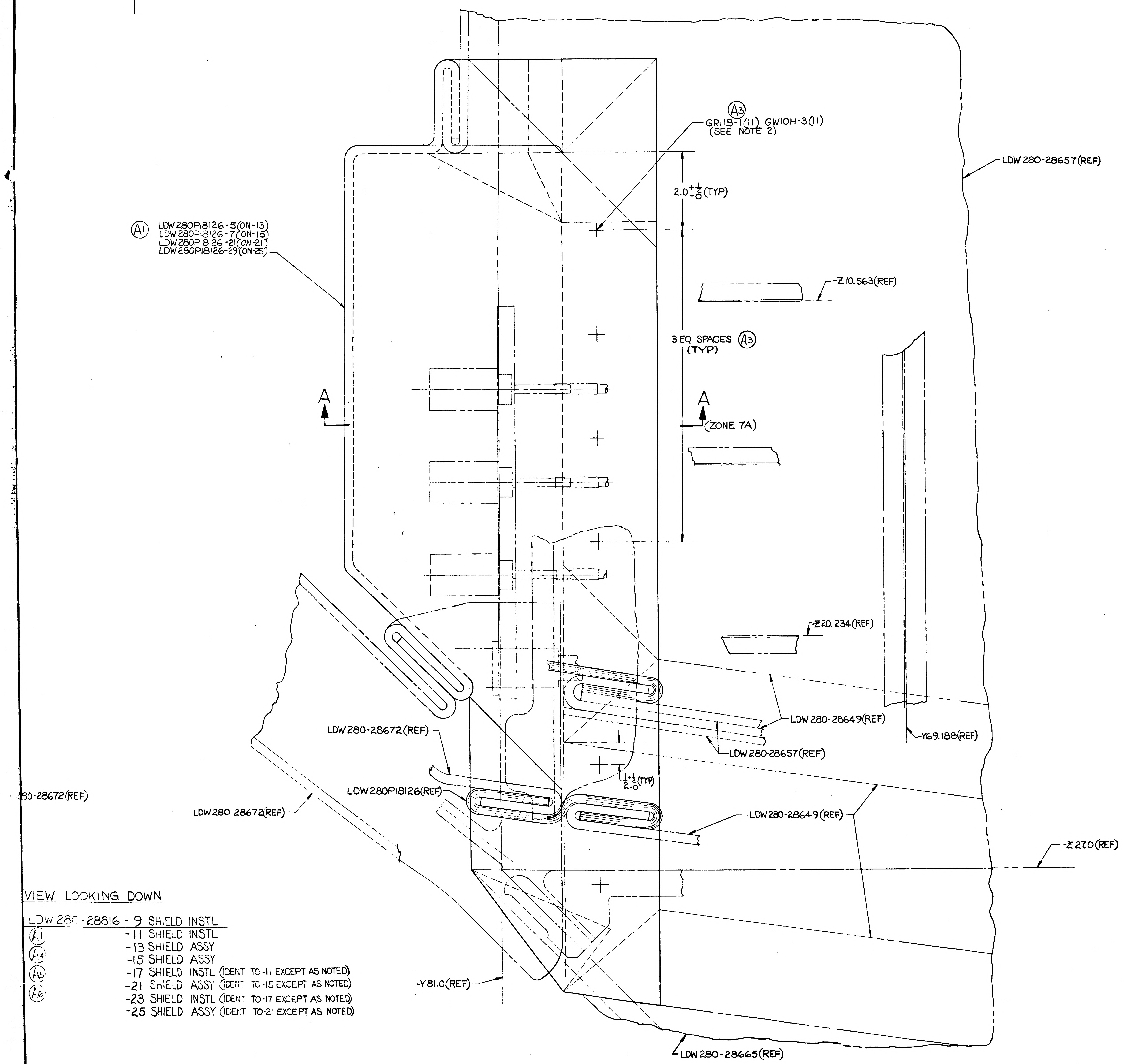
VIEW LOOKING DOWN

LDW 280-28816 - 9 SHIELD INSTL
Ⓐ1 -11 SHIELD INSTL
-13 SHIELD ASSY
Ⓐ4 -15 SHIELD ASSY
-17 SHIELD INSTL (IDENT
Ⓐ5 -21 SHIELD ASSY (IDENT
Ⓐ6 -23 SHIELD INSTL (IDENT
-25 SHIELD ASSY (IDENT

01/02 NAS 9-1100

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW 280-28816	3

FRAME 1 FRAME 2



(A3)
GR11B-1(11) GW10H-3(11)
(SEE NOTE 2)
LDW 280-28657(REF)
2.0 +1/2 -0 (TYP)
(A1) LDW280P18126-5(ON-13)
LDW280P18126-7(ON-15)
LDW280P18126-21(ON-21)
LDW280P18126-29(ON-25)
-Z10.563(REF)
3 EQ SPACES (A3)
(TYP)
A
A
(ZONE 7A)
-Z20.234(REF)
LDW 280-28672(REF)
LDW 280-28649(REF)
-Y69.188(REF)
LDW 280-28657(REF)
1 +1/2 -0 (TYP)
2-0
LDW280P18126(REF)
80-28672(REF)
LDW280 28672(REF)
LDW 280-28649(REF)
-Z 27.0(REF)
-Y81.0(REF)
LDW 280-28665(REF)

VIEW LOOKING DOWN

LDW 280-28816 - 9 SHIELD INSTL
(A1) -11 SHIELD INSTL
(A4) -13 SHIELD ASSY
(A5) -15 SHIELD ASSY
(A6) -17 SHIELD INSTL (IDENT TO -11 EXCEPT AS NOTED)
-21 SHIELD ASSY (IDENT TO -15 EXCEPT AS NOTED)
-23 SHIELD INSTL (IDENT TO-17 EXCEPT AS NOTED)
-25 SHIELD ASSY (IDENT TO-21 EXCEPT AS NOTED)

NOTES:

1. DELETED.
2. ALL SNAPS, TAPES, & RETAINERS TO BE INSTALLED PER LPC 280-3.
3. ALL INFORMATION OTHER THAN THAT REQD TO MANUFACTURE LDW280-28816-9, -11, -13, -15, -17, -21, & -23 IS FOR REFERENCE ONLY.
4. ACCESS TO He TEST POINTS MAY BE HAD BY UNSNAPPING -13, -15, -21 OR -25 SNAPS AND FOLDING SHIELD LDW280P18126 BACK ON TOP OF OUTRIGGER BOOT LDW 280-28672.
5. THIS DWG AFFECTED BY *LFM 155* WHICH MAY BE USED ON LM-3(33).

02/02

NAS 9-1,100

LDW280-28816 A

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK
SIZE | CODE IDENT NO. 26512 | LDW280 28816 | A
SCALE FULL | SHEET 3 OO

280-28816 SHEET 3
FRAME 1 FRAME 2

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1292
CONTROL INFO NO. LDW280B7082

IN M/B FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME
EFF LM-8(38) THRU LM-15(45).

DRAWING NO.	DASH NO.	N/A WAS	N/A IS	CHG LETTER
LDW280-28583	-53	LDW280-56553	LDW280-58553	C3
-28816	-17			B1
-28835	-9			C3
-51560	-7-1			C7
-51642	-5-1			B3
-51818	-1			A7
-52635	-5			C6
-52822	-13			A9
-53501	-21			G4
-53504	-3			B6
-53505	-1			A3
-53512	-1			B1
-53513	-5			B1
-53514	-410-65			D1
-53644	-23			A6
-53646	-31			B2
-53649	-21			A7
-54506	-1			A2
-54568	-5			A3
-54600	-1-1			A4
-56671	-1			A1
-56731	-10-3			A3
-66510	-3			B4
LDW280-66661	-3	LDW280-56553	LDW280-58553	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3179 CCA1278 PKG 50 ECP A062 (5)

REASON FOR EO: CHANGE 1/2 MIL H FILM TO 1/4 MIL H FILM

DESCRIPTION OF EO: SEE ABOVE

GAEC EO RELEASE: 2/27/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-8(38)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

				RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	SAP	MMR			PST	W		JM
DATE	2/13/69	2/17/69			2/12/69	2/1/69	2/17/69	2-27-69
	VDI	SUPPORT						

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO.: LEO 280

EO NO.: 1292

GDR022469
ISSUED BY W. KAY x87222/D. SHAPIRO x87222 SECTION V.D.I. GROUP NO. 335 PL 25

ENG 22.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1451
CONTROL INFO NO. LDW280B7452

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-28697	A3	SEE DWG
-28780	B3	
-28790	C7	
-28816	B2	
-28835	C4	
-51555	B3	
LDW280 -51560	D1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 12 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EFF FROM -*

GAEC EO RELEASE: K

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	4/1/69			4-2-69	4/5/69		4/9/69	5/8/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1451

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280 | EO NO. 1852
CONTROL INFO NO. LDW280B9840

REVISE THE N/A FOR THE FOLLOWING DWGS.
EFF: LM-10(40) THRU LM-14(44)

DRAWING NO. *	N/A IS **	N/A WAS ***	DWG. TITLE	CHG. LTR
LDW280-28816-17	LDW280-60553	LDW280-58553	SEE DWG.	B3
LDW280-51560-7-1	↑	↑	↑	D2
LDW280-52635-5				C8
LDW280-52822-13				B2
		↓ LDW280-58553		
LDW280-28583-9,-10,-11	↓	LDW280-56553	↓	C6
LDW280-66522-1-1	LDW280-60553	LDW280-58553	SEE DWG.	A8

8,9

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD3994 PKG92 (5)

REASON FOR EO: REDESIGN OF DIS THERMAL SHIELD FOR LMMP

DESCRIPTION OF EO: IN MOD. BLK. FOR *, N/A **(WAS) ***

GAEC EO RELEASE: VK 2/27/70

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: NOT REQ'D REWORK / SCRAP

APPROVED BY	PST				NM		PST	Bott
DATE	2-26-70	2/26/70		2/26/70	2/26/70		2-26-70	2-26-70
	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C
DRAWING TITLE: SEE ABOVE
DRAWING NO.: LEO 280
EO NO.: 1852

CDR022670
ISSUED BY D.SHAPIRO/G.HANSMANN X87222 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-28817 A

LFM

LFM 155	LDW280-53553	SEE NOTE 5	1

PART NO. LDW 280-28817-11

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-52553	LM-2 (32)	1
LM	LDW280-51553	LM-1 (31)	1

PART NO. LDW280-28817-7 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28553	LTA-8	1

PART NO. LDW280-28817-3 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53553	LM-3 (33)	1

PART NO. LDW 280-28817-9 | GAEC SCH NO. 521

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	A	GRUMMAN REL INFO A
		PRIM NO. K(001)
LAST DASH NO. USED	-13	207 MS-1A 9/16

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/4 ±.020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100 | LINE ITEM #1 | DOCUMENTATION TYPE II

DRAWN BY	FLANDERS 9/14	RELIABILITY	
LAYOUT BY	FLANDERS 9/14	THERMO	
CHECKED BY		MATLS	
GR LEADER	J. Stabcon 9/14		
VEH. DES.	9/15		
STRUCT	W/H 9/15	PROJ ENGR	R.M. Carbee 9-19
STRUCT	Hollerman 9/16	REL GROUP	
WEIGHTS	L. Garcia 9/26/66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTAL.
D.S.-QUAD III-CONTROL BOX ACCESS

SIZE	CODE IDENT NO.		
B	26512	LDW280-28817	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

C.D.R. = 9/16/66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED SH.3.00 NO CHANGE. LAST REV. NO CHANGE. "E" SIZE WAS "F" J.BISCALDI 9-11-68						
A	1	1.00, 1.10 2.00 3.00	3D					EOA1	ON-5 LDW 280P18127-3(1) WAS LDW280P18127-1 (1). ADDED SHEET 1.10.	LTA-8, LM-1 THRU LM-6			J. BISCALDI 9-11-68		
	2	2.00, 1.00 3.00	4E 5F					EOA2	IN F/D & L/M FOR-1 ADDED GS11K-1-4,-5,-8, GS11K-3-052,-066,-114, GS577A-1 FOR -1 REMOVED LM-2 THRU LM-6 EFF. ADDED-7. ADDED NOTE 3 FAB PER LPC 280-25. ADDED NOTE 4.	LM-1 THRU LM-15	✓				
	3	2.00 3.00					✓	EOA3 LCD 928	REMOVED -1 INSTL. ON-7 ADDED LM-1(31) REQUIREMENT (-7 MAY BE MADE BY REWORKING -1)	LM-1	NOTED				
	4	3.00					✓	LE0280-589 LCD 928	ON-7 REPLACED GS577A-1 WITH GS577A-4	LM-1 THRU LM-15	✓				
	5	1.00 2.00, 3.00		P		✓		EOA5 LCD 2360	ADDED -9 FOR -7 REMOVED EFF LM-3 THRU LM-15 (-7 MAY BE REWORKED INTO -9)	LM-3 THRU LM-15	NOTED				
	6	1.00, 2.00 3.00		LFM 155		✓		EOA6 LCD 2899	ADDED -11, -13 & NOTE 5.	LM-3	NOT	REQ'D			
	7	1.00		P		✓		EOA7 LCD 2360 (R)	RESTRICTED -9 (WAS) EFF LM-3(33) THRU LM-15(45). REMOVED LM-4 THRU LM-15.	LM-4 THRU LM-15		✓	J.D.		

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK			
SIZE B	CODE IDENT NO. 26512	LDW280-28817	A
SCALE NONE		SHEET 1.10	

NG 77.3 5-65

01
NAS 9-1100

C.L.	-13	-11	-9	-7	-5	-3	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	12				12	12		GW10H-3	E	WASHER	GRUMMAN STD						
		A.R.	A.R.	A.R.				GT15C-2	E	TAPE							
		A.R.	A.R.	A.R.				GS577A-4	E	STAPLE							
		1	1	1				GS11K-3-114	E	STRIP							
		1	1	1				GS11K-3-066	E	STRIP							
		1	1	1				GS11K-3-052	E	STRIP							
		1	1	1				GS11K-1-8	E	STRIP							
		1	1	1				GS11K-1-5	E	STRIP							
		1	1	1				GS11K-1-4	E	STRIP							
	12				12	12		GR11B-1	E	RETAINER	GRUMMAN STD						
	1							LDW280P18127-5	E	BLANKET ASSY	SEE DWG						
					1			LDW280P18127-3	E	BLANKET ASSY							
		1	1					LDW280-28806-13	E	SKIN ASSY							
				1				LDW280-28806-11	E	SKIN ASSY	SEE DWG						
C		1						LDW280-28817-13	E	BLANKET ASSY					NONE	NONE	
C								LDW280-28817-11	E	SHIELD INSTL					NONE	NONE	
C								LDW280-28817-9	E	SHIELD INSTL					NONE	NONE	
C								LDW280-28817-7	E	SHIELD INSTL					NONE	NONE	
C			1	1		1		LDW280-28817-5	E	BLANKET ASSY					NONE	NONE	
C								LDW280-28817-3	E	SHIELD INSTL					NONE	NONE	

QTY PER ASSEMBLY

C.L. = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH:
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28817	A

D

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

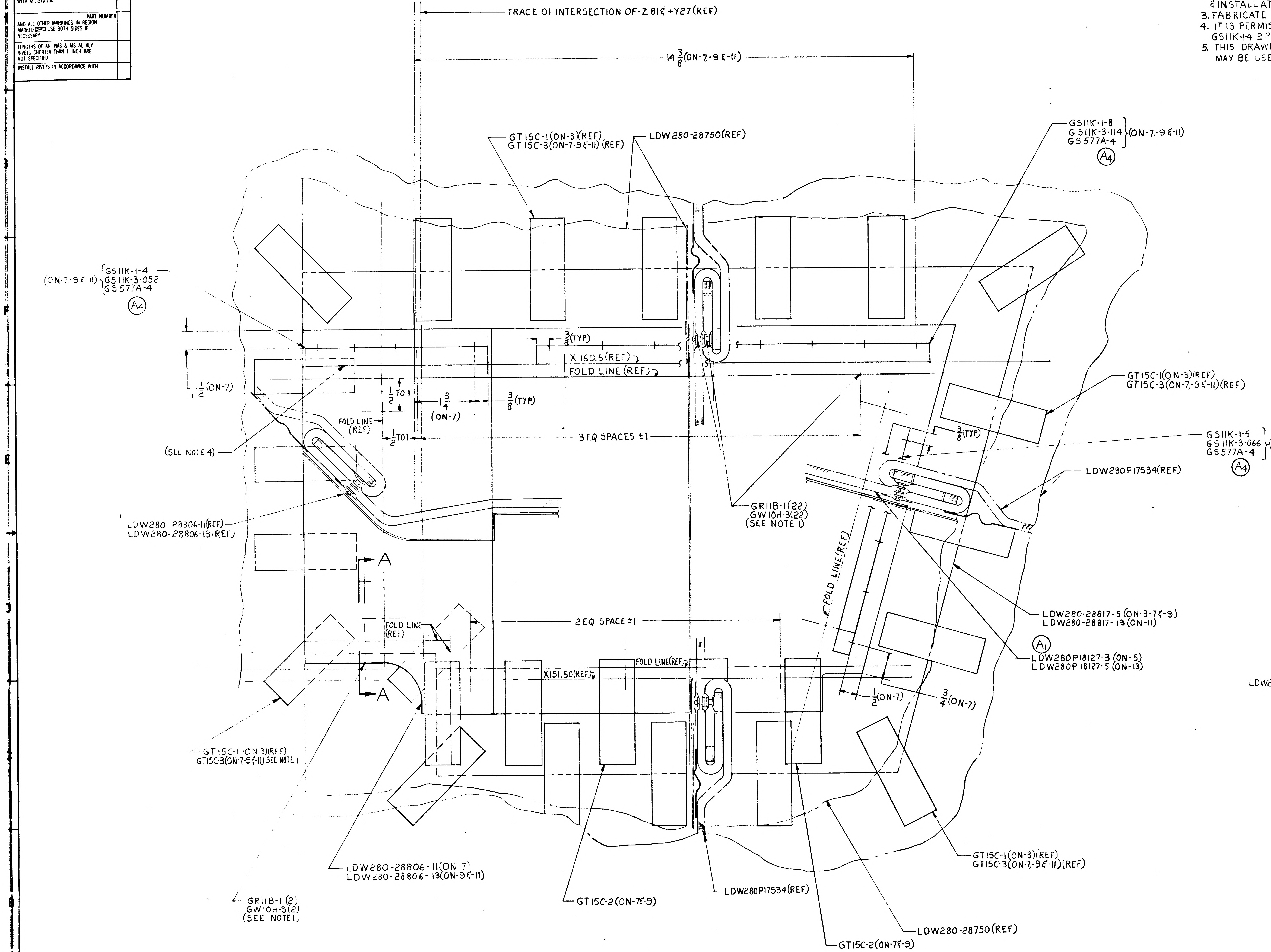
01

NAS 9-1100

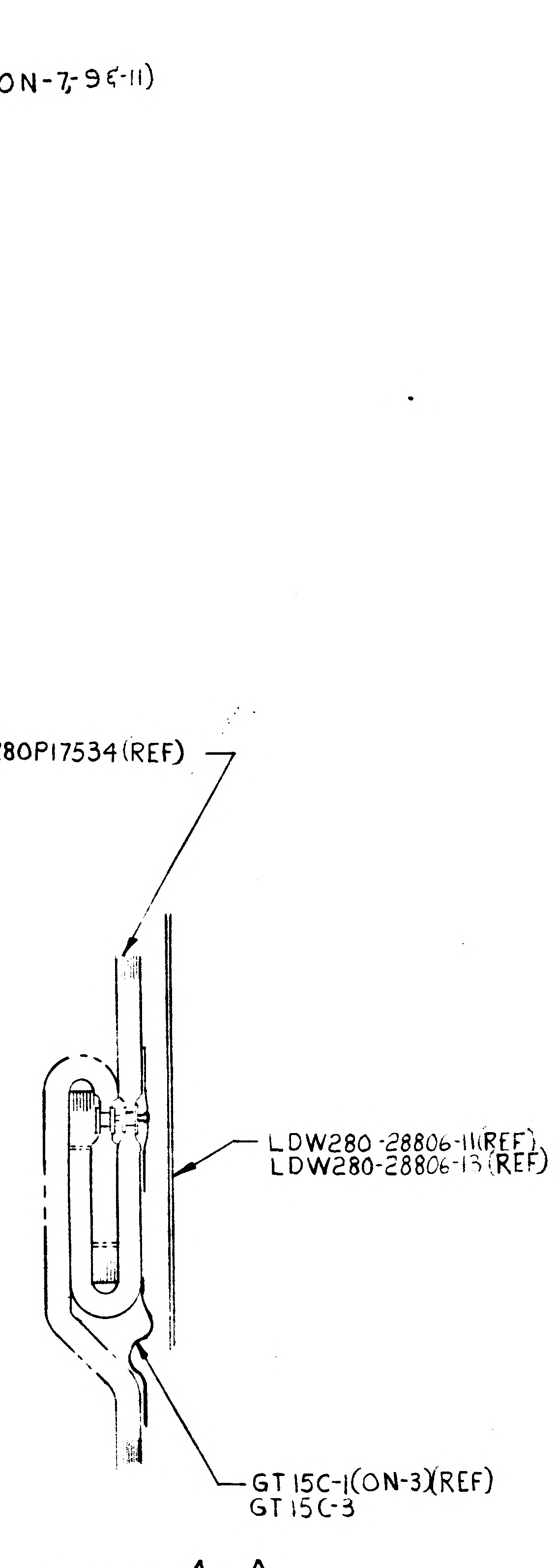
SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH	

NOTES:
1. TAPE & RETAINER TO BE INSTALLED PER LPC280-5.
2. ALL INFORMATION NOT NEEDED FOR MANUFACTURE & INSTALLATION OF LDW280-28817 FOR REF ONLY.
3. FABRICATE PER LPC 280-25
4. IT IS PERMISSIBLE TO SLIT .188 x .125 FLANGE OF GS11K-1-4 2 PLACES TO FORM PART TO CONTOUR.
5. THIS DRAWING AFFECTED BY LFM-155 WHICH MAY BE USED ON LM-3(33).



TRACE OF INTERSECTION OF -Z 81 & +Y27 (REF)
14 3/8 (ON-7, -9 & -11)
GT15C-1 (ON-3) (REF)
GT15C-3 (ON-7, -9 & -11) (REF)
LDW280-28750 (REF)
GS11K-1-8
GS11K-3-114 (ON-7, -9 & -11)
GS577A-4
A4
(ON-7, -9 & -11) GS11K-1-4
GS11K-3-052
GS577A-4
A4
3/8 (TYP)
X 160.5 (REF)
FOLD LINE (REF)
1/2 (ON-7)
1/2 TO 1
1 3/4 (ON-7)
3/8 (TYP)
FOLD LINE (REF)
(SEE NOTE 4)
1/2 TO 1
3 EQ SPACES ±1
GT15C-1 (ON-3) (REF)
GT15C-3 (ON-7, -9 & -11) (REF)
GS11K-1-5
GS11K-3-066 (ON-7, -9 & -11)
GS577A-4
A4
3/8 (TYP)
LDW280P17534 (REF)
GR11B-1 (22)
GW10H-3 (22)
(SEE NOTE 1)
LDW280-28806-11 (REF)
LDW280-28806-13 (REF)
A
A
FOLD LINE (REF)
LDW280-28817-5 (ON-3, -7 & -9)
LDW280-28817-13 (ON-11)
A1
LDW280P18127-3 (ON-5)
LDW280P18127-5 (ON-13)
FOLD LINE (REF)
2 EQ SPACE ±1
X151.50 (REF)
FOLD LINE (REF)
1/2 (ON-7)
3/4 (ON-7)
GT15C-1 (ON-3) (REF)
GT15C-3 (ON-7, -9 & -11) SEE NOTE 1
LDW280-28806-11 (ON-7)
LDW280-28806-13 (ON-9 & -11)
GR11B-1 (2)
GW10H-3 (2)
(SEE NOTE 1)
GT15C-2 (ON-7 & -9)
LDW280P17534 (REF)
GT15C-1 (ON-3) (REF)
GT15C-3 (ON-7, -9 & -11) (REF)
LDW280-28750 (REF)
GT15C-2 (ON-7 & -9)



LDW280P17534 (REF)
LDW280-28806-11 (REF)
LDW280-28806-13 (REF)
GT15C-1 (ON-3) (REF)
GT15C-3

SECTION A-A

A2 A5 A6

LDW280-28817-3 INSTL
LDW280-28817-7 INSTL
LDW280-28817-9 INSTL (IDENTICAL TO -7 EXCEPT AS NOTED)
LDW280-28817-11 INSTL (IDENTICAL TO -9 EXCEPT AS NOTED)

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, NEW YORK 11714

SIZE	CODE IDENT NO.		
E	26512	LDW280-28817	A
SCALE NONE		SHEET 3	

3 THIS DWG SUPERSEDES LDW280-28817 2 NO CHANGE 9-19-66

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28817
EO NO. A1
CONTROL INFO NO. LDW280A1084

ON LDW280-28817-5 ADD LDW280P18127-3 (1)
& REMOVE LDW280P18127-1 (1).

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐	2

REASON FOR EO: ADD EXPANDED BLANKET ASSY.

DESCRIPTION OF EO: ON -5 LDW280P18127-3(1) WAS LDW280P18127-1(1)

GAEC EO RELEASE: FK 10/11/6

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA-8(18) LH-1(31)	LH-2(32)
LEM		LH3(33) LH-4(34)	LH-5(35)
LEM		LH-6(36)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	10/7/66				10/10/66		10-11-66	10/11/66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INST'L - D.S. QUAD III CONTROL BOX ACCESS.	LDW280-28817	A1

ISSUED BY Gus HANSMANN X1153 SECTION V.D.I. GROUP NO. 280 PL 35

EMF

Q 1

NAS 9-1100

A

ENG 32.1 REV 3-65

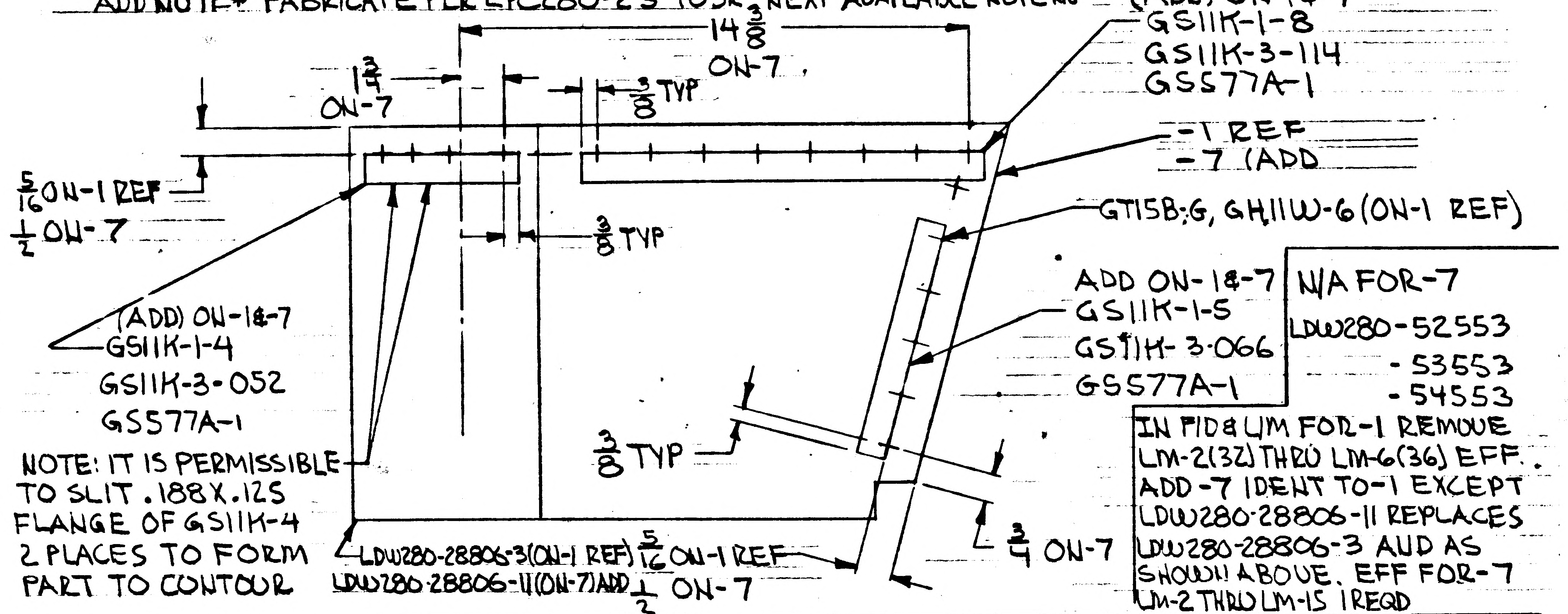
GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER EMF A

DWG. NO. LDW280-28817		EO NO. A2
CONTROL INFO NO. LDW280A-5502		

IN F/D & L/M FOR-1 ADD GS11K-1-4, GS11K-3-052, GS11K-1-8, GS11K-3-114, GS11K-1-5, GS11K-3-066 & GS577A-1 AS SHOWN BELOW.
ADD NOTE* FABRICATE PER LPC280-25 (USE NEXT AVAILABLE NOTE No.



(ADD) ON-1&-7
GS11K-1-8
GS11K-3-114
GS577A-1
$14\frac{3}{8}$ ON-7
$1\frac{3}{4}$ ON-7
$\frac{3}{8}$ TYP
-1 REF
-7 (ADD
GT15B-G, GH11W-6 (ON-1 REF)
$\frac{5}{16}$ ON-1 REF
$\frac{1}{2}$ ON-7
$\frac{3}{8}$ TYP
ADD ON-1&-7
GS11K-1-5
GS11K-3-066
GS577A-1
(ADD) ON-1&-7
GS11K-1-4
GS11K-3-052
GS577A-1
$\frac{3}{8}$ TYP
$\frac{3}{4}$ ON-7
LDW280-28806-3 (ON-1 REF) $\frac{5}{16}$ ON-1 REF
LDW280-28806-11 (ON-7) ADD $\frac{1}{2}$ ON-7

NOTE: IT IS PERMISSIBLE TO SLIT .188 X .125 FLANGE OF GS11K-4 2 PLACES TO FORM PART TO CONTOUR

N/A FOR-7
LDW280-52553
-53553
-54553

IN F/D & L/M FOR-1 REMOVE LM-2(32) THRU LM-6(36) EFF. ADD -7 IDENT TO -1 EXCEPT LDW280-28806-11 REPLACES LDW280-28806-3 AND AS SHOWN ABOVE. EFF FOR-7 LM-2 THRU LM-15 1 REQD

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

(2)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LCR-928 IMPROVE PAINT ADHESION	IN F/D & L/M FOR-1 ADDED GS11K-1---, GS11K-3--- & GS577A-1. FOR-1 REMOVED LM-2 THRU LM-6 EFF. ADDED -7 ADDED NOTE. FAB. PER LPC 280-25	C 2/27/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-1(31) THRU	LM-15(45)

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
✓		✓	

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE 2/24/67					2/24/67		2/24/67	2-27-67
5	VD1							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL DES STAGE QUAD III CONTROL BOX ACCESS	LDW280-28817	A2

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VD1 GROUP NO. 335 PL 35

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NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28817 EO NO. A3
CONTROL INFO NO. LDW280A5831

REMOVE -1 INSTL.
ON-7 ADD LM-1 (31) REQMTS, N/A LDW 280-51553,
1 REQ'D/MODULE.

NOTE: -7 MAY BE MADE BY REWORKING -1

5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCR #928

REASON FOR EO: IMPROVE PAINT ADHESION. LCR 928

DESCRIPTION OF EO: REMOVED -1 INSTL
ON-7 ADDED LM-1 (31) REQMTS

GAEC EO RELEASE C: CE 3/14/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	3/7/67			3/7/67	3/8/67		3-14-67	3/14/67
5	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL ~ D.S. ~ QUAD VI CONTROL BOX ACCESS.	LDW 280-28817	A3

ISSUED BY Gus HANSMANN X1153 SECTION V.D.I. GROUP NO. 280 PL 35

01

NAS 9-1100

01

NAS 9-1100

B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LEO 280
EO NO. 589
CONTROL INFO NO. LDW280A6772

ON THE DWGS LISTED BELOW IN L/M & F/D AT INSTL OF ALL GS11K-1--- TAB STRIPS REMOVE GS577A-1 & ADD GS577A-4 STAPLE

DWG No *	EFF	CHANGE No	TITLE
LDW280-28559-5	LM-1(31)	B3	
LDW280-28665-5	LM-1(31)	B10	
LDW280-28733-3	LM-1(31) THRU LM-3(33)	A4	
LDW280-28736-5 & -7	LM-1(31) THRU LM-15(45)	A5	
LDW280-28748-11, -13 & -15	LM-1(31) THRU LM-15(45)	A10	
LDW280-28754-7 & -9	LM-1(31) THRU LM-15(45)	A9	
LDW280-28758-5 & -7	LM-1(31) THRU LM-3(33)	B3	SEE
LDW280-28770-5	LM-1(31) THRU LM-15(45)	B5	
LDW280-28773-11 & -13	LM-1(31) THRU LM-3(33)	A8	
LDW280-28804-5	LM-1(31) THRU LM-15(45)	A6	
LDW280-28817-7	LM-1(31) THRU LM-15(45)	A4	DWG
LDW280-51742-3	LM-1(31)	A4	
LDW280-51831-1	LM-1(31) THRU LM-15(45)	A2	
LDW280-52739-3	LM-2(32) THRU LM-15(45)	A2	
LDW280-52742-1, -3, -5, -7, -9 & -11	LM-2(32) THRU LM-15(45)	A7	
LDW280-52763-9 & -11	LM-2(32) THRU LM-15(45)	A5	
LDW280-52767-1 & -3	LM-2(32) THRU LM-15(45)	B3	
LDW280-53600-3 & -5	LM-3(33)	A3	
LDW280-54605-1	LM-4(34) THRU LM-15(45)	A2	
LDW280-54714-1	LM-4(34) THRU LM-15(45) & DES. VER. 70	A5	
LDW280-54733-1	LM-4(34) THRU LM-15(45)	A2	
LDW280-54758-1 & -3	LM-4(34) THRU LM-15(45)	A1	
LDW280-54784-1	LM-4(34) THRU LM-15(45) & DES. VER. 70	A2	
LSK280-10993-17, -19 & -21	DES. VER. 70	A4	

CDR: 5/10/67

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCD 928

REASON FOR EO: TO PROVIDE CORRECT STAPLE CALLOUT

DESCRIPTION OF EO: ON * REPLACED GS577A-1 WITH GS577A-4

GAEC EO RELEASE: ® 2 C JK 5/?/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	(NOTED ABOVE)		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY				—	W.H.		
DATE	5/4/67			—	5/4/67		5/6/67
5	VDI						

5/8/67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 589

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 25

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28817
EO NO. A5
CONTROL INFO NO. LDW280B1055

FOR -7 REMOVE EFF. LM-3(33) THRU LM-15(45).

ADD -9 INST'L IDENTICAL TO -7 EXCEPT THAT
(1) LDW280-28806-13 REPLACES
(1) LDW280-28806-11.
FOR -9 N/A LDW280-53553, EFF. LM-3(33), 1 REQ'D.
N/A LDW280-54553, EFF. LM-4(34) THRU
LM-15(45), 1 REQ'D/MOD.

-7 MAY BE REWORKED INTO -9.

(5)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD2360

PKG 18

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC EO RELEASE
PLUME HEATING PROTECTION	ADDED -9. FOR -7 REMOVED EFF. LM-3 THRU LM-15.	JK 1/4

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		-7	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	1/4/68			1-4-68	1/5/68		1/4/68	1-8-68
P	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INST'L - D/S - QUAD III CONTROL BOX ACCESS	LDW280-28817	A5

19 JAN 68
ISSUED BY J. BACKOFEN X1153 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG NO. LDW280-28817 | EO NO. A6
CONTROL INFO NO. LDW280B3007 ✓

CREATE -13 BLANKET ASSY IDENT TO -5 EXCEPT THAT LDW280P18127-5 REPLACES LDW280P18127-3

CREATE -11 SHIELD INSTAL IDENT TO -9 EXCEPT THAT -13 REPLACES -5

-11 N/A LDW280-53553 1EA

ADD NOTE * (USE NEXT AVAILABLE NOTE NUMBER)

THIS DWG. AFFECTED BY LFM-155 WHICH MAY BE USED ON LM-3(33).

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2899

PKG #1 (5)

REASON FOR EO: PLUME IMPINGEMENT PROTECTION 7 SECOND DOCKING

DESCRIPTION OF EO: ADDED -11, -13, & NOTE *

GAEC EO RELEASE: 4/26/68

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM155	LM-3(33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	REQD
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	4/19/68	4/22/68		4/19/68	4/22/68		4/22/68	4-25-68
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTAL. D.S.-QUAD III CONTROL BOX ACCESS	LDW280-28817	A6

042668

ISSUED BY J. CORTELYOU/H. PALLMEYER x1392 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-28817
EO NO. A7
CONTROL INFO NO. LDW280B3151

IN M/B RESTRICT -9 TO LM-3(33) ONLY
(WAS) EFF LM-3(33) THRU LM-15(45)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2360	PKG 18	(5)

REASON FOR EO: PLUME IMPINGEMENT PROTECTION

DESCRIPTION OF EO: RESTRICTED -9 (WAS) EFF LM-3(33) THRU LM-15(45)
REMOVED LM4 THRU LM-15

GAEC EO RELEASE: C K 5/10/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~BOE~~
APPROVED BY	JAS			PST	WJU		JAP	
DATE	5/1/68			5-1-68	5/2/68		5/2/68	5-9-68
P								

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL D/S-QUAD III-CONTROL BOX	LDW280-28817	A7

CDR 051068
ISSUED BY D. SHAPIRO/P. THORJUSEN X-1153 SECTION VDI GROUP NO. 335 PL 25

01 NAS 9-1100

LDW280-28819

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28820	LEM-6 ㊱	1 EA
		LEM-5 ㉟	1 EA
		LEM-4 ㉞	1 EA
		LEM-3 ㉝	1 EA
		LEM-2 ㉜	1 EA
		LEM-1 ㉛	1 EA
LEM	LDW280-28820	LTA-8 ⑱	1 EA
PART NO. LDW 280-28819-1,-3 & 5		GAEC SCH NO. 522	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	A	GRUMMAN REL'G INFO		
LAST DASH NO. USED	-15	PRIM NO. 220	FR(001) MP 9/19/66	EMF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/16 ~ ±.031 ~ ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM I
DOCUMENTATION TYPE II

DRAWN BY	G.W.H.	RELIBILITY	
LAYOUT BY	HANSMANN	THERMO	[illegible] 10/24/66
CHECKED BY			
GPLDR	[illegible]		
V.D.I.	[illegible] 9/17		
STRUCT	[illegible]	PROJ ENGR	R.M. Carlson (E) 9-17
STRUCT	HILDEBRAN 9/17	REL GROUP	Bott 10-24-66
WEIGHTS	F. Albanese 9/26		

Ⓡ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FOIL ASSY ~ DESCENT STAGE
QUAD IV ~ E.C.S BATTERY ~ PLUME
IMPINGMENT ~ UPPER CORNER

SIZE B
CODE IDENT NO. 26512
LDW280-28819
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 9/23/66

01

NAS 9-1100

C.L.	QTY PER ASSEMBLY			-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				AS REQD	AS REQD	AS REQD	94725	MESH	E	INCONEL KNITTED SLEEVING (SEE NOTE *4)							
C				1				LDW280-28819-15		FOIL			MAKE FROM	LDW280-17950-11	NONE	NONE	
C					1			-13		FOIL			MAKE FROM	LDW280-17950-21	NONE	NONE	
C						1		-11		FOIL			MAKE FROM	LDW280-17950-31	NONE	NONE	
C								-5		FOIL ASSY					FLW	NONE	
C								-3		FOIL ASSY					FLW	NONE	
C								LDW280-28819-1	E	FOIL ASSY					FLW	NONE	

C.L. = CLEANLINESS LEVEL PER LSP 14-0011.

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	RESISTANCE WELD	LSP14-6102

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28819

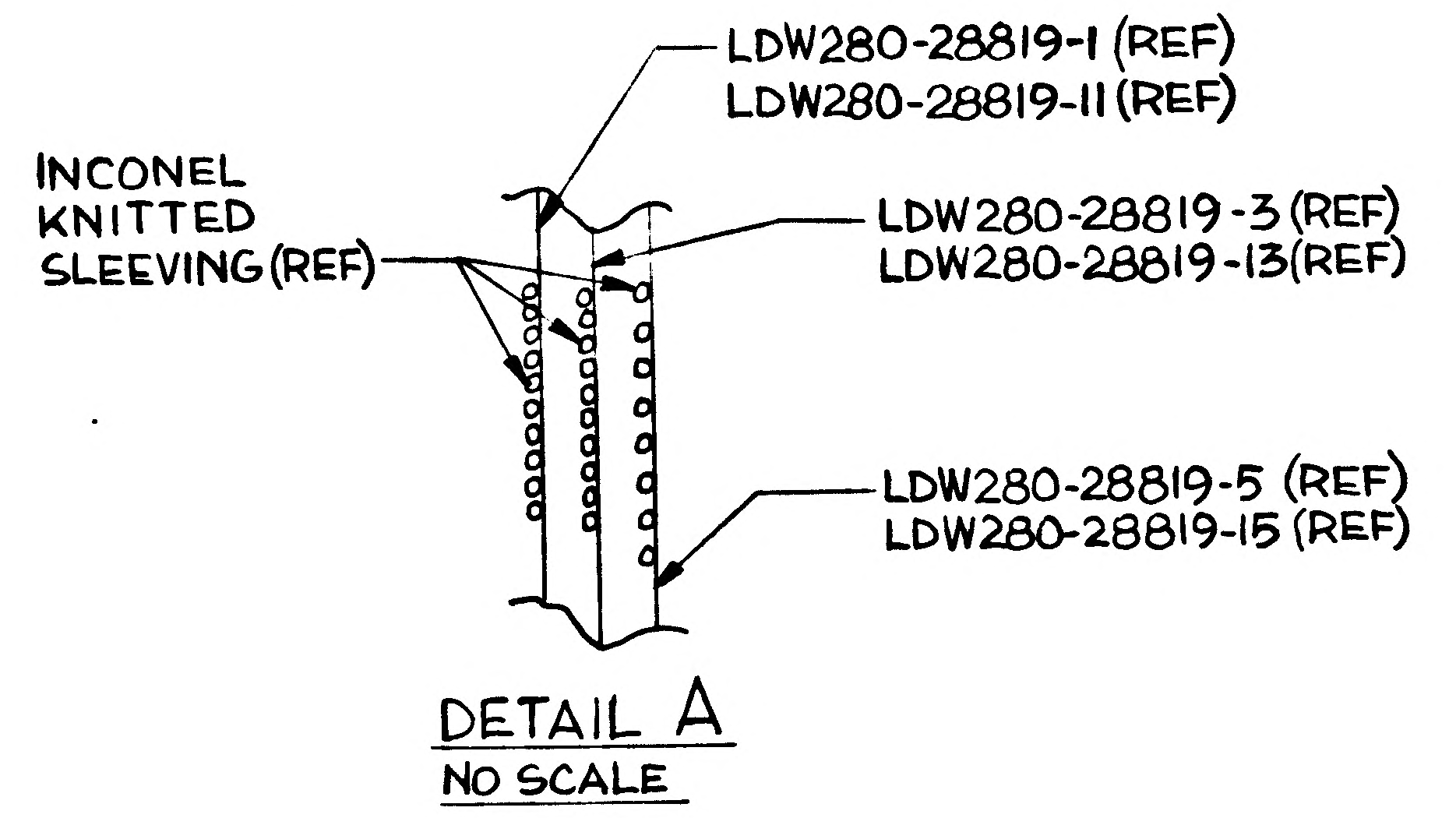
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

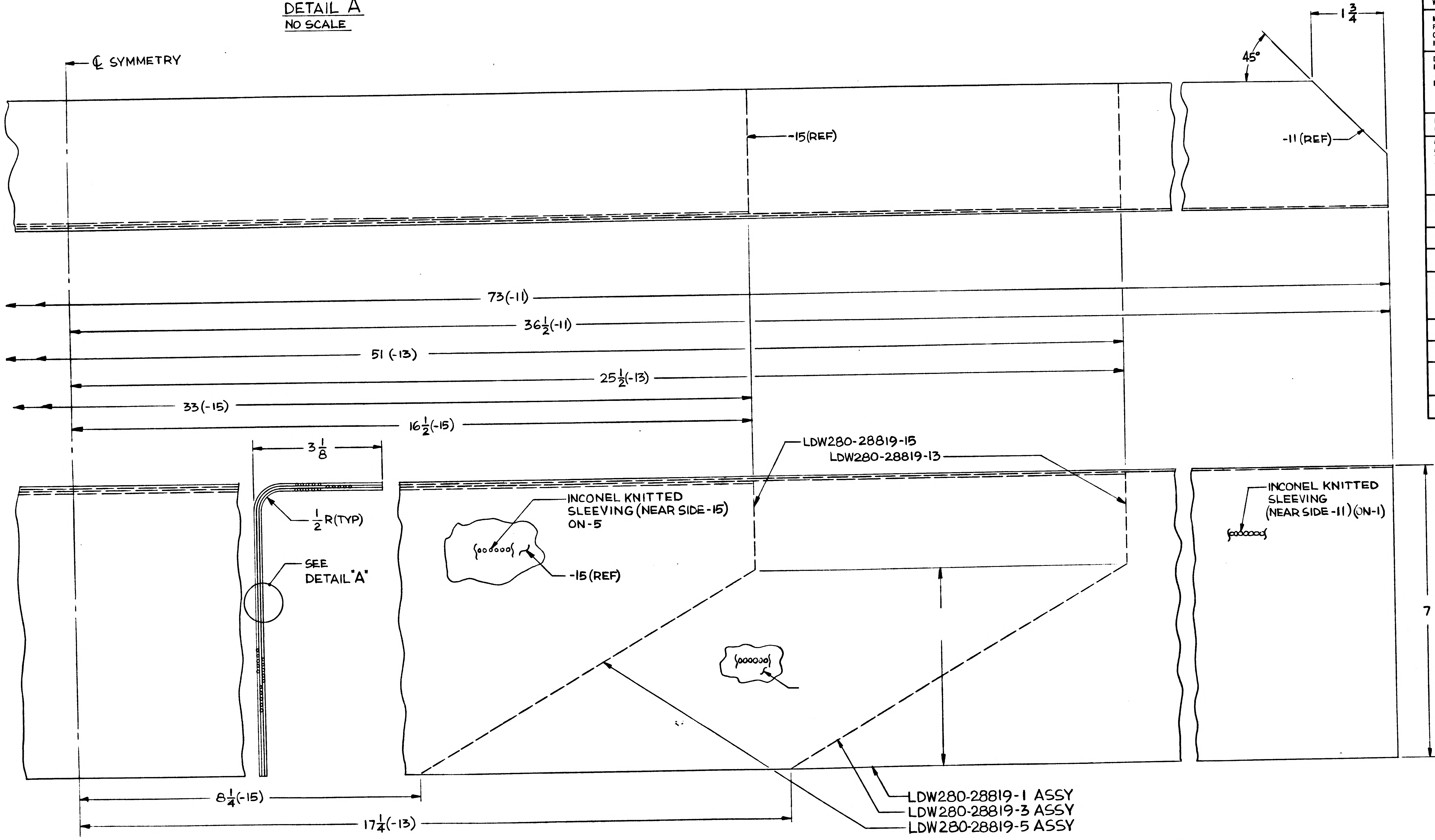


LDW280-28819-1 (REF)
LDW280-28819-11 (REF)
INCONEL KNITTED SLEEVING (REF)
LDW280-28819-3 (REF)
LDW280-28819-13 (REF)
LDW280-28819-5 (REF)
LDW280-28819-15 (REF)

DETAIL A
NO SCALE

NOTES:

1. WELD INCONEL SLEEVING & FOIL SHEET PER LDW280-17522
2. INCONEL KNITTED SLEEVING TO BE 6 TO 8 INCHES WHEN FLATTENED. WIRE TO BE .0035 TO .0040 INCH DIA ROUND "INCONEL 600" ALLOY KNIT PATTERN SQUARE TYPE 5 TO 7 SQUARES PER LINEAR INCH. MAY BE PURCHASED FROM MONTGOMERY METAL FABRIC CO., WINDSOR LOCKS, CONN. (CODE IDENT 94725)
3. WELDED ASSY'S MAY HAVE RANDOM WRINKLED APPEARANCE.



℄ SYMMETRY
45°
1 3/4
-15(REF)
-11 (REF)
73(-11)
36 1/2(-11)
51 (-13)
25 1/2(-13)
33(-15)
16 1/2(-15)
3 1/8
1/2 R(TYP)
SEE DETAIL "A"
LDW280-28819-15
LDW280-28819-13
INCONEL KNITTED SLEEVING (NEAR SIDE -15) ON-5
-15 (REF)
INCONEL KNITTED SLEEVING (NEAR SIDE -11) (ON-1)
7
8 1/4(-15)
17 1/4(-13)
LDW280-28819-1 ASSY
LDW280-28819-3 ASSY
LDW280-28819-5 ASSY

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL ✓ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED

TOLERANCE ON LOFTED DELINEATIONS IS

LDW280-28819

LDW280-28819

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK		
LM	SIZE F	CODE IDENT NO. 26512	LDW280-28819
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

THIS IS AN ORIGINAL DWG.

ENG 73-5 6-64

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 316
CONTROL INFO NO. LDW 280A 0936		

ON THE FOLLOWING DRAWINGS ADD NOTE *:
*) INCONEL KNITTED SLEEVNG TO BE OXIDIZED BY EXPOSURE TO 1650 ±50°F IN AIR FOR FOUR (4) HOURS. FOR LTA5 (15) AND LTA 8 (18) OXIDIZATION IS OPTIONAL

DRAWING:	EFF	CHANGE NO.	TITLE
LDW280-25708	QUAL TEST LM1 THRU LM6 LTA5 & 8	B3	SEE DRAWING
LDW280-28735	LM1 THRU LM6 LTA8	C1	
LDW280-28737	"	A4	
LDW280-28740	"	B1	
LDW280-28743	"	A4	
LDW280-28746	"	B1	
LDW280-28749	"	A6	
LDW280-28752	"	B1	
LDW280-28755	LTA-8 & LM-1	A5	
LDW280-28759	LTA-8 LM-1 THRU LM-6	B1	
LDW280-28764	"	B1	
LDW280-28768	LM-1 &	B1	
LDW280-28771	LTA-8, LM-1 THRU LM-6	B1	
LDW280-28774	"	A6	
LDW280-28803	"	A1	SEE DRAWING
LDW280-28819	"	A1	SEE DRAWING

* - USE NEXT AVAILABLE NUMBER

3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
THERMO REQUIREMENT	ADDED NOTE *	LE 10/18

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	
LM			
LM			

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	JLB			RGM	WJH			
DATE	10/[illegible]			MAT'LS 10/7/66	10/4/66		10/12/66	10/15/66
	VDI	SUPPORT	RELIAB. GROUP	~~GROUP~~ LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	316

ISSUED BY AMBROSIO / STRAKOSCH X1153 SECTION V. D. 1 GROUP NO. 335 PL 35 EMF

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO280 | EO NO. 476
CONTROL INFO NO. LDW280 A 5542

GMD 68.2 REV 3-66

* TO THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS THAT ARE EFFECTIVE ON LEM-6(36) ADD EFFECTIVITIES FOR LEM-7(37), LEM-8(38), LEM-9(39), LEM-10(40), LEM-11(41), LEM-12(42), LEM-13(43), LEM-14(44) AND LEM-15(45). QUANTITIES AND NEXT ASSEMBLIES REMAIN SAME AS LEM-6(36)

DRAWING NUMBER	CHANGE NUMBER	TITLE
LDW280 - 25703 ✓	A6	SEE DRAWING
-25704 ✓	B1	
-25706 ✓	B1	
-25707 ✓	B4	
-25708 ✓	B6	
-28647 ✓	C1	
-28652 ✓	B8	
-28669 ✓	A3	
-28672 ✓	C1	
-28721 ✓	A2	
-28727 ✓	B2	
-28752 ✓	B3	
-28761 ✓	A4	
-28762 ✓	A1	
-28771 ✓	B5	
-28774 ✓	A8	
-28776 ✓	A1	
-28778 ✓	A1	
-28779 ✓	A4	
-28803 ✓	A3	
-28816 ✓	A2	
-28819 ✓	A2	
-51560	C1	
-51818	A3	
-51823	A1	
-52723	A5	
LDW280		SEE DRAWING

* USE APPLICABLE DASH NUMBERS IN DESCRIPTION OF E.O.

THIS IS AN ORIGINAL EO

2

DETAIL SPEC REQ | CL II ENGRG CHG | CL I ENGRG CHG

REASON FOR EO: ADDITIONAL REQUIREMENTS

DESCRIPTION OF EO: FOR DASH * ADDED LEM-7 THRU LEM-15 EFF.

GAEC EO RELEASE: FR 2/23/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-7(37) LEM-8(38)	LEM 9(39)
LEM		LEM-10(40) LEM-11(41)	LEM-12(42)
LEM		LEM-13(43) LEM-14(44)	LEM-15(45)

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D — REWORK | SCRAP

APPROVED BY	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
					WJH		RMC	
DATE	2/16/67				2/15/67		2-16-67	2-17-67

GROUP IV: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO280

EO NO.: 476

ISSUED BY M.GREY/J.STRAKOSCH X-1453 SECTION VEHICLE DESIGN INT. GROUP NO. 280 PL 35

01

NAS 9-1100

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO.	LDW280	EO NO.	793
CONTROL INFO NO.	LDW280B0053		

FOR THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS* THAT ARE EFF ON LM-4(34), REMOVE LM-4(34) THRU LM-15(45) REQMTS.

DRAWING NO. *	NEXT ASSY	TITLE	CHG NO.
✓ LDW280-28561	LDW280-54553	SEE DWG	C5
✓ -28773	-28561		A9
✓ -28774	-28773		B1
✓ -28775	-28773		B8
✓ -28820	-28561		B2
✓ -28819	-28820		A3
-18129	-28820		A4
-28776	-28561		A2
P17465	-28776		B3
P17514	-28776		B1
P17516	-28776		B4
P17535	-28776		B3
-28669	-54553		B1
-18239	-28561		A2
-54777			A2
P17496			A8
M17698			B7
P17479			A9
P17946			B3
P17967			B10
P18091			A3
-28757	-28561		B1
LDW280	LDW280	SEE DWG	

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	*LCD 2011 CCA668

REASON FOR EO: REDESIGN OF THERMAL SHIELDING FOR EQUIP STOWAGE.

DESCRIPTION OF EO: FOR *, REMOVED LM-4 THRU LM-15 REQMTS.

(5) B ®
GAEC EO RELEASE: C JK 11/8/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY								
DATE	11/7/67			11-6-67	11/7/67		11/7/67	11-7-67
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO280	793

11-10
ISSUED BY S. TAMRES / P. THORJUSEN x7033 SECTION VDI GROUP NO. 335 PL 25

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-28819
EO NO. A4
CONTROL INFO NO. LDW280B0035

IN M/B, RESTRICT -1,-3 & -5 TO LTA-8, LM-1 & LM-2.

(5)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1244

REASON FOR EO: TO PROVIDE FOR F.I.T.H. SHIELD

DESCRIPTION OF EO: IN M/B RESTRICTED -1,-3 & -5 TO LTA-8, LM-1 & LM-2 (WAS USED ON LTA-8 & LM-1 THRU LM-3)

GAEC EO RELEASE: JK 11/14/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG ✓; RECORD EO
DISPOSITION OF PARTS: REWORK; SCRAP -1,-3 & -5

APPROVED BY	VDI	THERMO SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CDAT~~
DATE	11/13/67			11-11-67	11/13/67		11/14/67	11-15-67
P								

PRIORITY: C
DRAWING TITLE: FOIL ASSY-D/S QUAD IV, E.C.S. BATTERY, PLUME IMPINGEMENT, UPPER CORNER
DRAWING NO.: LDW280-28819
EO NO.: A4

CDR 11/17/67
ISSUED BY ROESSLER / THORJUSEN x1153
SECTION V.D.I
GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28820

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51561	LEM-6 (36)	1
		LEM-5 (35)	1
		LEM-4 (34)	1
		LEM-3 (33)	1
		LEM-2 (32)	1
LEM	LDW280-51561	LEM-1 (31)	1
PART NO. LDW280-28820-3		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28561	LTA-8 (18)	1
PART NO. LDW280-28820-1		GAEC SCH NO. 522	

2

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	100	200	300
REV			
SHEET			
REV			
SHEET			
REV			

LAST SECT LTR USED	A-A	GRUMMAN REL INFO	
LAST DASH NO. USED	-3	PRIM NO. 220	FK/001 EMF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ±1/16 ~ ±.031 ~ ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM I
DOCUMENTATION TYPE II

DRAWN BY	G.W.H	RELIABILITY	9/27
LAYOUT BY	HANSMANN	THERMO	12/27
CHECKED BY			
GPLDR	9/16/66		
V.D.I	9/17		
STRUCT	EB 9/17	PROJ ENGR	R.M. Carbee 9-17
STRUCT	HILDERMAN 9/17	REL GROUP	10.28.66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSY ~ DESCENT STAGE QUAD IV ~ ECS BATTERY ~ PLUME IMPINGMENT ~ UPPER CORNER

SIZE B | CODE IDENT NO. 26512 | LDW280-28820
SCALE NONE | SHEET 1.00 OF 3

ENG 77.1 12-65

CDR = 8/23/66

01 NAS 9-1100

C.L.					-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					1	1		LDW280-28819-5	E	FOIL ASSY	SEE DWG						
					1	1		LDW280-28819-3		FOIL ASSY							
					1	1		LDW280-28819-1		FOIL ASSY							
					12	12		LDW280-23720-3		STAPLE ASSY							
					1			LDW280-18129-13		SHEET							
						1		LDW280-18129-11		SHEET							
					12	12		LDW280-17932-13		WASHER	SEE DWG						
C								LDW280-28820-3		SHIELD ASSY					NONE	NONE	
C								LDW280-28820-1	E	SHIELD ASSY					NONE	NONE	
////	QTY PER ASSEMBLY																

C.L. = CLEANLINESS LEVEL PER LSP 14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

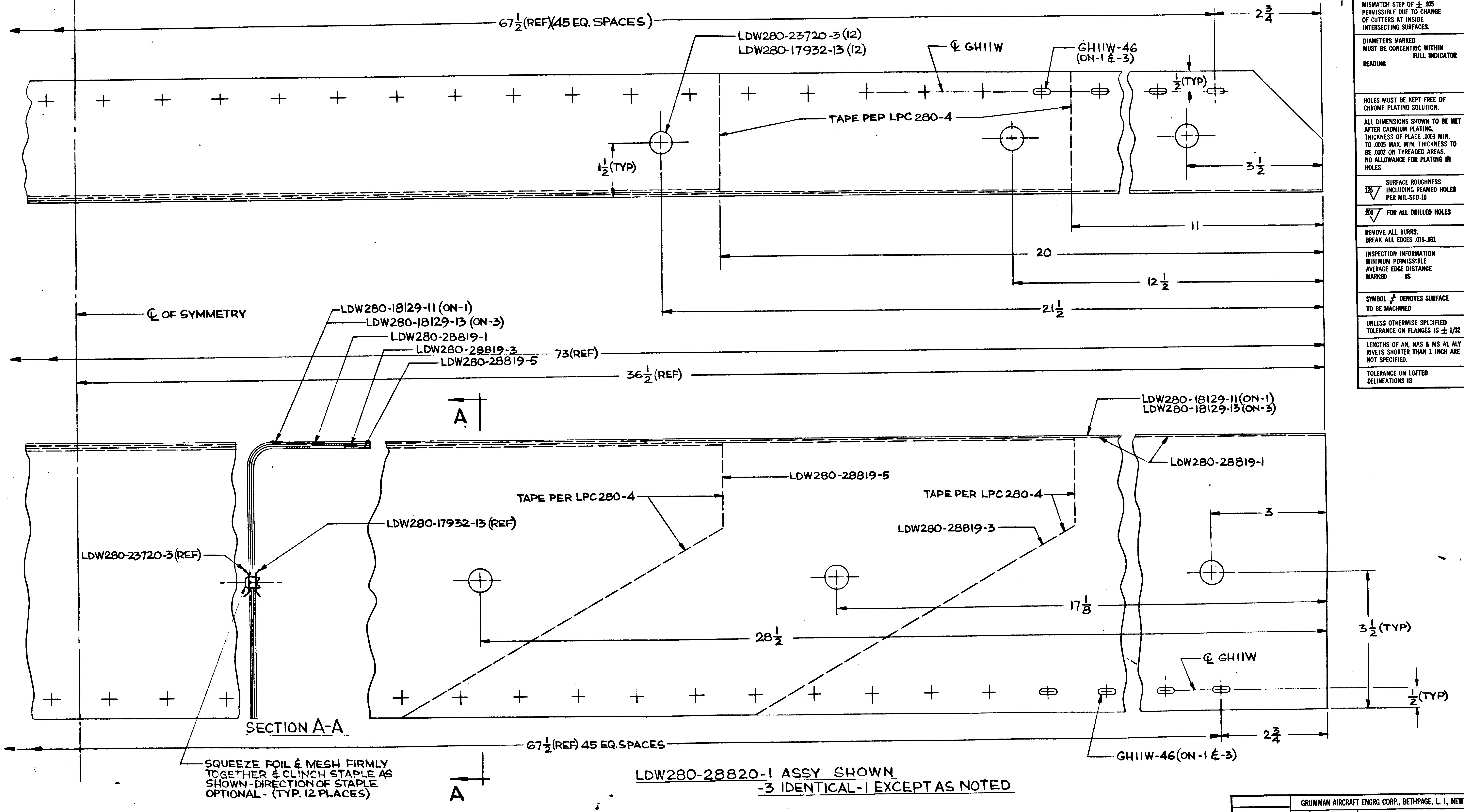
SIZE	CODE IDENT NO.	
B	26512	LDW280-28820

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01 NAS 9-1100


67½(REF)(45 EQ. SPACES)
2¾
LDW280-23720-3 (12)
LDW280-17932-13 (12)
℄ GH11W
GH11W-46 (ON-1 & -3)
½(TYP)
TAPE PEP LPC 280-4
1½(TYP)
3½
11
20
12½
21½
℄ OF SYMMETRY
LDW280-18129-11 (ON-1)
LDW280-18129-13 (ON-3)
LDW280-28819-1
LDW280-28819-3
LDW280-28819-5
73(REF)
36½(REF)
A
LDW280-18129-11(ON-1)
LDW280-18129-13(ON-3)
LDW280-28819-1
LDW280-28819-5
TAPE PER LPC 280-4
TAPE PER LPC 280-4
LDW280-28819-3
LDW280-17932-13 (REF)
LDW280-23720-3 (REF)
3
17⅛
28½
3½(TYP)
℄ GH11W
½(TYP)
SECTION A-A
67½(REF) 45 EQ.SPACES
2¾
GH11W-46(ON-1 & -3)
SQUEEZE FOIL & MESH FIRMLY TOGETHER & CLINCH STAPLE AS SHOWN-DIRECTION OF STAPLE OPTIONAL- (TYP. 12 PLACES)
A

LDW280-28820-1 ASSY SHOWN
-3 IDENTICAL-1 EXCEPT AS NOTED

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
$\overline{125}\sqrt{}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
$\overline{200}\sqrt{}$ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL $\sqrt{}$ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

LDW280-28820

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE F	CODE IDENT NO. 26512	LDW280-28820	
MODEL OR END ITEM	SCALE FULL		SHEET 3 OO	

THIS IS AN ORIGINAL DWG.

NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER EMF A

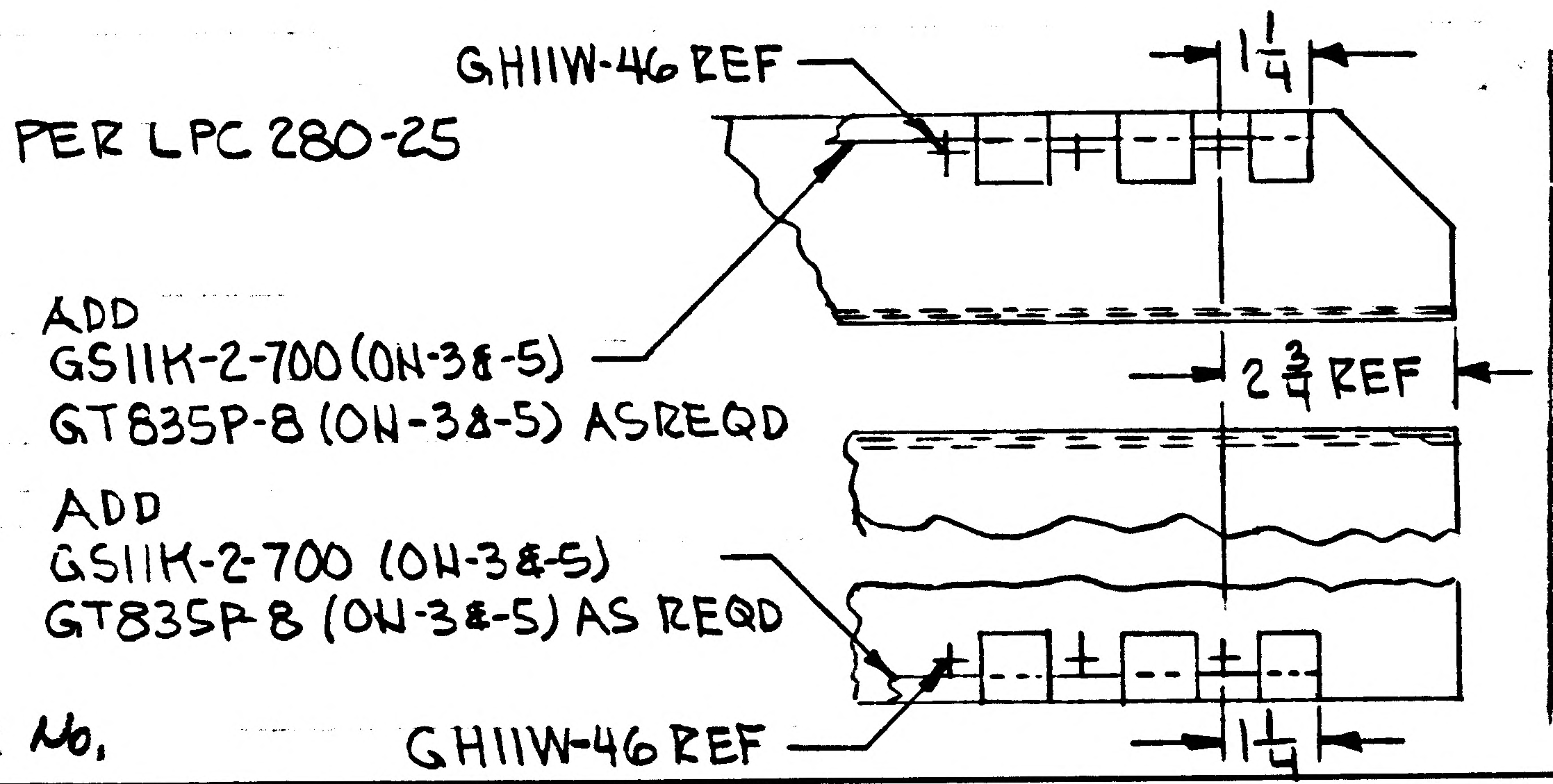
DWG NO. LDW280-28820 | EO NO A1
CONTROL INFO NO. LDW280A-5511

IN M/B FOR-3 REMOVE LM-2(32) THRU LM-6(36) EFF
N/A FOR-3 LDW280-28561 (WAS LDW280-51561)

IN F/D & B/M ADD -5 SHIELD ASSY IDENT TO -3 EXCEPT LDW280-18129-15
SKIN REPLACES LDW280-18129-13
EFF FOR-5 LM-2(32) THRU LM-15(45) 1 REQD
N/A FOR-5 · LDW280-28561

IN F/D & B/M FOR-3&-5 ADD GS11K-2-700 & GT835P-8 AS SHOWN

ADD NOTE* FABRICATE PER LPC 280-25



DESCRIPTION (CON'T):
FOR-3:
N/A LDW280-28561
WAS LDW280-51561
ADDED NOTE *

*-NEXT AVAILABLE NOTE NO.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO
LCR 928
INCREASE SKIN THICKNESS

DESCRIPTION OF CHANGE: REMOVED LM-2(32) THRU LM-6(36) FOR-3. ADDED -5 ON-3&-5 ADDED GS11K-2-700 (2) & GT835P-8 (AS REQD) (CON'T ABOVE)

GAEC EO RELEASE: FR 2/23/67 2

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) THRU	LM-15(45)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	✓

APPROVED BY									
DATE	2/21/67			2/18/67	2/21/67		2/21/67	2-22-67
5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY C
DRAWING TITLE: SHIELD ASSY DES STAGE QUAD IV EPS BATT UPPER CORNER
DRAWING NO. LDW280-28820
EO NO. A1

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF-A

DWG. NO. LDW280-28820 | EO NO. B1
CONTROL INFO NO. LDW280A-5711

THIS IS A REVISION OF EO A1 LDW280-28820

REMOVE -3 (WAS REMOVE LM-2(32) THRU LM-6(36) EFF)
EFF FOR -5 · LM-1(31) THRU LM-15(45) WAS LM-2(32) THRU LM-15(45)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	2

REASON FOR EO: LCR 928 · IMPROVE PAINT ADHESION

DESCRIPTION OF EO: REVISED EO A1. REMOVED -3 (WAS REMOVED LM-2(32) THRU LM-6(36) EFF) ADDED LM-1(31) EFF FOR -5

Ⓡ GAEC EO RELEASE: JK 3/13/67 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
		THRU LM-6(36)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	3/6/67			3/8/67	3/6/67		3-11-67	3-13-67
5	VD1							

PRIORITY: C

DRAWING TITLE: SHIELD ASSY DES STAGE QUAD III UPPER CORNER

DRAWING NO.: LDW280-28820

EO NO.: B1

ISSUED BY G. ZEMAN / J. STRAKOSCH SECTION VD1 GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280	EO NO. 793
CONTROL INFO NO. LDW280B0053	

FOR THE FOLLOWING DRAWINGS LISTED BELOW AND THEIR DASH NUMBERS* THAT ARE EFF ON LM-4(34), REMOVE LM-4(34) THRU LM-15(45) REQMTS.

DRAWING NO. *	NEXT ASSY	TITLE	CHG NO.
✓ LDW280-28561	LDW280-54553	SEE DWG	C5
✓ -28773	-28561		A9
✓ -28774	-28773		B1
✓ -28775	-28773		B8
✓ -28820	-28561		B2
-28819	-28820		A3
-18129	-28820		A4
-28776	-28561		A2
P17465	-28776		B3
P17514	-28776		B1
P17516	-28776		B4
P17535	-28776		B3
-28669	-54553		B1
-18239	-28561		A2
-54777			A2
P17496			A8
M17698			B7
P17479			A9
P17946			B3
P17967			B10
P18091			A3
-28757	-28561		B1
LDW280	LDW280	SEE DWG	

01
NAS 9-1100

DETAIL SPEC REQ ☐	CL II ENGRG CHG ☐	CL I ENGRG CHG ✓	*LCD 2011 CCA668 (5)

REASON FOR EO: REDESIGN OF THERMAL SHIELDING FOR EQUIP STOWAGE.

DESCRIPTION OF EO: FOR *, REMOVED LM-4 THRU LM-15 REQMTS

ⓡ GAEC C EO RELEASE: JK 11/8/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4(34)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY									
DATE	11/7/67			11-6-67	11/7/67		11/7/67	11-7-67
S	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO280
EO NO.: 793

11-10
ISSUED BY S.TAMRES/P.THORJUSEN x7033 SECTION VDI GROUP NO. 335 PL 25

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-28820		EO NO. B3
CONTROL INFO NO. LDW280B0036		

IN M/B RESTRICT -5 TO LM-1 & LM-2

(5)

©

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 1244	JG	GAEC C EO RELEASE ✓ 11/17

REASON FOR EO: TO PROVIDE FOR F.I.T.H. SHIELD

DESCRIPTION OF EO: IN M/B, RESTRICTED -5 TO LM-1 & LM-2 WAS USED ON LM-1 THRU LM-3

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM-3(33)	

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
✓			-5

APPROVED BY	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
	gas				NM W/H			
DATE	11/13/67			11-11-67	11/13/67	11/14/67	11-15-67	
P								

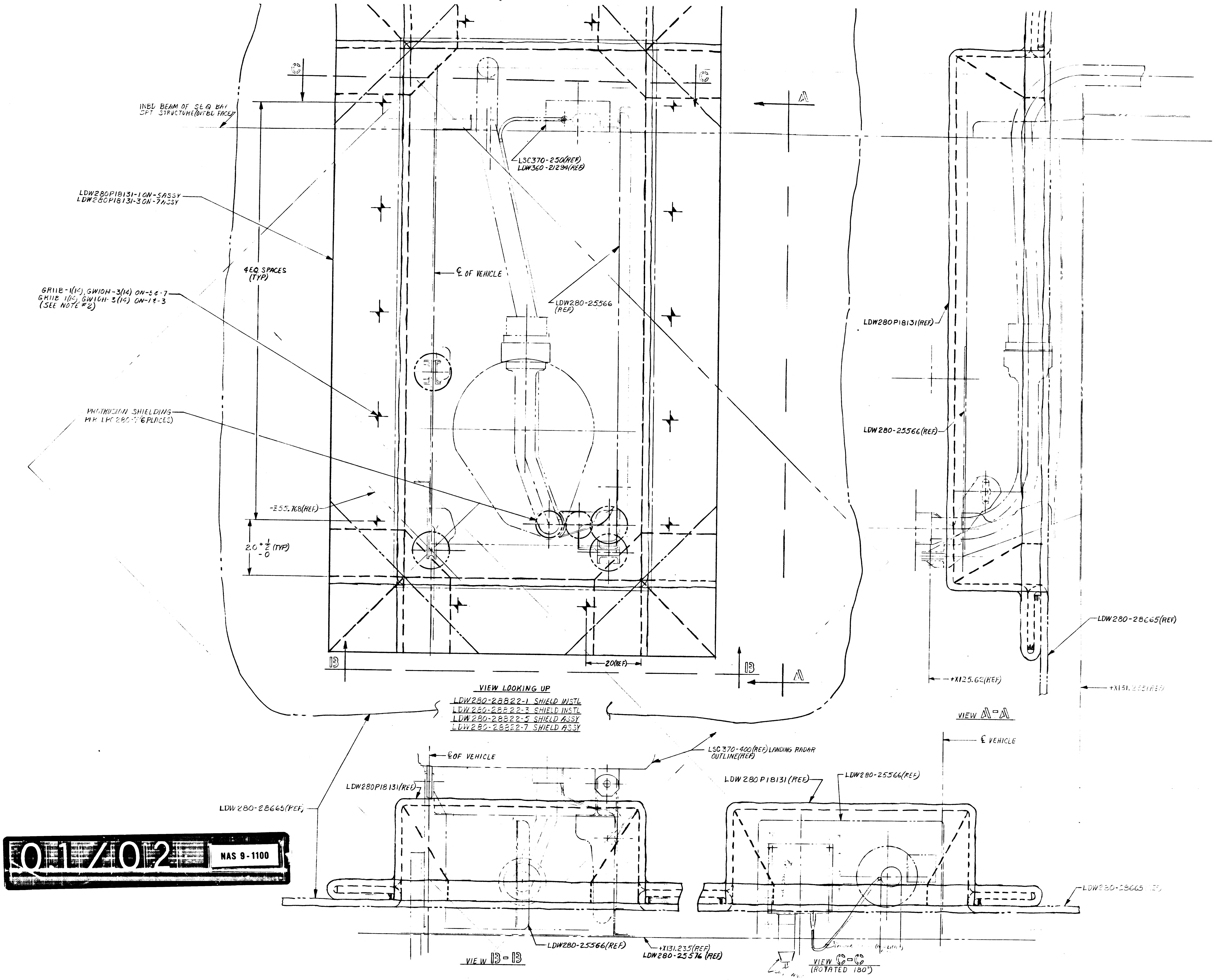
PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY D/S QUAD IV, ECS BATTERY, PLUME IMPINGEMENT, UPPER CORNER	LDW280-28820	B3

CDR 11/17/67

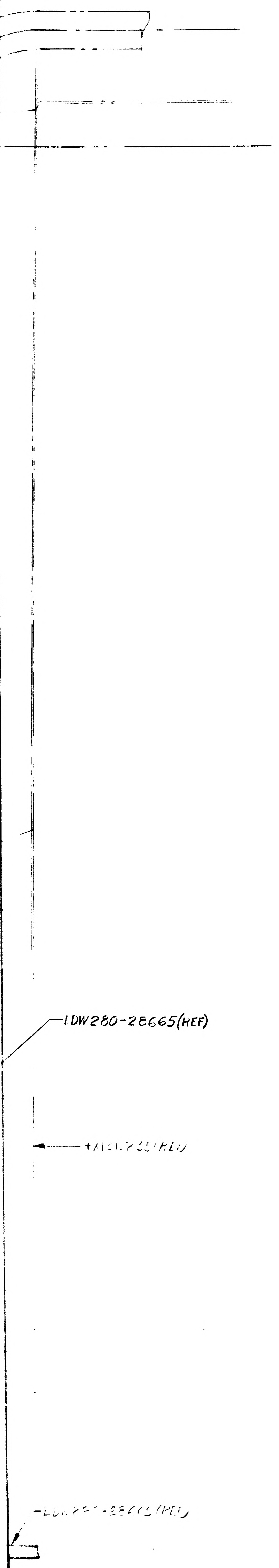
GJ. ISSUED BY ROESSLER/THORJUSEN x1153 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100


INBD BEAM OF SEQ BAY
SPT STRUCTURE(OUTBD FACE)
LSC370-250(REF)
LDW360-21294(REF)
LDW280P18131-1 ON-5ASSY
LDW280P18131-3 ON-7ASSY
4 EQ SPACES
(TYP)
℄ OF VEHICLE
GR11B-1(14), GW10H-3(14) ON-5 & -7
GR11B 1(14), GW10H-3(14) ON-1 & -3
(SEE NOTE #2)
LDW280-25566
(REF)
PROTRUSION SHIELDING
PER LPC280-?(6 PLACES)
-355.768(REF)
2.0 +1/2 -0 (TYP)
20(REF)
A
A
B
B
C
C
VIEW LOOKING UP
LDW280-28822-1 SHIELD INSTL
LDW280-28822-3 SHIELD INSTL
LDW280-28822-5 SHIELD ASSY
LDW280-28822-7 SHIELD ASSY
LDW280P18131(REF)
LDW280-25566(REF)
LDW280-28665(REF)
+X125.62(REF)
+X131.235(REF)
VIEW A-A
℄ VEHICLE
LSC370-400(REF) LANDING RADAR
OUTLINE(REF)
℄ OF VEHICLE
LDW280P18131(REF)
LDW280-28665(REF)
LDW280P18131(REF)
LDW280-25566(REF)
LDW280-28665(REF)
LDW280-25566(REF)
+X131.235(REF)
LDW280-25576(REF)
VIEW B-B
VIEW C-C
(ROTATED 180°)

01/02 NAS 9-1100



NOTES:

1. LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT.
2. ALL SNAPS, TAPE & RETAINERS TO BE INSTALLED PER LPC 280-3.
3. ALL INFORMATION OTHER THAN THAT REQD TO MANUFACTURE LDW280-28822-1,-3,-5 & -7 IS FOR REFERENCE ONLY.
4. INSTALL BY PLACING BLANKET OVER LANDING RADAR UNIT (LSC370-400) ALLOWING MTG FITTINGS, GROUND STRAP & WIRES TO PROTRUDE THROUGH THE BLANKET, MOUNT RADAR UNIT, INSTALL PENETRATION SHIELDING & SNAP BLANKET IN PLACE.

NO.	FINISHES	GRUMMAN STD SPEC	MILITARY SPEC NO.
2	CADMIUM PLATE	G. S. S.	
10	ZINC CHROMATE PRIMER	G. S. S.	
15	TINTED PRIMER: 1 COAT	G. S. S.	
76	ALODINE	G. S. S.	
88	ANODIZE	G. S. S.	

SYM	PROCESSES	GRUMMAN STD SPEC	MILITARY SPEC NO.
	AL HEAT TREAT		MIL-H-6088
	MAGNAFLUX		MIL-I-6868
	PENETRANT INSPECTION (ZYGLO)		MIL-I-6866
	THREADING		MIL-S-7742
	STEEL HEAT TREAT PSI ROCKWELL C TO C		

RECORD E. O.'s		
MODEL	E O NUMBER	MODULE NO.

MANUFACTURING OPERATIONS

NOTES CHECKED ✓ APPLY TO THIS DWG.

- ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES EXCEPT AS NOTED.
- REMOVE ALL BURRS. BREAK ALL EDGES .015-.031 EXCEPT AS NOTED.
- 125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10 EXCEPT AS NOTED.
- 200 FOR ALL DRILLED HOLES UNLESS OTHERWISE SPECIFIED.
- HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.
- PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.
- FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030
- DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS BEYOND PERMISSIBLE.
- EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.
- DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.
- MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.
- DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING
- INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS
- SYMBOL ∱ DENOTES SURFACE TO BE MACHINED
- UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

REVISIONS

REVISION LETTER	ITEM NO.	ZONE	AUTHORITY FOR REVISION: GRUMMAN INFO ONLY / DCRF OR ECP	CLASS II	CLASS I	DET SPEC REQ	ENGRG ORDER	DESCRIPTION	REVISED BY AND DATE	EFFECTIVE ON MODULE NUMBER	DISPOSITION OF EXIST PARTS: RE-WORK	SCRAP	ENGRG APPD	GOVT APPD

DWG. SIZE 28 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (30 X) = SQ. FT.
½ SIZE SHEET AREA (¼ OF FULL) = SQ. FT.

PRINT TRIM LINE

02/02 NAS 9-1100

	-7	-5	-3	-1	PART OR IDENTIFYING NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE (EA)	PROCESS SYMBOL	FINISH NO.	UNIT WT	ZONE
	14	14	14	14	GW10H-3	E		SNAP	GRUMMAN STD							
	14	14	14	14	GR11B-1	E		RETAINER	GRUMMAN STD							
	1				LDW280P18131-3	E		BLANKET ASSY								
		1			LDW280P18131-1	E		BLANKET ASSY								
C			1		LDW280-28822-7	E		SHIELD ASSY								
C				1	-5	E		SHIELD ASSY								
C					-3	E		SHIELD INSTL					NONE	NONE		
C					LDW280-28822-1	E		SHIELD INSTL					NONE	NONE		
	QTY REQ D PER ASSY															

CL = CLEANLINESS LEVEL PER LSP 14-0011 | LINE ITEM # 1 | TST: NONE

MODEL	NEXT ASSY	MODULE NO.	REQ D PER MODULE	MODEL	NEXT ASSY	MODULE NO.	REQ D PER MODULE
L M	LDW280-51553	L M-1(31)	1	L M	LDW280-28553	LTA-8 (18)	1
PART NO. LDW280-28822-3	GRUMMAN SCH INFO			PART NO. LDW280-28822-1	GRUMMAN SCH INFO		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
± 1/4 ± .250 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

GRUMMAN REL INFO
PRIM. NO. LE(CV)
220 MP-4296

DRAWN BY J. ROGERS
CHECKED BY
LAYOUT BY J. ROGERS

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., N. Y.

SHIELD ASSY & INSTL
DS~SEQ BAY~LANDING RADAR SPT THERM SHLD

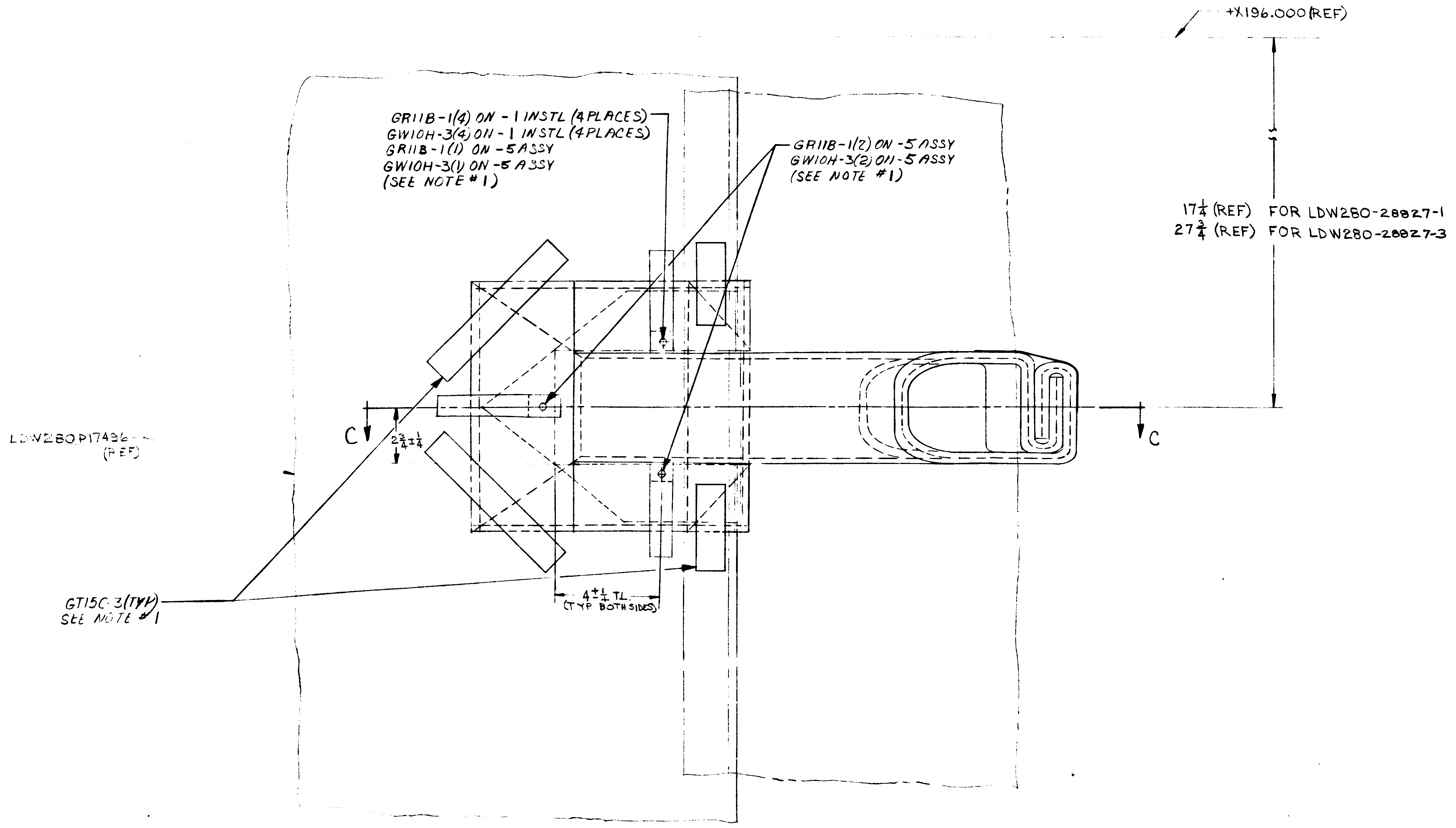
CONTRACT NO.
DOCUMENTATION TYPE

CODE IDENT NO.	SIZE	
26512	H	LDW280-28822
SCALE FULL		SHEET

10-7-66

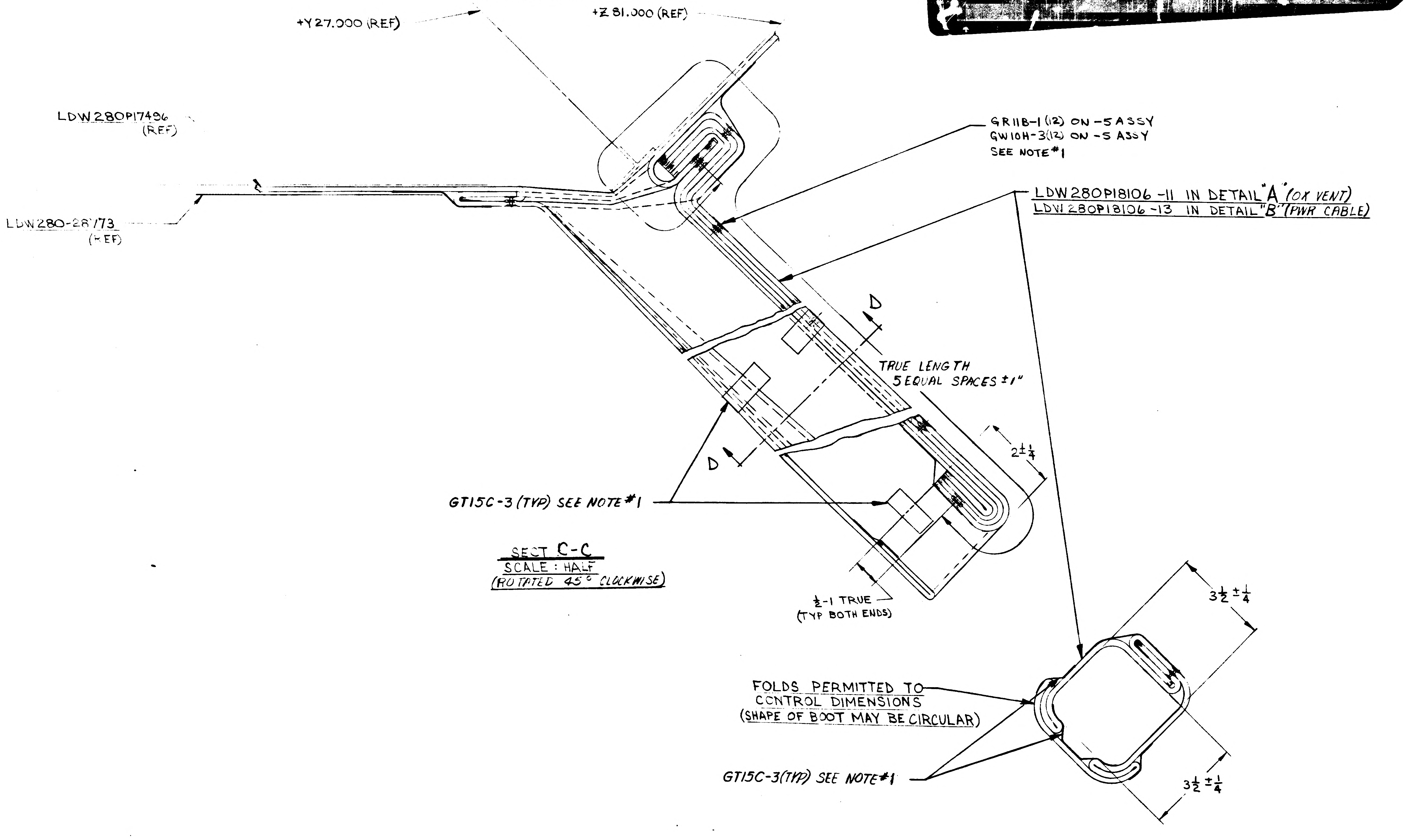
LDW280-28822

LDW280-28822


+X196.000 (REF)
GR11B-1(4) ON -1 INSTL (4 PLACES)
GW10H-3(4) ON -1 INSTL (4 PLACES)
GR11B-1(1) ON -5 ASSY
GW10H-3(1) ON -5 ASSY
(SEE NOTE #1)
GR11B-1(2) ON -5 ASSY
GW10H-3(2) ON -5 ASSY
(SEE NOTE #1)
17¼ (REF) FOR LDW280-28827-1
27¾ (REF) FOR LDW280-28827-3
LDW280P17496 (REF)
C
C
2¾±¼
GT15C-3 (TYP) SEE NOTE #1
4±¼ TL (TYP BOTH SIDES)

DETAIL "A"
SCALE HALF
DETAIL "B" IDENT EXCEPT AS NOTED
LDW280-28827-5 ASSY (SHN)
LDW280-28827-1 INSTL

0-1 NAS 9-1100


+Y27.000 (REF)
+Z81.000 (REF)
LDW280P17496 (REF)
LDW280-28173 (REF)
GR11B-1(12) ON -5 ASSY
GW10H-3(12) ON -5 ASSY
SEE NOTE #1
LDW280P18106-11 IN DETAIL "A" (OX VENT)
LDW280P18106-13 IN DETAIL "B" (PWR CABLE)
D
D
TRUE LENGTH 5 EQUAL SPACES ±1"
2±¼
GT15C-3 (TYP) SEE NOTE #1
½-1 TRUE (TYP BOTH ENDS)
3½±¼
3½±¼
FOLDS PERMITTED TO CONTROL DIMENSIONS (SHAPE OF BOOT MAY BE CIRCULAR)
GT15C-3 (TYP) SEE NOTE #1

SECT C-C
SCALE : HALF
(ROTATED 45° CLOCKWISE)

SECT D-D
SCALE : HALF

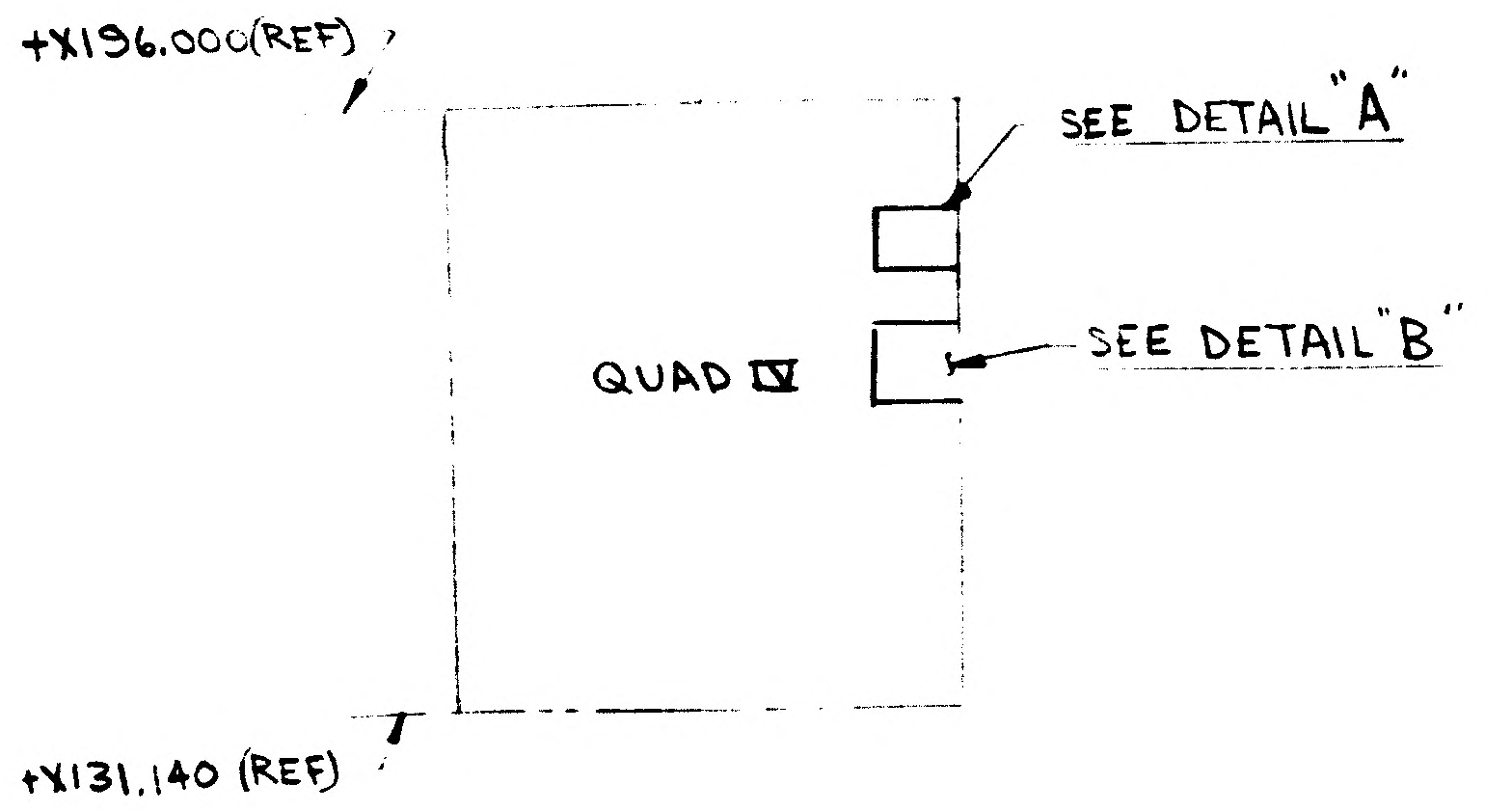
MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X) = SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = SQ. FT.

PRINT TRIM LINE

NOTE:
1. INSTL OF BLANKET BOOTS TO BE DONE IN ACCORDANCE WITH LPC 2[illegible]-3


+X196.000 (REF)
SEE DETAIL "A"
SEE DETAIL "B"
QUAD IV
+X131.140 (REF)

LAYOUT RELEASE TO BE REDRAWN ON PRODUCTION FORMAT

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-28827	
LM				
MODEL OR END ITEM	SCALE HALF		SHEET 3.00	

LDW280-28827

LDW280-28827

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
ENG 32.1 REV 3-65

DWG. NO. LDW280-28827		EO NO. A1
CONTROL INFO NO. LDW280A3862		

ON-5 ASS'Y LDW280P18106-13 WAS LDW280P18106-11
ON-7 ASS'Y LDW280P18106-15 WAS LDW280P18106-13

2

DETAIL SPEC REQ ☐ ☐ CL II ENGRG CHG ☐ ☐ CL I ENGRG CHG ☐ ☐

REASON FOR EO: REPLACEMENT OF PART NEEDED TO CONFORM WITH THERMAL REQUIREMENT

DESCRIPTION OF EO:
ON-5 LDW280P18106-13 WAS LDW280P18106-11
ON-7 LDW280P18106-15 WAS LDW280P18106-13

GAEC EO RELEASE: FR 12/2/6

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (1P)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY									
✓		✓		DATE	12/1/66	12/1/66		12/1/66			12-1-66	12-1-66
REVISE DWG	RECORD EO	REWORK	SCRAP	6	VD1	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C
DRAWING TITLE: BOOT INST'L D/S QUAD IV OX VENT & PWR CABLE - THERMAL
DRAWING NO.: LDW280-28827
EO NO.: A1

ISSUED BY AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

Q1 NAS 9-1100

CL.			QTY PER ASSEMBLY				CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS S/M	FINISH NO.	ZONE
/////			-7	-5	-3	-1											
			13	12	4	3		GW10H-3	E	WASHER	STD PART						
			13	12	4	3		GR11B-1	E	RETAINER	STD PART						
			AS REQD	AS REQD	AS REQD	AS REQD		GT15C-3	E	TAPE	STD PART						
			1	1				LDW280P18106-15	E	BLANKET BOOT	SEE DWG						
C					1			LDW280-28828-7	E	BOOT ASSY							
C						1		LDW280-28828-5	E	BOOT ASSY							
C								LDW280-28828-3	E	BOOT INSTL							
C								LDW280-28828-1	E	BOOT INSTL							

C.L. = CLEANLINESS LEVEL PER LSP 14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

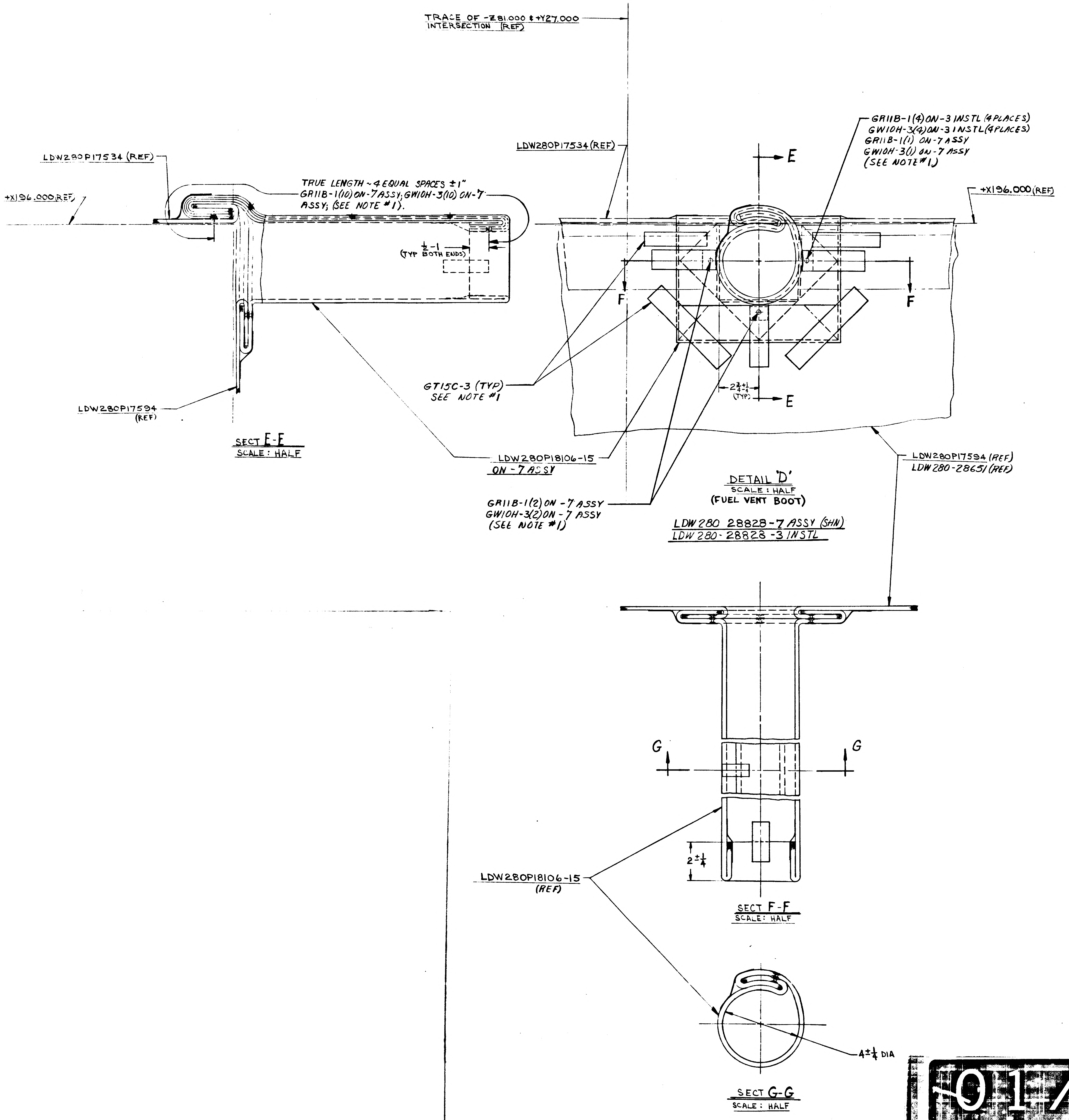
I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28828
SCALE NONE		SHEET 2.00

ENG 77.2 7-65

01 NAS 9-1100


TRACE OF -Z81.000 ⊄+Y27.000
INTERSECTION (REF)
LDW280P17534 (REF)
+X196.000 REF
TRUE LENGTH ~ 4 EQUAL SPACES ±1"
GR11B-1(10) ON-7 ASSY; GW10H-3(10) ON-7 ASSY; (SEE NOTE #1).
½-1
(TYP BOTH ENDS)
LDW280P17594
(REF)
LDW280P17534 (REF)
E
E
F
F
GR11B-1(4) ON-3 INSTL (4 PLACES)
GW10H-3(4) ON-3 INSTL (4 PLACES)
GR11B-1(1) ON-7 ASSY
GW10H-3(1) ON-7 ASSY
(SEE NOTE #1)
+X196.000 (REF)
GT15C-3 (TYP)
SEE NOTE #1
2¾±¼
(TYP)
LDW280P18106-15
ON -7 ASSY
GR11B-1(2) ON -7 ASSY
GW10H-3(2) ON -7 ASSY
(SEE NOTE #1)
LDW280P17594 (REF)
LDW280-28651 (REF)
G
G
2±¼
LDW280P18106-15
(REF)
4±¼ DIA

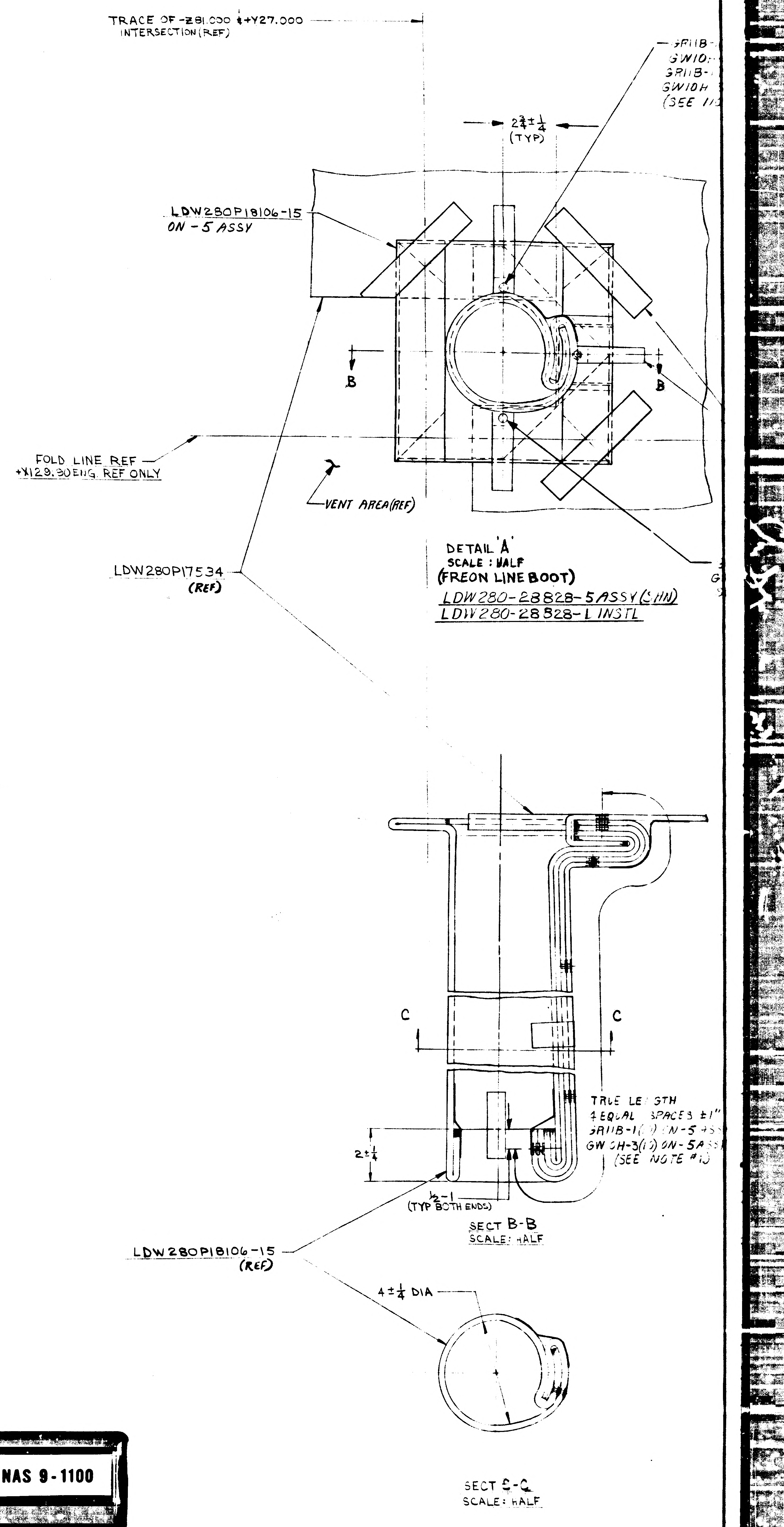
SECT E-E
SCALE: HALF

DETAIL 'D'
SCALE: HALF
(FUEL VENT BOOT)

LDW280 28828-7 ASSY (SHN)
LDW280-28828-3 INSTL

SECT F-F
SCALE: HALF

SECT G-G
SCALE: HALF


TRACE OF -Z81.000 ⊄+Y27.000
INTERSECTION (REF)
GR11B-
GW10
GR11B-
GW10H
(SEE N
2¾±¼
(TYP)
LDW280P18106-15
ON -5 ASSY
B
B
FOLD LINE REF
+X129.30 ENG REF ONLY
VENT AREA (REF)
LDW280P17534
(REF)
C
C
TRUE LENGTH
4 EQUAL SPACES ±1"
GR11B-1( ) ON-5 ASSY
GW10H-3( ) ON-5 ASSY
(SEE NOTE #1)
2±¼
½-1
(TYP BOTH ENDS)
LDW280P18106-15
(REF)
4±¼ DIA

DETAIL 'A'
SCALE: HALF
(FREON LINE BOOT)

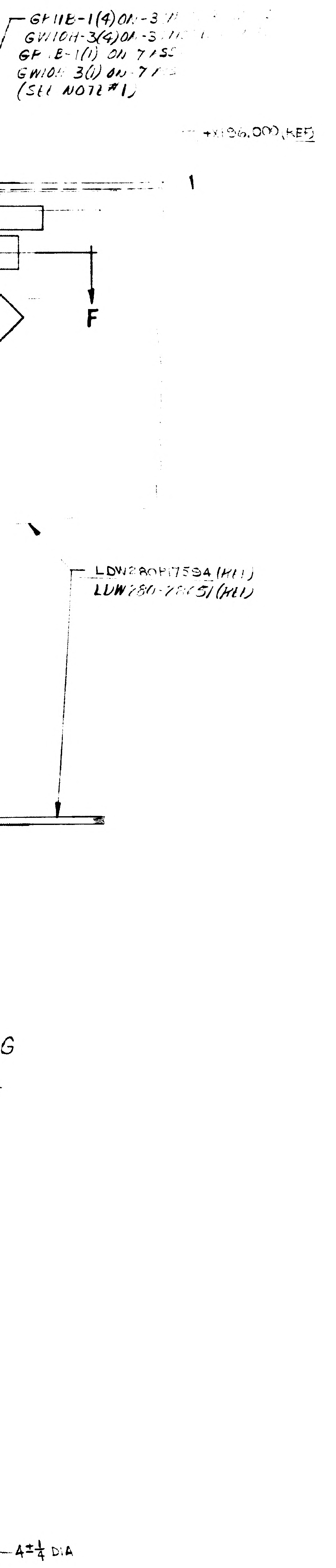
LDW280-28828-5 ASSY (SHN)
LDW280-28828-1 INSTL

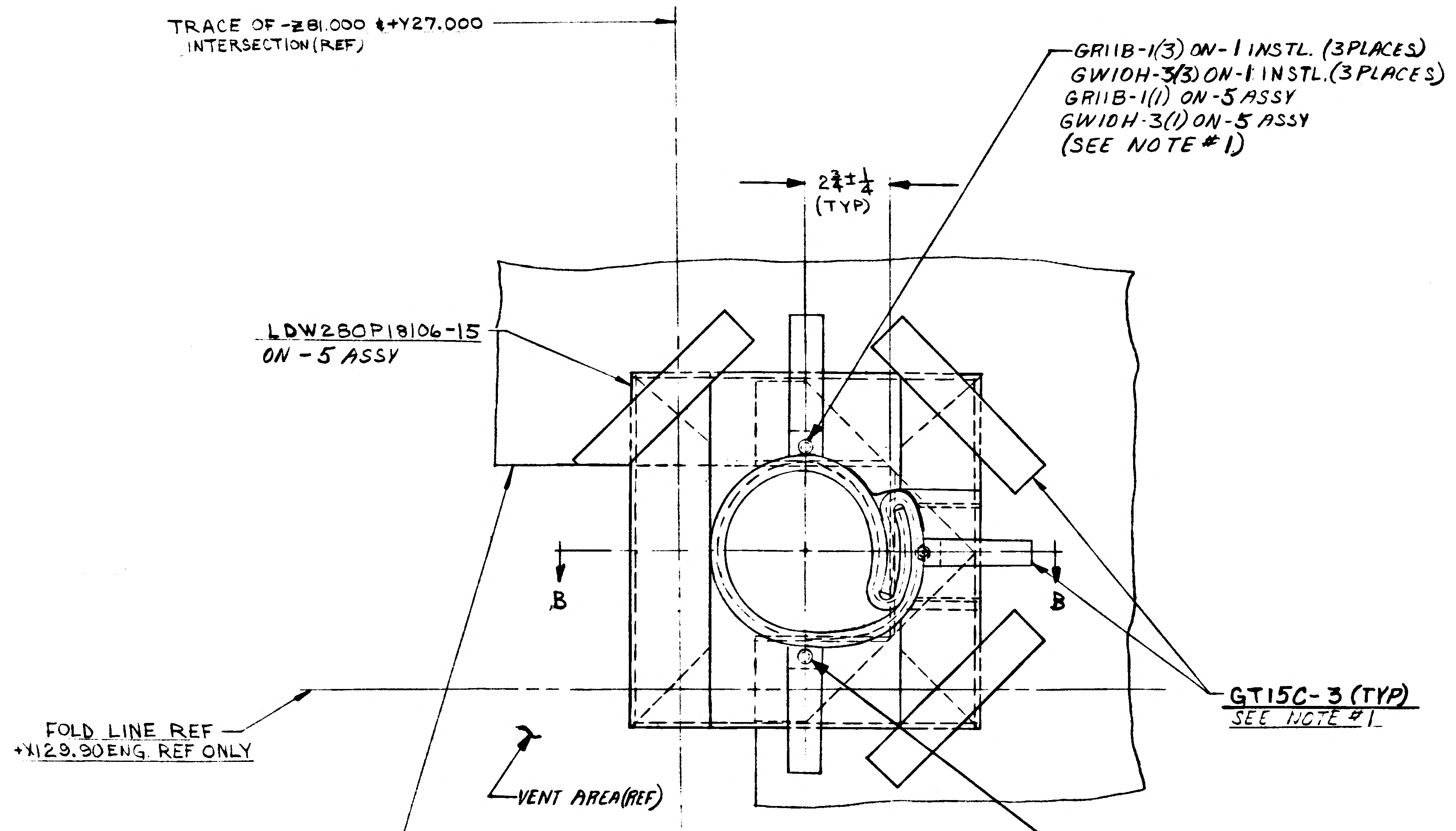
SECT B-B
SCALE: HALF

SECT C-C
SCALE: HALF

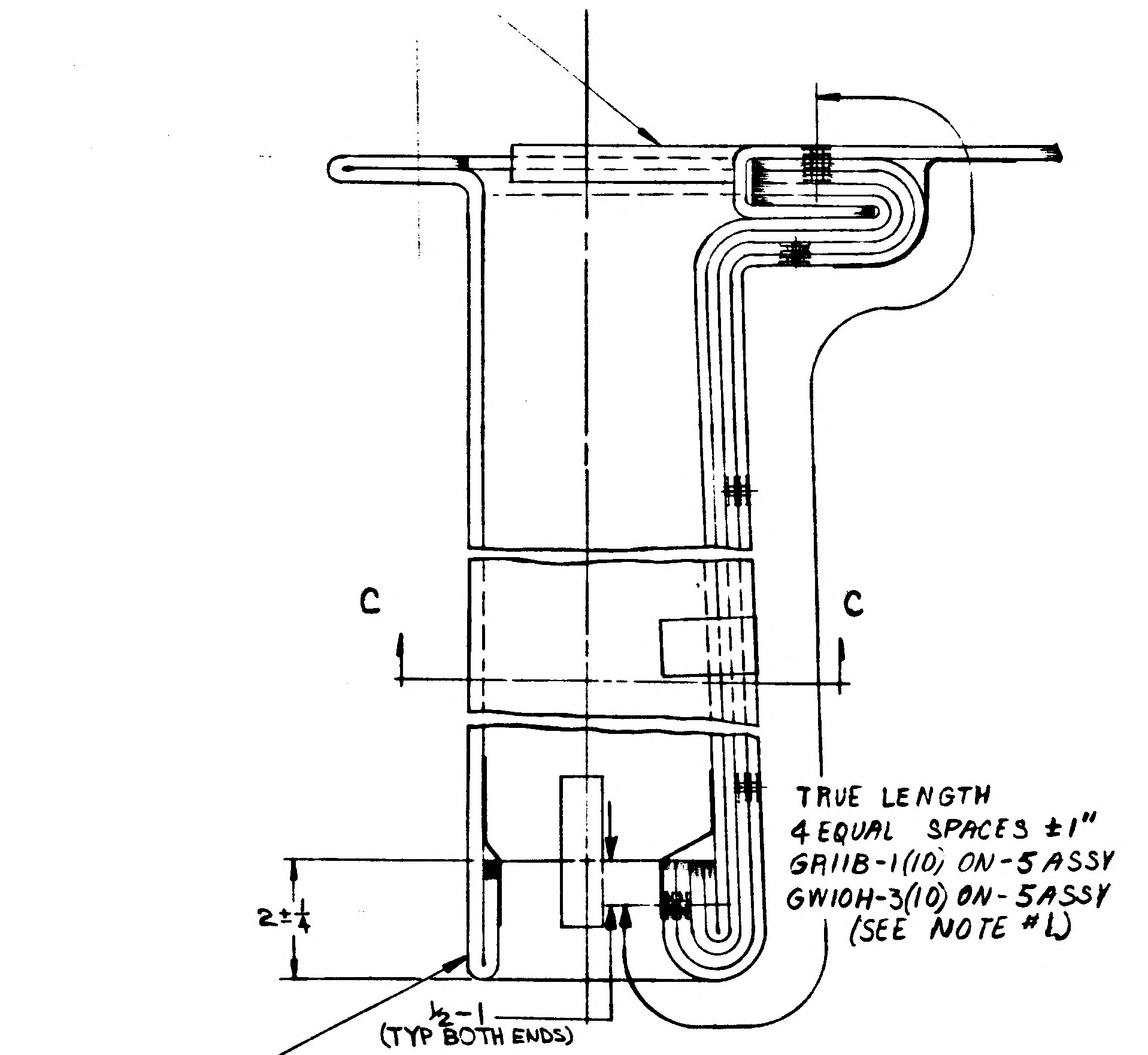
01/02 NAS 9-1100

2/2

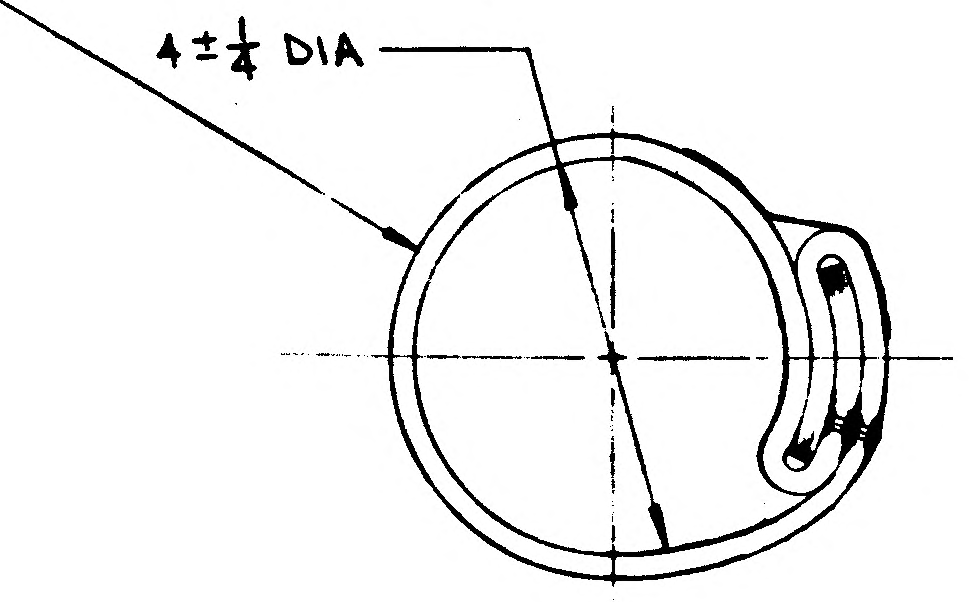

GR11B-1(4) ON-3
GW10H-3(4) ON-3
GR11B-1(1) ON 7 ASS
GW10H 3(1) ON-7
(SEE NOTE #1)
+X196.000 (REF)
F
LDW280P17534 (REF)
LDW280-28651 (REF)
G
4±¼ DIA


TRACE OF -Z81.000 ℄+Y27.000
INTERSECTION (REF)
GR11B-1(3) ON-1 INSTL. (3 PLACES)
GW10H-3(3) ON-1 INSTL. (3 PLACES)
GR11B-1(1) ON-5 ASSY
GW10H-3(1) ON-5 ASSY
(SEE NOTE #1)
2¾±¼
(TYP)
LDW280P18106-15
ON -5 ASSY
B
B
GT15C-3 (TYP)
SEE NOTE #1
FOLD LINE REF
+X129.90 ENG. REF ONLY
VENT AREA (REF)
GR11B-1(1) ON-5 ASSY
GW10H-3(1) ON-5 ASSY
SEE NOTE #1
LDW280P17534
(REF)

DETAIL 'A'
SCALE : HALF
(FREON LINE BOOT)
LDW280-28828-5 ASSY (SHN)
LDW280-28828-1 INSTL


C
C
TRUE LENGTH
4 EQUAL SPACES ±1"
GR11B-1(10) ON-5 ASSY
GW10H-3(10) ON-5 ASSY
(SEE NOTE #1)
2±¼
½-1
(TYP BOTH ENDS)
LDW280P18106-15
(REF)

SECT B-B
SCALE: HALF



SECT C-C
SCALE: HALF

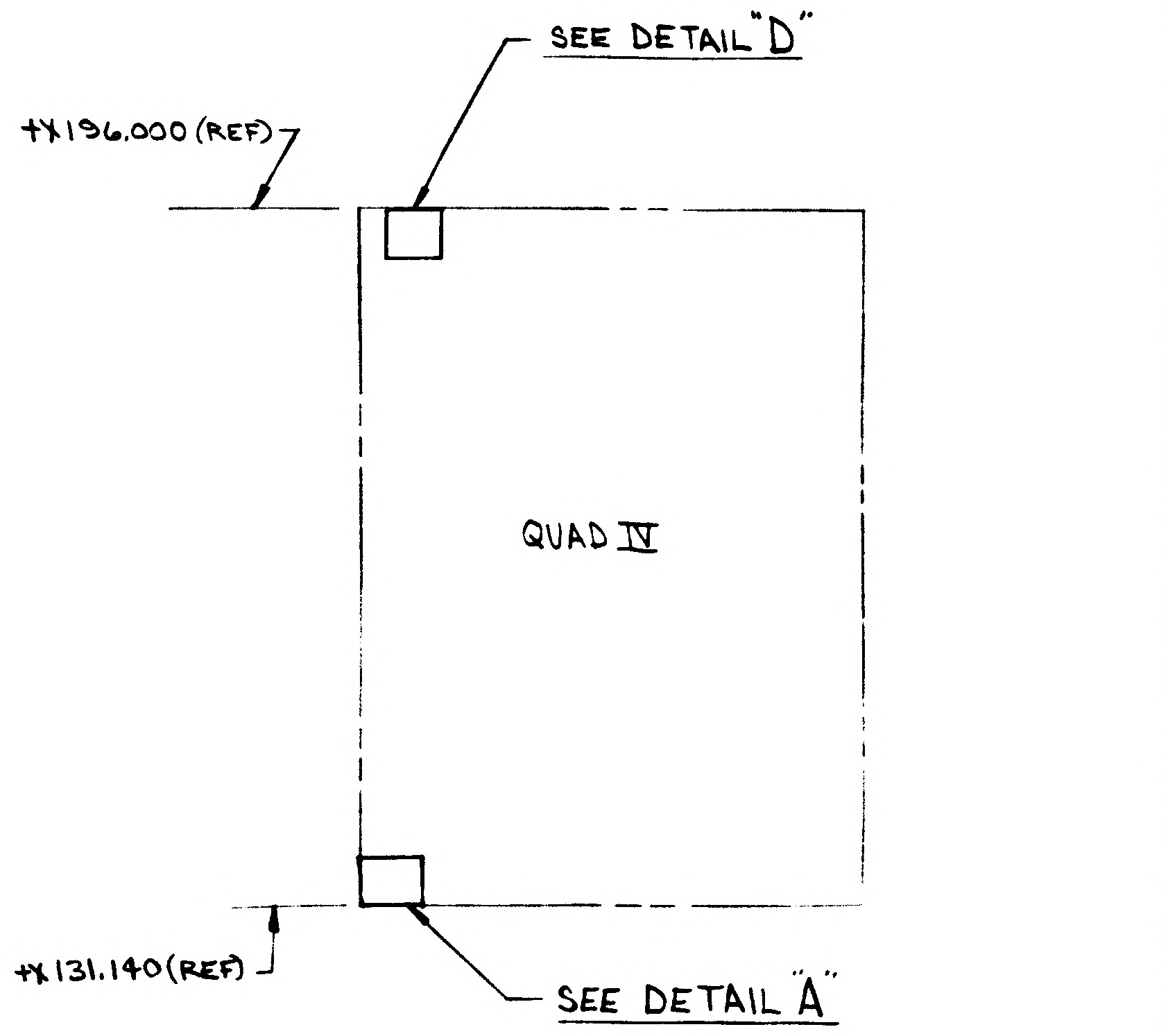
MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)- SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)- SQ. FT.

PRINT TRIM LINE

NOTE.
1. INSTL OF BLANKET BOOTS TO BE DONE IN ACCORDANCE WITH LPC280-3


SEE DETAIL "D"
+X196.000 (REF)
QUAD IV
+X131.140 (REF)
SEE DETAIL "A"

LDW280-28828

LDW280-28828

LAYOUT RELEASE MAY BE REDRAWN ON PRODUCTION FORMAT

02702

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28828
MODEL OR END ITEM	SCALE HALF		SHEET 3

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG NO. LDW280-28828
EO NO. A1
CONTROL INFO NO. LDW280A 3863

ON-5 & -7 LDW280P18106-11 WAS LDW280P18106-15

2

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: REPLACEMENT OF PART NEEDED TO CONFORM WITH THERMAL REQUIREMENT

DESCRIPTION OF EO: ON-5 & -7 LDW280P18106-11 WAS LDW280P18106-15

GAEC EO RELEASE: FR 12/1/66

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA8(18)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	-

APPROVED BY									
DATE	12/1/66	12/1/66			12/1/66			12-1-66	12-1-66
	6	VDI	~~SUPPORT~~ THERMAL	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: BOOT, INSTL D/S QUAD III FUEL VENT & FREON LINE THERMAL
DRAWING NO.: LDW280-28828
EO NO.: A1

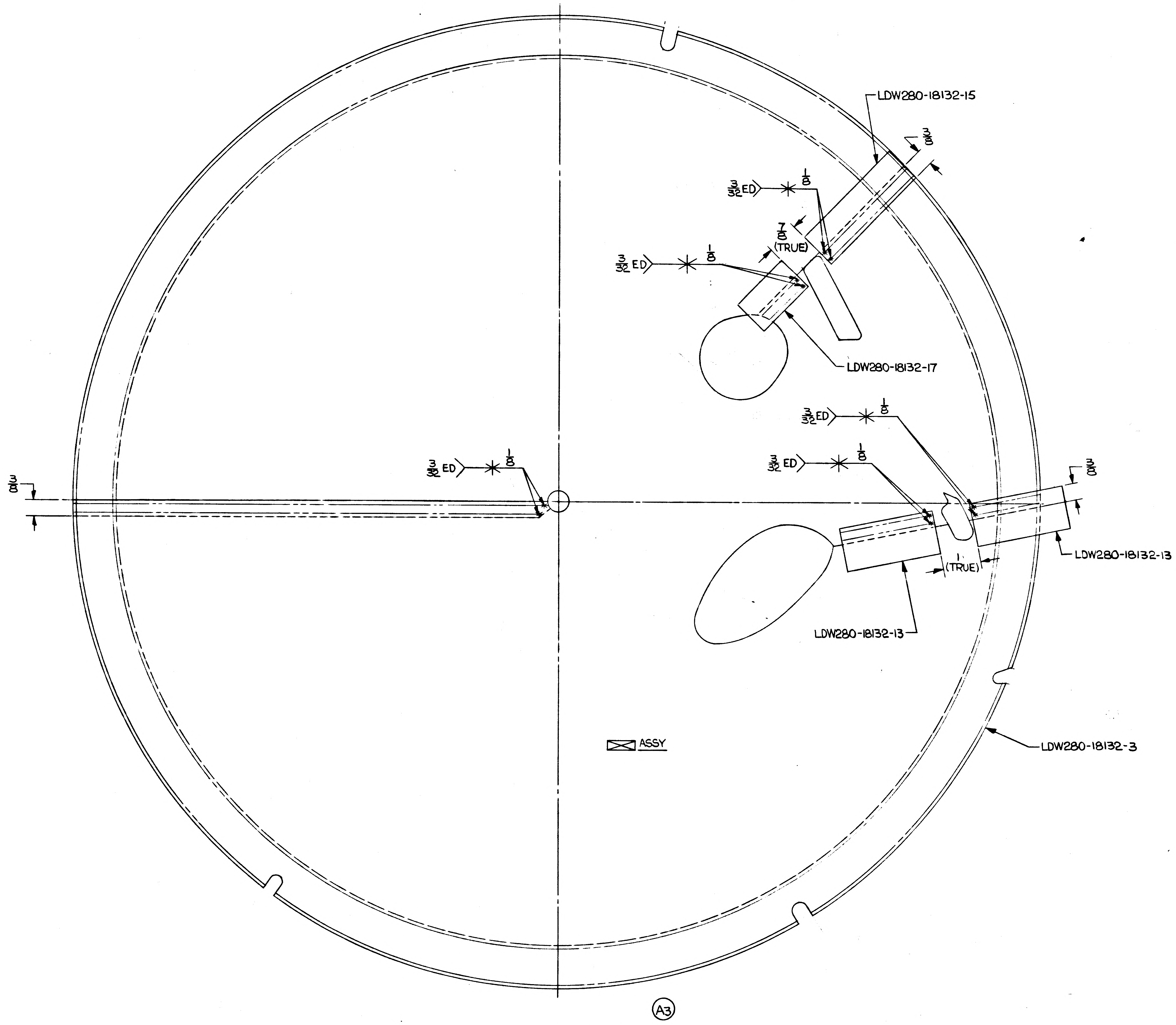
ISSUED BY AMBROSIO/STRAKOSCH X1153 SECTION VEH DES INT GROUP NO. 335 PL 35

01 NAS 9-1100

D

C

B


LDW280-18132-15
3/8
3/32 ED
1/8
7/8 (TRUE)
3/32 ED
1/8
LDW280-18132-17
3/32 ED
1/8
3/32 ED
1/8
3/8
3/32 ED
1/8
3/8
1 (TRUE)
LDW280-18132-13
LDW280-18132-13
LDW280-18132-3
ASSY
A3

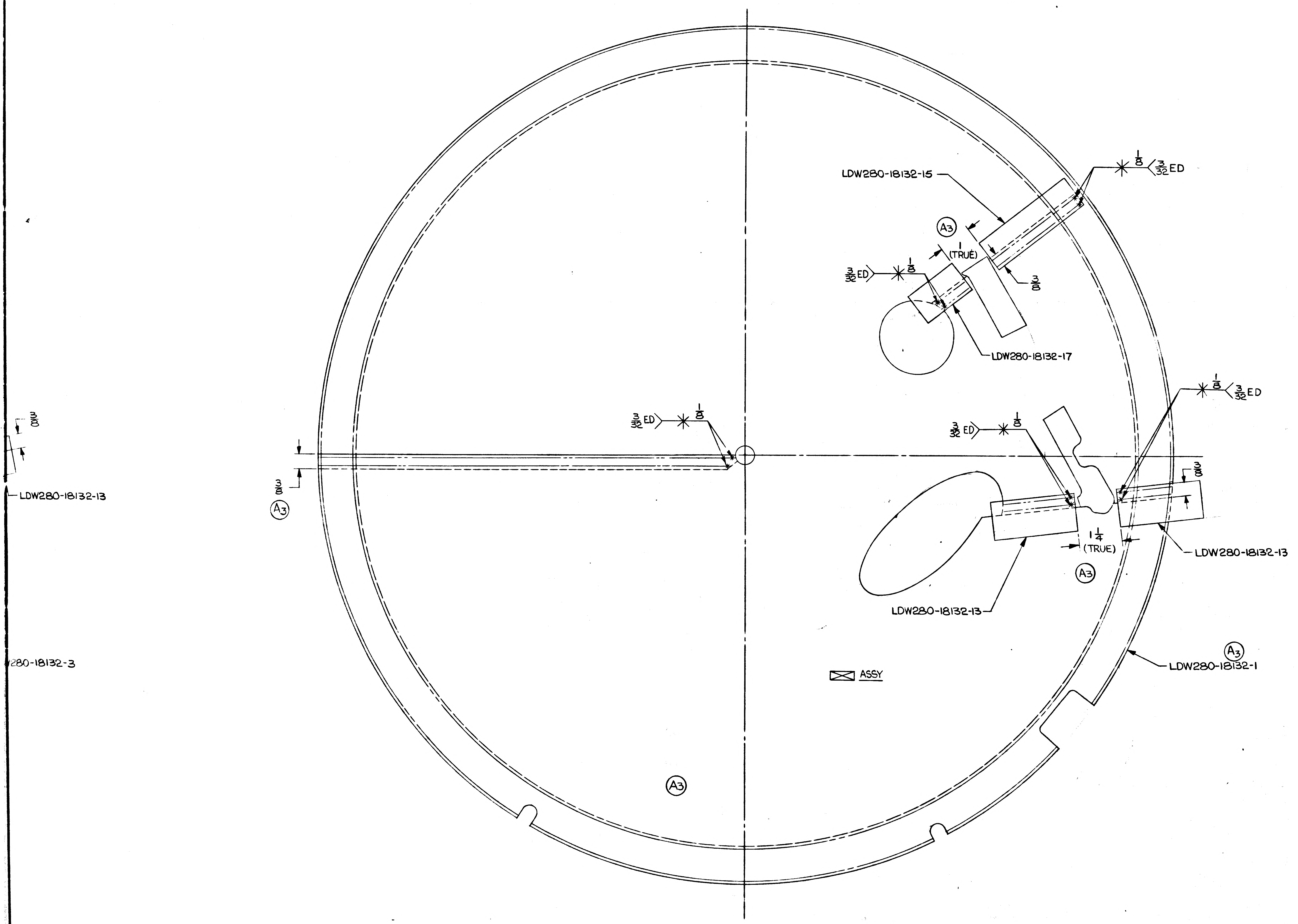
3/8
A3

LDW280-28832-3 ASSY

A

01/02 NAS 9-1100

LDW280-28832	SH 3.00


LDW280-18132-15
$\frac{1}{8}$ $\frac{3}{32}$ ED
(A3)
1 (TRUE)
$\frac{3}{32}$ ED $\frac{1}{8}$
$\frac{3}{8}$
LDW280-18132-17
$\frac{1}{8}$ $\frac{3}{32}$ ED
$\frac{3}{32}$ ED $\frac{1}{8}$
$\frac{3}{32}$ ED $\frac{1}{8}$
$\frac{3}{8}$
$1\frac{1}{4}$ (TRUE)
LDW280-18132-13
LDW280-18132-13
LDW280-18132-13
280-18132-3
LDW280-18132-1
ASSY
(A3)

LDW280-28832-1 ASSY

NOTES.
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. TRIM AFTER WELDING.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 98)= 24.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 6 SQ. FT.

PRINT TRIM LINE

LDW280-28832 B

LDW280-28832 B

02/02

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW280-28832	B
LM MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

2FR

LDW280-28832 SH 3.00

LDW280-28832 C

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28835	LM-5(35)	1
LM	LDW280-28835	LM-4(34)	1
PART NO. LDW280-28832-7		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28835	LM-3(33)	1
LM	LDW280-28835	LM-2(32)	1
PART NO. LDW280-28832-3		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28835	LM-1(31)	1
PART NO. LDW280-28832 -1		GAEC SCH NO. 52	

WORK PACKAGE FUNCTION NO 111 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00
REV	C	C	C	B	C

LAST SECT LTR USED A-A

LAST DASH NO. USED -7

GRUMMAN REL INFO C

PRIM NO.	
220	JK(001) MF-166-3/5/8

77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ± 1/16 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	ROESSLER 11-9-66	RELIABILITY	
LAYOUT BY	ROESSLER		
CHECKED BY			
GR.LEADER	J.STRAKOSCH 11-10-66		
VEH.DES.INT.	J.PUSATERI 11-11-66		
STRUCTURES	F. BUNCE 11-11-66	PROJ ENGR	R.CARBEE 11-12-66
STRUCTURES		REL GROUP	J.TAGLIAVIO 11-14-66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSY
DESCENT STAGE - PROP TANK COVER
METEOROID PROTECTION - FWD

SIZE B CODE IDENT NO. 26512 LDW280-28832 C (6)

SCALE NONE SHEET 1.00 OF 5

SUPERSEDES LDW280-28832 NC C CDR 3/8/68

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
									RETRACED NO CHANGE LAST REV NO CHANGE F.HIPPLER 8-16-67 SH 1.00 OF 4 WAS 1.00 OF 3 ADDED SH 1.10						
A	1	1.10						EOA1	IN F/D -1 12 5/8 WAS 10 5/8	NOTED	NOT	REQD	F.HIPPLER 8-16-67		8-30-67
	2	1.10							REF EOA1: NOT APPLICABLE						
	3	1.00, 2.00 3.00	38 68				✓	LCD 2008	ON-1 ASSY REMOVED LDW280-18132-11 & -19, ADDED LDW280-18132 -1. DIM 1" TRUE WAS 3/4 TRUE, 1 1/4 TRUE WAS 1" TRUE, ADDED 3/8 DIM. WELD PER LSP14-6102 WAS MIL-W-6858. REVISED EFF WAS LM-1 THRU LM-15, ADDED -3 ASSY	NOTED		-1			
B	1	1, 1.10, 2, 3, 4		U		✓		LCD 2008 Ⓡ OK	IN FLD, B/M & M/B ADDED -5 ASSY IN FLD, ADDED NOTE 1 & 2 & SECT. A-A. ADDED SH 4	LM-4 & LM-5	NOT	REQD JK	NARONIS 2/12/68		2-19-68
C	1	1, 1.10, 2 & 4				✓		LCD 2008 ok	IN F/D, B/M & MOD BLK REMOVED -5 ASSY & LDW280-18132-5 ADDED -7 ASSY & LDW280-18132-25 & -31, ADDED SHEAR CUT & SPOTWELD NOTATION ON -7 ASSY	LM-4 LM-5		✓	NARONIS 3-2-68	3/4/68	3-5-68

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES
A	—	8/23	NM 8/24	
B	2/15/68	2/16/68	2/19	
C	3/4/68	3/4/68	3/4/68	for FEB 3/4

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28832	C
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				-7	-3	-1											
				1				LDW280-18132-31	E	STRIP	SEE DWG						SH4
				2				LDW280-18132-29	E	STRIP	SEE DWG						SH4
					1	1		LDW280-18132-17	E	STRIP	SEE DWG						3C
				1	1	1		LDW280-18132-15	▲	STRIP	SEE DWG						3C
				2	2	2		LDW280-18132-13		STRIP	SEE DWG						2B
				1				LDW280-18132-25		SHIELD	SEE DWG						SH4
					1			LDW280-18132 -3		SHIELD ASSY WELDED	SEE DWG						5B
						1		LDW280-18132 -1		SHIELD ASSY WELDED	SEE DWG						2B
								LDW280-28832-7		SHIELD ASSY(WELDED)					FLW&SWT	76	
								LDW280-28832 -3	▼	SHIELD ASSY(WELDED)					FLW&SWT	76	
								LDW280-28832 -1	E	SHIELD ASSY(WELDED)					FLW&SWT	76	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						76	ALODINE	LSP14-9010
						FLW	FOIL WELD	LSP14-6102
						SWT	SEALING (SW)	LSP14-14400

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28832	C

ⓓ

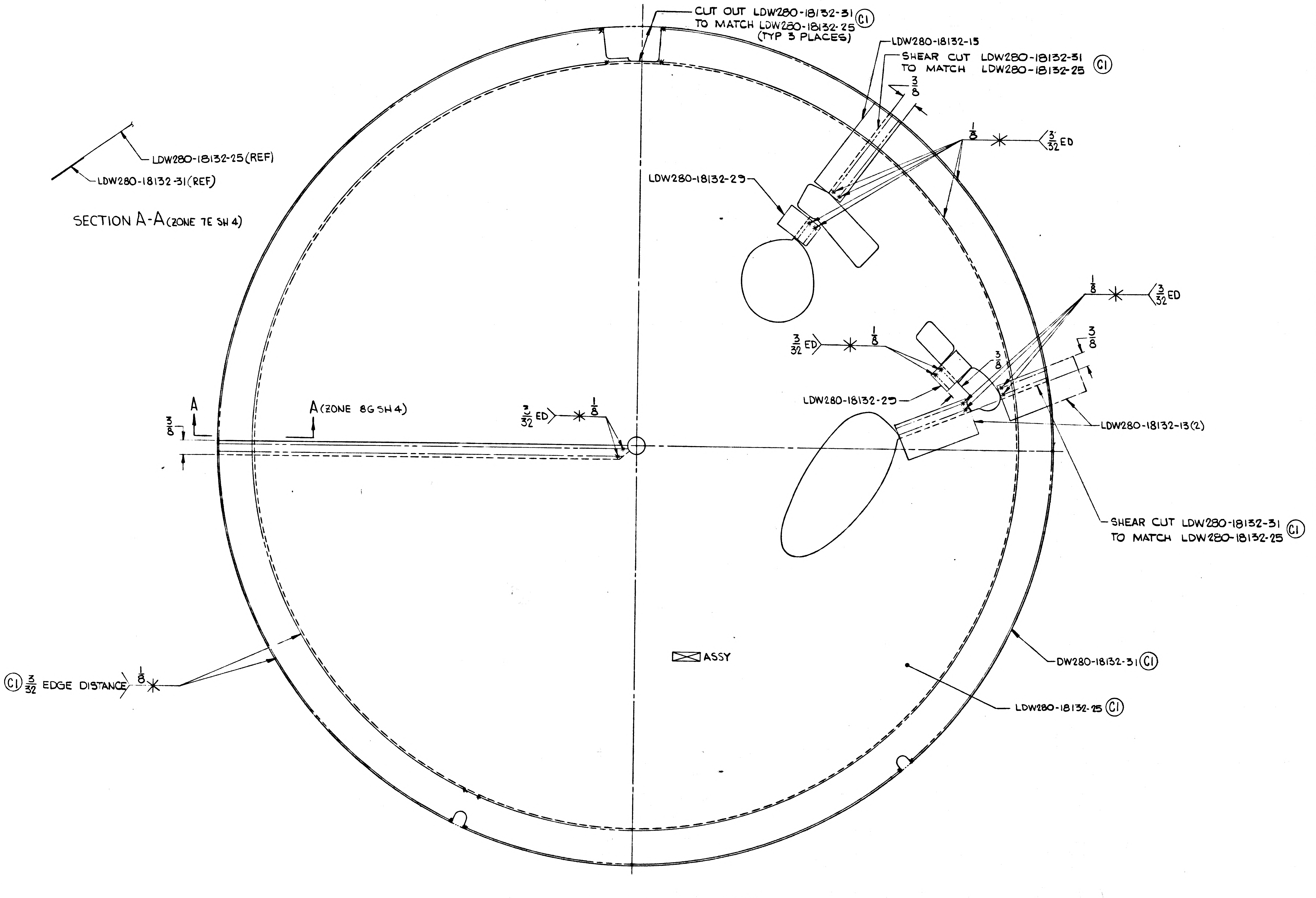
SCALE NONE

SHEET 2.00

ENG 77.2 7-66

01

NAS 9-1100


CUT OUT LDW280-18132-31 (C1)
TO MATCH LDW280-18132-25
(TYP 3 PLACES)
LDW280-18132-15
SHEAR CUT LDW280-18132-31 (C1)
TO MATCH LDW280-18132-25
3/8
1/8
3/32 ED
LDW280-18132-25 (REF)
LDW280-18132-31 (REF)
SECTION A-A (ZONE 7E SH 4)
LDW280-18132-25
3/32 ED
1/8
3/8
LDW280-18132-25
LDW280-18132-13(2)
A
3/8
A (ZONE 8G SH 4)
3/32 ED
1/8
SHEAR CUT LDW280-18132-31 (C1)
TO MATCH LDW280-18132-25
ASSY
(C1) 3/32 EDGE DISTANCE
1/8
DW280-18132-31 (C1)
LDW280-18132-25 (C1)

LDW280-28832-7 ASSY (B1)(C1)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE F	CODE IDENT NO. 26512	LDW280-28832	C
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

01

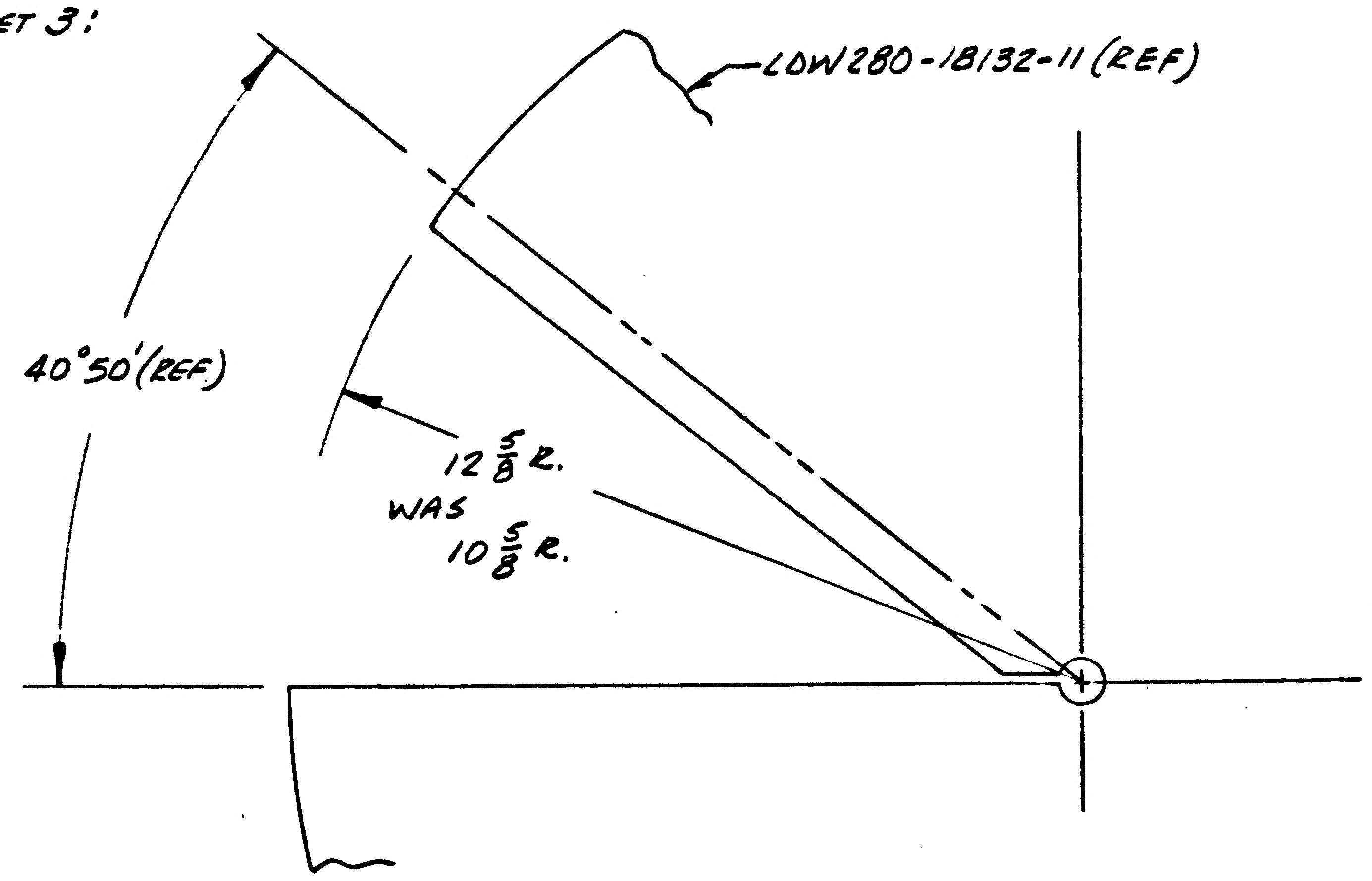
NAS 9-1100

ENG 32.1 REV 3-65 Hi G

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28832		EO NO. A1	
CONTROL INFO NO. LM-2-3073			

IN F/D SHEET 3:



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		

REASON FOR EO: INCORRECT RADIUS ON ASSY DWG

DESCRIPTION OF EO: IN F/D: -1
12 5/8 R. WAS 10 5/8

GAEC EO RELEASE: R C FR

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LM-4 (31) THRU		
	LM-15 (45)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	REQD
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JRD				caw	caw	RMcC	
DATE	12/15				12/3/66	12/3/66	12-7-66	12-5-66
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C_2	SHIELD ASSY - D/S PROP TANK COVER, METEOROID PROTECTION	LDW280-28832	A1

ISSUED BY LIAISON G MARTELL x3604 SECTION VEH DES INT GROUP NO. 335 PL 35

01 NAS 9-1100

LDW280-28835

LM	LDW280-[illegible]	LM-[illegible]	
		LM-[illegible]	
LM	LDW280-[illegible]	LM-[illegible]	
MODEL OR END ITEM	NEXT ASSY	MODULE OR SET NO. SHEET SCH NO.	REQD PER MODULE OR END ITEM

PART NO. LDW280-28835-9

LM	LDW280-[illegible]	LM-[illegible]	
LM	LDW280-[illegible]	LM-[illegible]	
MODEL OR END ITEM	NEXT ASSY	MODULE OR SET NO. SHEET SCH NO.	REQD PER MODULE OR END ITEM

PART NO. LDW280-28835-7

LM	LDW280-[illegible]	LM-[illegible]	
LM	LDW280-[illegible]	LM-[illegible]	

PART NO. LDW280-28835-5

LM	LDW280-[illegible]	LM-[illegible]	
MODEL OR END ITEM	NEXT ASSY	MODULE OR SET NO. SHEET SCH NO. 52	REQD PER MODULE OR END ITEM

PART NO. LDW280-28835-[illegible]

SH REV STATUS FOR DESCRIPTION OF REV SEE SUBSQ SH

SHEET	[illegible]
REV	B B B B B B
SHEET	
REV	
SHEET	
REV	
LAST SECT LTR USED	[illegible]
LAST DASH NO USED	1-9

GRUMMAN REF INFO

PREV NO [illegible]

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLE

PROC TYPE AUTH
DETAIL SPEC REQUIREMENT
CLASS I ENGRG CHANGE
CLASS II ENGRG CHANGE

CONTRACT NO. NAS 9-1100
DRAWN BY [illegible]
LAYOUT BY [illegible]
CHECKED BY [illegible]
STRUCTURE [illegible]
PROJ ENGR [illegible]
REL GROUP [illegible]

DOCUMENTATION TYPE

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE L.I. NEW YORK

DESCENT STAGE [illegible]

SIZE	CODE IDENT NO.	
B	26512	LDW280-28835 B
SCALE	NONE	SHEET [illegible] OF [illegible]

SUPERSEDES LDW280-[illegible]

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
									RETRACED NO CHANGE LAST REV NO CHANGE				W. CONROY 5-6-6[illegible]		
A	1	1.00 3.00	5D					ED41	IN F/D 1 VIEW 'A' (SECT E-E) LDW 280-5 90-1 QTY REQD (ES) WAS (5D) GR500A-4A (ES) WAS (04) (ES) WAS (3) IN F/D 1 LDW 280-5 90-1 QTY REQ ON -1 (ES) WAS (5D) -5 (ES) WAS (5D) GR500A-4A QTY REQ ON -1 (ES) WAS (5D) -5 (ES) WAS (5D) ADDED SHIM	NOT REQD	NOT	REQD	W. CONROY 8-16-67		
	2	1.00 3.00	E4					ED42	ON -1 IN F/D ADDED SECT F-F, 2 PLCS WAS 1 PLC IN F/D & 5 IN WAS [illegible] AD4 WAS GR500A-AD4 ON -1 & -3 IN F/D IN VIEW 'E' 4 WAS [illegible] IN VIEW D [illegible] WAS 4 [illegible]	LM-1-2 & 3	✓				
	3	1.00 3.00	[illegible] 5-5					ED43	ON -1 & -3 INSTL VIEWS A TE [illegible] ADDED DRILL [illegible] WAS [illegible] AN960-D [illegible] 3 PLACES & WAS [illegible] WAS GR500A-4A (3)						
	4	3.00	[illegible]					ED44	ADDED NOTE 4 & EDGE DISTANCE REQUIREMENTS						
	5	1.00 3.00	[illegible]					ED45	REF ED 43 ON -1 & -3 AN960D [illegible] WAS AN960D [illegible] MS [illegible]						
	6								REF ED 42 43 44 & 45 EFF LM-1 & 3 WAS EFF LM-1 THRU LM-5	NOTED	NOT	REQD			
	7	1.00 3.00				✓		LCCD-2008	REMOVED -5 INSTL EFF LM-4 THRU LM-15, ADDED -5 INSTL EFF LM-1 & LM-3 -1 EFF LM-1 WAS LM-1 LM-3 & LM-5	NOTED		✓			
B	1	1.00,2.00,2.01 3.00,4.00				✓		LCCD*2008	ADDED TO SHEET 3.00 -7 INSTL EFF LM-4 & LM-5, ADDED SHEET 2.01, SHEET 4.00 AND -9 INSTL LM-6 THRU LM-15	LM-4 THRU LM-15	NOT	REQD	KESEL 4-4-68		

LTR	GROUP LDR			
A				
B				

CHG APPROVED

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE L. I. NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28835	B

SCALE NONE SHEET

01

NAS 9-1100

																	3A
			53					LDW280-18 90-3	E	CLIP							6D
				53	53	53		LDW280-18 90-1	E	CLIP							2C
			1					LDW280-54839-1	E	SHIELD ASSY							4B
				1				LDW280-28839-7	E								6B
					1			LDW280-28839-5	E								6B
						1		LDW280-28839-	E								6B
			1					LDW280-54838-	E								7B
				1				LDW280-28838-7	E								9A
					1			LDW280-28838-3	E								9A
						1		LDW280-28838-	E								9A
			1					LDW280-54832-1	E								6C
				1				LDW280-28832-7	E								7B
					1			LDW280-28832-3	E								7B
						1		LDW280-28832-	E								7B
			1					LDW280-54843-	E								3B
				1				LDW280-28843-9	E								4B
					1			LDW280-28843-5	E								4B
						1		LDW280-28843-1	E	SHIELD ASSY							4B
								LDW280-28835-9	E	SHIELD INSTL					NONE	NONE	3A
								LDW280-28835-7	E	SHIELD INSTL					NONE	NONE	3A
								LDW280-28835-5	E	SHIELD INSTL					NONE	NONE	3A
								LDW280-28835-	E	SHIELD INSTL					NONE	NONE	3A
			-9	-7	-5	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
QTY PER ASSEMBLY																	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28835	B ②

SCALE NONE

SHEET 2.00

01

NAS 9-1100

-9	-7	-5	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					MS20600AD4-W1		RIVET	STD PART						
					MS20600AD4		RIVET	STD PART						
					NAS1097AD3		RIVET	STD PART						
53					NAS697A06LK		PLATE NUT	STD PART						
	53	53	53		NAS697C06		PLATE NUT	STD PART						
53	53	106	106		AN960D6		WASHER	STD PART						
104	104	104	104		GR500A-4A		RIVET	GRUMMAN STD						
		53	53		GB511J-06-2		SCREW	GRUMMAN STD						
53	53				GB511J-06-1		SCREW	GRUMMAN STD						
AR	AR	AR	AR		GT835P-8		TAPE	GRUMMAN STD						

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

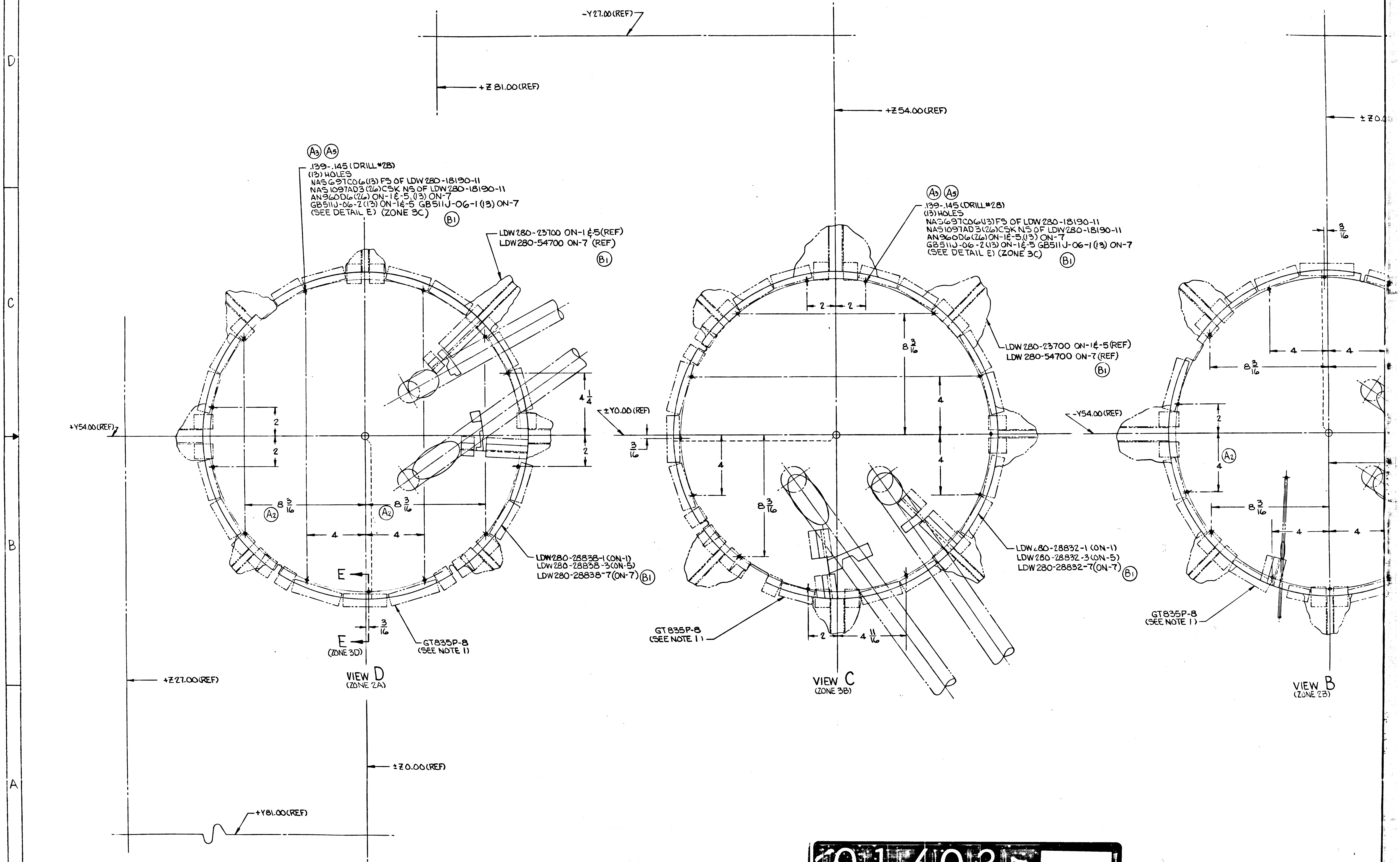
SIZE B
CODE IDENT NO. 26512
LDW280-28835
B Ⓑ

SCALE NONE
SHEET 2.01

ENG 77.2 7-66

01

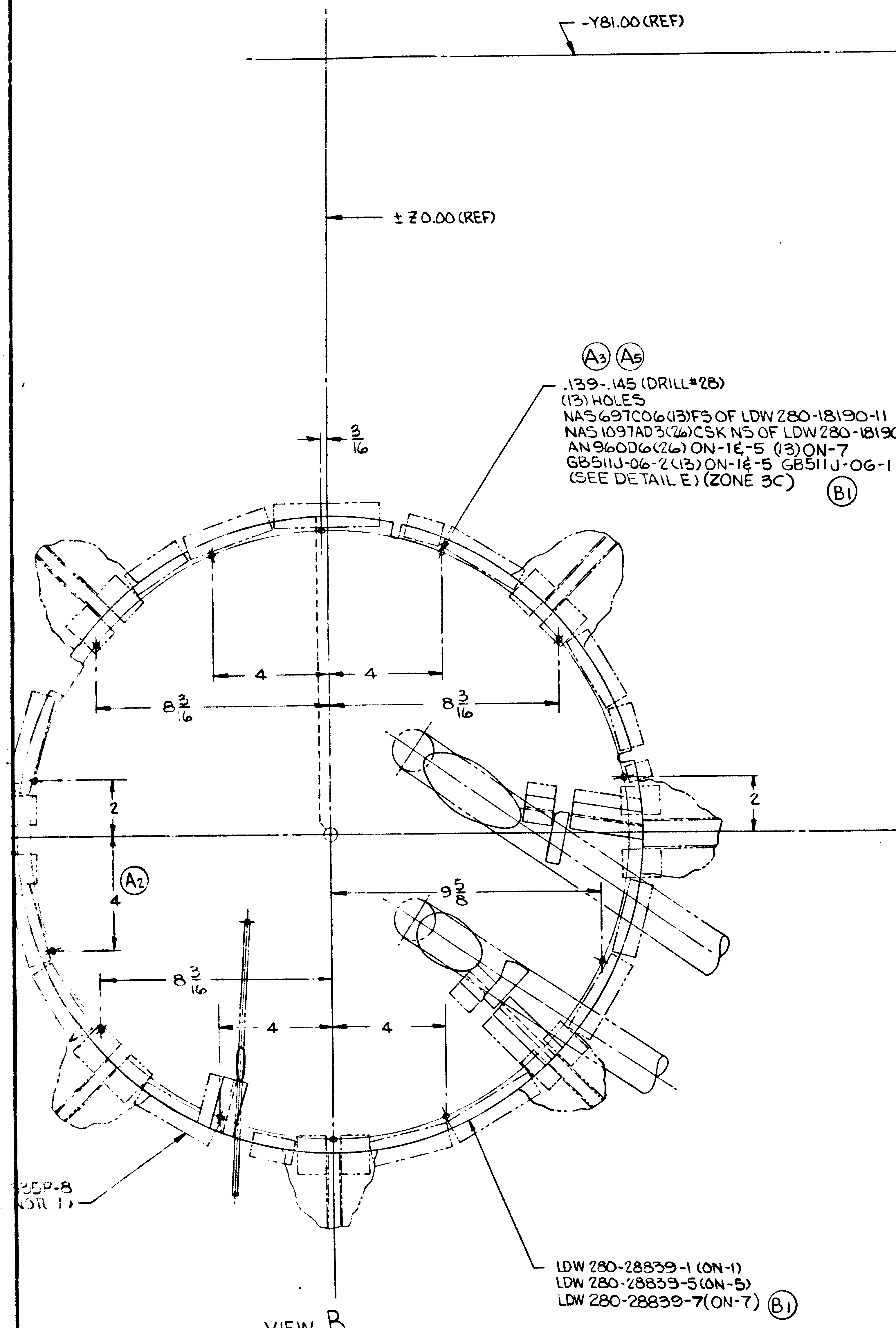
NAS 9-1100



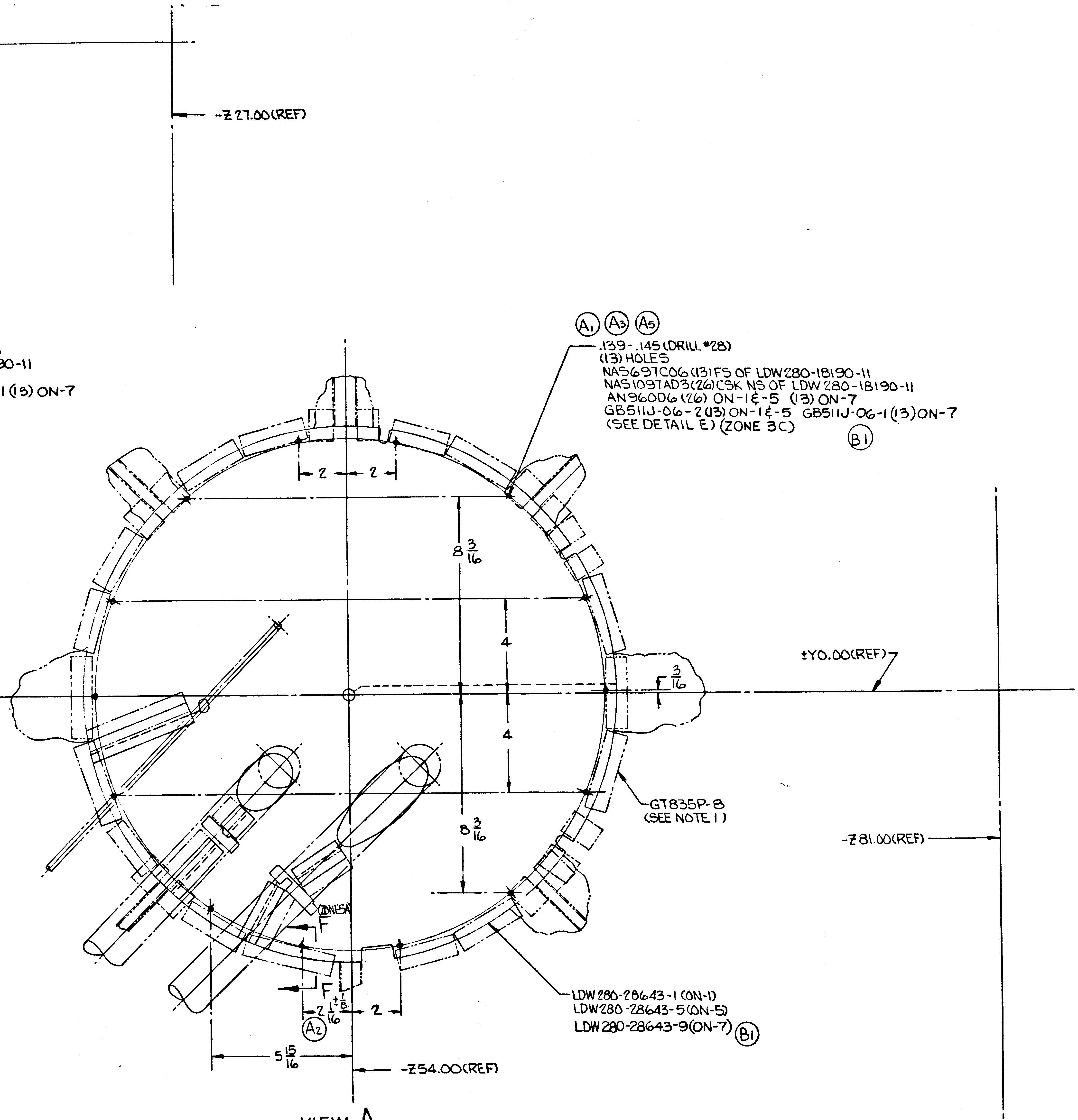
-Y27.00(REF)
+Z 81.00(REF)
+Z54.00(REF)
±Z0.0
Ⓐ3 Ⓐ5
.139-.145 (DRILL #28)
(13) HOLES
NAS697C06(13) FS OF LDW280-18190-11
NAS1097AD3(26)CSK NS OF LDW280-18190-11
AN960D6(26) ON-1 & -5, (13) ON-7
GB511J-06-2(13) ON-1 & -5 GB511J-06-1(13) ON-7
(SEE DETAIL E) (ZONE 3C)
Ⓑ1
LDW280-23700 ON-1 & 5(REF)
LDW280-54700 ON-7 (REF)
Ⓑ1
+Y54.00(REF)
±Y0.00(REF)
-Y54.00(REF)
2
2
4 1/4
2
3/16
8 3/16
Ⓐ2
8 3/16
4
4
LDW280-28838-1(ON-1)
LDW280-28838-3(ON-5)
LDW280-28838-7(ON-7) Ⓑ1
E
E
(ZONE 3D)
3/16
GT835P-8
(SEE NOTE 1)
VIEW D
(ZONE 2A)
+Z27.00(REF)
±Z0.00(REF)
+Y81.00(REF)
2 2
8 3/16
4
4
4
8 3/16
LDW280-23700 ON-1 & -5(REF)
LDW 280-54700 ON-7(REF)
Ⓑ1
LDW280-28832-1 (ON-1)
LDW280-28832-3 (ON-5)
LDW280-28832-7(ON-7) Ⓑ1
GT835P-8
(SEE NOTE 1)
2
4 11/16
VIEW C
(ZONE 3B)
3/16
4
4
8 3/16
2
4
Ⓐ2
8 3/16
4
4
GT835P-8
(SEE NOTE 1)
VIEW B
(ZONE 2B)

01/03 NAS 9-1100

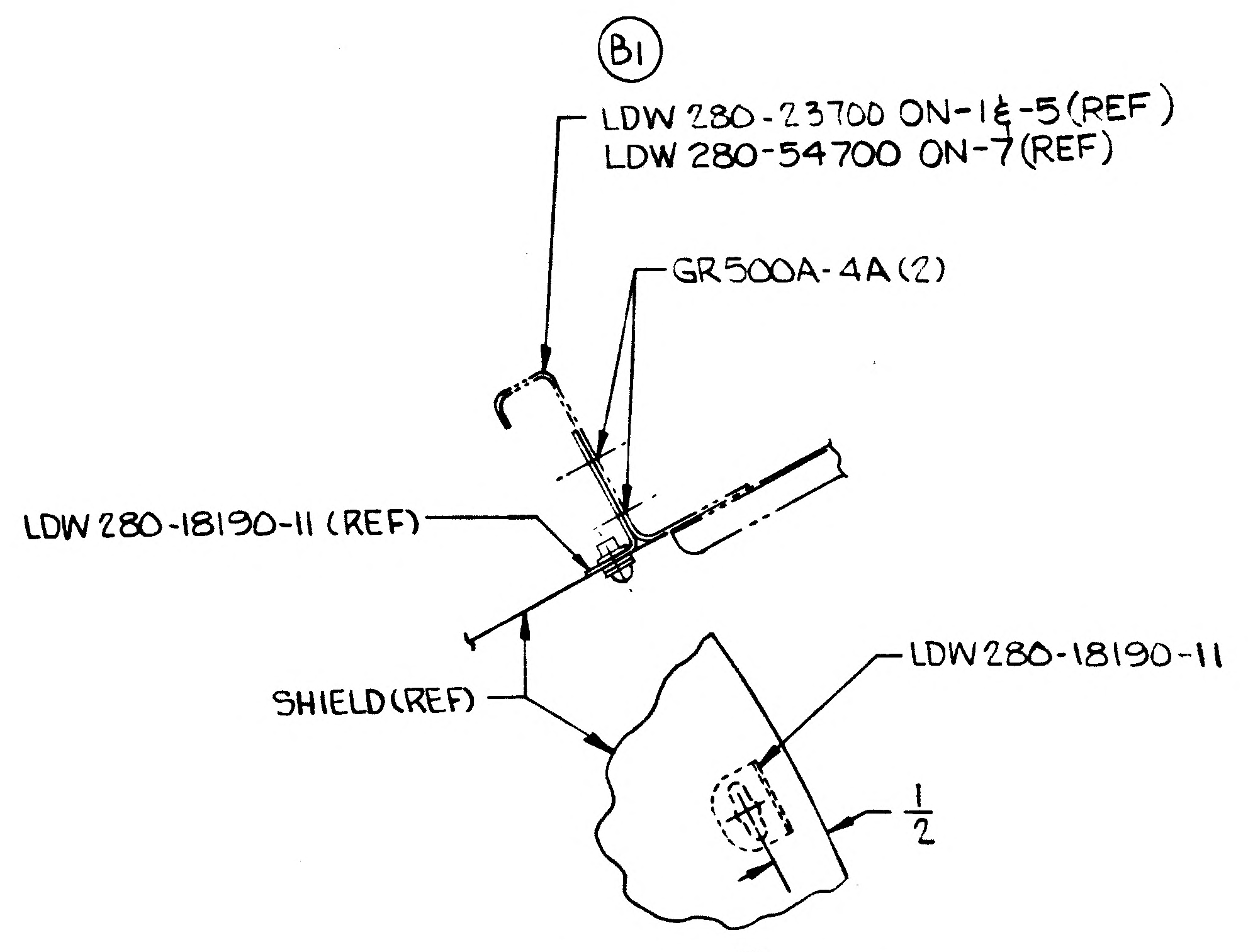
LDW280-28835 SH 3


-Y81.00 (REF)
±Z0.00 (REF)
3/16
A3 A5
.139-.145 (DRILL #28)
(13) HOLES
NAS697C06 (13) FS OF LDW 280-18190-11
NAS1097AD3 (26) CSK NS OF LDW 280-18190-11
AN960D6 (26) ON-1 & -5 (13) ON-7
GB511J-06-2 (13) ON-1 & -5 GB511J-06-1 (13) ON-7
(SEE DETAIL E) (ZONE 3C)
B1
4
4
8 3/16
8 3/16
2
2
A2
4
9 5/8
8 3/16
4
4
35P-8
OTE 1)
LDW 280-28839-1 (ON-1)
LDW 280-28839-5 (ON-5)
LDW 280-28839-7 (ON-7)
B1

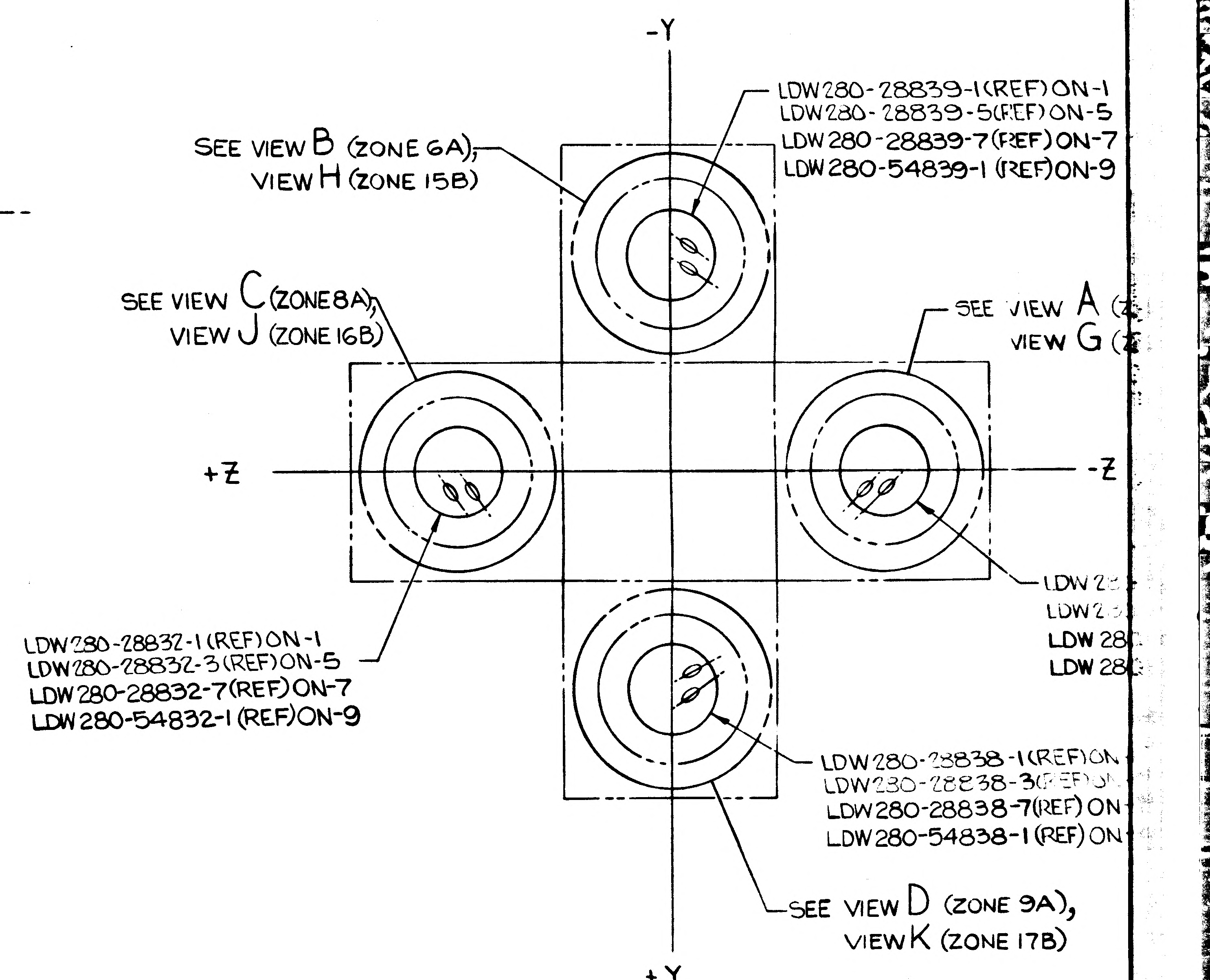
VIEW B
(ZONE 2B)


-Z27.00 (REF)
A1 A3 A5
.139-.145 (DRILL #28)
(13) HOLES
NAS697C06 (13) FS OF LDW 280-18190-11
NAS1097AD3 (26) CSK NS OF LDW 280-18190-11
AN960D6 (26) ON-1 & -5 (13) ON-7
GB511J-06-2 (13) ON-1 & -5 GB511J-06-1 (13) ON-7
(SEE DETAIL E) (ZONE 3C)
B1
2
2
8 3/16
4
4
8 3/16
±Y0.00 (REF)
3/16
GT835P-8
(SEE NOTE 1)
-Z81.00 (REF)
(ZONE 5A)
F
F
2 1/16 ±1/8
2
A2
5 15/16
-Z54.00 (REF)
LDW 280-28643-1 (ON-1)
LDW 280-28643-5 (ON-5)
LDW 280-28643-9 (ON-7)
B1

VIEW A
(ZONE 2B)

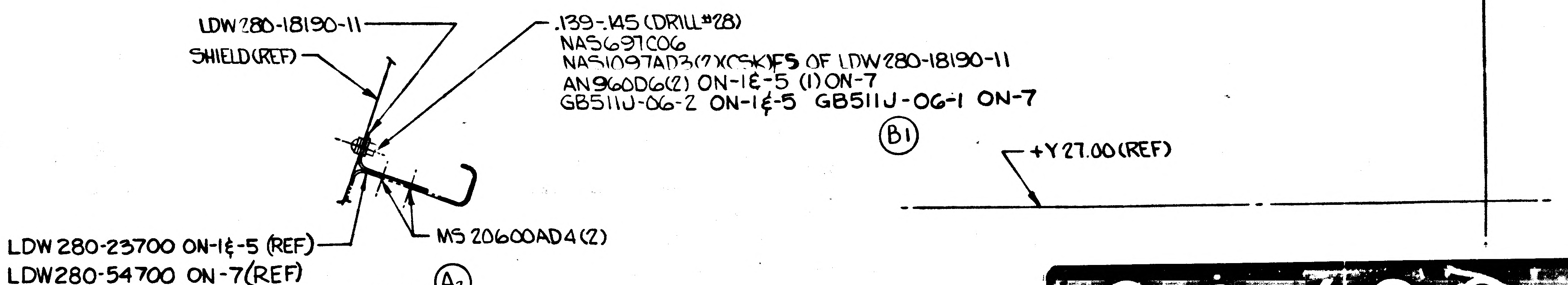

B1
LDW 280-23700 ON-1 & -5 (REF)
LDW 280-54700 ON-7 (REF)
GR500A-4A (2)
LDW 280-18190-11 (REF)
SHIELD (REF)
LDW 280-18190-11
1/2

DETAIL E (ZONE 9B)
(SCALE: FULL)
TYP 52 PLACES


-Y
SEE VIEW B (ZONE 6A);
VIEW H (ZONE 15B)
LDW280-28839-1 (REF) ON-1
LDW280-28839-5 (REF) ON-5
LDW280-28839-7 (REF) ON-7
LDW280-54839-1 (REF) ON-9
SEE VIEW C (ZONE 8A),
VIEW J (ZONE 16B)
SEE VIEW A
VIEW G
+Z
-Z
LDW2
LDW2
LDW 28
LDW 28
LDW280-28832-1 (REF) ON-1
LDW280-28832-3 (REF) ON-5
LDW280-28832-7 (REF) ON-7
LDW280-54832-1 (REF) ON-9
LDW280-28838-1 (REF) ON
LDW280-28838-3 (REF) ON
LDW280-28838-7 (REF) ON
LDW280-54838-1 (REF) ON
SEE VIEW D (ZONE 9A),
VIEW K (ZONE 17B)
+Y

LDW 280-28835-1 INSTL
-5 INSTL (A7)
-7 INSTL (B1)
-9 INSTL (SEE SHEET 4

VIEW LOOKING UP


LDW280-18190-11
SHIELD (REF)
.139-.145 (DRILL #28)
NAS697C06
NAS1097AD3 (2) (CSK) FS OF LDW280-18190-11
AN960D6 (2) ON-1 & -5 (1) ON-7
GB511J-06-2 ON-1 & -5 GB511J-06-1 ON-7
B1
+Y27.00 (REF)
LDW 280-23700 ON-1 & -5 (REF)
LDW280-54700 ON-7 (REF)
MS 20600AD4 (2)
B1
A2

SECT. F-F (ZONE 5B)
(SCALE: NONE)

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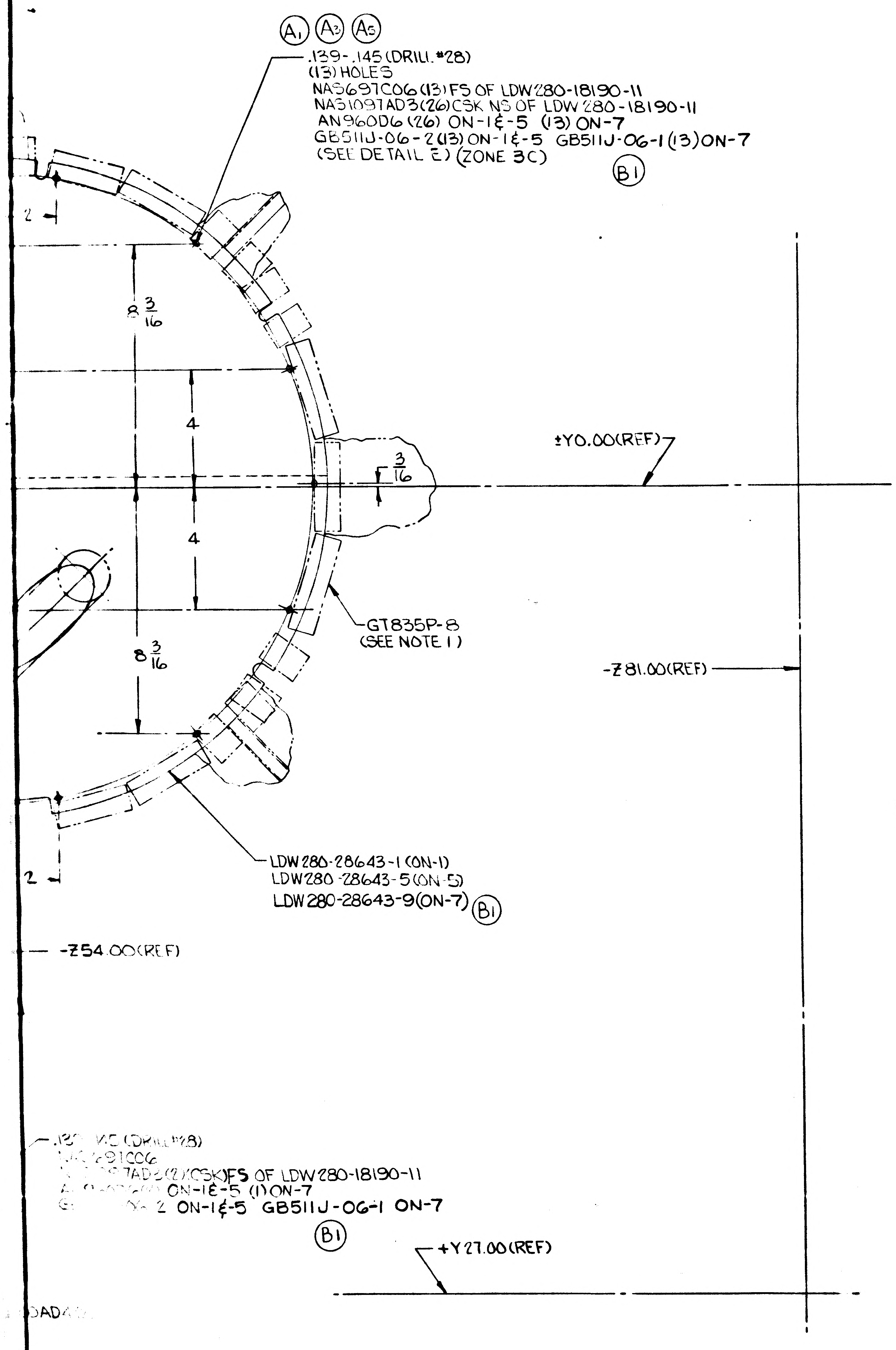
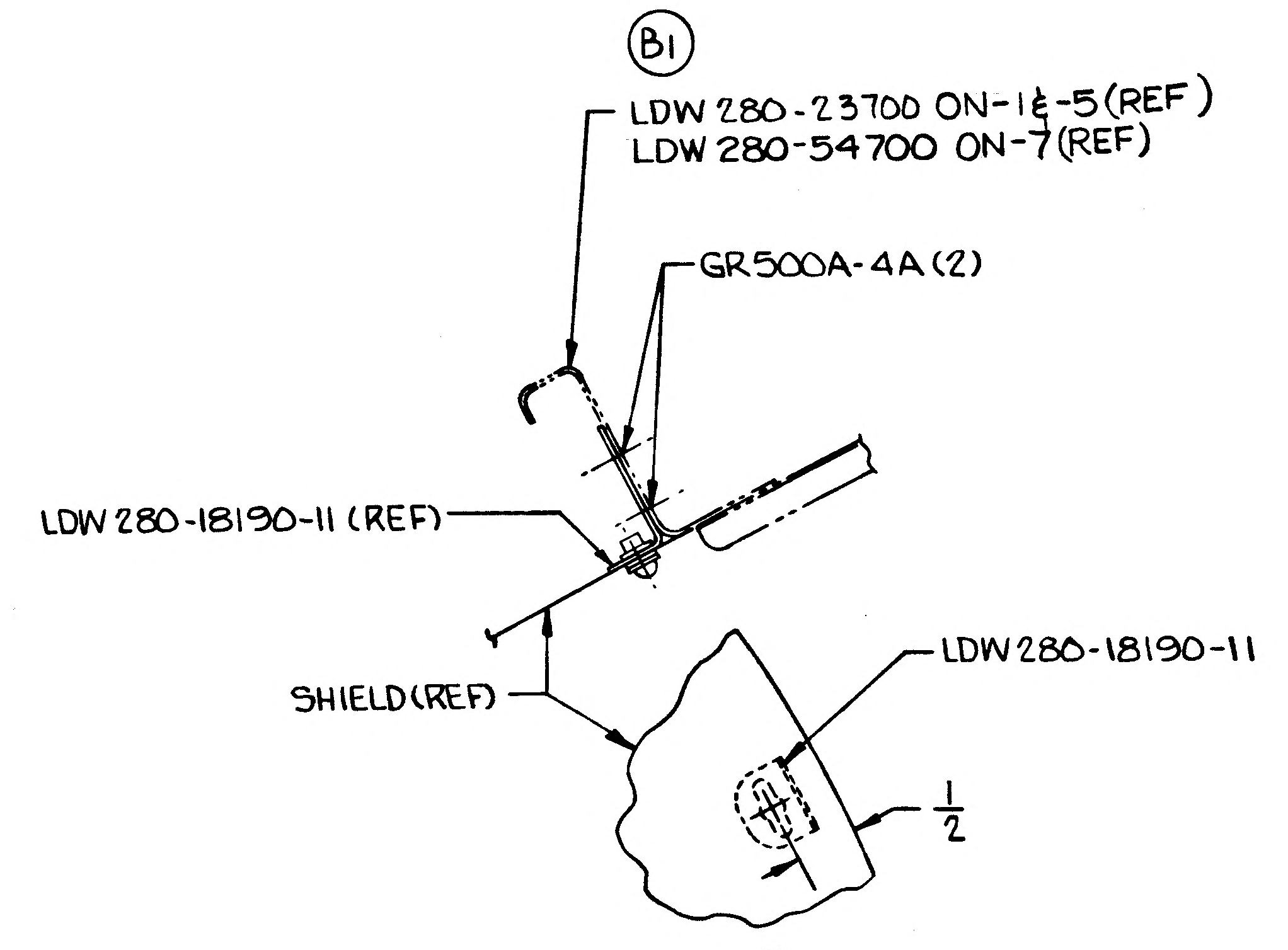
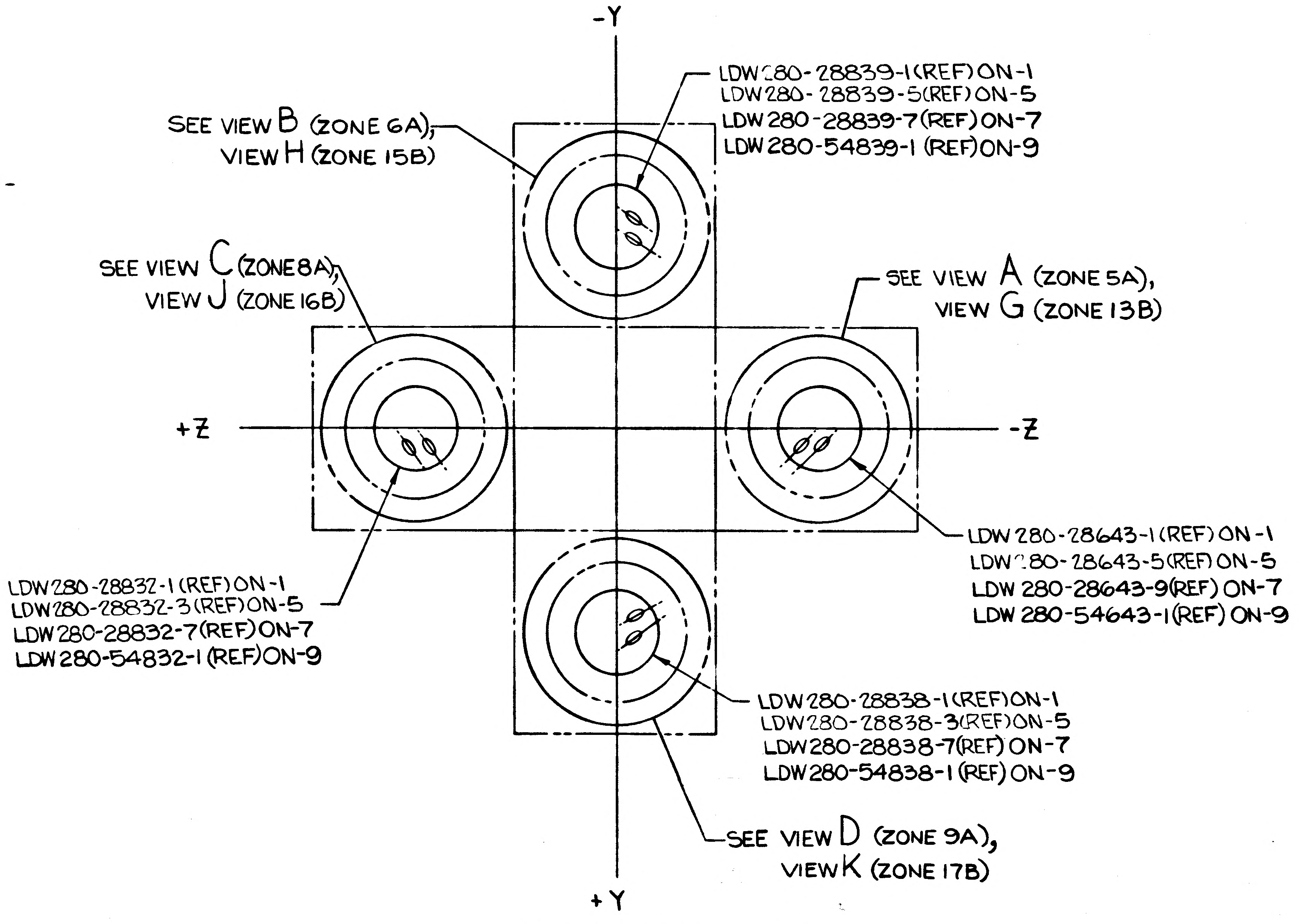


(A1) (A3) (A5)
.139-.145 (DRILL #28)
(13) HOLES
NAS697C06 (13) FS OF LDW280-18190-11
NAS1097AD3 (26) CSK NS OF LDW280-18190-11
AN960D6 (26) ON-1 & -5 (13) ON-7
GB511J-06-2 (13) ON-1 & -5 GB511J-06-1 (13) ON-7
(SEE DETAIL E) (ZONE 3C)
(B1)
2
8 3/16
4
4
8 3/16
3/16
±Y0.00 (REF)
GT835P-8
(SEE NOTE 1)
-Z81.00 (REF)
LDW280-28643-1 (ON-1)
LDW280-28643-5 (ON-5)
LDW280-28643-9 (ON-7)
(B1)
2
-Z54.00 (REF)
.139-.145 (DRILL #28)
NAS691C06
TAD3 (2) (CSK) FS OF LDW280-18190-11
ON-1 & -5 (1) ON-7
2 ON-1 & -5 GB511J-06-1 ON-7
(B1)
+Y27.00 (REF)



(B1)
LDW280-23700 ON-1 & -5 (REF)
LDW280-54700 ON-7 (REF)
GR500A-4A (2)
LDW280-18190-11 (REF)
SHIELD (REF)
LDW280-18190-11
1/2

DETAIL E (ZONE 9B)
(SCALE: FULL)
TYP 52 PLACES



-Y
LDW280-28839-1 (REF) ON-1
LDW280-28839-5 (REF) ON-5
LDW280-28839-7 (REF) ON-7
LDW280-54839-1 (REF) ON-9
SEE VIEW B (ZONE 6A),
VIEW H (ZONE 15B)
SEE VIEW C (ZONE 8A),
VIEW J (ZONE 16B)
SEE VIEW A (ZONE 5A),
VIEW G (ZONE 13B)
+Z
-Z
LDW280-28643-1 (REF) ON-1
LDW280-28643-5 (REF) ON-5
LDW280-28643-9 (REF) ON-7
LDW280-54643-1 (REF) ON-9
LDW280-28832-1 (REF) ON-1
LDW280-28832-3 (REF) ON-5
LDW280-28832-7 (REF) ON-7
LDW280-54832-1 (REF) ON-9
LDW280-28838-1 (REF) ON-1
LDW280-28838-3 (REF) ON-5
LDW280-28838-7 (REF) ON-7
LDW280-54838-1 (REF) ON-9
SEE VIEW D (ZONE 9A),
VIEW K (ZONE 17B)
+Y

LDW280-28835-1 INSTL
-5 INSTL (A7)
-7 INSTL (B1)
-9 INSTL (SEE SHEET 4.00)

VIEW LOOKING UP

NOTE
1. GT835P-8 TAPE LENGTH AS REQD, MIN EDGE DISTANCE 1/4"
2. -1, -5, -7 & -9 MAY HAVE A RANDOM WRINKLED APPEARANCE AFTER INSTL.
3. INSTALL FASTENERS PER LSP14-15302 & LSP14-15303
4. DURING INSTL OR ASSY OF METEOROID SHIELD SUB ASSYS OR DETAILS, PARTS MAY BE TRIMMED TO INSURE PROPER CLEARANCE WITH STRUCTURAL PENETRATIONS, PROPELLANT LINES & ELECTRICAL CABLES. MINIMUM CLEARANCE AFTER TRIM TO BE 1/8, MAX CLEARANCE TO BE 1/4, PROVIDING A MINIMUM FASTENER EDGE DISTANCE IS HELD AFTER TRIMMING.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⌧ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE ~~AVERAGE~~ EDGE DISTANCE ~~MARKED~~ IS 1 1/2 FASTENER DIA FROM FASTENER ℄	✓
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 110

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 118) = 29.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 7.4 SQ. FT.

PRINT TRIM LINE

LDW280-28835 B

LDW280-28835 B

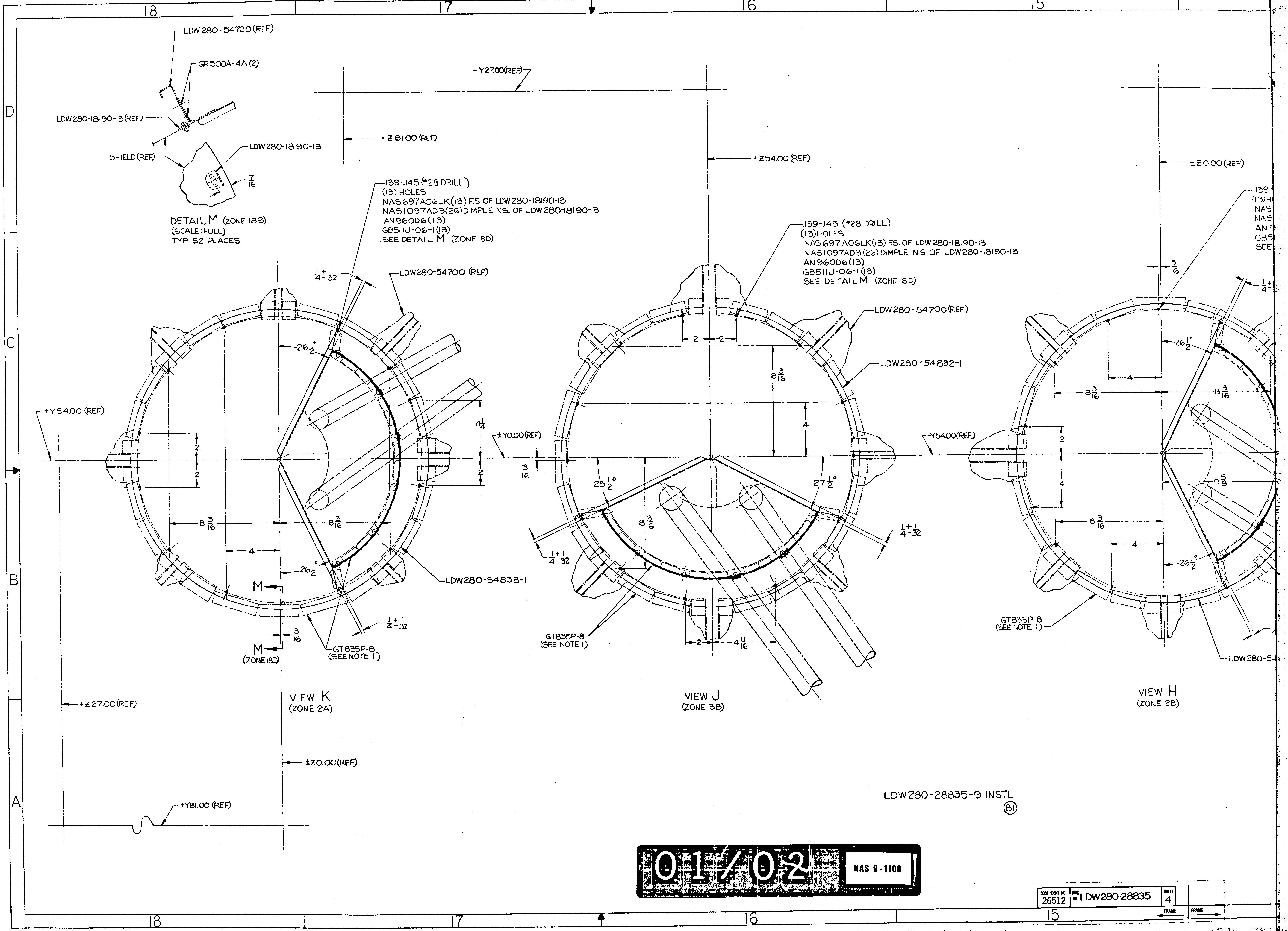
03/03

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK
SIZE J
CODE IDENT NO. 26512
LDW280-28835 B
(B)
LM
MODEL OR END ITEM
SCALE 1/2 & NOTED
SHEET 3.00

3 FR

LDW280-28835 SH 3


18
17
16
15
D
C
B
A
LDW280-54700 (REF)
GR500A-4A (2)
LDW280-18190-13 (REF)
SHIELD (REF)
LDW280-18190-13
7/16
DETAIL M (ZONE 18B)
(SCALE: FULL)
TYP 52 PLACES
-Y27.00 (REF)
+Z 81.00 (REF)
+Z54.00 (REF)
±Z0.00 (REF)
.139-.145 (#28 DRILL)
(13) HOLES
NAS697A06LK (13) F.S. OF LDW280-18190-13
NAS1097AD3 (26) DIMPLE N.S. OF LDW280-18190-13
AN960D6 (13)
GB511J-06-1 (13)
SEE DETAIL M (ZONE 18D)
1/4 + 1/32 -
LDW280-54700 (REF)
LDW280-54832-1
LDW280-54838-1
26 1/2°
25 1/2°
27 1/2°
8 3/16
4
2
4 1/4
3/16
9 5/8
4 11/16
+Y54.00 (REF)
±Y0.00 (REF)
-Y54.00 (REF)
M
M
(ZONE 18D)
GT835P-8
(SEE NOTE 1)
VIEW K
(ZONE 2A)
VIEW J
(ZONE 3B)
VIEW H
(ZONE 2B)
+Z27.00 (REF)
±Z0.00 (REF)
+Y81.00 (REF)
LDW280-5

LDW280-28835-9 INSTL
(B1)

01/02 NAS 9-1100

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-28835	4

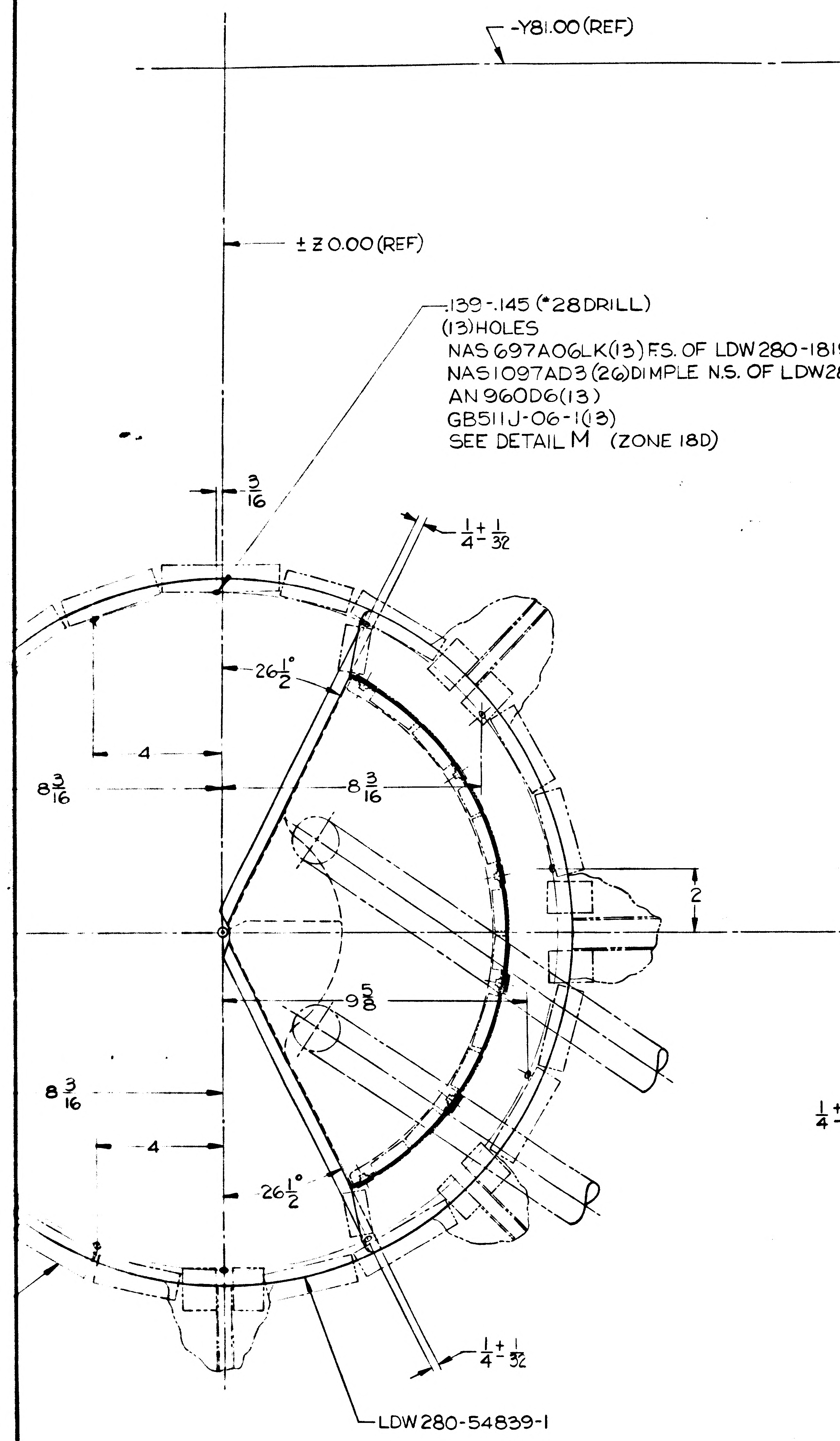
FRAME FRAME

14 13 12 11

SUPPLEMENTARY DATA
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

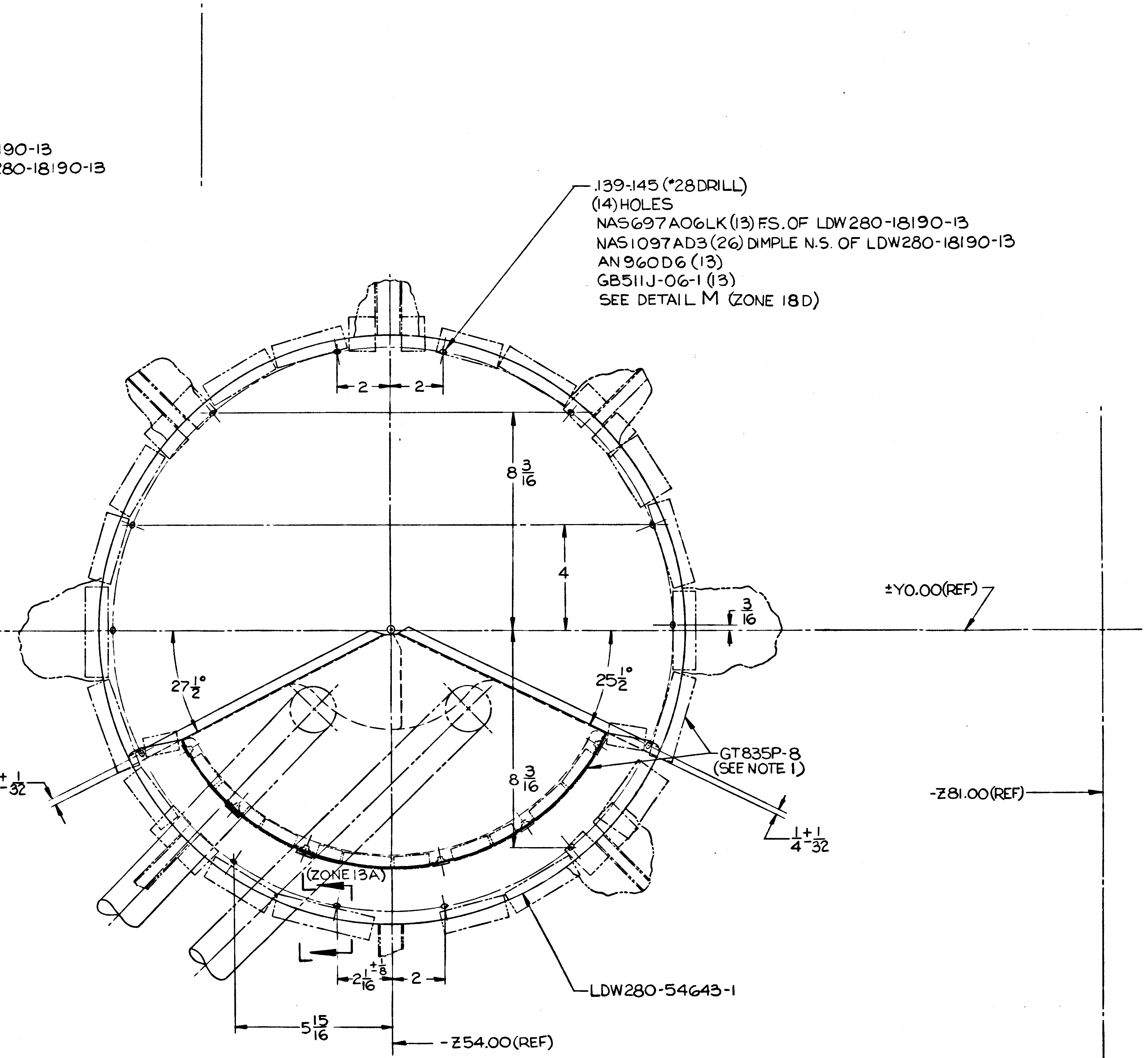
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
INSTALL RIVETS IN ACCORDANCE WITH	

DWG SIZE
PRINTING INFO ONLY
PRINT TRIM LINE
FULL SIZE SHEET AREA (36 X 96 = 32 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 8 SQ FT



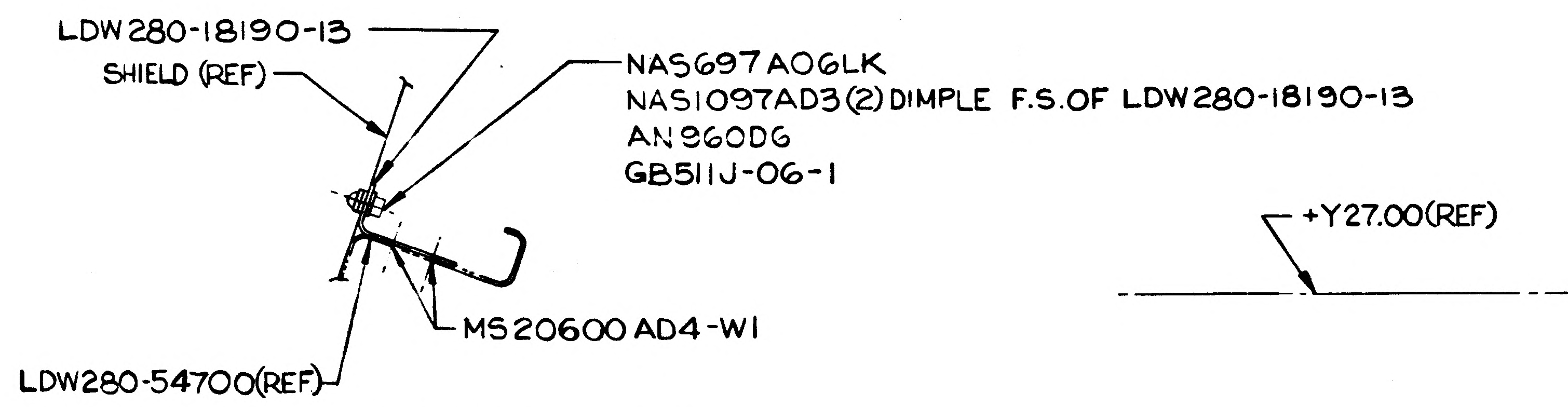
-Y81.00 (REF)
±Z0.00 (REF)
.139-.145 (#28 DRILL)
(13) HOLES
NAS697A06LK(13) F.S. OF LDW280-18190-13
NAS1097AD3 (26) DIMPLE N.S. OF LDW280-18190-13
AN960D6(13)
GB511J-06-1(13)
SEE DETAIL M (ZONE 18D)
3/16
1/4 + 1/32
26 1/2°
4
8 3/16
8 3/16
2
9 5/8
8 3/16
4
26 1/2°
1/4 + 1/32
LDW280-54839-1

VIEW H
(ZONE 2B)



-Z27.00 (REF)
.139-.145 (#28 DRILL)
(14) HOLES
NAS697A06LK(13) F.S. OF LDW280-18190-13
NAS1097AD3 (26) DIMPLE N.S. OF LDW280-18190-13
AN960D6 (13)
GB511J-06-1 (13)
SEE DETAIL M (ZONE 18D)
2
2
8 3/16
4
±Y0.00 (REF)
3/16
27 1/2°
25 1/2°
1/4 + 1/32
GT835P-8
(SEE NOTE 1)
8 3/16
1/4 + 1/32
-Z81.00 (REF)
(ZONE 13A)
L
L
2 1/16 +1/8
2
LDW280-54643-1
5 15/16
-Z54.00 (REF)

VIEW G
(ZONE 2B)



LDW280-18190-13
SHIELD (REF)
NAS697A06LK
NAS1097AD3 (2) DIMPLE F.S. OF LDW280-18190-13
AN960D6
GB511J-06-1
+Y27.00 (REF)
MS20600AD4-W1
LDW280-54700 (REF)

SECTION L-L (ZONE 13B)
(SCALE NONE)

02/02 NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
J	26512	LDW280-28835	B
SCALE 2 NOTED		SHEET 4	

LDW280-28835 B

LDW280-28835 | SHEET 4

FRAME FRAME

14 13 12 11

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1170
CONTROL INFO NO. LDW 280B5397

REVISE THE NEXT ASSEMBLY FOR THE FOLLOWING PARTS
EFFECTIVE LM-6(36) THRU LM-15(45)

DRAWING NO.	DASH* NO.	**NEW NEXT ASSY	***EXISTING NEXT ASSY	CHANGE NO	DWG TITLE
LDW 280-28816	-17	LDW 280-56553	LDW 280-54553	A7	SEE DWG.
LDW 280-52635	-5	LDW 280-56553	LDW 280-54553	C4	
LDW 280-28835	-9	LDW 280-56553	LDW 280-54553	C1	
LDW 280-51642	-5	LDW 280-56553	LDW 280-54553	B1	
LDW 280-51818	-1	LDW 280-56553	LDW 280-54553	A6	
LDW 280-53505	-1	LDW 280-56553	LDW 280-54553	A2	
LDW 280-53501	-21	LDW 280-56553	LDW 280-54553	G2	
LDW 280-53504	-3	LDW 280-56553	LDW 280-54553	B4	SEE DWG

01
NAS 9-1100

SWIP

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3179 ECP A-062-R PK 9 (5)

REASON FOR EO: REDUCTION OF THERMAL SHIELDING DUE TO REVISION OF PLUME HEATING RATES

DESCRIPTION OF EO: FOR * NEXT ASSY ** WAS ***

GAEC C RELEASE: 10/1/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM6(36)	
		THRU LM15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP — NOT REQ

APPROVED BY	Jas	D.R.		PSF	W.H.		Jap	Brad
DATE	10/17/68	10/17/68		10/16/68	10/16/68		10/17/68	10/18/68
	VD1	SUPPORT THEM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 1170

11/1/68 F.L.
ISSUED BY ED MORRIS EXT 26046 SECTION V.D.1. GROUP NO. 33 PL 25

ENG 32.1 REV 3-63

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28835	EO NO. C2
CONTROL INFO NO. LM-5-21411	

SHEET 3.00

ADD "OR CLEARANCE HOLES ADDED" & CHANGE "STRUCTURAL PENETRATIONS" TO "STRUCTURE" IN NOTE 4 TO AGREE WITH BELOW.

NOTE 4. "DURING INSTL . . . PARTS MAY BE TRIMMED OR CLEARANCE HOLES ADDED TO INSURE PROPER CLEARANCE WITH STRUCTURE, PROPELLANT LINES & ELECTRICAL CABLES . . ."

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: TO CORRECT NOTE TO INSURE ADEQUATE CLEARANCE TO METEOROID SHIELD
EMC R.E. 2/13/69

DESCRIPTION OF EO: SHEET 3.00
IN NOTE 4 ADDED "OR CLEARANCE HOLES ADDED" & CHANGED "STRUCTURAL PENETRATIONS" TO "STRUCTURE"

GAEC EO RELEASE (5)

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6 (36)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY									
				EM	RH	EWB			
DATE	2/12/69	1/23/69		2/5/69	1-25-69	1/23/69	2/12/69	1-24-69
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	280

PRIORITY: C
DRAWING TITLE: SHIELD INSTL D/S PROP TANK COVER MET. PROT.
DRAWING NO.: LDW280-28835
EO NO.: C2

ISSUED BY LIAISON E V BERGEMAN X80755 SECTION VDI GROUP NO. 280 PL 25

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1292
CONTROL INFO NO. LDW280B7082

IN M/B FOR DASH NUMBERS LISTED BELOW, CHANGE N/A AS NOTED. QUANTITY REMAINS THE SAME EFF LM-8(38) THRU LM-15(45).

DRAWING NO.	DASH NO.	N/A WAS	N/A IS	CHG LETTER
LDW280-28583	-53	LDW280-56553	LDW280-58553	C3
-28816	-17			B1
-28835	-9			C3
-51560	-7-1			C7
-51642	-5-1			B3
-51818	-1			A7
-52635	-5			C6
-52822	-13			A9
-53501	-21			G4
-53504	-3			B6
-53505	-1			A3
-53512	-1			B1
-53513	-5			B1
-53514	-410-65			D1
-53644	-23			A6
-53646	-31			B2
-53649	-21			A7
-54506	-1			A2
-54568	-5			A3
-54600	-1-1			A4
-56671	-1			A1
-56731	-10-3			A3
-66510	-3			B4
LDW280-66661	-3	LDW280-56553	LDW280-58553	A5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3179 CCA1278 PKG 50 ECP A062 (5)

REASON FOR EO: CHANGE 1/2 MIL H FILM TO 1/4 MIL H FILM

DESCRIPTION OF EO: SEE ABOVE

GAEC EO RELEASE 2/27/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-8(38)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: ✓ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY		MMR					
DATE	2/13/69	2/17/69		2/12/69	2/13/69		2/17/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

2-27-69

PRIORITY: C

DRAWING TITLE: SEE DWG.

DRAWING NO.: LEO 280

EO NO.: 1292

GDR022469

ISSUED BY W. KAY x87222/D. SHAPIRO x87222 SECTION V.D.I. GROUP NO. 335 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1451
CONTROL INFO NO. LDW280B7452

FOR THE DWGS LISTED BELOW DELETE LM-15 (45) EFF
FROM ALL DASH NOS. *

DWG NO.	CHANGE NO	DWG NOMENCLATURE
LDW280-28697	A3	SEE DWG
-28780	B3	
-28790	C7	
-28816	B2	
-28835	C4	
-51555	B3	
LDW280 -51560	D1	SEE DWG

* APPLICABLE DASH NOS

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD3587 PKG 55 PG. 12 CCA 1821 (5)

REASON FOR EO: LM-15(45) NO LONGER REQD

DESCRIPTION OF EO: DELETED LM-15(45) EEF FROM — *

GAEC EO RELEASE: JK 5/12/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	4/1/69			4-2-69	4/5/69		4/9/69	5/8/69
	VDI							

PRIORITY: C
DRAWING TITLE: SEE DWG
DRAWING NO.: LEO 280
EO NO.: 1451

052869
ISSUED BY MEVORAH /THORJUSEN X86046 SECTION VEH DES INT GROUP NO 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280	EO NO. 1732
CONTROL INFO NO. LDW280B9166	

FOR THE DRAWINGS LISTED BELOW, REMOVE LM-10(40) THRU LM-14(44) EFF. FROM ALL DASH NOS. *

DRAWING NUMBER *	NEXT ASSEMBLY	DWG. TITLE	CHG. LTR
LDW280-51642-5-1	LDW280-58553	SEE DWG	B5
-18140-11,-21,-23,-25,-27 & -29	-51642		B3
-18201-15 & -17 & -19	-51642		B6
-18206-15,-17,-19 & -21	-51642		B6
-51818-1	-58553		B2
-18119-11,-13,-15,-17 & -19	-51818		A6
-28835-9	-58553		C5
-18190-13	-28835		D3
-54643-1	-28835		A2
LDW280-54832-1	LDW280-28835	SEE DWG	A2

* APPLICABLE DASH NO.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3890 PKG59 CCA 2205 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
LMMP REDESIGN. 3 TANK EXPANSION	REMOVED LM-10(40) THRU LM-14(44) EFF. FROM - *	JK 10/23/69

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-10(40)	
		THRU	
		LM-14(44)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
✓			✓	DATE	—			10-20-69	10/21/69		10/20/69	10/22/69
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE ABOVE	LEO 280	1732

CDR 10-24

ISSUED BY D.SHAPIRO/P.THORJUSEN X86046 SECTION VDI GROUP NO. 335 PL 25

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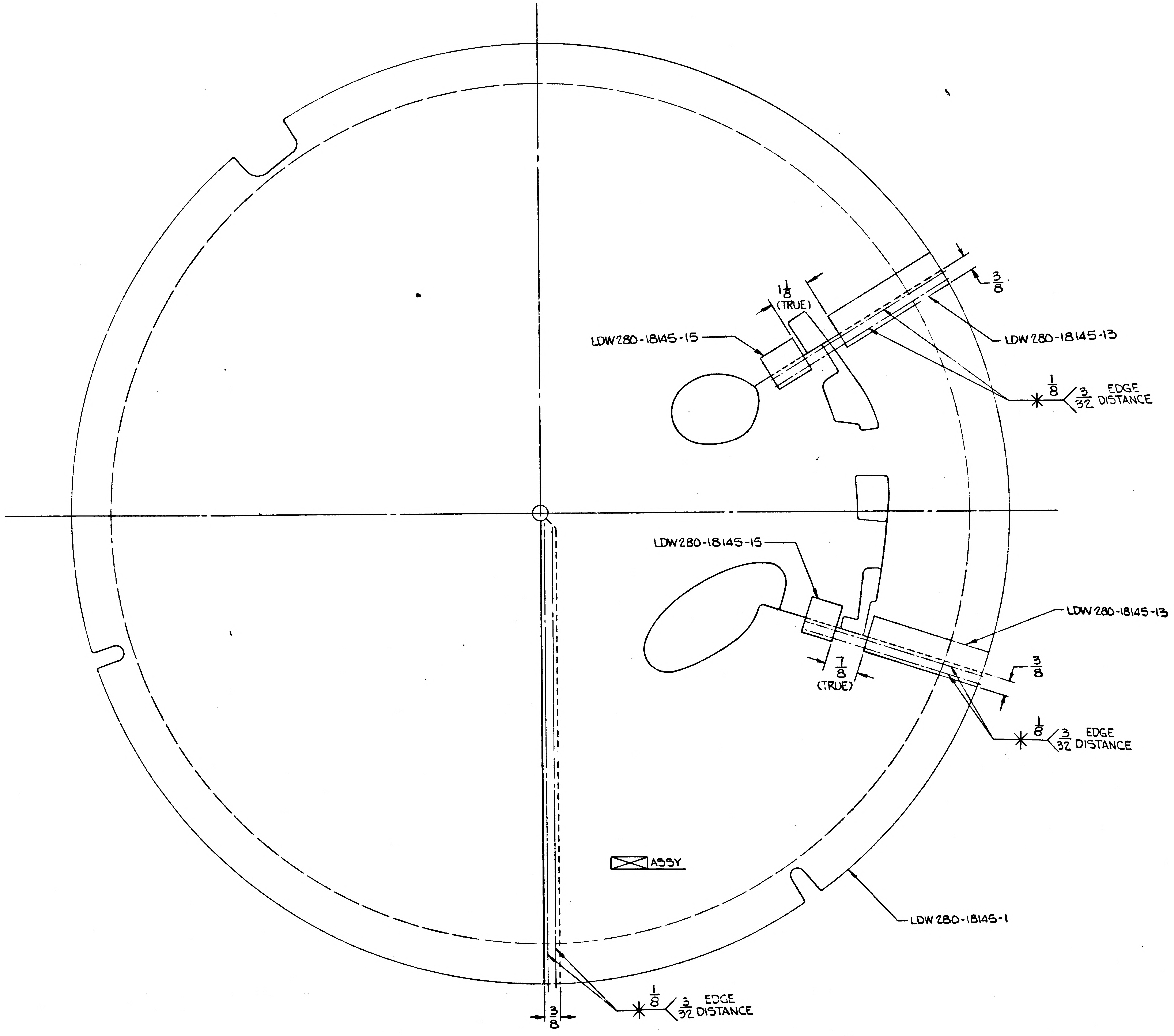
NAS 9-1100



LDW280-18145-15
1 1/8 (TRUE)
3/8
LDW280-18145-13
1/8 3/32 EDGE DISTANCE
LDW280-18145-15
LDW280-18145-13
7/8 (TRUE)
3/8
1/8 3/32 EDGE DISTANCE
ASSY
LDW280-18145-1
1/8 3/32 EDGE DISTANCE
3/8

01702

NAS 9-1100

Ⓐ1
LDW280-28838-1 ASSY (WELDED)

LDW280-28838 SH 3

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.
2. TRIM AFTER WELDING

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

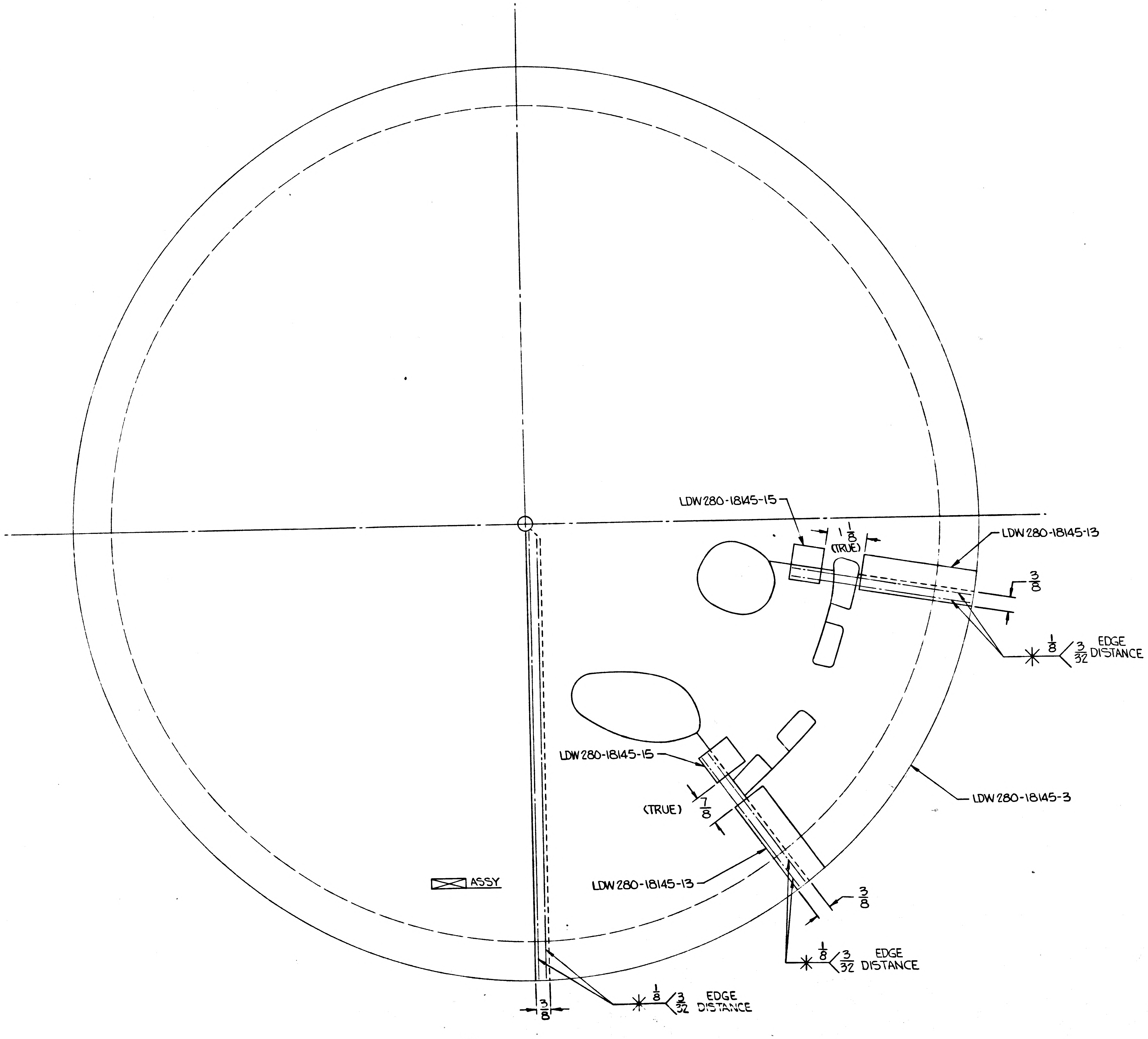
DWG SIZE 34 X 88

PRINTING INFO ONLY

FULL SIZE SHEET AREA (36 X 94) = 24 SQ. FT.

1/2 SIZE SHEET AREA (1/4 OF FULL) = 6 SQ. FT.

PRINT TRIM LINE



Ⓐ₁

LDW 280-28838-3 ASSY (WELDED)

02/02

NAS 9-1100

LDW280-28838 B

LDW280-28838 B

-28838 SH 3

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28838	B
MODEL OR END ITEM	SCALE FULL		SHEET 3.30	

2FR

LDW280-28838 C

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28835	LM-5(35)	1
LM	LDW280-28835	LM-4(34)	1

PART NO. LDW280-28838-7 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28835	LM-3(33)	1
LM	LDW280-28835	LM-2(32)	1

PART NO. LDW280-28838-3 | GAEC SCH NO. 52

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28835	LM-1(51)	1

PART NO. LDW280-28838-1 | GAEC SCH NO. 52

WORK PACKAGE FUNCTION #110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00	4.00				
REV	C	C	C	B	C				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	A	GRUMMAN REL INFO c		
LAST DASH NO. USED	-7	PRIM NO. 207	UK(00) [illegible]	c-3/6/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
±1/16 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	ROESSLER 11-9-66
LAYOUT BY	ROESSLER
CHECKED BY	
GRP LDR	J.STRAKOSCH 11-10-66
VDI	J.PUSATERI 11-11-66
STRUCTURE	M [illegible] 11-11
STRUCTURE	
WEIGHTS	

PROJ ENGR	R.M.CARBEE 11-12
REL GROUP	BOTTI 11-12

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSY
DESCENT STAGE PROPELLANT TANK COVER
METEOROID PROTECTION R.H.

SIZE B | CODE IDENT NO. 26512 | LDW280-28838 | C ©
SCALE NONE | SHEET 1.00 OF 5

ENG 77.1 12-65

C' CDR 3/8/68 SUPERSEDES LDW280-28836 NC 11-9-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
									RETRACED NO CHANGE LAST REV NO CHANGE				W.CONROY 8-12-67		9-1-67
A	1	1.00 1.10 2.00 3.00		LCD-2008		✓			ON-1 REMOVED LDW280-18145-11 & -17, ADDED LDW280-18145-1. EFF LM-1 WAS LM-1 THRU LM-15, ADDED SH 1.10. ADDED -3 EFF LM-2 & LM-3. FLW (FOIL WELDING) LSP14-6102 WAS ASW (SPOTWELD) MIL-W-6868	NOTED		-1	W.CONROY 8-12-67		
B	1	1.00, 1.10, 2.00, 3.00, 4.00		U		✓		LCD2008 OK	IN F/D, B/M & MOD BLK ADDED -5 ASSY, EFF LM-4 (34) & LM-5 (35), ADDED SH 4.00, NOTES 1 & 2 & SECT. "A-A"	LM4(34) LM5(35)	NOT	REQD	J. BIANCHINO 2-14-68		
C	1	1.00, 1.10, & 4.00				✓		LCD2008 OK	IN F/D, B/M & MOD BLK REMOVED -5 ASSY AND LDW280-18145-25, ADDED -7 ASSY & LDW280-18145-27, ADDED SLIT & SPOT-WELD NOTATION ON -7 ASSY	LM-4(34) LM-5(35)		✓	J.BIANCHINO 3-1-68	3/4/68	3-5-68

CHG APPROVED LTR	GROUP LDR	VDI	STRUCTURE	STRUCTURE	WEIGHTS	PROJ ENG	REL GRP
A			W/W 9/1/67	Silberman 9-1-67			
B	2/15/68		W/W 2/17/68	FEB 2/18			
C	3/4/68		W/W 3/4/68	FEB 3/4			

ENG 77.16 3-66

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28838	C

SCALE NONE SHEET 1.10

01

NAS 9-1100

QTY PER ASSEMBLY -7	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1				LDW280-18145-27	E	STRIP	SEE DWG						SH4
1				LDW280-18145-23		SHIELD							SH.1
2	2	2		LDW280-18145-15		STRIP							3B/6B
2	2	2		LDW280-18145-13		STRIP							2B/5B
													SH4
	1			LDW280-18145-3		SHIELD ASSY							2B
		1		LDW280-18145-1		SHIELD ASSY	SEE DWG						6A
				LDW280-28838-7		SHIELD ASSY	(WELDED)				FLW SWT	76	SH4
				LDW280-28838-3		SHIELD ASSY	(WELDED)				FLW SWT	76	3A
				LDW280-28838-1	E	SHIELD ASSY	(WELDED)				FLW SWT	76	6A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						FLW	FOIL WELDING	LSP14-6102
						SWT	SPOTWELD THRU SEALANT	LSP14-14400
						76	ALODINE	LSP14-9010

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

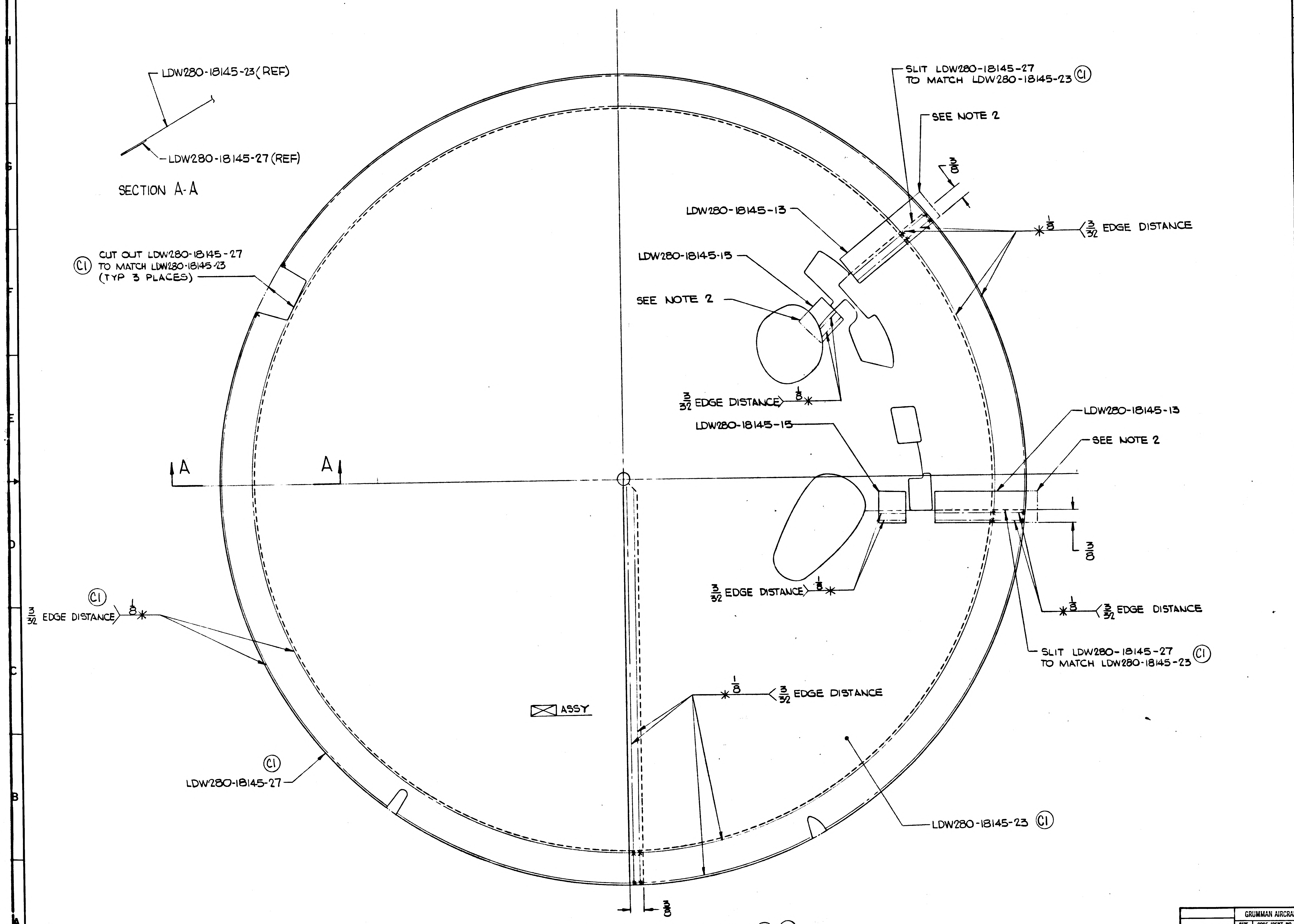
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28838
C
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100


LDW280-18145-23 (REF)
LDW280-18145-27 (REF)
SECTION A-A
SLIT LDW280-18145-27 TO MATCH LDW280-18145-23 (C1)
SEE NOTE 2
3/32
LDW280-18145-13
LDW280-18145-15
1/8
3/32 EDGE DISTANCE
(C1) CUT OUT LDW280-18145-27 TO MATCH LDW280-18145-23 (TYP 3 PLACES)
SEE NOTE 2
3/32 EDGE DISTANCE 1/8
LDW280-18145-15
LDW280-18145-13
SEE NOTE 2
A
A
3/32
3/32 EDGE DISTANCE 1/8
1/8 3/32 EDGE DISTANCE
SLIT LDW280-18145-27 TO MATCH LDW280-18145-23 (C1)
(C1)
3/32 EDGE DISTANCE 1/8
1/8 3/32 EDGE DISTANCE
ASSY
(C1)
LDW280-18145-27
LDW280-18145-23 (C1)
3/32

LDW280-28838-7 ASSY (WELDED) (B1) (C1)

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL ✓ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE F	CODE IDENT NO. 26512	LDW280-28838	C
MODEL OR END ITEM	SCALE FULL			SHEET 4.00

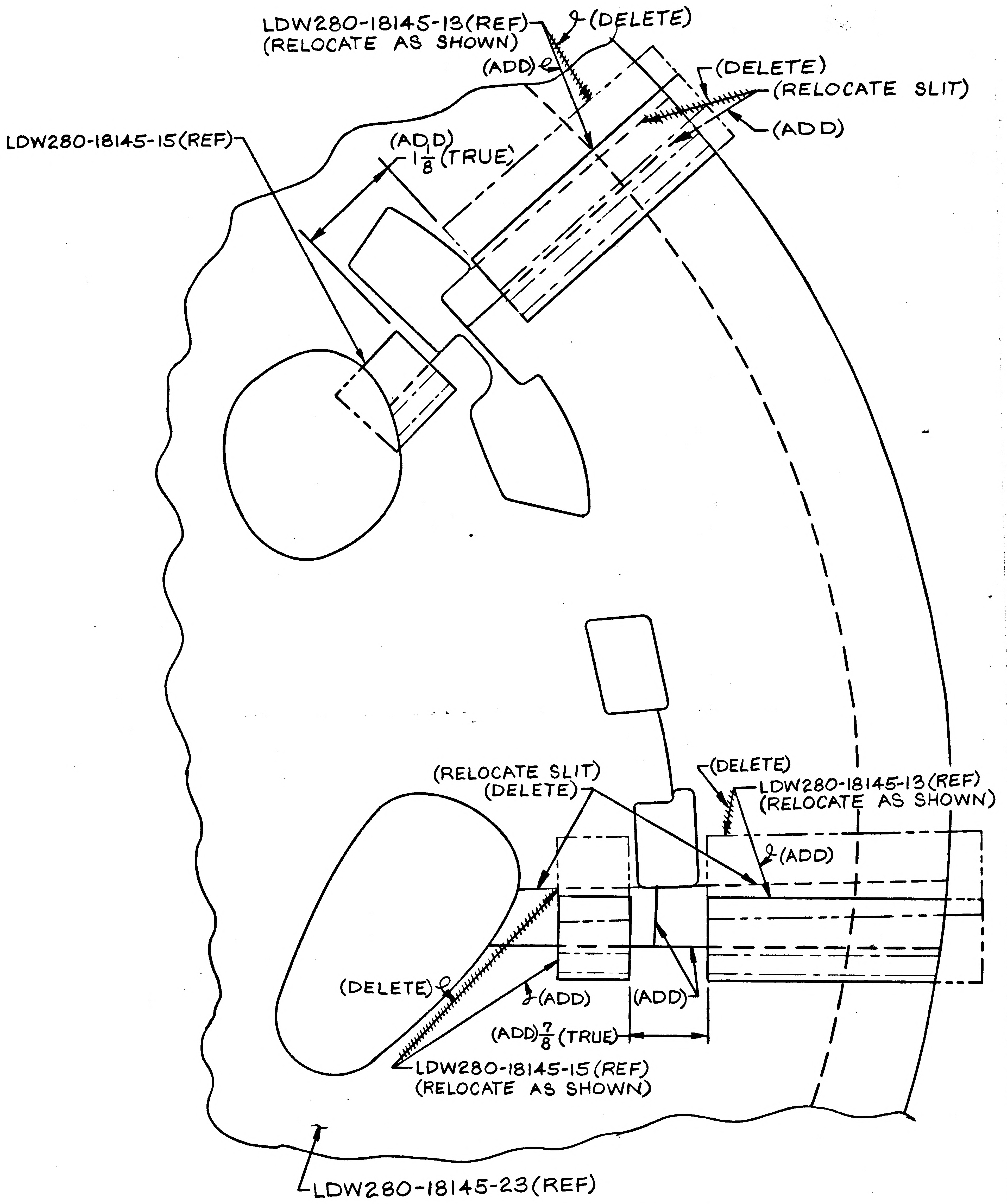
01

NAS 9-1100

ENG 38-2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-28838	EO NO.	D1
CONTROL INFO NO.	LM-2-4673		


LDW280-18145-13(REF)
(RELOCATE AS SHOWN)
℄(DELETE)
(ADD)℄
(DELETE)
(RELOCATE SLIT)
(ADD)
LDW280-18145-15(REF)
(ADD)
$1\frac{1}{8}$(TRUE)
(RELOCATE SLIT)
(DELETE)
(DELETE)
LDW280-18145-13(REF)
(RELOCATE AS SHOWN)
℄(ADD)
(DELETE)℄
℄(ADD)
(ADD)
(ADD)$\frac{7}{8}$(TRUE)
LDW280-18145-15(REF)
(RELOCATE AS SHOWN)
LDW280-18145-23(REF)

LDW280-28838-7 ASSY (WELDED)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2008

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
(DRAWING CORRECTION ONLY) ASSY DISAGREES WITH DETAIL & LOCATING DIMENSIONS OMITTED	FOR -7 ASSY, IN FLD/DWG ADDED 7/8(TRUE) & 1 1/8(TRUE) DIMS. RELOCATED SLITS (2 PLC'S) LDW280-18145-13 (2 PLC'S) & LDW280-18145-15 (1 PLC)	(2) C VC 03010

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT	REQD
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	3/2/68				4/27/68	4/26/68	5/0/68	4-30-68
	JDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E	SHIELD ASSY~D/S~PROPELLANT TANK COVER~METEORIOD PROTECTION R.H.	LDW280-28838	D1

ISSUED BY LIAISON J. MALONEY 4/25/68 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

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LDW280-28839 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO	REQD PER MODULE OR END ITEM
LM	LDW280-28835	LM-5 (35)	1
LM	LDW280-28835	LM-4 (34)	1
PART NO. LDW280-28839-7		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO	REQD PER MODULE OR END ITEM
LM	LDW280-28835	LM-3 (33)	1
LM	LDW280-28835	LM-2 (32)	1
PART NO. LDW280-28839-5		GAEC SCH NO. 52	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28835	LM-1 (3[illegible]	1
PART NO. LDW280-28839-1		GAEC SCH NO. 52	

WORK PKG FUNCTION NO. [illegible]

SH REV STATUS FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	00	0	100	300	400				
REV	B	B	B	B	B				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	A A
LAST DASH NO. USED	-7

GRUMMAN REL INFO B

PRIM NO.	LK[illegible]	
[illegible]	[illegible]	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES

±1/16 ±.030 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM

DOCUMENTATION TYPE II

DRAWN BY	ROESSLER [illegible]		
LAYOUT BY	ROESSLER		
CHECKED BY			
GR LEADER	J STRAKOSCH [illegible]		
E-DES NT	J PUSATERI [illegible]		
STRUCT	FEB. [illegible]	PROJ ENGR	RM CARBEE [illegible]
STRUCT		REL GROUP	J TAGLIAVIA [illegible]
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE L. I., NEW YORK

SHIELD ASSY
DESCENT STAGE PROP TANK COVER
METEOROID PROTECTION L.H.

SIZE	CODE IDENT NO.		
B	26512	LDW280-28839	B
SCALE	NONE	SHEET 00 OF 5	

SUPERSEDES LDW280-28839 NC [illegible]

01 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED NO CHANGE. LAST REV NC T MACAULAY 8-2-67 ADDED SH 1.10						
A	1	2.00						EO A1	ON-3 REMOVED LDW280-18146-17	NOT REQD	NOT	REQD	T.MACAULAY 8-14-67		[illegible] 8-9-67
	2	2.00 3.00						LCD 2008	ON-1 RESTRICTED EFF LM-1(31) WAS LM-1(31) LM-2(32) & LM-3(33). IN F/D & M/B REMOVED -3 WAS EFF ON LM-4(34) THRU LM-15(45). ADDED -5 EFF LM-2(32) & LM-3(33)	NOTED		-1 -3			
	3	3.00 2.00							IN F/D & B/M "FLW" FOIL WELDING PER LSP14-6102 WAS PER MIL-W-6858.	NOT REQD	NOT	REQD			
	4	2.00 3.00							ON-1 REMOVED LDW280-18146-11 & -21. ADDED LDW280-18146-1.	LM-1(31)	✓				
	5	3.00							IN F/D REMOVED 7/8 TRUE DIM (2PL). ADDED 3/8, 5/8 & 3/4 TRUE DIMS ON-1.	LM-1(31)	✓				
B	1	1,2,3&4		✓			✓	LCD 2008	ADDED -7 ASSY EFF LM-4 & LM-5, NOTES 1 & 2 & SH 4.	LM-4 & LM-5	NOT	REQD			

ENGRG APPROVAL	GROUP LEADER	VEHICLE INT	STRUCTURES	STRUCTURES	WEIGHTS
A	—				
B					

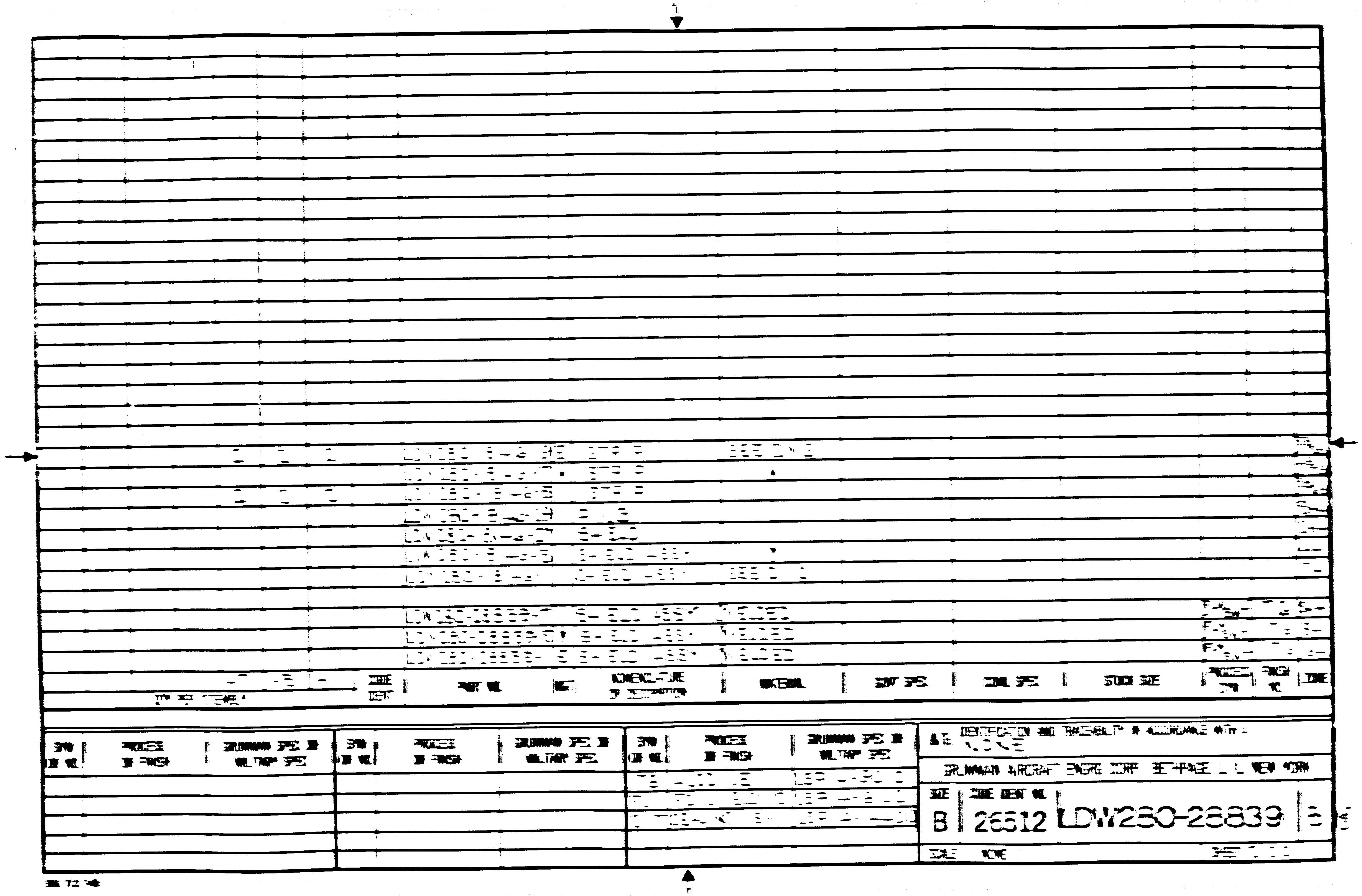
FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28839	B
SCALE NONE			SHEET 1.10

01

NAS 9-1100



[illegible]			[illegible]		STRIP	SEE DWG				
			[illegible]		STRIP					
[illegible]			[illegible]		STRIP					
			[illegible]		[illegible]					
			[illegible]		SHIELD					
			[illegible]		SHIELD ASSY					
			[illegible]		SHIELD ASSY	SEE DWG				
			LDW280-28839-[illegible]		SHIELD ASSY	WELDED				[illegible]
			LDW280-28839-[illegible]		SHIELD ASSY	WELDED				[illegible]
			LDW280-28839-[illegible]		SHIELD ASSY	WELDED				[illegible]
QTY REQ ITEM/ASSY		CODE IDENT	PART NO.	NOTE	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	CODE SPEC	STOCK SIZE	PROCESS FINISH TYPE / NO.	ZONE

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MIL/TAPP SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MIL/TAPP SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MIL/TAPP SPEC
						[illegible]	[illegible]	[illegible]
						[illegible]	[illegible]	[illegible]
						[illegible]	[illegible]	[illegible]

IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH: NONE

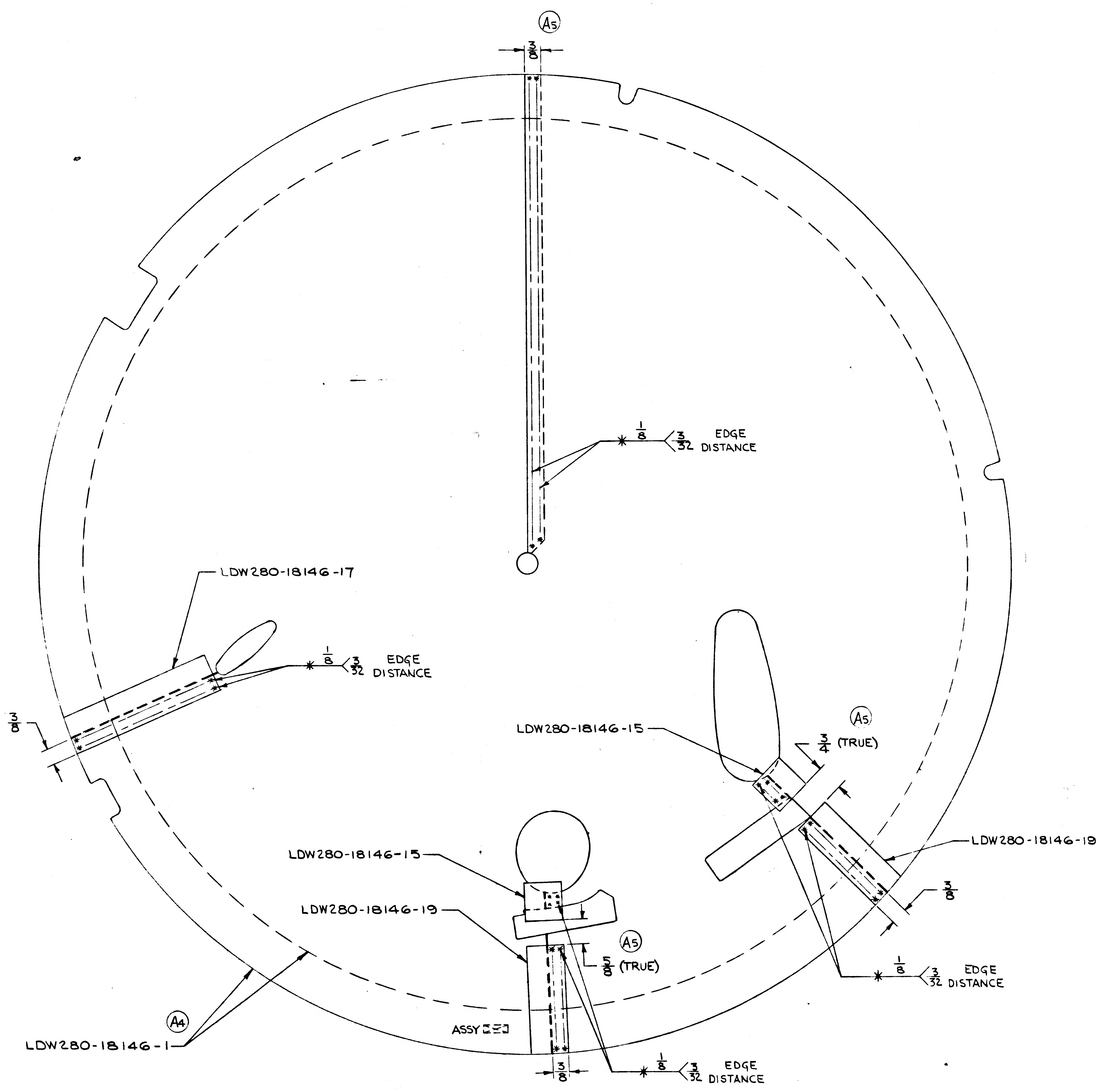
GRUMMAN AIRCRAFT ENGRG CORP BETHPAGE L.I. NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-28839 | B

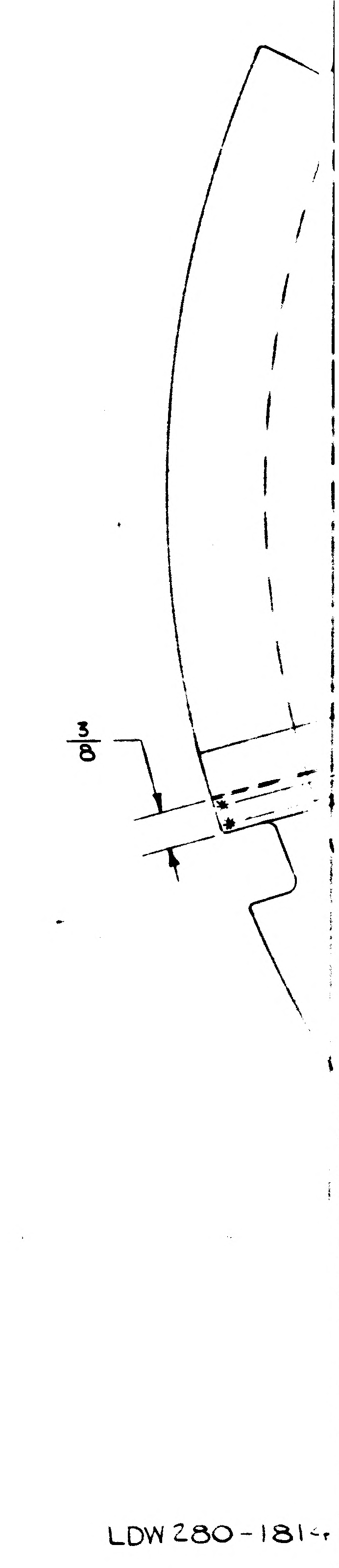
SCALE NONE | SHEET [illegible]

01

NAS 9-1100



A5
3/8
1/8 3/32 EDGE DISTANCE
LDW280-18146-17
1/8 3/32 EDGE DISTANCE
3/8
LDW280-18146-15
A5
3/4 (TRUE)
LDW280-18146-19
3/8
LDW280-18146-15
LDW280-18146-19
A5
5/8 (TRUE)
1/8 3/32 EDGE DISTANCE
A4
LDW280-18146-1
ASSY
3/8
1/8 3/32 EDGE DISTANCE

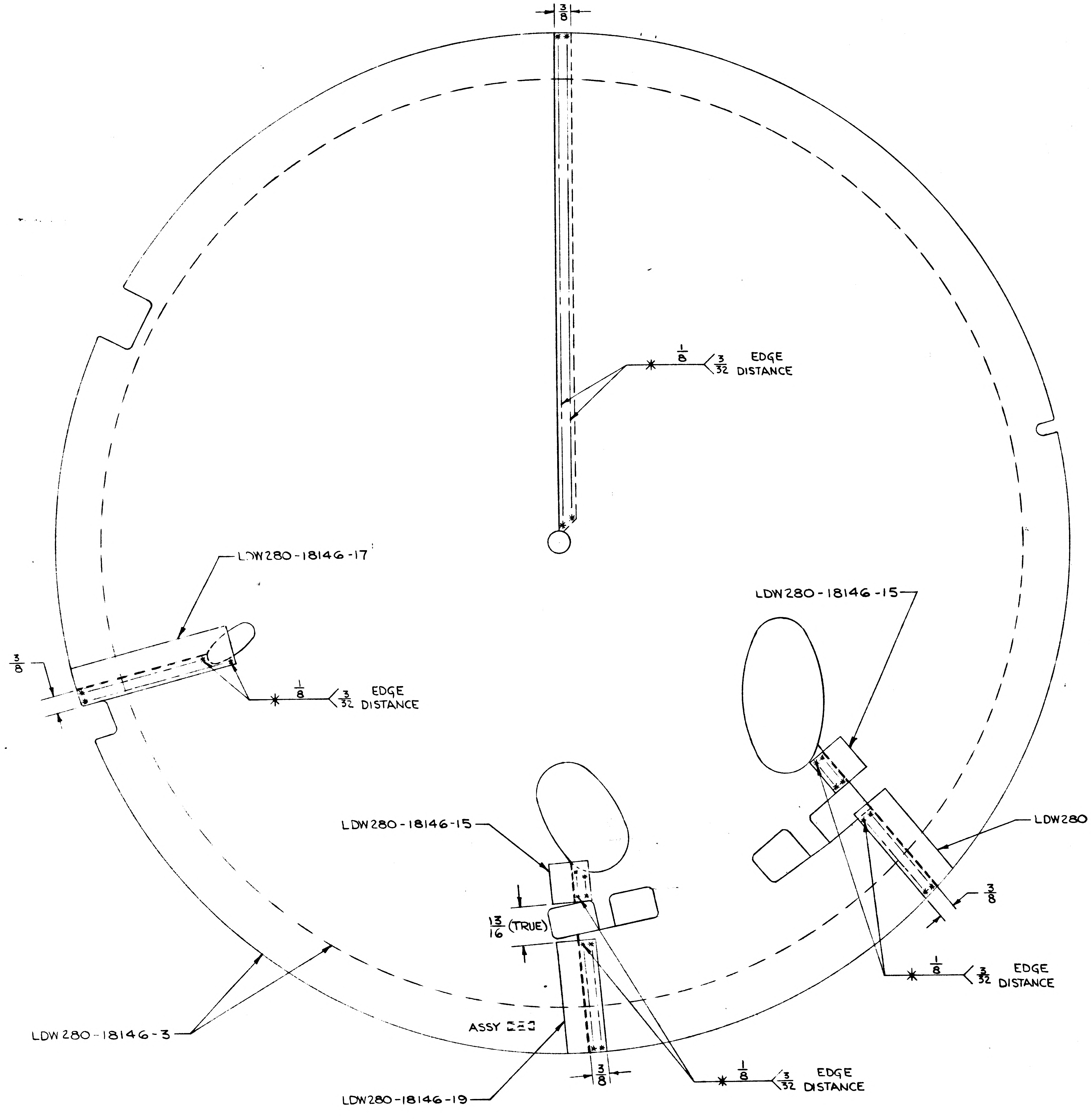


3/8
LDW280-181

01/02 NAS 9-1100

LDW 280-28839-1 ASSY

LDW280-28839 SH 3



3/8
1/8 3/32 EDGE DISTANCE
LDW280-18146-17
3/8
1/8 3/32 EDGE DISTANCE
LDW280-18146-15
LDW280-18146-15
LDW280-18146-19
3/8
13/16 (TRUE)
1/8 3/32 EDGE DISTANCE
LDW280-18146-3
ASSY 280
3/8
LDW280-18146-19
1/8 3/32 EDGE DISTANCE

-18146-19

LDW280-28839-5 ASSY Ⓐ2

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. TRIM AFTER WELDING.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 98) = 24.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 6.0 SQ. FT.

PRINT TRIM LINE

D C B A

LDW280-28839 B

LDW280-28839 B

02/02

NAS 9-1100

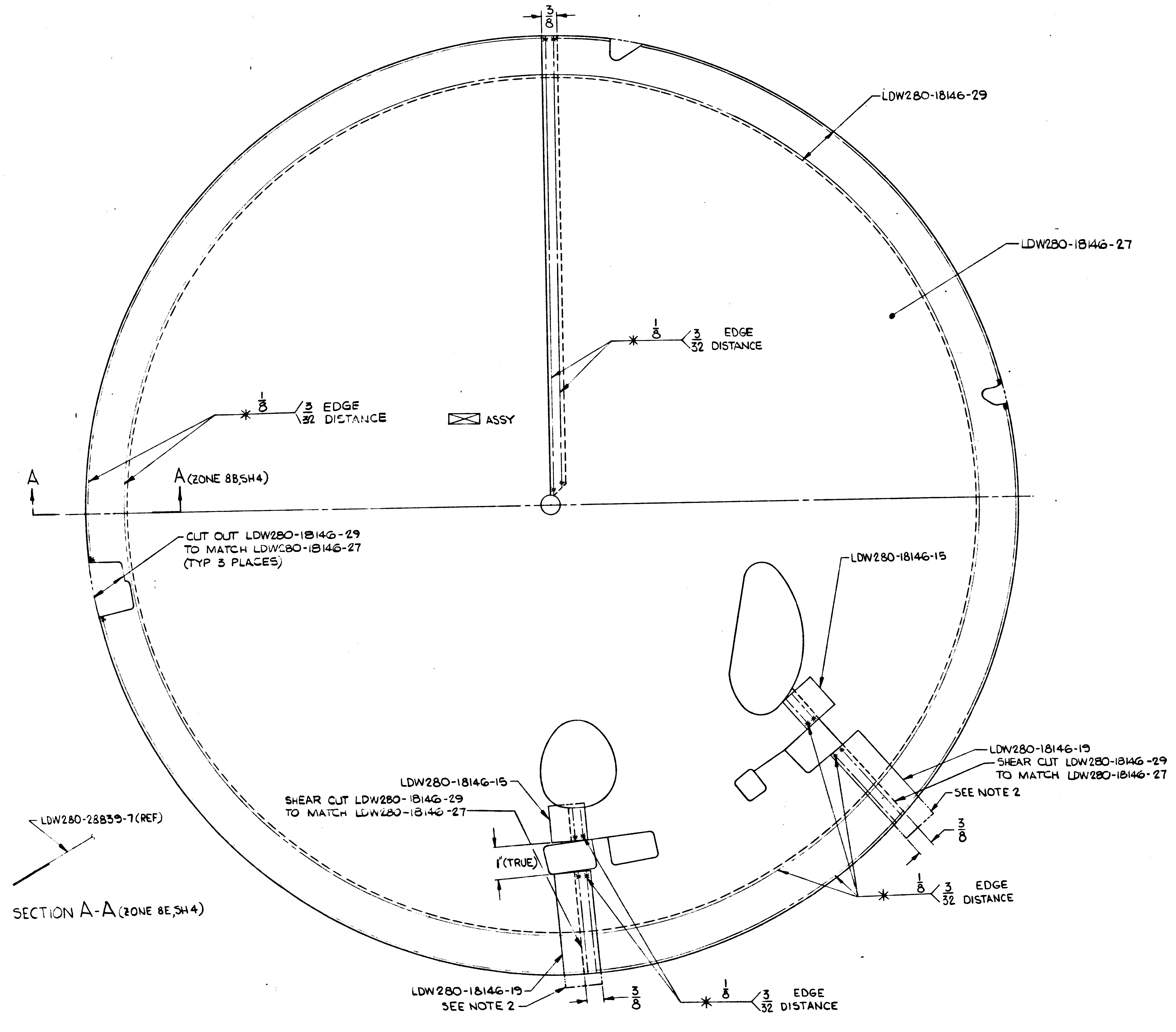
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

LM	SIZE J	CODE IDENT NO. 26512	LDW280-28839	B
MODEL OR END ITEM	SCALE FULL		SHEET 300	

Ⓐ2

2FR

W280-28839 SH 3


3/8
LDW280-18146-29
LDW280-18146-27
1/8 ✱ 3/32 EDGE DISTANCE
1/8 ✱ 3/32 EDGE DISTANCE
ASSY
A
A (ZONE 8B,SH4)
CUT OUT LDW280-18146-29 TO MATCH LDW280-18146-27 (TYP 3 PLACES)
LDW280-18146-15
LDW280-18146-19
SHEAR CUT LDW280-18146-29 TO MATCH LDW280-18146-27
SEE NOTE 2
3/8
1/8 ✱ 3/32 EDGE DISTANCE
LDW280-18146-15
SHEAR CUT LDW280-18146-29 TO MATCH LDW280-18146-27
1"(TRUE)
LDW280-28839-7 (REF)
SECTION A-A (ZONE 8E,SH4)
LDW280-18146-19
SEE NOTE 2
3/8
1/8 ✱ 3/32 EDGE DISTANCE

LDW280-28839-7 ASSY (B1)

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

LDW280-28839 B

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE F	CODE IDENT NO. 26512	LDW280-28839	B
MODEL OR END ITEM	SCALE FULL		SHEET 4	

101

NAS 9-1100

A.G.
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28839
EO NO. A1
CONTROL INFO NO. LM-2-3198

IN F/D & L/M

REMOVE LDW280-18146-17 FROM -3 ASSY

(DETAIL PARTS NEVER MADE)

2

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: PART NOT REQD ON -3 ASSY

DESCRIPTION OF EO: ON-3
REMOVED LDW280-18146-17

GAEC EO RELEASE: D C

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
				DATE					1/10/67	1/10/67	1-11-67	1/10/67
✓		NOT	REQD	6	VDI							
REVISE DWG	RECORD EO	REWORK	SCRAP			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E2	SHIELD ASSY - D/S - PROP TANK COVER - METEOROID PROTECTION - L.H.	LDW280-28839	A-1

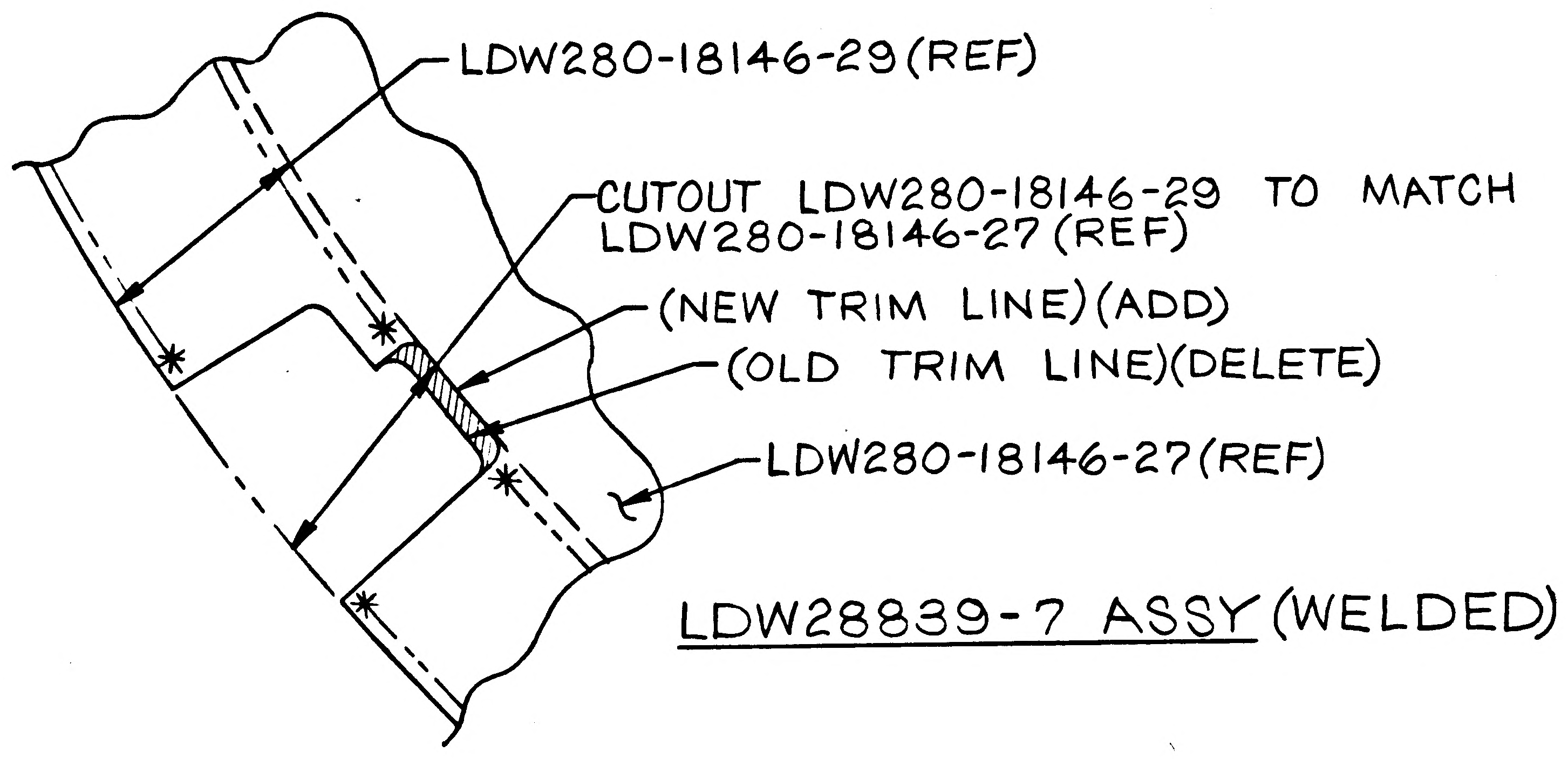
ISSUED BY LIAISON/R.B.MAIESKI (X3604) SECTION VDI GROUP NO. 335 PL 35

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28839		EO NO. C1	
CONTROL INFO NO.	LM-2-4681		


LDW280-18146-29 (REF)
CUTOUT LDW280-18146-29 TO MATCH LDW280-18146-27 (REF)
(NEW TRIM LINE)(ADD)
(OLD TRIM LINE)(DELETE)
LDW280-18146-27 (REF)
LDW28839-7 ASSY (WELDED)

TO BE LOFTED

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2008

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
INSUFFICIENT SURFACE FOR PROPER SPOTWELDING	FOR -7 ASSY, IN FLD/DWG REVISED CUTOUT IN LDW280-18146-29	(P) (2) C

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-4 (34)	
		LM-5 (35)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY									
✓		✓											02010
				DATE	5/2/68			—	4/30/68	4/30/68	5/2/68	4/30/68
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY ~ D/S ~ PROP. TANK COVER ~ METEORIOD PROTECTION, L.H.	LDW280-28839	C1

ISSUED BY LIAISON J. MALONEY 4/30/68 X3604 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28840 A

PART NO. LDW280-28840-3

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53023	LM-15(45)	1
LM	LDW280-53023	LM-14(44)	1
LM	LDW280-53023	LM-13(43)	1
LM	LDW280-53023	LM-12(42)	1
LM	LDW280-53023	LM-11(41)	1
LM	LDW280-53023	LM-10(40)	1
LM	LDW280-53023	LM-9(39)	1
LM	LDW280-53023	LM-8(38)	1
LM	LDW280-53023	LM-7(37)	1
LM	LDW280-53023	LM-6(36)	1
LM	LDW280-53023	LM-5(35)	1
LM	LDW280-53023	LM-4(34)	1
LM	LDW280-53023	LM-3(33)	1

PART NO. LDW280-28840-1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51023	LM-2(32)	1
LM	LDW280-51023	LM-1(31)	1
LM	LDW280-28023	LTA-8(18)	1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
PART NO.			

3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED A

LAST DASH NO. USED -3

GRUMMAN REL INFO A

PRIM NO. 215 VE(001) MP-14 A-11-4-6 EMF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.030 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM #1

DOCUMENTATION TYPE II

DRAWN BY J. BRODA 10-25-66

LAYOUT BY M.KRAMEISEN

CHECKED BY H. RODALEWICZ 10/26/66

GP.LEADER 11/1/66

VEH. DES. INT. W EBERSCHOFF

STRUCTURES 11/✓

STRUCTURES

WEIGHTS

RELIABILITY

THERMO V.T. IACONO

PROJ ENGR R M Corbee (EJ) 11-V

REL GROUP J Yaghoni 11/9/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

FRAME ASSY
ASCENT-UPPER DOCKING WINDOW-OUTERGLASS

SIZE B | CODE IDENT NO. 26512 | LDW280-28840 | A

SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
A	1	1.00, 1.10 2.00, 3.00						E.O. A1	INITIAL DWG. RELEASE. PARTS MADE PER E.O.	LTA-8, LM-1 THRU LM-15	NOT	REQD	BRODA 10-25-66		

CHG APPROVED

LTR	GROUP LDR	VEH.DES.INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO				
A			cw				V.J.I.				

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28840	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					-3	-1											
					1	1		LDW280P11606-11	E	RETAINER	SEE DWG.						
					1			LDW280P10143-13	E	FRAME	SEE DWG.						
						1		LDW280P10143-11	E	FRAME	SEE DWG.						
								LDW280-28840-3	E	FRAME ASSY					NONE	SEE NOTE 2	
								LDW280-28840-1	E	FRAME ASSY					NONE	SEE NOTE 2	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

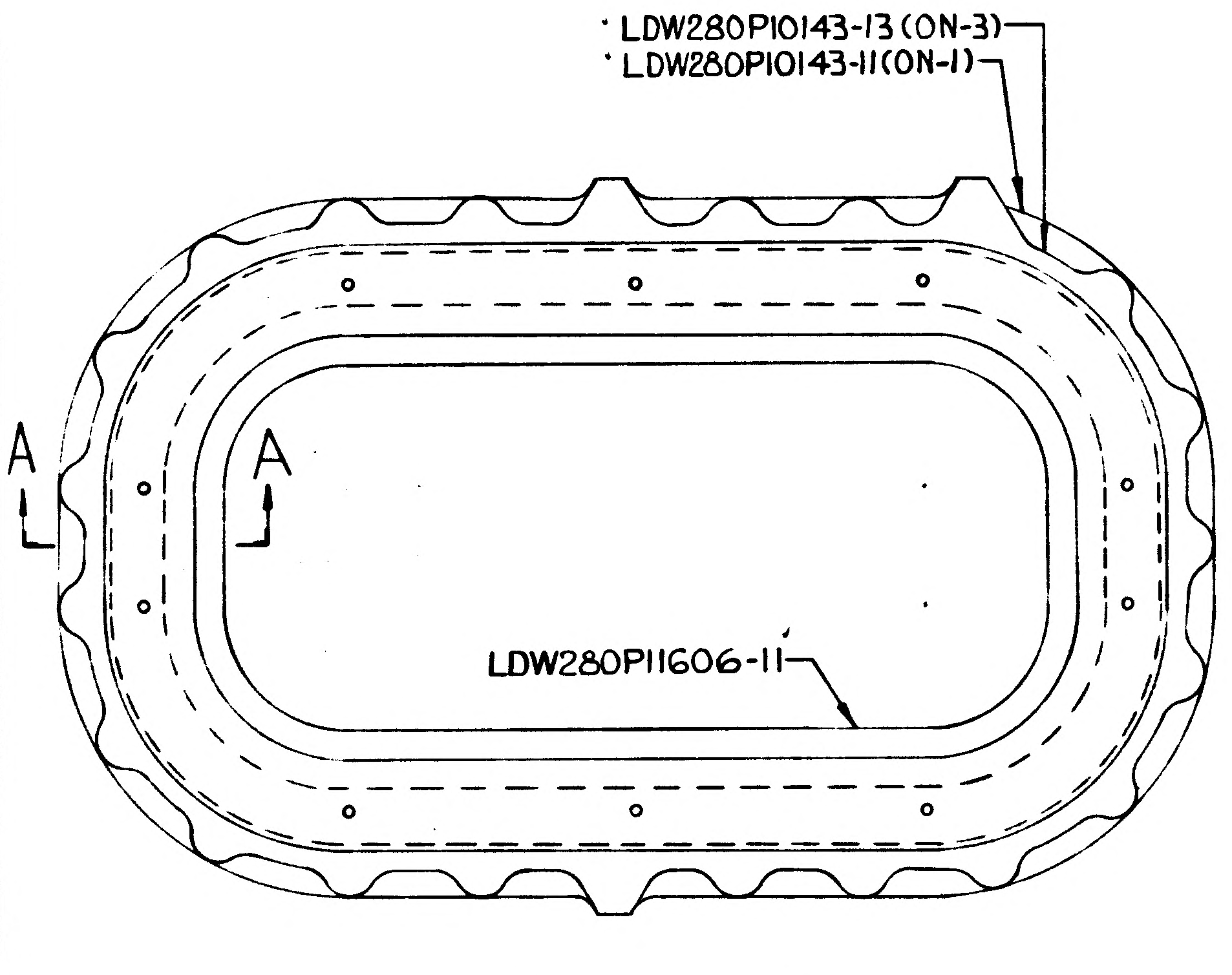
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28840	A

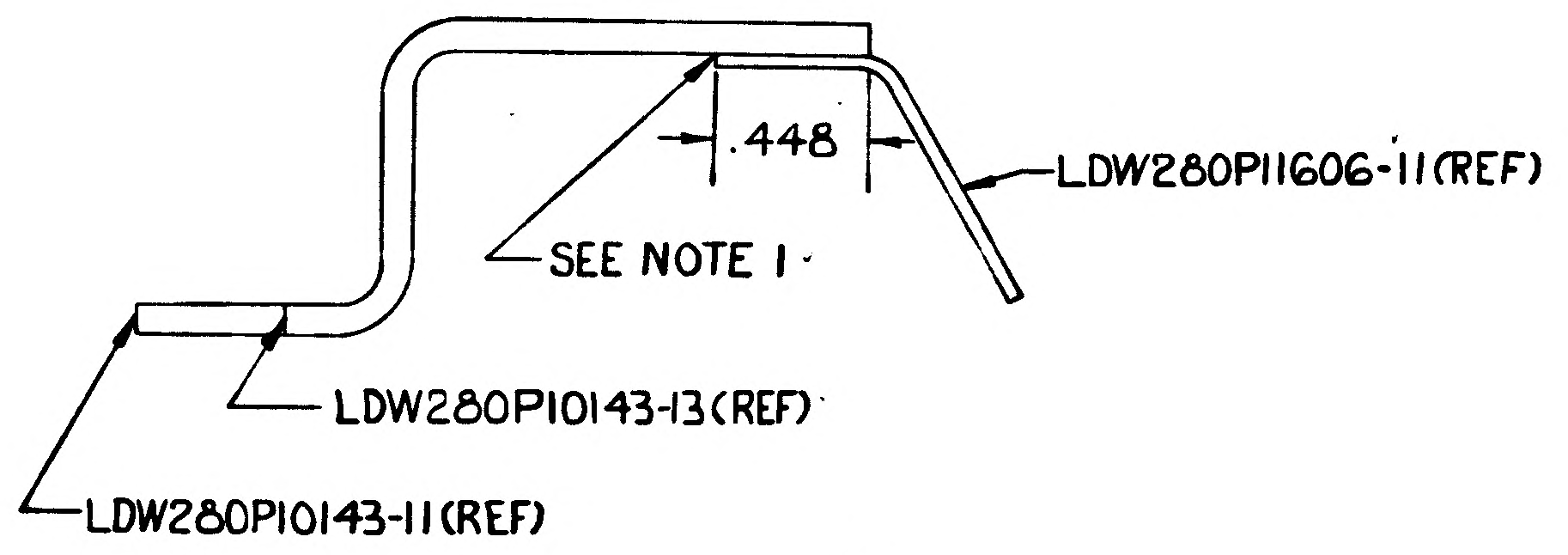
SCALE NONE SHEET 2.00

ENG 77.2 7-65

01 NAS 9-1100


LDW280P10143-13 (ON-3)
LDW280P10143-11 (ON-1)
A
A
LDW280P11606-11

LDW280-28840-1 ASSY
-3 ASSY


.448
SEE NOTE 1
LDW280P11606-11 (REF)
LDW280P10143-13 (REF)
LDW280P10143-11 (REF)

SECTION A-A
(TYPICAL)
SCALE 2:1

NOTES:

1. LDW280P11606-11 TO BE BONDED TO LDW280P10143-11 OR -13 (AS REQ'D) USING BR92 ADHESIVE PER LSP-14-22500. CURE RANGE II. ALLIGN PARTS AS SHOWN.
2. -1 & -3 TO BE FINISHED WITH VELVET PAINT. SERIES 400 BLACK. CODE NO. 401-C10 IN ACCORDANCE WITH LSP-14-4503.

	GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
LM	SIZE C	CODE IDENT NO. 26512	LDW280-28840	A
MODEL OR END ITEM	SCALE 1/2 & NOTED		SHEET 3.00	

ENG 73-2

01 NAS 9-1100

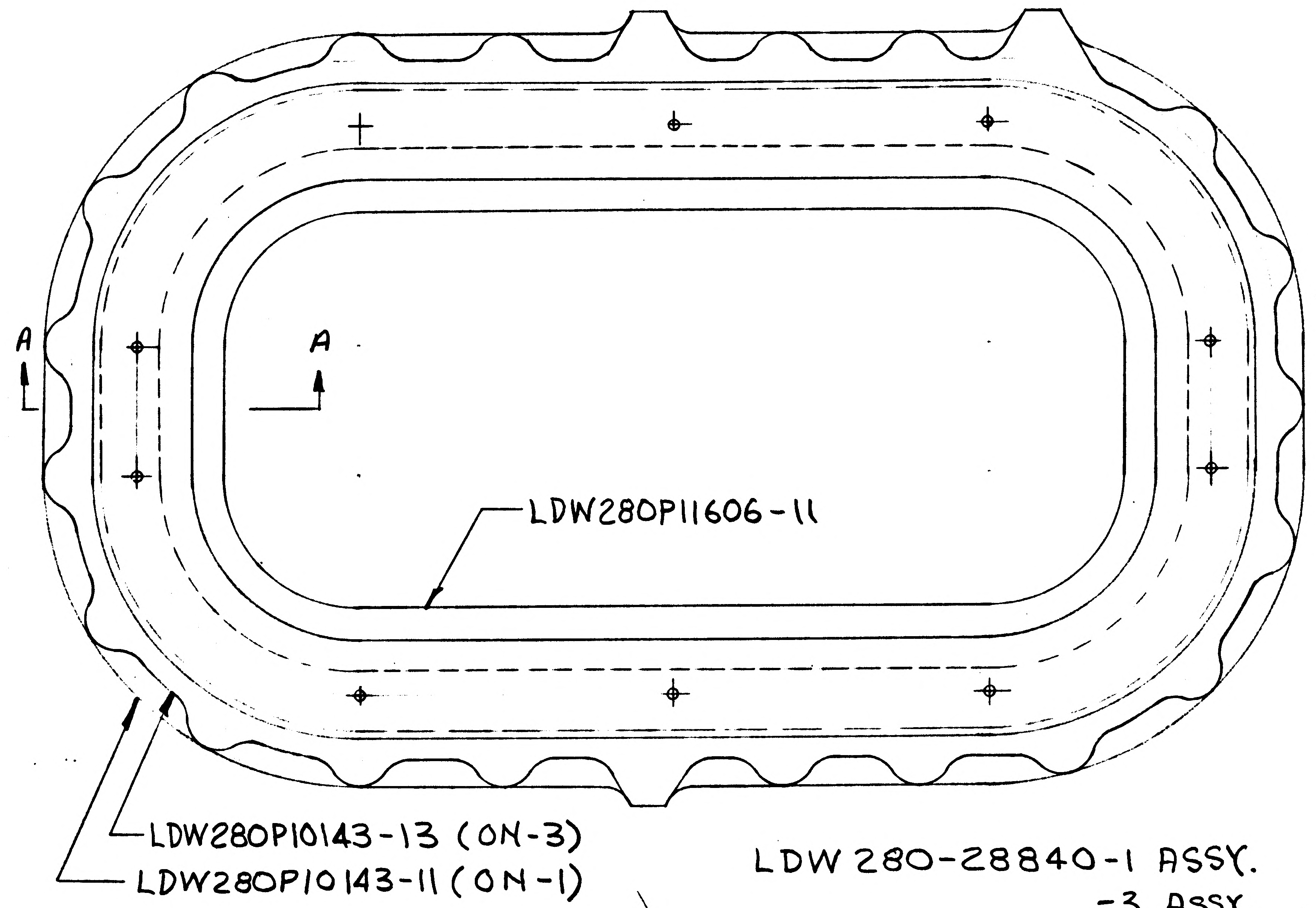
01 NAS 9-1100

ENG 32.2 REV 3-65

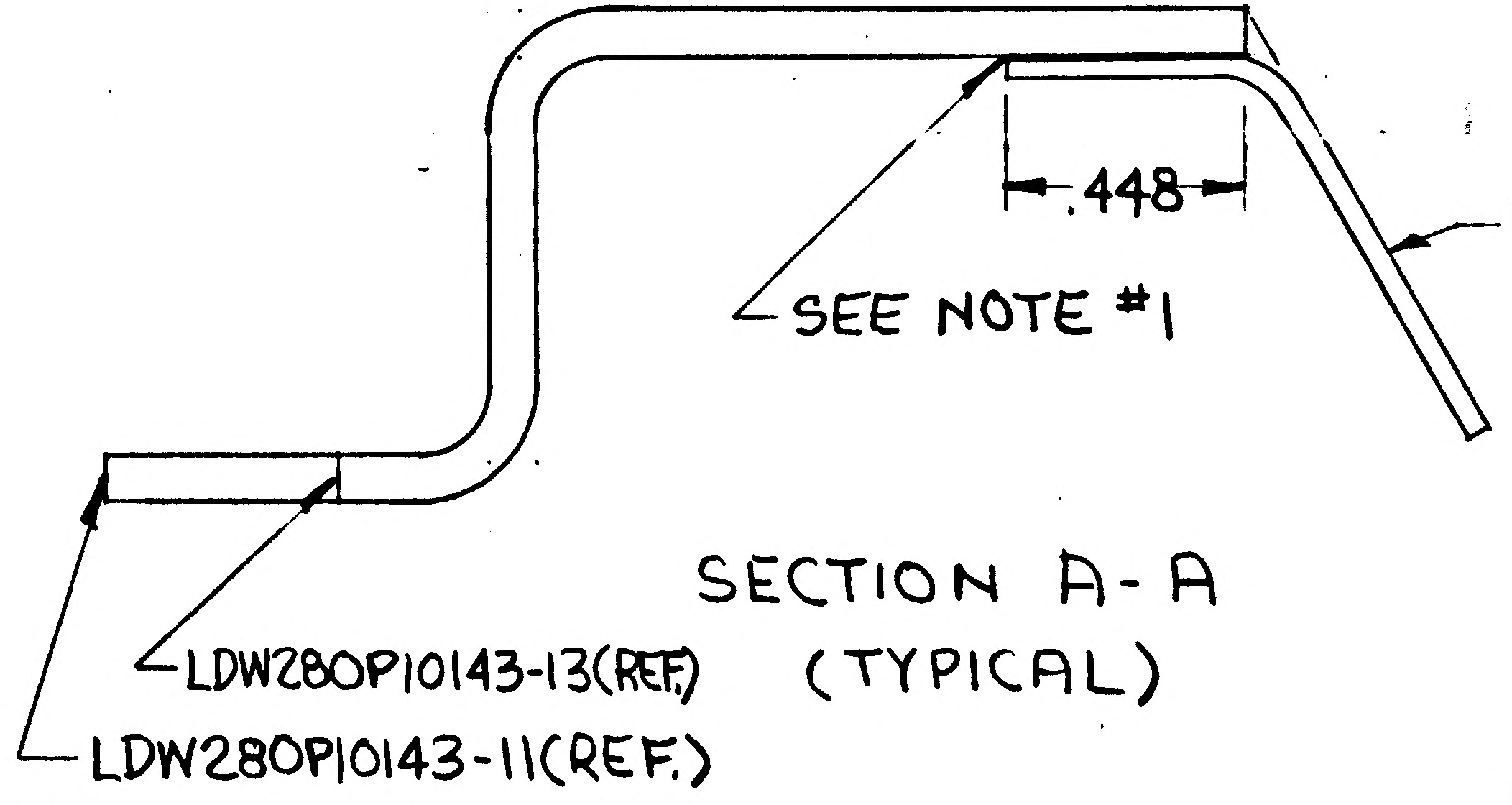
*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28840 | EO NO. A1
CONTROL INFO NO. LDW280A-1093



LDW 280-28840-1 ASSY.
-3 ASSY.



SECTION A-A
(TYPICAL)

NOTES:

1 LDW280P11606-11 TO BE BONDED TO LDW280P10143-11 OR -13 (AS REQ.) USING BR 92 ADHESIVE PER LSP 14-22500, CURE RANGE II. ALLIGN PARTS AS SHOWN.

2 -1 & -3 TO BE FINISHED WITH VELVET PAINT, SERIES 400 BLACK, CODE NO. 401-C10 IN ACCORDANCE WITH LSP-14-4503.

LDW280-28840-1, -3 ASSY.
PROCESS: NONE, FINISH: SEE NOTE #2
EFF OF-1: LTA-8(18), LM-1(31), LM-2(32)
EFF. OF-3: LM-3(33) THRU LM-15(45)
N/A OF -1: ON LTA-8, LDW280-28023
ON LM-1, LM-2, LDW280-51023
N/A OF -3: ON LM-3 THRU LM-15, LDW280-53023
CONTRACT NO. NAS 9-1100, LINE ITEM #1
DOCUMENTATION TYPE II, REQ'D PER MOD.: 1
PRIM # 215 I & T: E
TOL. DEC: ±.030 FRACT: ±1/32 ANGLES: ±1/2°

✱ DWG NOT MADE

3

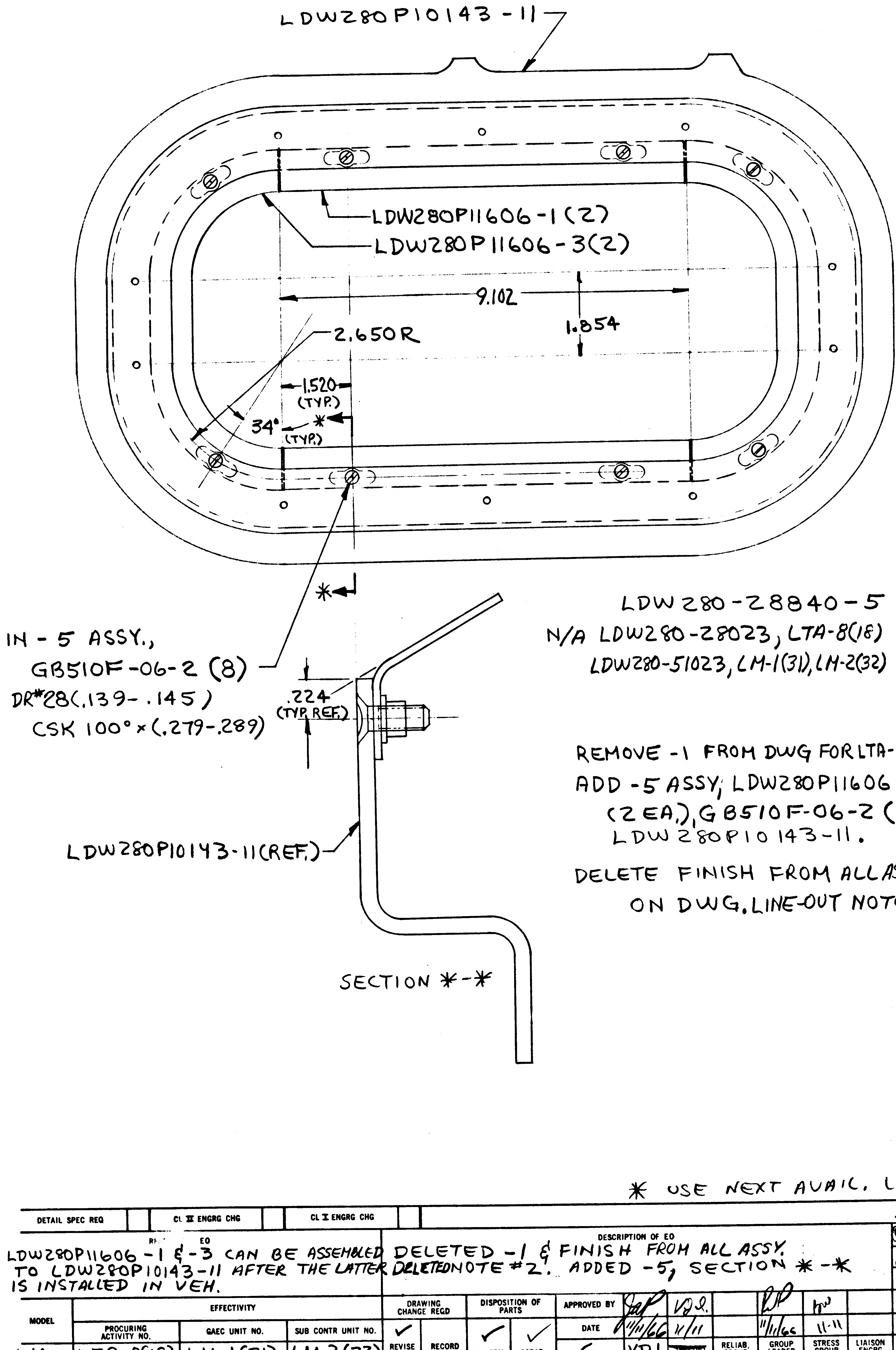
DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG										
REASON FOR EO: CREATE ASSY. DWG TO INST. BLANKET RETAINER.			DESCRIPTION OF EO: EO. A1 INITIAL DWG. RELEASE PARTS MADE PER EO									GAEC EO RELEASE: ✕ E 10/18
MODEL	EFFECTIVITY		DRAWING CHANGE REQD	DISPOSITION OF PARTS		APPROVED BY		V.D.I.				RME(E)
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✱	✓	DATE 10/14/66	10/17		10/11/66	10-14		10-14	10/18/66
LM	LTA-8(18)	LM-1(31) THRU	LM-15(45)	REVISE DWG / RECORD EO	REWORK / SCRAP	10-8-66	V.D.I.	~~THERMAL~~ / RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
				PRIORITY C	DRAWING TITLE: FRAME ASSY. ASCENT-UPPER DOCKING WINDOW-OUTERGLASS			DRAWING NO. LDW280-28840				EO NO. A1

ISSUED BY S. MURRAY KRAMEISEN x7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 35 EHF

NO 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-28840	EO NO.	B1
CONTROL INFO NO.	LDW280A-3114		



IN-5 ASSY.,
GB510F-06-2 (8)
DR#28(.139-.145)
CSK 100° × (.279-.289)

LDW280-28840-5 ASSY.
N/A LDW280-28023, LTA-8(18) 1REQD/VEH.
LDW280-51023, LM-1(31), LM-2(32) 1REQD/VEH.

REMOVE -1 FROM DWG FOR LTA-8, LM-1, -2.
ADD -5 ASSY; LDW280P11606-1 & -3 (2 EA.), GB510F-06-2 (8), LDW280P10143-11.

DELETE FINISH FROM ALL ASSEMBLIES ON DWG, LINE-OUT NOTE #2.

* USE NEXT AVAIL. LETTER
3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: LDW280P11606-1 & -3 CAN BE ASSEMBLED TO LDW280P10143-11 AFTER THE LATTER IS INSTALLED IN VEH.

DESCRIPTION OF EO: DELETED -1 & FINISH FROM ALL ASSY. DELETED NOTE #2. ADDED -5, SECTION *-*

GAEC EO RELEASE: C 11/12/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-8(18)	LM-1(31)	LM-2(32)

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP ✓

APPROVED BY		VDI						RMC	
DATE	11/11/66	11/11			11/11/66	11-11		11-11-66	11-11-66
	6	V.D.I.	~~SUPPORT~~ THERMAL	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: FRAME ASSY ASCENT-UPPER DOCKING WINDOW-OUTER GLASS
DRAWING NO.: LDW280-28840
EO NO.: B1

ISSUED BY S. MURRAY KRAMEISEN 11/7/66 x1441 SECTION VEH. DES. INT. GROUP NO. 335 PL 35

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-28840		EO NO. B2
CONTROL INFO NO. LDW 280B-9736		

CREATE -3-1 SIMILAR TO -3 EXCEPT THAT
LDW 280P11606-11-1 WAS LDW 280P11606-11

EFFECTIVITY:
LM-9(39) THRU LM-13(43)

NEXT ASSY: LDW 280-53023
QTY: (1) REQ'D/VEH.

FOR LFM INFO ONLY:
ON -3, LDW 280P11606-11-1 WAS LDW 280P11606-11 FOR LM-7(37) & LM-8(38).

RESTRICT -3 TO LM-3(33) THRU LM-8(38) AND LM-14(44) & LM-15(45)
(EFFECTIVITY WAS LM-3(33) THRU LM-15(45).)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCD# 5395 PKG #10

REASON FOR EO: CABIN WINDOW HEATER - GLASS SPALLING

DESCRIPTION OF EO: CREATED -3-1
RESTRICTED -3 TO LM-3(33) THRU LM-8(38) AND LM-14(44) & LM-15(45) BY REMOVING LM-9(39) THRU LM-13(43) EFF.

(5)

MODEL	~~PROCURING ACTIVITY NO.~~ E1	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM		LM-9(39) THRU LM-13(43)	
LM	LFM#553	LM-7(37)	LM-8(38)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

	VDL	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GAEC EO RELEASE
APPROVED BY					CW			JK
DATE	1-15-70			1/15/70	1/16/70		1/16/70	1/19/70 1/16/70

PRIORITY: C

DRAWING TITLE: FRAME ASSY - ASCENT - UPPER DOCKING WINDOW - OUTER GLASS

DRAWING NO.: LDW 280-28840

EO NO.: B2

ISSUED BY: GEO. W. ROCKLEIN X86048 1/15/70 (1/15/70)

SECTION: VEH. DES. INT. GROUP NO. 335 PL 25

01

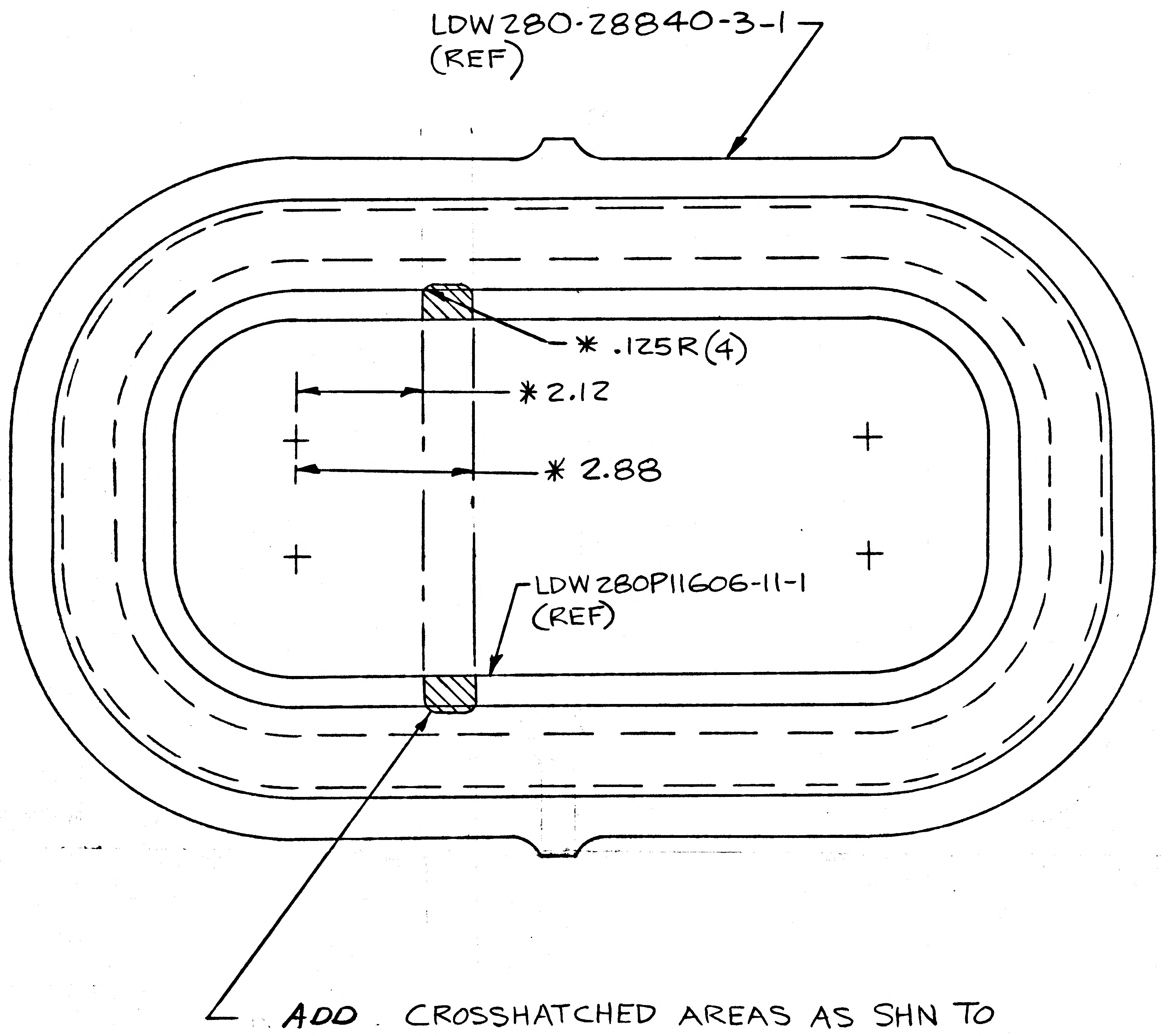
NAS 9-1100

01
NAS 9-1100

ENG 32.2 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28840
EO NO. B3
CONTROL INFO NO. LDW280C-0156



ADD CROSSHATCHED AREAS AS SHN TO AGREE WITH LDW280P11606-11-1 DETAIL PART.

* DO NOT INCORPORATE DIMENSION TO DWG.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD-5395 PKG 10

REASON FOR EO: TO INDICATE THE CORRECT LOCATION OF DETAIL PART

DESCRIPTION OF EO: ON-3-1 ADDED CROSSHATCHED AREAS TO AGREE WITH LDW280P11606-11-1 DETAIL PARTS

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-9(39) THRU	LM-13(43)

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					CW			
DATE	3-16-70			3/16/70	3/17/70		3/19/70	3/20/70

PRIORITY: C

DRAWING TITLE: FRAME ASSY - A/S - UPPER DOCKING WINDOW - OUTER GLASS

DRAWING NO.: LDW280-28840

EO NO.: B3

033070

ISSUED BY JOHN K LEE SECTION VDI GROUP NO. 280 PL25

LDW280-28843 A

LFM

LFM126	LDW280-28861	LTA-8(18)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28843-1-1		GAEC SCH NO. 126	

LM	LDW280-51861	LM-2(32)	1
LM	LDW280-51861	LM-1(31)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28843-3		GAEC SCH NO.	

LM	LDW280-28861	LTA-8(18)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28843-1		GAEC SCH NO. 30	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	-	GRUMMAN REL INFO	
LAST DASH NO. USED	-3	PRIM NO. 215	JK(001) MP-16 A 66/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY	CALDARELLA 10-20-66	WEIGHT	
LAYOUT BY	ED PABST	RELIABILITY	
CHECKED BY	H. RODALEWICZ 10-24-66	THERMO	B for MT 11/1/66
GR LEADER	10/31		
V.D.I.	N.R. BISCHOFF 10/31		
STRUCTURES	11/2	PROJ ENGR	R. M. Carbee 11-2-66
STRUCTURES		REL GROUP	J. Tagliavia 11/2/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PANEL ASSEMBLY ASCENT STAGE-MID SECTION-UPPER DECK SHIELDING

SIZE B
CODE IDENT NO. 26512
LDW280-28843 A
SCALE NONE
SHEET 1.00 OF 4.00

77.1 12-65

CDR 10-28-66.

REV "A" CDR 5-22-68

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~CONT~~ APPD
A	1	1.00, 1.10 3.00			✓			LE0 280-499	ADDED NOTE 1. (ADDED SHEET 1.10)	LTA-8 LM-1, LM-2	✓		J. CHUPAS 5-8-68		
	2	1.00, 2.00 3.00		LFM 126		✓		LCD 1021-33 CCA 498 ok	ADDED -1-1 E.J.RSK	LTA-8	NOT	REQD		5/28/68	

	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO
CHG APPROVED	A	5/22/68	5/23/68	5/28/68	for FEB			5-27-68

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28843	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY																
				-1-1	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								MS20470B3	E	RIVET	STD PART						
					1			LDW280-11425-19		SHIELD	SEE DWG						
						1		LDW280-11425-13		SHIELD	SEE DWG						
				1				LDW280-11425-13-1		SHIELD	SEE DWG						
					1			LDW280-11616-13		CAP	SEE DWG						
				1				LDW280-11616-11-1		CAP	SEE DWG						
						1		LDW280-11616-11		CAP	SEE DWG						
								LDW280-28843-3		PANEL ASSY					NONE	NONE	
								LDW280-28843-1-1		PANEL ASSY							
								LDW280-28843-1	E	PANEL ASSY					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28843	A
SCALE NONE			SHEET 2.00

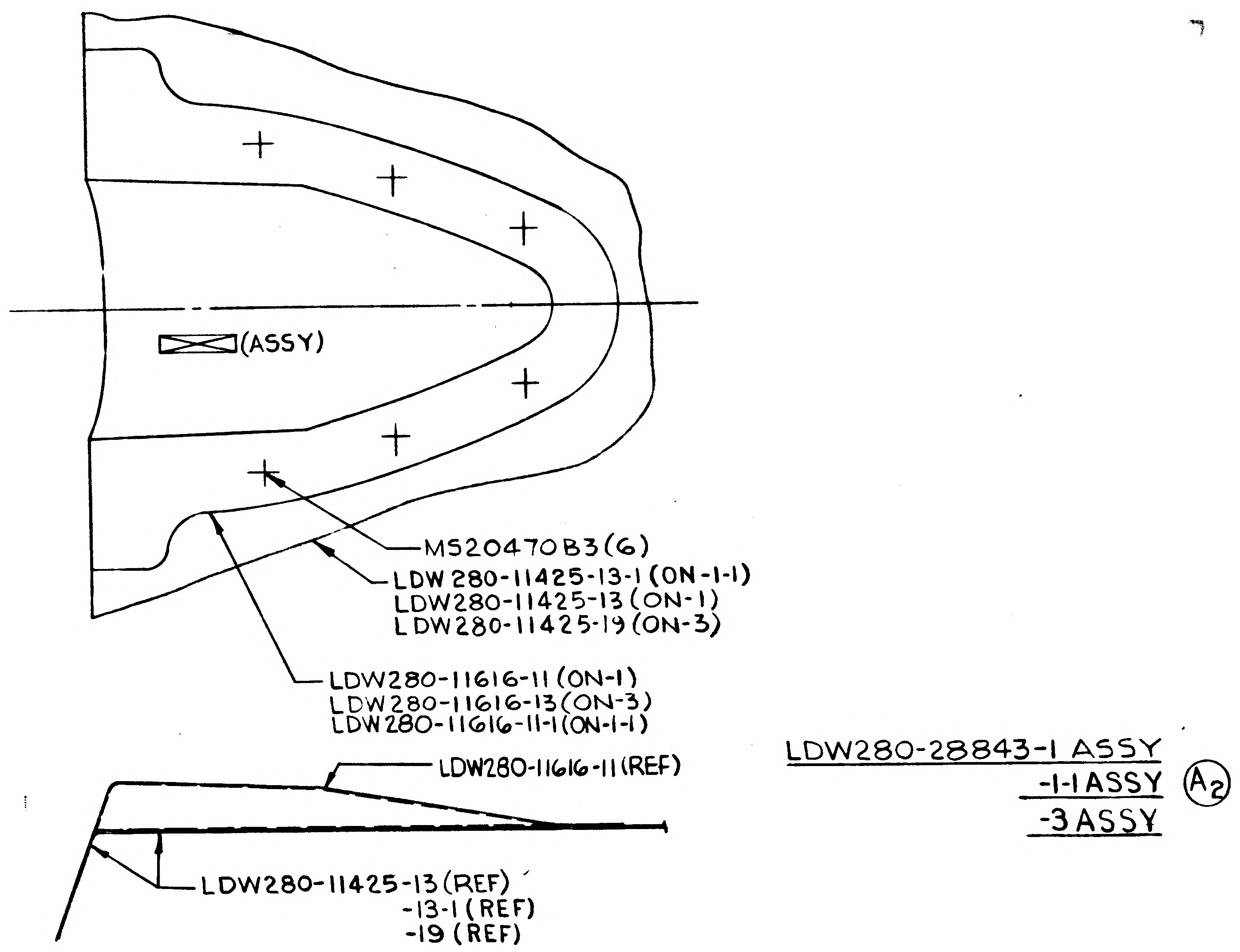
ENG 77.2 7-65

01

NAS 9-1100

NOTES:

1. MATERIAL, FINISHES, HANDLING AND PERMISSIBLE DEVIATIONS PER LPC-280-16.


(ASSY)
MS20470B3(6)
LDW280-11425-13-1 (ON-1-1)
LDW280-11425-13 (ON-1)
LDW280-11425-19 (ON-3)
LDW280-11616-11 (ON-1)
LDW280-11616-13 (ON-3)
LDW280-11616-11-1 (ON-1-1)
LDW280-11616-11 (REF)
LDW280-11425-13 (REF)
-13-1 (REF)
-19 (REF)

LDW280-28843-1 ASSY
-1-1 ASSY (A2)
-3 ASSY

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
$\overline{125}\sqrt{}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
$\overline{200}\sqrt{}$ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE ~~AVERAGE~~ EDGE DISTANCE ~~MARKED~~ IS 1½ FASTENER DIA FROM FASTENER ℄	
SYMBOL $\sqrt{}$ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-28843	A
	SCALE FULL		SHEET 3.00	

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO-280
EO NO 499
CONTROL INFO NO LDW 280A-5770

* B

(ADD) NOTE, "*. MATERIAL, FINISHES, HANDLING AND PERMISSIBLE DEVIATIONS PER LPC-280-16", TO THE FOLLOWING DRAWINGS:

DRAWING NUMBER	TITLE	EFFECTIVITY	CHANGE NUMBER
✓LDW280-11751	SEE DWG	LM-4 THRU LM-15	A2
✓ -11616		LTA-8, LM-1 & -2	A4
✓ -28843			A1
✓ -11673			A3
✓ -28845		LTA-8, LM-1 & -2	A2
✓ -11074		LM-3 THRU LM-15	A4
✓ -53162		LM-3 THRU LM-15	B6
✓ -11549		LTA-8	A2
✓ -28229			A1
✓ -11604			A1
✓ -11605			A2
✓ -11575			A1
✓ -11542			A2
✓ -11551			A2
✓ -28887			A3
✓ -28150		LTA-8	A10
✓ -51150		LM-1 & -2	A9
-53150		LM-3	A3
LDW280 -54150	SEE DWG	LM-4 THRU LM-15	A6

NOTE:
* = USE NEXT AVAILABLE №.

3

DETAIL SPEC REQ ✓ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

GAEC C EO RELEASE
JK 3/8/7

REASON FOR EO: LPC'S OMITTED ON DWG.

DESCRIPTION OF EO: ADDED NOTE *

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO
LM		NOTED	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: REWORK ✓ SCRAP ☐

APPROVED BY — DATE 3/2/67 — 1 — VDI

GROUP LEADER 3/2/67 — STRESS GROUP 3/3/67 — RELIAB GROUP — LIAISON ENGRG — PROJ ENGRG 3/6/67 — 3/7/67

PRIORITY: C

DRAWING TITLE: NOTED

DRAWING NO.: LEO-280

EO NO.: 499

BY JOHN K. LEE SECTION VEH. DES. INT. GROUP NO. 335 PL 35

01 NAS 9-1100

LDW280-28844

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53155	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
		LM-5(35)	1
		LM-4(34)	1
LM	LDW280-53155	LM-3(33)	1
LM	LDW280-28155	LM-2(32)	1
LM	LDW280-28155	LM-1(31)	1
LM	LDW280-28155	LTA-8 (18)	1
PART NO. LDW280-28844-1		GAEC SCH NO. 30-	

3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -15

GRUMMAN REL INFO: PRIM NO. 215 VE(001) MP-14 10-29-66 EMF

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY F. HIPPLER 10-24-66
LAYOUT BY CM GREEN
CHECKED BY C. GLASER 10-26-66
GR. LEADER 10/27
VEH. DES. INT. W.R. BISCHOFF 10/27
STRUCTURE 10/27
STRUCTURE
WEIGHTS
RELIABILITY
THERMO 10/28
PROJ ENGR 10-29
REL GROUP 10/29/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SPLICE ASSY
ASCENT STAGE - MID SECTION - LEFT HAND THERMAL SHIELD

SIZE B
CODE IDENT NO. 26512
LDW280-28844
SCALE NONE
SHEET 1.00 OF 3

ENG 77 1 12-65

CDR 10-28-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						-1											
						1		LDW280-28844-15	E	PLATE	AL ALLOY SH	MIL-A-8920	2219-T31	.040 X 2 X 4	NONE	NONE	
						1		LDW280-28844-13	E	PLATE	AL ALLOY SH	MIL-A-8920	2219-T31	.040 X 2 X 4	NONE	NONE	
						1		LDW280-28844-11	E	SPLICE PLATE	AL ALLOY SH	MIL-A-8920	2219-T31	.040 X 4 X 5	NONE	NONE	
								LDW280-28844-1	E	SPLICE ASSY.	(WELDED)				T-81/AW	88	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						T-81	HEAT TREAT	MIL-H-6088
						88	ANODIZE	LSP14-9030
						AW	FUSION WELDING	MIL-W-8604

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

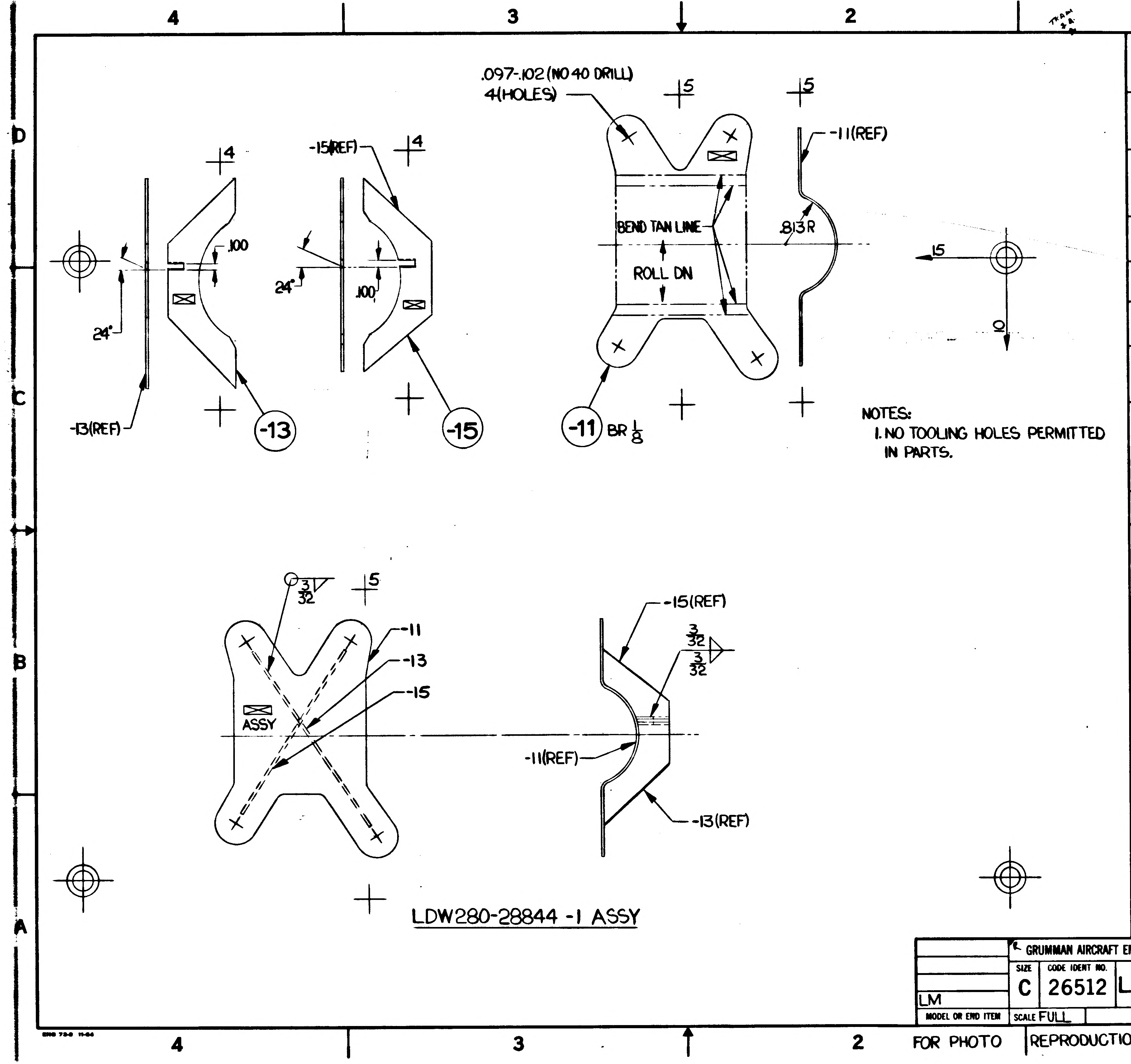
SIZE	CODE IDENT NO.	
B	26512	LDW280-28844

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100



NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.

LDW280-28844 -1 ASSY

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LM	C	26512	LDW280-28844
	SCALE FULL		SHEET 3.00

LDW280-28844

LDW280-28844

FOR PHOTO REPRODUCTION

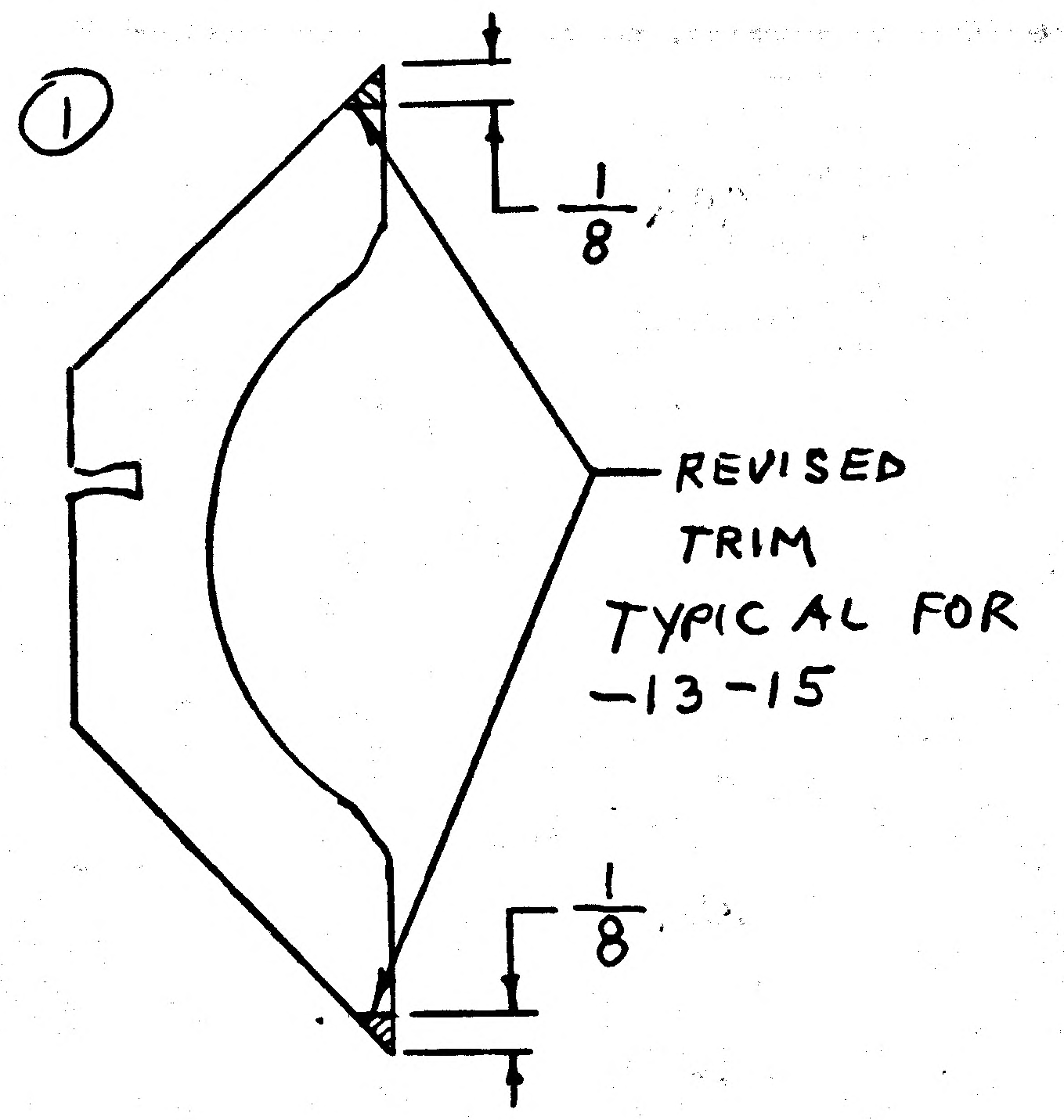
01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512.
ENGINEERING ORDER

DWG. NO. LDW280-28844		EO NO. A1
CONTROL INFO NO. LM-3-4421		



② ADD -17 SAME AS -11 EXCEPT 'ROLL UP' WAS 'ROLL DN"

ADD -3 SAME AS -1 EXCEPT -17 REPLACES -11

3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO

① PROVIDE CLEARANCE FOR FASTENERS.

② ROLL UP AGREES WITH ASSY

DESCRIPTION OF EO

① REVISED TRIM OF -13 & -15

② REMOVED -1 & -11 ADDED -3 & -17

GAEC EO RELEASE ②

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (31)	THRU
		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	-13 -15 REWORK	-11 -1 SCRAP

APPROVED BY						RN			
DATE	12/6/66	12/6				11-28-66	11-28-66	11-30-66	11/29/66
1	VDI	~~[illegible]~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SPLICE ASSY A.S.-M.S.-L.H. THERMAL SHIELD	LDW280-28844	A1

ISSUED BY LIAISON / VIC BOLLO X2151 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG NO. LDW280-28844	EO NO. A2
CONTROL INFO NO. LM-3-4521	

① IN B/M FOR -13-15-17 MATERIAL 2219-T81
WAS 2219-T31.

② FOR -3 ASSY IN PROCESS BLOCK T-62 WAS T-81.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	3

REASON FOR EO
① MATERIAL NOT AVAILABLE (CALLED IN ERROR)
② T-81 CANNOT BE ATTAINED.

DESCRIPTION OF EO
FOR -13-15-17 MATERIAL 2219-T81
WAS 2219-T31
FOR -3 ASSY T-62 WAS T-81

✓ GAEC & EO RELEASE: FR

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (31)	THRU
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ✓ SCRAP ☐

			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	RVP				—	BM		
DATE	12/13/66				—	12-12-66	12-12-66	12-13-66
1	VD							

12/12/66

PRIORITY: C

DRAWING TITLE: SPLICE ASSY A.S.-M.S.-L.H. THERMAL SHIELD

DRAWING NO.: LDW280-28844

EO NO.: A2

ISSUED BY LIAISON/VIC BOLLO x2151 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280A
EO NO. 525
CONTROL INFO NO. LDW280A 5974

ENG 32.2 REV 3-65

FOR THE FOLLOWING PARTS, ADD EFF ON PA-1 (W5), MODEL LM :

PART NO.	*	E.O. No.	N/A LTM280-26878	 LTM280-26879	REQD/MOD	NOMENCLATURE
LDW280M 10611 -3		A3	✓		1	FTG
M 10611 -4				✓	↕	↕
M 10882 -1		A3	✓			
M 10882 -2				✓		
M 11143 -3		A5	✓			
M 11143 -4				✓		
M 11210 -13		B5	✓			FTG
P 11272 -11			✓			CHNL
↕ -13		A3	✓			↕
-15				✓		
P 11272 -17				✓	1	CHNL
-11269 -13		A4	✓		1	TUBE
-11726 -11		B1	✓		4	SPACER
-28844 -3		A3	✓		1	SPLICE ASSY
-28858 -3		A3	✓		1	STRUT ASSY
-53878 -1				✓	1	TUBE ASSY
LDW280 -53878 -3		A3	✓		1	TUBE ASSY
LDW 280 - 10665 -13		D1		✓	2	STRAP
-15				✓	4	↕
-21			✓		2	
-23			✓		4	
-25			✓		2	
-35				✓	1	
-37				✓	1	
-39			✓		4	
-41				✓	1	
LDW 280 - 10665 - 43				✓	1	STRAP

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD19-1124	3

REASON FOR EO: TO ADD EFF REQMNTS

DESCRIPTION OF EO: ADD PA-1 (W5) TO *

GAEC EO RELEASE: C JK 3/27/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		PA-1 (W5)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
		NOT REQD		DATE	3/18/67			3/17/67	3/1		3-21-67	3-23-67
REVISE DWG ✓	RECORD EO	REWORK	SCRAP	5	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: NOTED ABOVE

DRAWING NO.: LEO 280

EO NO.: 525

ISSUED BY A. Richer / F. De Respinis X1392 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

LDW280-28845 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 126	LDW280-28160	LTA-8(18)	1
LM	LDW280-53160	LM-15(45)	1
↑	↑	LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7 (37)	1
		LM-6(36)	1
		LM-5 (35)	1
	↓	LM-4 (34)	1
	LDW280-53160	LM-3 (33)	1
	LDW280-51160	LM-2(32)	1
↓	LDW280-51160	LM-1(31)	1
LM	LDW280-28160	LTA-8(18)	1
PART NO. LDW280-28845-1		GAEC SCH NO. 30	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH										
SHEET	1.00	1.10	2.00	3.00						
REV	A	A		A						
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED

LAST DASH NO. USED -1

GRUMMAN REL^C INFO A

PRIM NO. VK(001)

215 MR-16A-6/11/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
~ ~ ~

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM # 1

DOCUMENTATION TYPE II

DRAWN BY	W.J. WALTONEN 10-28-66	RELIABILITY	
LAYOUT BY	C. PAES	THERMO	BFORMT 11/1/66
CHECKED BY GB	ARATOLI 10-29-66		
GR LEADER	10/31		
VEHDES INT	W.R. BISCHOFF 10/31		
STRUCTURES	11/1	PROJ ENGR	R.M. Carbee 11-2-66
STRUCTURES		REL GROUP	J Tagliani 11/2/66
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSY
ASCENT STAGE-MID SECTION-HELIUM LINE
L.H. SIDE

SIZE	CODE IDENT NO.		
B	26512	LDW280-28845	A
SCALE NONE		SHEET 1.00 OF 4	

ENG 77.1 12-65

REV "A" CDR 6-12-68 / CDK 10-28-66.

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
A	1	1.00 & 1.10					✓	LEO-280-382	ADDED LM-3 (33) THRU LM-15(45) REQUIREMENTS, ADDED SH.1.10	LM-3 THRU -15	NOT	REQD	R. NISBET 5-13-68	☒	☒
	2	1.10 & 3.00			✓			LEO-280-499	ADDED NOTE #4	LTA-8, LM-1 & -2	✓				
	3	1.10			✓				REF LEO-280-499 EFF LTA-8, LM-1 & LM-2 SHOULD BE LTA-8 & LM-1 THRU-15	LTA-8, LM-1 THRU-15	✓			10/17/69	[illegible]
	4	1.00, 1.10		LFM 126 CCA 498		✓		LCD 1021-33	ON-1 ADDED END ITEM LFM 126 REQUIREMENTS RK	LTA-8	NOT	REQD			

CHG APPROVED

LTR	GROUP LDR	VEH.DES.INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO
A	6/4/68	6/3/68	6/7/68				6-6-68

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28845	A

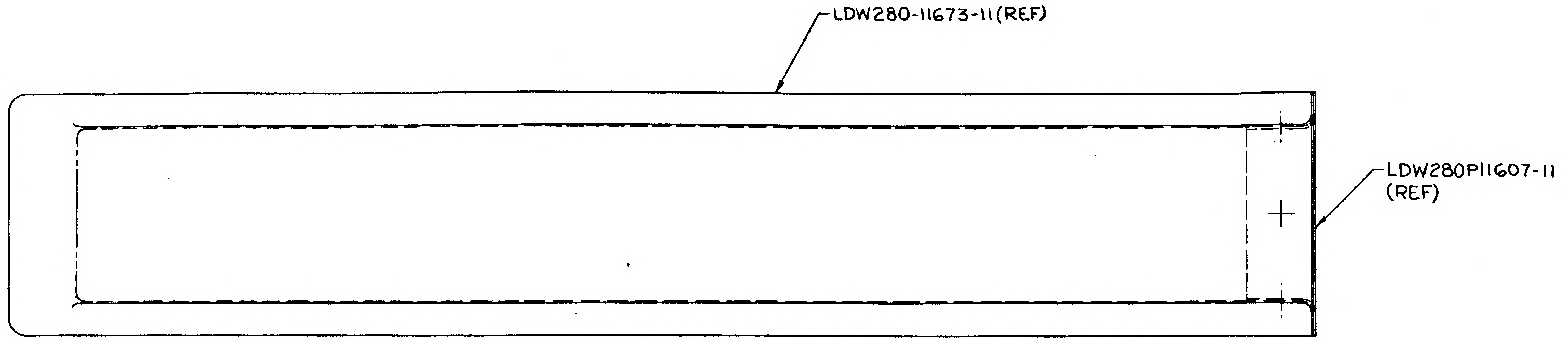
SCALE NONE SHEET 1.10

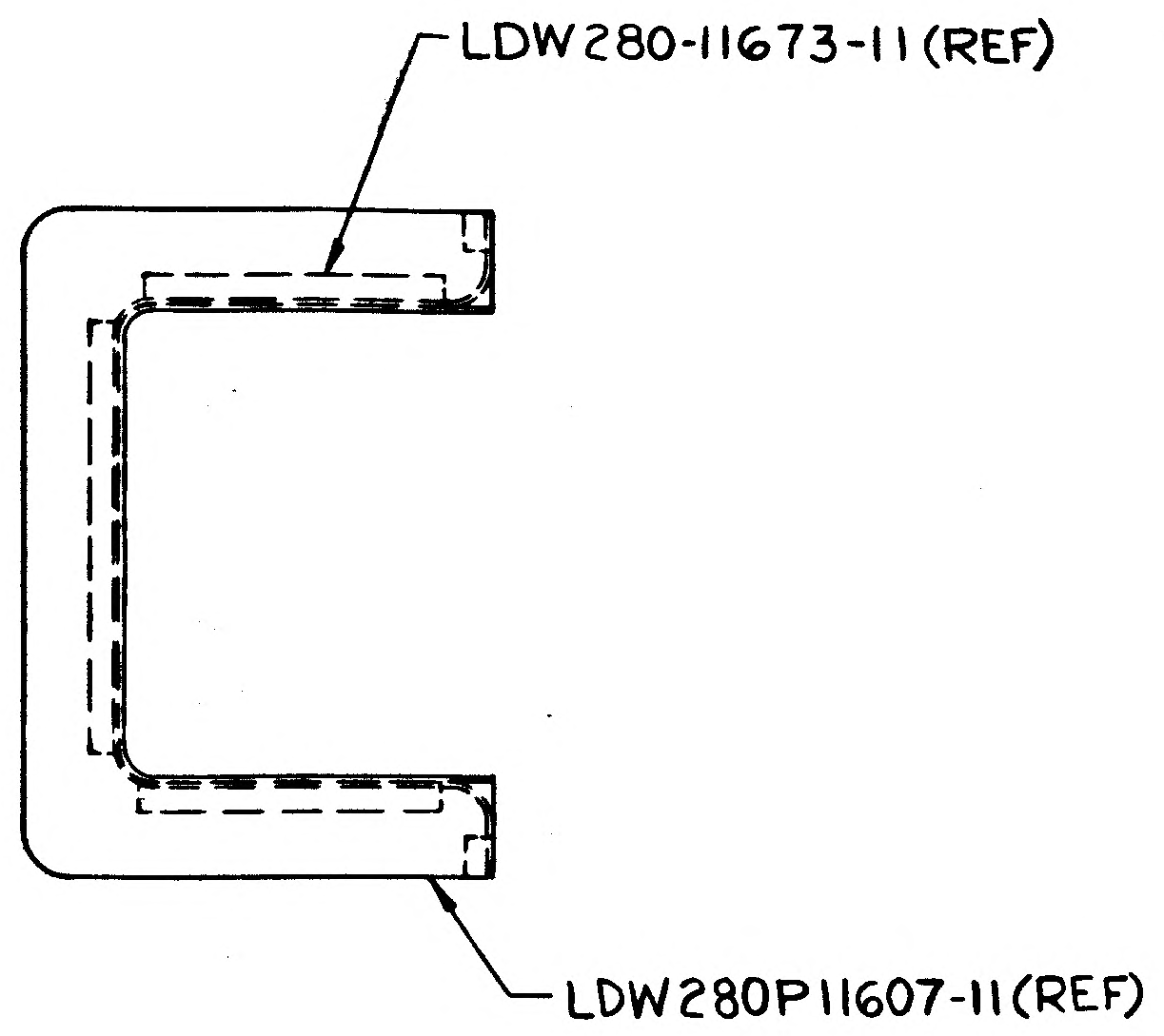
ENG 77.16 3-66

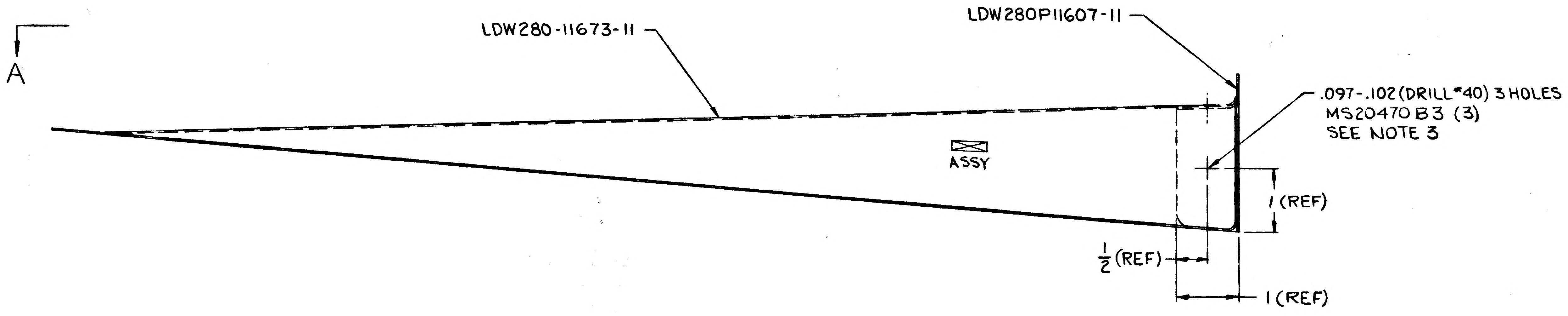
01

NAS 9-1100

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. INSTALL FASTENERS PER LSP-14-15302.
3. RIVETS TO BE SQEEZED.
4. MATERIAL, FINISHES, HANDLING AND PERMISSIBLE DEVIATIONS PER LPC-280-16.


LDW280-11673-11 (REF)
LDW280P11607-11 (REF)


LDW280-11673-11 (REF)
LDW280P11607-11 (REF)


A
LDW280-11673-11
LDW280P11607-11
.097-.102 (DRILL #40) 3 HOLES
MS20470 B3 (3)
SEE NOTE 3
ASSY
1 (REF)
½ (REF)
1 (REF)

LDW280-28845-1 (ASSY)

01 NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠	√
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE F	CODE IDENT NO. 26512	LDW280-28845	A
MODEL OR END ITEM	SCALE FULL		SHEET 3 OO	

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		MS20470 B3	E	RIVET	STD PART						
1		LDW280P11607-11	E	SHIELD	SEE DWG						
1		LDW280-11673-11	E	SHIELD	SEE DWG						
		LDW280-28845-1	E	SHIELD ASSY					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28845

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280

EO NO. 382

CONTROL INFO NO. LDW280A-3492

IN MODEL BLOCK: ADD VEHICLE REQUIREMENTS TO THE FOLLOWING DASH NO'S & NEXT ASSEMBLIES AS SHN:

DWG NO	DASH NO*	CHANGE NO.	EFF ~ ADDED	N/A	REQ'D/MOD
LDW280-11616 ✓	-11	A1	LM-3(33) THRU LM-15(45)	LDW280-53861	1
LDW280P11485 ✓	-3	A2		LDW280-53851	1
LDW280P11536 ✓	-11			LDW280-28883	1
LDW280P11536 ✓	-13	A1		LDW280-28883	1
LDW280P11518 ✓	-1	A2		LDW280-53851	1
LDW280-28883 ✓	-1	A1		LDW280-53851	1
LDW280P11607 ✓	-11	A1		LDW280-28845	1
LDW280-11673 ✓	-11	A1		LDW280-28845	1
LDW280-28945 ✓	-1	A1		LDW280-53160	1
LDW280P11517	-11	A1		LDW280-53161	1
			LM-3(33) THRU LM-15(45)		

3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: TO UPDATE EFFECTIVITY & NEXT ASSEMBLY

DESCRIPTION OF EO: ADDED LM-3(33) THRU LM-15(45) REQ'TS FOR *

GAEC C EO RELEASE: 12/1/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		TO	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	11/18				11/18	11/18		12-1-66	12-2-66
	#6	VDI							

PRIORITY: C

DRAWING TITLE: SEE DRAWING

DRAWING NO.: LEO 280

EO NO.: 382

ISSUED BY M. SHAPIRO X1153 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32 2 REV 3-65

DWG NO. LEO-280 | EO NO 499
CONTROL INFO NO LDW 280A-5770

* B

(ADD) NOTE, "*. MATERIAL, FINISHES, HANDLING AND PERMISSIBLE DEVIATIONS PER LPC-280-16", TO THE FOLLOWING DRAWINGS:,

DRAWING NUMBER	TITLE	EFFECTIVITY	CHANGE NUMBER
✓ LDW280-11751	SEE DWG	LM-4 THRU LM-15	A2
✓ -11616		LTA-8, LM-1 & -2	A4
✓ -28843			A1
✓ -11673			A3
✓ -28845		LTA-8, LM-1 & -2	A2
✓ -11074		LM-3 THRU LM-15	A4
✓ -53162		LM-3 THRU LM-15	B6
✓ -11549		LTA-8	A2
✓ -28229			A1
✓ -11604			A1
✓ -11605			A2
✓ -11575			A1
✓ -11542			A2
✓ -11551			A2
✓ -28887			A3
-28150		LTA-8	A10
-51150		LM-1 & -2	A9
-53150		LM-3	A3
LDW280 -54150	SEE DWG	LM-4 THRU LM-15	A6

NOTE:
* = USE NEXT AVAILABLE №.

3

DETAIL SPEC REQ ✓ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☐

REASON FOR EO: LPC'S OMITTED ON DWG.

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: C JK 3/8/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP
APPROVED BY: Jap — DATE 3/2/67 — 1 — VDI
RELIAB. GROUP
GROUP LEADER: F.N.K. 3/2/67
STRESS GROUP: 3/3/67
LIAISON ENGRG
PROJ ENGRG: 3/6/67
~~GOVT~~: 3/7/67

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO-280
EO NO.: 499

BY JOHN K. LEE SECTION VEH. DES. INT. GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28845 EO NO. B1
CONTROL INFO NO. LDW280B3507

IN M/B RESTRICT -1 TO LTA-8, LM-1 THRU LM-3
(WAS LTA-8, LM-1 THRU LM-15)

LFM

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 2360 PKG. 29

REASON FOR EO: PLUME HEATING PROTECTION

DESCRIPTION OF EO: IN M/B RESTRICTED -1 TO LTA-8; LM-1 THRU LM-3 (WAS LTA-8, LM1 THRU LM15).

GAEC EO RELEASE (5) JC 6/7/68

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 140	LM-4 (34) & LM-5 (35)	
LM		LM-6 (36) THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY									
DATE	5/28/68	5/29/68		5/28/68	6/7/68		6/3/68	6-6-68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT.

PRIORITY: C

DRAWING TITLE: SHIELD ASSY ASCENT STAGE - MID SECTION HELIUM LINE - L H SIDE

DRAWING NO. LDW280-28845 EO NO. B1

5/29/68 ISSUED BY F. SHANLEY 7033 SECTION VEH. DESIGN INT. GROUP NO. 335 PL 25

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.10, 1.00 2.00 2.01 3.00 4.00	4E 5F 5D 6F 8D 3C 4B 7A 8C 9C					EO A1	ADDED SHT 1.10 ON-5 INSTL ADDED LDW280-11444-1 ASSY AND REMOVED LDW280-11444-11. ON-7 INSTL ADDED LDW280-28178 (REF) SECT G-G, NAS680A04(4), NAS463WK-D10(4) MS20426-AD3(8), GS550K-04-1(4) & DRILL #32 (.115-120) 4 PLACES. ON-5 INSTL VIEW LKG FWD L.H. SIDE WAS VIEW LKG AFT L.H. SIDE & ON-7 INSTL VIEW LKG AFT L.H. SIDE WAS VIEW LKG FWD L.H. SIDE. ON-1,-3,-5 & -7 INSTLS ADDED LDW280-14344-13(30) & REMOVED LDW280-14344-7 (30), QTYS PER INSTL SAME AS-7	LTA-8(18)	✓		R FEGER 12-2-67	WC	
	2	1.10, 2.00 3.00 2.01	3A 4C				✓	EO A2	ON-3 INSTL: M520470B3(6) WAS MS20470B3(4). GS550K-04-1(4). GS550K-04-1(4). NAS680AD4(4), NAS463 WK-D10(4) MS20426AD3(8) .115-.120 (#32 DRILL) 4 HOLES WAS .115-120 (#32 DRILL) 6 HOLES. NAS697C04L(6) GS550K-04-1(6) MS20470AD3(6)						
	3	1.10, 2.01 3.00					✓	EO A3	IN F/D & B/M ADDED LDW280-11450-19 & MS20470B3(4) TO -3 INSTL (NOT APPLICABLE)						
	4	1.10 3.00 4.00 2.01	4D 7E 3A 9A				✓	EO A4	IN F/D FOR -5 & -7 ADDED .436-.443 (7/16 DRILL)(13) TO BE COORDINATED WITH LDW280-28892. FOR -1 & -3 ADDED .436-443 (7/16 DRILL)(12) TO BE COORDINATED WITH LDW280-28891 ADDED LDW280-14344-7(25)						
	5	1.10, 2.01	8D 9B					EO A5	ON-5 ADDED LDW280-11444-19 & MS20470B3(8)						
	6	4.00	8D 9B					EO A6	REF EOA5: LDW280-11444-21 WAS LDW280-11444-19						
	7	1.10, 3.00			✓			LEO 280-497	ADDED NOTE 2						
	8	1.10, 1.11 2.01 3.00	3A 4C 4A					EO A8	(REF EO A2) ON-3 INSTL GS550K-04-1(4) NAS680A04(4) NAS463WK-D10(4) QUANT. S/B (3) EA MS20426AD3(8) S/B (6). .115-.120 (#32 DRILL) 4 HOLES S/B (3) ADDED AN960D4(3) BONDED TO LDW280-28178-4. MS20470B3(6) S/B GB511J06-1(4), NAS697A06LK(4), MS20426B3(8) FLUSH IN-11 & -21 AND .115-120 (#32 DRILL) 4 HOLES. ADDED LDW280-11450-21 REVISED PICT. (CONTINUED ON SHT. 1.11)						

CHG APPROVED

LTR	GROUP LDR	VEH. DES. INT.	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY				
A										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28851	A
SCALE NONE		SHEET 1.10	

(A)

ENG 77.16 3-66

01

NAS 9-1100

LDW280-28851 B

LFM

LFM 126	LDW280-28150	LTA-8(18)	1 EA
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28851-1-1, -3-1, -5-1 & -7-1		GAEC SCH NO.	

LM	LDW280-28150	LTA-8(18)	1 EA.
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28851-1, -3, -5 & -7		GAEC SCH NO. 30-	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

(5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	1.11	2.00	2.01	3.00	4.00		
REV	B	A	B	B	B	B	B		
SHEET					2.02				
REV					B				
SHEET									
REV									

LAST SECT LTR USED	G	GRUMMAN REL INFO B		
LAST DASH NO. USED	-7	PRIM NO.	L/001	
		215	MP-16	B-6/13/8

ENG 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100 | LINE ITEM # 1 | DOCUMENTATION TYPE TI

DRAWN BY	M. GIECAK 9-10-66 A. LITVINOFF	RELIABILITY	
LAYOUT BY	G. MAKULA	THERMO	11/1
CHECKED BY	9-12-66		
GR. LEADER	9/14		
VEH. DES. INT.	9/15		
STRUCTURE	9/2	PROJ ENGR	R.M. Carbee 9-28
STRUCTURE	HILDEBRAND 7/27	REL GROUP	11/10/66
WEIGHTS			

Ⓡ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PANEL INSTALLATION
ASCENT STAGE-MID-SECTION
FWD & AFT TANK BLKHD.

SIZE	CODE IDENT NO.		
B	26512	LDW280-28851	B
SCALE	NONE	SHEET 1.00 OF 8	

REV "B" CDR 6-19-68 / C.D.R. 9-30-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS: REWORK	DISPOSITION OF EXISTING PARTS: SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	8	1.10, 1.11 2.01, 3.00						EOA8 (CONT'D)	TO SHOW LATEST CONFIG. OF LDW 280-11450-11 & LDW280P11485-13. ADDED SHT. 1.11	LTA-8(18)	✓		FEGER & NISBET 1-5-68		
	9	1.11, 3.00	2C 2D				✓	LEO280-593	ADDED NOTES 3,4,5,&6						
	10	1.11, 4.00	9D			✓		E.O.A10, LCD20216	ON-5 IN FLD CUT AS SHOWN					WC	
B	1	1.00, 2.00 2.01, 3.00, 4.00		LFM 126		✓		LCD 1021-33 CCA 498	ADDED -1-1, -3-1, -5-1 & -7-1, ADDED SH 2.02, NOTE 8	LTA-8(18)	NOT	REQD	G. ENGEL 27 MAY 68		

CHG APPROVED

LTR	GROUP LDR	VEH.DES.INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO				
A											
B	DK FDR	JaP 6/10	6/11 ES	for FEB			6-11-68				

ENG 77.18 3-66

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28851	B

SCALE NONE

SHEET 1.11

01

NAS 9-1100

								MS20470B3	E	RIVET	STD PART						
			4		3			GS550K-04-1		SCREW	GRUMMAN STD						
			1					LDW280P11518-1		FARING ASSY	SEE DWG						3E
					1			LDW280P11435-13		BOOT							3A
			7	11	3	9		LDW280-14344-13		SCREW ASSY							4B
						1		LDW280-11451-15		PANEL							8B
						1		LDW280-11451-13									7A
						1		LDW280-11451-11									8A
					1			LDW280-11450-21									
					1			LDW230-11450-13									4B
					1			LDW280-11450-11									4A
				1				LDW280-11444-17									3C
				1				LDW280-11444-15									9E
				1				LDW280-11444-13		PANEL							9D
				1				LDW280-11444-1		PANEL ASSY	SEE DWG						10E
			1					LDW280-11443-15		PANEL	SEE DWG						3E
			1					LDW280-11443-13		PANEL	SEE DWG						4E
			1					LDW280-11443-11		PANEL	SEE DWG						4D
					1			LDW280-28383-1		COVER INSTL.	SEE DWG						4A
								LDW280-28851-7		PANEL INSTL					NONE	NONE	5D
								LDW280-28851-5		PANEL INSTL					NONE	NONE	9D
								LDW280-28851-3		PANEL INSTL					NONE	NONE	4A
								LDW280-28851-1	E	PANEL INSTL					NONE	NONE	8A
			-7	-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
QTY PER ASSEMBLY																	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28851	B

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

-7-1	-5-1	-3-1	-1-1	-7	-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				4		3			NAS680A04	E	NUT	STD PART						B4
				4		3			NAS463WK-D10	E	NUT	STD PART						B4
						4			NAS697A06LK	E	NUT	STD PART						A3
									MS20426-AD3	E	RIVET	STD PART						B4
									MS20426B3	E	RIVET	STD PART						A3
						3			AN960D4	E	WASHER	STD PART						B4
						4			GB511J06-1	E	BOLT	GRUMMAN STD						A3
									GT835M8	E	TAPE	GRUMMAN STD						
									SEE NOTE 7	E	ADHESIVE							
									SEE NOTE 3B	E	SHIM							
					1				LDW280-1144421	E	PANEL	SEE DWG						A3
				6	7	6	6		LDW280-14344-7	E	SCREW ASSY	SEE DWG						A3

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28851	B

SCALE NONE SHEET 2.01

ENG 77.2 7-65

01

NAS 9-1100

			-7-1	-5-1	-3-1	-1-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			6	7	6	6		GS550K-04-9	E	SCREW	GRUMMAN STD						
			6	7	6	6		LDW280P11321-17		SPACER	SEE DWG						
																	3A
			12	14	12	12		LDW280-10743-25		WASHER	SEE DWG						
								LDW280-14344-13		SCREW ASSY	SEE DWG						4B
						1		LDW280-11451-15-1		PANEL							8B
						1		LDW280-11451-13-1									7A
						1		LDW280-11451-11-1									8A
					1			LDW280-11450-21-1									
					1			LDW280-11450-13-1									4B
					1			LDW280-11450-11-1									4A
				1				LDW280-11444-21-1									3A
				1				LDW280-11444-17-1									8E
				1				LDW280-11444-15-1									9E
				1				LDW280-11444-13-1		PANEL							9D
				1				LDW280-11444-1-1		PANEL ASSY							10E
			1					LDW280-11443-15-1		PANEL							3E
			1					LDW280-11443-13-1		PANEL							4E
			1					LDW280-11443-11-1		PANEL	SEE DWG						4D
								LDW280-28851-7-1		PANEL INSTL					NONE	NONE	5D
								LDW280-28851-5-1		PANEL INSTL					NONE	NONE	9D
								LDW280-28851-3-1		PANEL INSTL					NONE	NONE	4A
								LDW280-28851-1-1	E	PANEL INSTL					NONE	NONE	8A
			QTY PER ASSEMBLY														

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28851	B

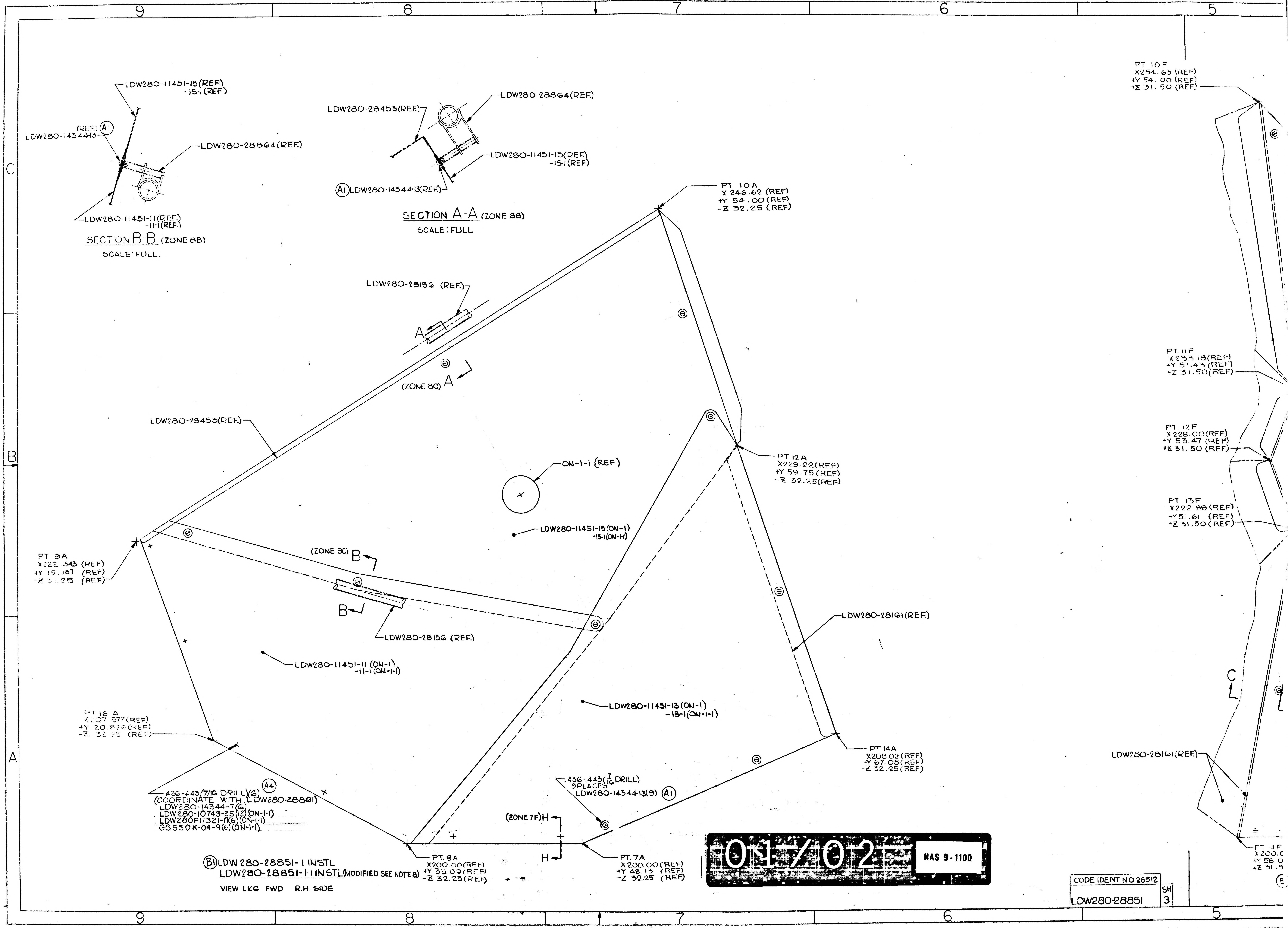
SCALE NONE

SHEET 2.02

ENG 77.2 7-65

01

NAS 9-1100

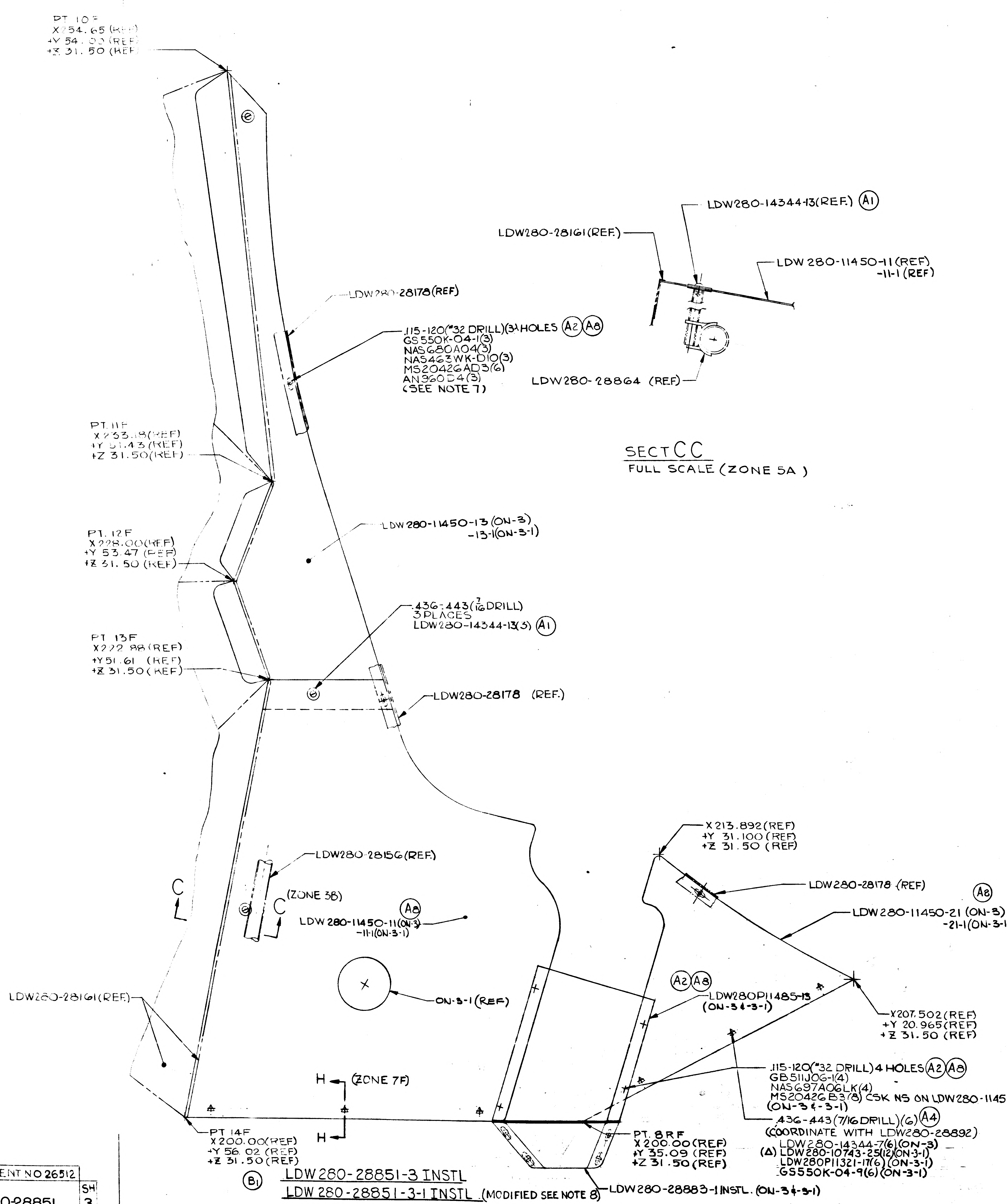

9
8
7
6
5
C
B
A
LDW280-11451-15(REF)
-15-1(REF)
(REF) (A1)
LDW280-14344-13
LDW280-28864(REF)
LDW280-11451-11(REF)
-11-1(REF)
SECTION B-B (ZONE 8B)
SCALE: FULL.
LDW280-28453(REF)
LDW280-28864(REF)
LDW280-11451-15(REF)
-15-1(REF)
(A1) LDW280-14344-13(REF)
SECTION A-A (ZONE 8B)
SCALE: FULL
PT 10A
X 246.62 (REF)
+Y 54.00 (REF)
-Z 32.25 (REF)
LDW280-28156 (REF)
A
A
(ZONE 8C)
LDW280-28453(REF)
ON-1-1 (REF)
PT 12A
X229.22(REF)
+Y 59.75(REF)
-Z 32.25(REF)
LDW280-11451-15(ON-1)
-15-1(ON-1-1)
PT 9A
X222.343 (REF)
+Y 15.187 (REF)
-Z 32.25 (REF)
(ZONE 9C) B
B
LDW280-28156 (REF)
LDW280-28161(REF)
LDW280-11451-11 (ON-1)
-11-1 (ON-1-1)
LDW280-11451-13 (ON-1)
-13-1 (ON-1-1)
PT 16 A
X207.577(REF)
+Y 20.826(REF)
-Z 32.25 (REF)
PT 14A
X208.02 (REF)
+Y 67.08 (REF)
-Z 32.25 (REF)
.436-.443(7/16 DRILL)(6) (A4)
(COORDINATE WITH LDW280-28891)
LDW280-14344-7(6)
LDW280-10743-25(12)(ON-1-1)
LDW280P11321-17(6)(ON-1-1)
GS550K-04-9(6)(ON-1-1)
.436-.443(7/16 DRILL)
9 PLACES
LDW280-14344-13(9) (A1)
(ZONE 7F) H
H
PT. 8A
X200.00(REF)
+Y 35.09(REF)
-Z 32.25(REF)
PT. 7A
X200.00(REF)
+Y 48.13 (REF)
-Z 32.25 (REF)
PT 10F
X254.65 (REF)
+Y 54.00 (REF)
+Z 31.50 (REF)
PT. 11F
X233.18(REF)
+Y 51.43 (REF)
+Z 31.50(REF)
PT. 12F
X228.00(REF)
+Y 53.47 (REF)
+Z 31.50 (REF)
PT 13F
X222.88 (REF)
+Y51.61 (REF)
+Z 31.50 (REF)
C
LDW280-28161(REF)
PT 14F
X200.
+Y 56.
+Z 31.5

(B1) LDW280-28851-1 INSTL
LDW280-28851-H INSTL (MODIFIED SEE NOTE 8)

VIEW LKG FWD R.H. SIDE

01/02 NAS 9-1100

CODE IDENT NO 26512
LDW280-28851 SH 3


PT. 10F
X254.65 (REF)
+Y 54.00 (REF)
+Z 31.50 (REF)
LDW280-28178 (REF)
.115-120(#32 DRILL)(3) HOLES (A2)(A8)
GS550K-04-1(3)
NAS680A04(3)
NAS463WK-D10(3)
MS20426AD3(6)
AN960D4(3)
(SEE NOTE 7)
PT. 11F
X233.18(REF)
+Y 51.43 (REF)
+Z 31.50(REF)
LDW280-11450-13 (ON-3)
-13-1(ON-3-1)
PT. 12F
X228.00(REF)
+Y 53.47 (REF)
+Z 31.50 (REF)
.436-.443(7/16 DRILL)
3 PLACES
LDW280-14344-13(3) (A1)
PT 13F
X222.88 (REF)
+Y51.61 (REF)
+Z 31.50 (REF)
LDW280-28178 (REF.)
LDW280-14344-13(REF.) (A1)
LDW280-28161(REF.)
LDW 280-11450-11 (REF)
-11-1 (REF)
LDW280-28864 (REF)
SECT C C
FULL SCALE (ZONE 5A)
LDW280-28156(REF.)
C
C (ZONE 3B)
(A8)
LDW 280-11450-11(ON-3)
-11-1(ON-3-1)
ON-3-1 (REF)
LDW280-28161(REF)
H (ZONE 7F)
H
PT 14F
X200.00(REF)
+Y 56.02 (REF)
+Z 31.50(REF)
X 213.892(REF)
+Y 31.100 (REF)
+Z 31.50 (REF)
LDW280-28178 (REF)
(A8)
LDW280-11450-21 (ON-3)
-21-1(ON-3-1)
(A2)(A8)
LDW280P11485-13
(ON-3 & -3-1)
X207.502(REF)
+Y 20.965(REF)
+Z 31.50 (REF)
.115-120(#32 DRILL) 4 HOLES (A2)(A8)
GB511J06-1(4)
NAS697A06LK(4)
MS20426B3(8) CSK NS ON LDW280-11450-11 & -21
(ON-3 & -3-1)
.436-.443 (7/16 DRILL)(6) (A4)
(COORDINATE WITH LDW280-28892)
LDW280-14344-7(6)(ON-3)
(Δ) LDW280-10743-25(12)(ON-3-1)
LDW280P11321-17(6)(ON-3-1)
GS550K-04-9(6)(ON-3-1)
PT. 8RF
X200.00(REF)
+Y 35.09 (REF)
+Z 31.50(REF)
LDW280-28883-1 INSTL. (ON-3 & -3-1)

(B1) LDW 280-28851-3 INSTL

LDW 280-28851-3-1 INSTL (MODIFIED SEE NOTE 8)

NOTES:

1. INSTL FASTENERS PER LSP-14-15302.
2. MATERIAL, FINISHES, HANDLING AND PERMISSIBLE DEVIATIONS PER LPC-280-16.
3. DURING -5 INSTL (OR ASSY OF THERMAL SHIELD SUB-ASSY'S OR DETAILS FOR LTA-8 ONLY), PARTS MAY BE TRIMMED OR SHIMMED AS NOTED TO INSURE PROPER FIT TO MATING PART OR ADJACENT STRUCTURE:
   A. MAX. PERMISSIBLE TRIM TO BE 1/16, PROVIDING A MIN. FASTENER EDGE DISTANCE IS HELD AFTER TRIMMING (1 1/2 FASTENER DIA).
   B. MAX PERMISSIBLE SHIM TO BE .063 THICK, AND IF TAPERED, NOT TO EXCEED 5 INCHES IN LENGTH. SHIM STOCK TO BE 2024-T3 AL ALLOY QQ-A-250/4 FINISH 76, WIDTH AS REQ'D.
4. WHERE NECESSARY, ON THERMAL SHIELD SUB-STRUCTURE, IT IS PERMISSIBLE TO FLUSH RIVETS TO INSURE PROPER FIT OF MATING PARTS, PROVIDING MATERIAL TO BE CSK IS THICK ENOUGH TO PREVENT "FEATHERED EDGED" HOLES. (NAS 1097 OR MS20426 RIVETS MAY BE USED)
5. WHERE NECESSARY, DUE TO REDESIGN AND REWORK, THE NEXT LARGER SIZE FASTENER MAY BE USED IN LIEU OF EXISTING FASTENER, PROVIDING A MINIMUM EDGE DISTANCE OF 1 1/2 FASTENER DIA IS MAINTAINED. ALSO, EXTRANEOUS HOLES MAY BE PLUGGED AS REQ'D (NAS 1097 OR MS 20470 RIVETS PERMISSIBLE) AS LONG AS A MINIMUM SPACING OF 3 DIAMETERS EXISTS BETWEEN PLUG & NEAREST FASTENER. (A 1 INCH SQUARE OF GT835M8 TAPE MAY BE USED FOR HOLES UP TO 7/16 IN DIA IN THERMAL SKINS.)
6. WHERE NECESSARY, THE FOLLOWING NUT PLATES MAY BE REPLACEMENTS FOR ONE ANOTHER WITHIN THE GROUPS NOTED BELOW, PROVIDING THERE IS NO CHANGE IN DIAMETER OF SCREW:

   GROUP A: NAS 680, NAS 682, NAS 684, NAS 686, NAS 687, NAS696, NAS 697, NAS698, NAS 1067 & NAS 1068

   GROUP B: NAS681, NAS683 & NAS685

   IF THE INTERCHANGEABLE ANCHOR NUTS ARE USED, THERMAL SKINS OR SUB-STRUCTURE MAY BE DIMPLED OR CSK AS REQ'D. (SEE NOTE 4 ABOVE.)
7. BOND AN960D4 TO LDW280-28178-4 USING EPON 934 PER LSP14-2250()
8. -1-1, -3-1, -5-1, -7-1 INSTL'S ARE TO BE REWORKED FROM -1, -3, -5, -7 INSTL'S AS FOLLOWS;

REMOVE & SCRAP	ADD
LDW 280-11443-11, -13, -15 11444 -1, -13, -15, -17 11450 -11, -13, -21 LDW 280-11451 -11, -13, -15 REMOVE ATTACHING HARDWARE.	LDW280 11443-11-1, -13-1, -15-1 11444 -1-1, -13-1, -15-1, -17-1 11450 -11-1, -13-1, -21-1 11451 -11-1, -13-1, -15-1 10743-25 (50) LDW280 P11321-17 (25) GS550K-04-9 (25) & ATTACHING HARDWARE.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 90) = 22.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 5.6 SQ. FT.

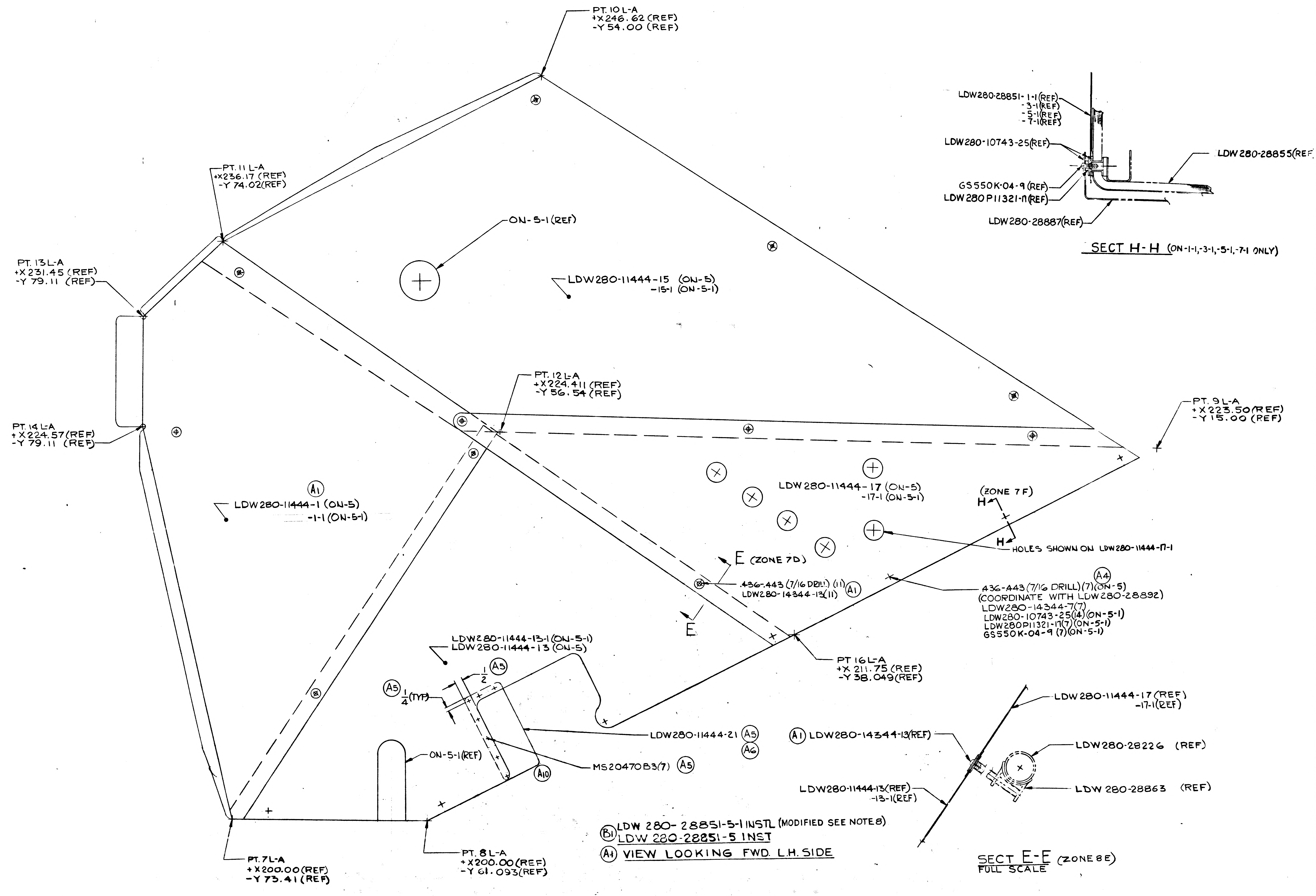
PRINT TRIM LINE

LDW280-28851 B

02/02 NAS 9-1100

CODE IDENT NO 26512
LDW280-28851 SH 3

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-28851	B
MODEL OR END ITEM	SCALE HALF & NOTED		SHEET 3.00	

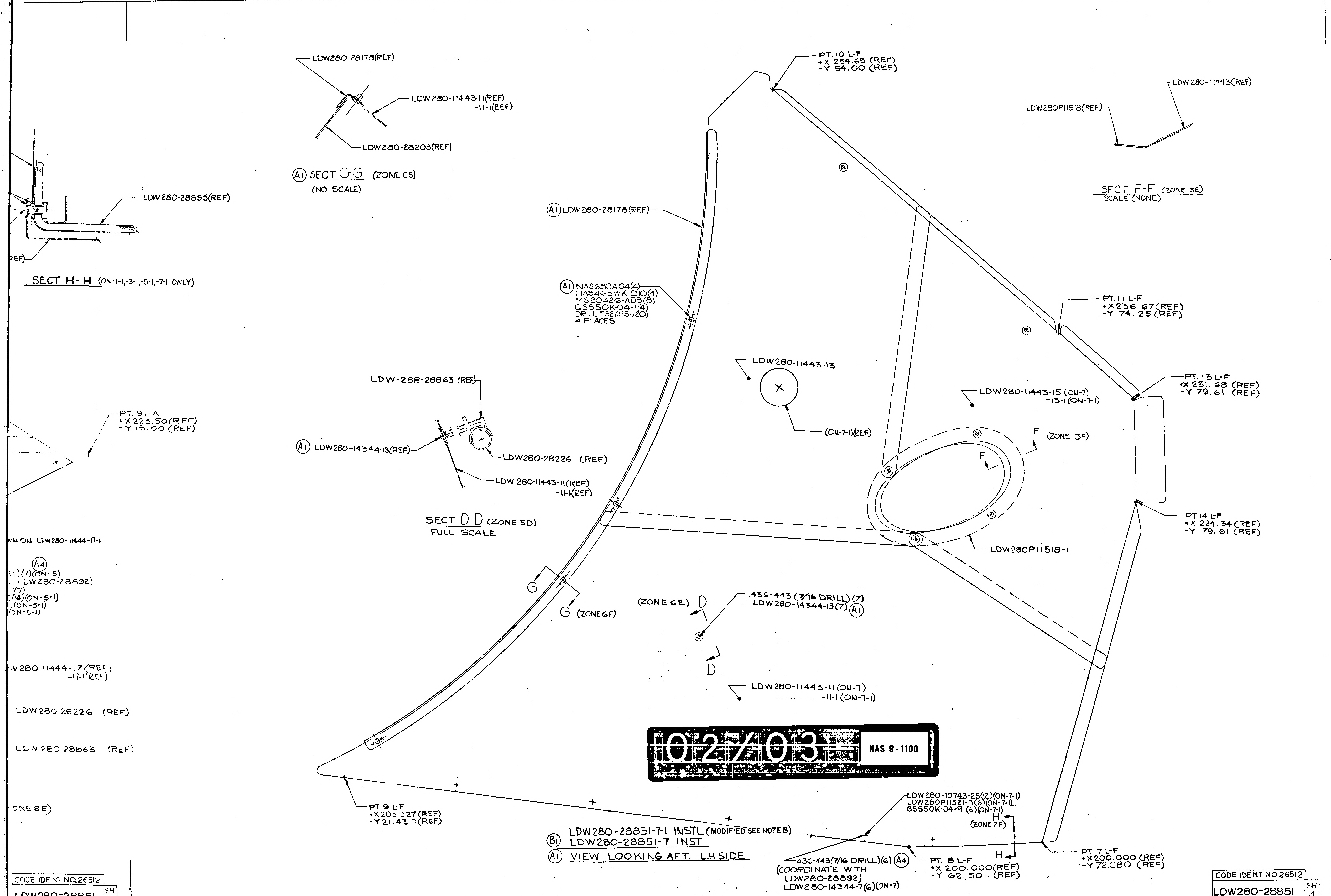

PT. 10 L-A
+X 246.62 (REF)
-Y 54.00 (REF)
PT. 11 L-A
+X 236.17 (REF)
-Y 74.02 (REF)
ON-5-1 (REF)
PT. 13 L-A
+X 231.45 (REF)
-Y 79.11 (REF)
LDW280-11444-15 (ON-5)
-15-1 (ON-5-1)
PT. 12 L-A
+X 224.411 (REF)
-Y 56.54 (REF)
PT. 14 L-A
+X 224.57 (REF)
-Y 79.11 (REF)
PT. 9 L-A
+X 223.50 (REF)
-Y 15.00 (REF)
A1
LDW280-11444-1 (ON-5)
-1-1 (ON-5-1)
LDW280-11444-17 (ON-5)
-17-1 (ON-5-1)
(ZONE 7 F)
H
H
HOLES SHOWN ON LDW280-11444-17-1
E (ZONE 7D)
E
.436-.443 (7/16 DRILL) (11) A1
LDW280-14344-13 (11)
A4
.436-.443 (7/16 DRILL) (7) (ON-5)
(COORDINATE WITH LDW280-28892)
LDW280-14344-7 (7)
LDW280-10743-25 (14) (ON-5-1)
LDW280P11321-17 (7) (ON-5-1)
GS550K-04-9 (7) (ON-5-1)
PT 16 L-A
+X 211.75 (REF)
-Y 38.049 (REF)
LDW280-11444-13-1 (ON-5-1)
LDW280-11444-13 (ON-5)
A5 1/2
A5 1/4 (TYP)
LDW280-11444-21 A5 A6
ON-5-1 (REF)
MS20470B3 (7) A5
A10
PT. 7 L-A
+X 200.00 (REF)
-Y 73.41 (REF)
PT. 8 L-A
+X 200.00 (REF)
-Y 61.093 (REF)
LDW280-28851-1-1 (REF)
-3-1 (REF)
-5-1 (REF)
-7-1 (REF)
LDW280-10743-25 (REF)
LDW280-28855 (REF
GS550K-04-9 (REF)
LDW280P11321-17 (REF)
LDW280-28887 (REF)
SECT H-H (ON-1-1, -3-1, -5-1, -7-1 ONLY)
LDW280-11444-17 (REF)
-17-1 (REF)
A1 LDW280-14344-13 (REF)
LDW280-28226 (REF)
LDW280-11444-13 (REF)
-13-1 (REF)
LDW 280-28863 (REF)
SECT E-E (ZONE 8E)
FULL SCALE

B1 LDW 280-28851-5-1 INSTL (MODIFIED SEE NOTE 8)
LDW 280-28851-5 INST

A4 VIEW LOOKING FWD. L.H. SIDE

01/03 NAS 9-1100

CODE IDENT NO. 26512	
LDW280-28851	SH 4


7
6
5
4
3
LDW280-28178(REF)
LDW280-11443-11(REF)
-11-1(REF)
LDW280-28203(REF)
LDW280-28855(REF)
REF)
PT. 10 L-F
+X 254.65 (REF)
-Y 54.00 (REF)
LDW280P11518(REF)
LDW 280-11993(REF)
(A1) LDW280-28178(REF)
(A1) NAS680A04(4)
NAS463WK-D10(4)
MS20426-AD3(8)
6S550K-04-1(4)
DRILL #32(.115-.120)
4 PLACES
PT. 11 L-F
+X 236.67(REF)
-Y 74.25(REF)
LDW280-11443-13
(ON-7-1)(REF)
PT. 13 L-F
+X 231.68 (REF)
-Y 79.61 (REF)
LDW280-11443-15 (ON-7)
-15-1 (ON-7-1)
F (ZONE 3F)
F
LDW-288-28863 (REF)
(A1) LDW280-14344-13(REF)
LDW280-28226 (REF)
LDW 280-11443-11(REF)
-11-1(REF)
PT. 9 L-A
+X 223.50(REF)
-Y 15.00 (REF)
PT. 14 L-F
+X 224.34 (REF)
-Y 79.61 (REF)
LDW280P11518-1
NN ON LDW280-11444-17-1
(A4)
LL)(7)(ON-5)
LDW280-28892)
(7)
(14)(ON-5-1)
(ON-5-1)
ON-5-1)
G
G (ZONE 6F)
(ZONE 6E) D
D
.436-.443 (7/16 DRILL)(7)
LDW280-14344-13(7) (A1)
W 280-11444-17(REF)
-17-1(REF)
LDW280-11443-11 (ON-7)
-11-1 (ON-7-1)
LDW280-28226 (REF)
LDW 280-28863 (REF)
ONE 8E)
PT. 9 L-F
+X 205.327(REF)
-Y 21.43 (REF)
LDW280-10743-25(12)(ON-7-1)
LDW280P11321-17(6)(ON-7-1)
6S550K-04-9 (6)(ON-7-1)
H
(ZONE 7F)
H
.436-.443(7/16 DRILL)(6) (A4)
(COORDINATE WITH
LDW280-28892)
LDW280-14344-7(6)(ON-7)
PT. 8 L-F
+X 200.000(REF)
-Y 62.50 (REF)
PT. 7 L-F
+X 200.000 (REF)
-Y 72.080 (REF)

(A1) SECT G-G (ZONE E5)
(NO SCALE)

SECT H-H (ON-1-1,-3-1,-5-1,-7-1 ONLY)

SECT F-F (ZONE 3E)
SCALE (NONE)

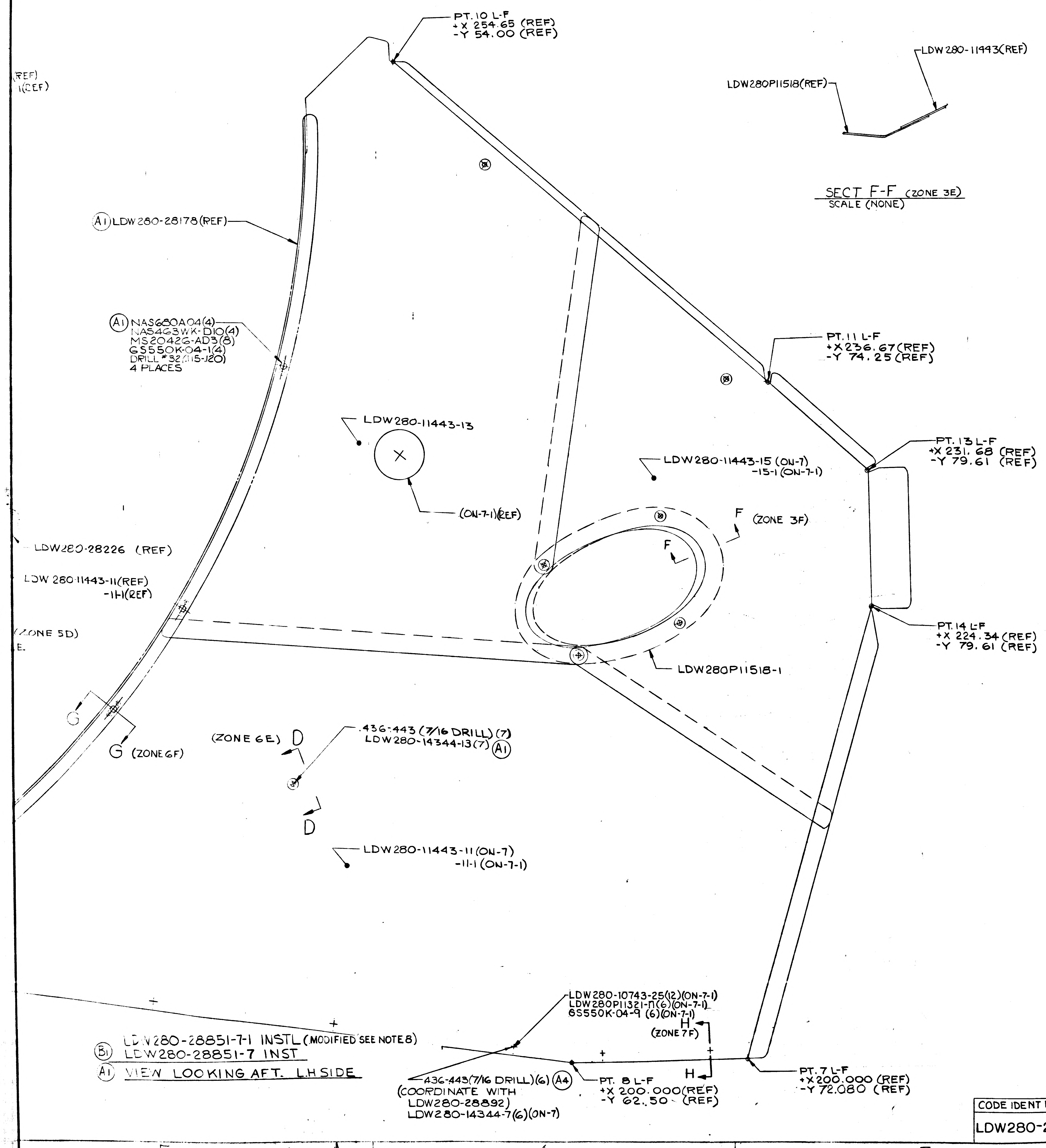
SECT D-D (ZONE 5D)
FULL SCALE

LDW280-28851-7-1 INSTL (MODIFIED SEE NOTE 8)
(B1) LDW280-28851-7 INST
(A1) VIEW LOOKING AFT. L.H SIDE

02/03 NAS 9-1100

CODE IDENT NO. 26512	
LDW280-28851	SH 4

CODE IDENT NO 26512	
LDW280-28851	SH 4



PT. 10 L-F
+X 254.65 (REF)
-Y 54.00 (REF)
LDW280-11493(REF)
LDW280P11518(REF)
SECT F-F (ZONE 3E)
SCALE (NONE)
(REF)
1(REF)
A1 LDW280-28178(REF)
A1 NAS680A04(4)
NAS463WK-D10(4)
MS20426-AD3(8)
6S550K-04-1(4)
DRILL #32(.115-.120)
4 PLACES
PT. 11 L-F
+X 236.67(REF)
-Y 74.25(REF)
LDW280-11443-13
(ON-7-1)(REF)
LDW280-11443-15 (ON-7)
-15-1 (ON-7-1)
PT. 13 L-F
+X 231.68 (REF)
-Y 79.61 (REF)
F (ZONE 3F)
F
LDW280-28226 (REF)
LDW 280-11443-11(REF)
-1-1(REF)
(ZONE 5D)
E.
PT. 14 L-F
+X 224.34 (REF)
-Y 79.61 (REF)
LDW280P11518-1
G
G (ZONE 6F)
(ZONE 6E) D
.436-.443 (7/16 DRILL) (7)
LDW280-14344-13(7) A1
D
LDW280-11443-11 (ON-7)
-11-1 (ON-7-1)
LDW280-10743-25(12)(ON-7-1)
LDW280P11321-11(6)(ON-7-1)
6S550K-04-9 (6)(ON-7-1)
H
(ZONE 7F)
B1 LDW280-28851-7-1 INSTL (MODIFIED SEE NOTE 8)
LDW280-28851-7 INST
A1 VIEW LOOKING AFT. L.H SIDE
.436-.443(7/16 DRILL)(6) A4
(COORDINATE WITH
LDW280-28892)
LDW280-14344-7(6)(ON-7)
PT. 8 L-F
+X 200.000(REF)
-Y 62.50 (REF)
H
PT. 7 L-F
+X 200.000 (REF)
-Y 72.080 (REF)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 106

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 108)= 27 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 6.7 SQ. FT.

PRINT TRIM LINE

LDW280-28851 B

LDW280-28851 B

03/03 NAS 9-1100

CODE IDENT NO 26512
LDW280-28851 SH 4

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	J	26512	LDW280-28851	B
	SCALE HALF & NOTED		SHEET 4.00	

LDW280-28852 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LFM 126	LDW280-28150	LTA-18(18)	1 EA

PART NO. LDW280-28852-1-1, -3-1 & -5-1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM

PART NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. GAEC SCH NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28150	LTA-8(18)	1 EA

PART NO. LDW280-28852-1,-3 & -5

GAEC SCH NO. 30

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00	4.00				
REV	A		A	A	A				
SHEET	1.10		2.01						
REV	A		A						
SHEET									
REV									

LAST SECT LTR USED	G-G	GRUMMAN REL INFO 1A	
LAST DASH NO. USED	-5	PRIM NO.	V(001)
		215	MP-16 A 6/13/

ENG 77.1 12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. 9-12-66
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM 1

DOCUMENTATION TYPE II

DRAWN BY	J. GRECO G. ZARCADOOLAS 9-9-66		
LAYOUT BY	P. GAUTHIER GORTLER		
CHECKED BY	9-12-66		
GR LEADER	9-13		
VEH DSGN INT	9/13		
STRUCTURES		PROJ ENGR	R.M. Carbee 9-19
STRUCTURES	Alderman 9/7	REL GROUP	J. Tagliavia 10/4/66
WEIGHTS	Albanese 9/29		

Ⓡ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

PANEL INSTALLATION
ASCENT STAGE MID SECT,
FWD & AFT UPPER BLKHD

SIZE	CODE IDENT NO.		
B	26512	LDW280-28852	A

SCALE NONE

SHEET 1.00 OF 6

CDR REV A 6/19/68 C.D.R. 9-30-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	4.00 2.00	13B 17B				✓	EOA1	ON-3, NAS463WK-D10 (4) WAS NAS463WK-DD10L (4), MS20426AD3 (8) WAS NAS1097AD3 (8) REMOVED "DIMPLE LDW280-11436-11 FAR SIDE" ON-5, NAS463WK-D10 (5) WAS NAS463WK-D10L (5), MS20426AD3 (10) WAS NAS1097AD3 (10) REMOVED "DIMPLE LDW280-11436-12 FAR SIDE" 2 PLACES ADDED SH 1.10	LTA-8(18)	✓		R TAYLOR 5-13-68		
	2	2.00 3.00	3C 3B 4D 4A 7C 8B				✓	EOA2	IN FLD & B/M OF -1 INSTL ADDED "NAS680A04 (12), NAS463WK-D10 (12), MS20426AD3 (24)" WAS "NAS697C04L, MS20470AD3 (2), GS550K-04-1" ADDED LDW280-11435-15 & -17 WAS LDW280-11435-14 & -12. PT "C" WAS PT "B" & PT "D" WAS PT "C"	LTA-8(18)	✓				
	3	2.00 3.00 4.00	3B 5C 6C 13C 13A 16C 17A				✓	EOA3	IN FLD & B/M LDW280-14344-13 (14 ON-1) WAS -7 (14 ON-1) LDW280-14344-13 (9 ON-3) WAS -7 (9 ON-3) LDW280-14344-13 (9 ON-5) WAS -7 (9 ON-5)	LTA-8(18)	✓				
	4	3.00	3C					EOA4	ON-1, ADDED GR500A-4A (3)	LTA-8(18)	✓				
	5	3.00			✓			LEO280-497	ADDED NOTE 2	LTA-8(18)	✓				
	6	3.00	7B					EOA6	ON-1, ADDED GR500A-4A (3)	LTA-8(18)	✓				
	7	3.00					✓	LEO280-593	ADDED NOTES 3, 4, 5 & 6	LTA-8(18)	✓				
	8	4.00 2.00	14B				✓	EOA8	IN FLD & B/M ON-5, ADDED LDW280-11436-41 COVER, MS20470B3 (8)	LTA-8(18)	✓				
	9	2.01, 3.00 4.00	14A 6A	LFM-126		✓		LCD 1021-33 CCA 498	ADDED -1-1, -3-1 & -5-1 ADDED SH. 2.01	LTA-8(18)	NOTED				
	10	3.00	3C/7B						REF. EO A4 & A6 ~ LSP14-16303 S/B LSP14-15303.	LTA-8(18)	NOT	REQD			
	11	4.00	15B				✓		IN F/D & B/M REMOVED LDW280M14916-1 & ADDED GR11C-1 (D.E.C.) REF. DCRF323-1196						
	12	3.00	8C 7C	®			✓		REF EOA2 (IN DESCRIPTION OF CHANGE): "ADDED LDW280-11435-15 & -17, WAS LDW280-11435-14 & -12" SHOULD BE "ADDED LDW280-11435-14 & -12, WAS LDW280-11435-15 & -17." WCS JK	LTA-8(18)	NOT	REQD	J. Preston 6/18/68		

CHG APPD					
LTR	GROUP LDR.	VDI	STRUCT	STRUCT	THERMO
A	TDR 6/10/68	6/10/68	6/11/68	FEB	6-11-68

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28852	A
SCALE NONE			SHEET 1.10

773 5-65

01

NAS 9-1100

	-5-1	-3-1	-1-1	-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								MS20470B3	E	RIVET	STD PART						
								MS20426AD3	E	RIVET	STD PART						
				5	4	12		NAS463WK-D10		SHIM							
				1				GR11C-1		RETAINER							
			12			12		NAS697C04L		NUT PLATE							
	5	4	12	5	4	12		NAS680A04		NUT PLATE							
								MS20470AD3		RIVET	STD PART						
						6		GR500A-4A		RIVET	GRUMMAN STD						
				1		12		GS550K-04-1		SCREW	GRUMMAN STD						
				1				LDW280-11436-41		COVER	SEE DWG						14B
																	14B
				9	9	14		LDW280-14344-13		SCREW ASSY	SEE DWG						3B
				1				LDW280-11436-15		SHIELD							14B
				1				-14									13C
					1			-13									17C
				1				-12									14B
					1			LDW280-11436-11									16B
						1		LDW280-11435-12									8C
						1		-14									7C
						1		-13									4C
						1		LDW280-11435-11		SHIELD	SEE DWG						3B
	1							LDW280-28852-5		BHD INSTL					NONE	NONE	
		1						LDW280-28852-3		BHD INSTL					NONE	NONE	
			1					LDW280-28852-1	E	BHD INSTL					NONE	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28852	A

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

QTY PER ASSEMBLY																
-5	-3	-1	-5-1	-3-1	-1-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
							LDW280-28852-5-1	E	BHD INSTL	SEE NOTE 7				NONE	NONE	
							LDW280-28852-3-1	E	BHD INSTL	SEE NOTE 7				NONE	NONE	
							LDW280-28852-1-1	E	BHD INSTL	SEE NOTE 7				NONE	NONE	
					6		LDW280-10743-17	E	SPACER	SEE DWG						3C
			1				LDW280-11436-41-1	E	COVER	SEE DWG						14B
			1				LDW280-11436-15-1		SHIELD							14B
			1				LDW280-11436-14-1									13C
				1			LDW280-11436-13-1									17C
			1				LDW280-11436-12-1									14B
				1			LDW280-11436-11-1									16B
					1		LDW280-11435-14-1									7C
					1		LDW280-11435-13-1									4C
					1		LDW280-11435-12-1									8C
					1		LDW280-11435-11-1	E	SHIELD	SEE DWG						3B

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28852	A
SCALE NONE		SHEET 2.01	

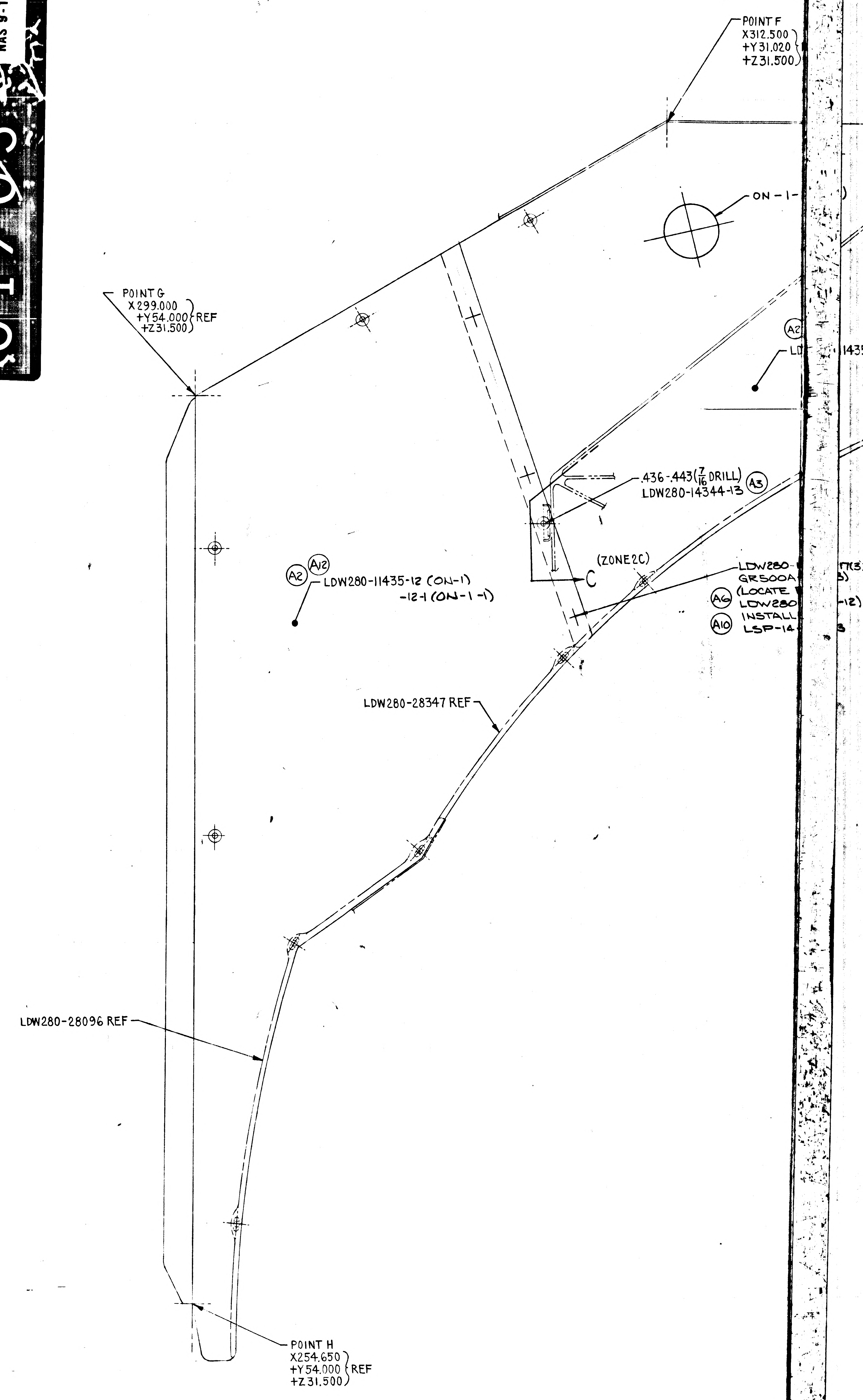
ENG 77.2 7-65

01

NAS 9-1100

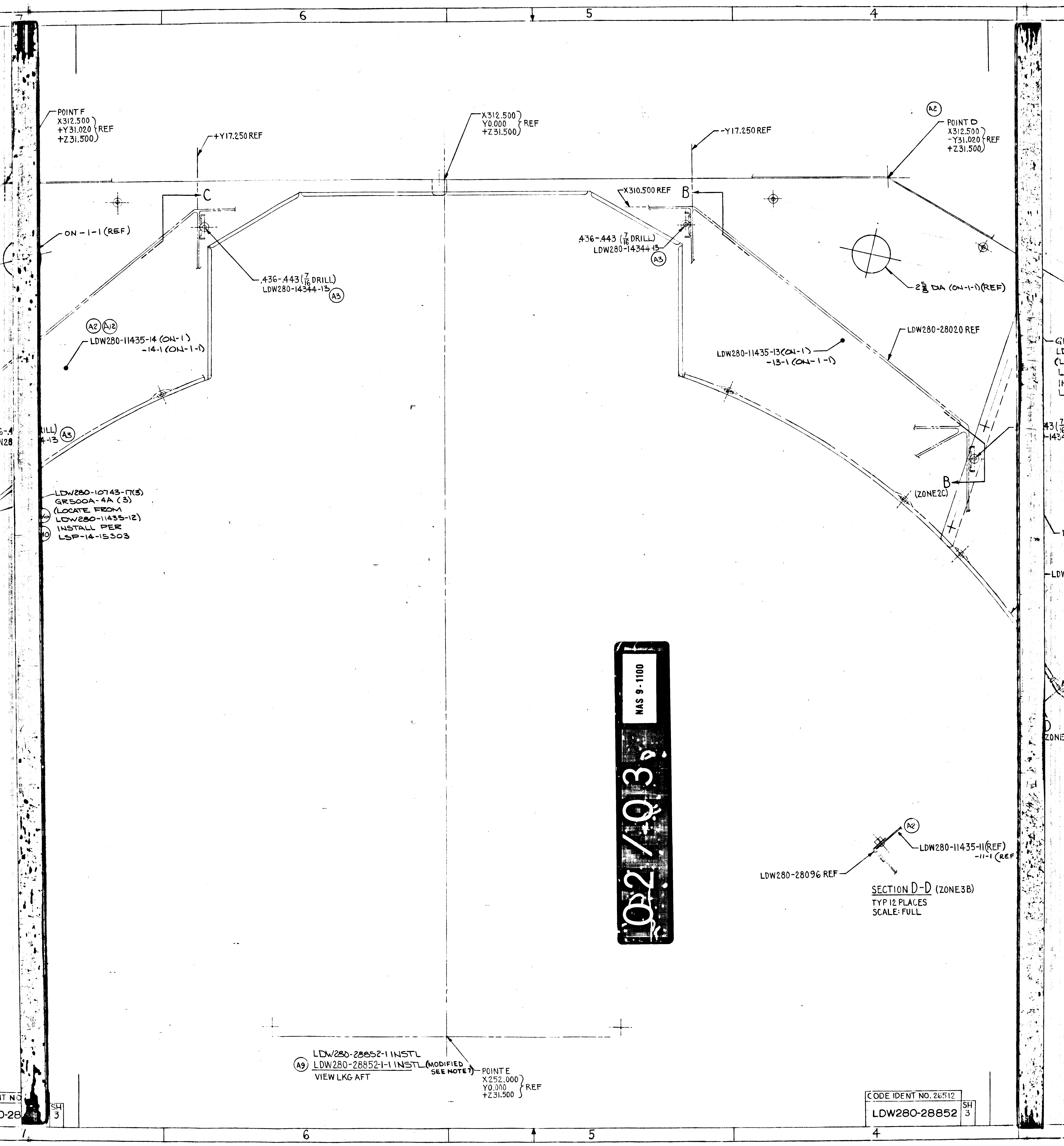
01/03

NAS 9-1100


POINT F
X312.500
+Y31.020
+Z31.500
ON - 1 -
POINT G
X299.000
+Y54.000 REF
+Z31.500
A2
A2 A12 LDW280-11435-12 (ON-1)
-12-1 (ON-1-1)
.436-.443 ($\frac{7}{16}$ DRILL) A3
LDW280-14344-13
C
(ZONE 2C)
LDW280-
GR500A
A6 (LOCATE
LDW280
A10 INSTALL
LSP-14
LDW280-28347 REF
LDW280-28096 REF
POINT H
X254.650
+Y54.000 REF
+Z31.500

3/3

CODE IDENT NO. 26512
LDW280-28852 SH 3

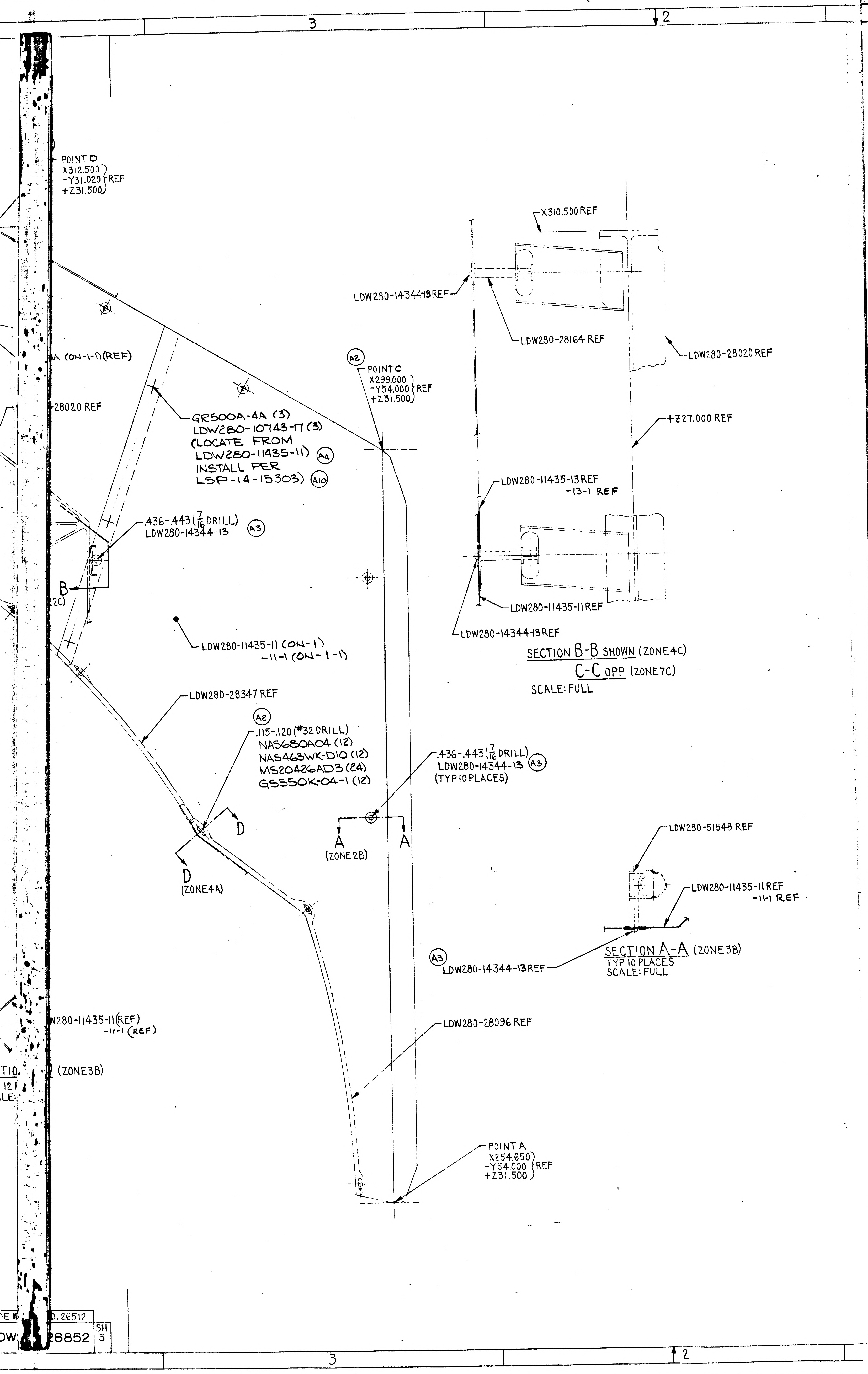


POINT F X312.500 +Y31.020 +Z31.500 REF
+Y17.250 REF
X312.500 Y0.000 +Z31.500 REF
-Y17.250 REF
POINT D X312.500 -Y31.020 +Z31.500 REF
A2
C
B
X310.500 REF
ON-1-1 (REF)
.436-.443 (7/16 DRILL) LDW280-14344-13 A3
.436-.443 (7/16 DRILL) LDW280-14344-13 A3
2 5/8 DIA (ON-1-1)(REF)
A2 A12 LDW280-11435-14 (ON-1) -14-1 (ON-1-1)
LDW280-28020 REF
LDW280-11435-13 (ON-1) -13-1 (ON-1-1)
LDW280-10743-17(3) GRS00A-4A (3) (LOCATE FROM LDW280-11435-12) INSTALL PER LSP-14-15303
B (ZONE 2C)
A2
LDW280-11435-11 (REF) -11-1 (REF)
LDW280-28096 REF
SECTION D-D (ZONE 3B)
TYP 12 PLACES
SCALE: FULL
LDW280-28852-1 INSTL
A9 LDW280-28852-1-1 INSTL (MODIFIED SEE NOTE 7)
VIEW LKG AFT
POINT E X252.000 Y0.000 +Z31.500 REF
6
5
4
SH 3

CODE IDENT NO. 26512
LDW280-28852 SH 3

02/03

NAS 9-1100



POINT D
X312.500
-Y31.020 REF
+Z31.500
A (ON-1-1)(REF)
28020 REF
GR500A-4A (3)
LDW280-10743-17 (3)
(LOCATE FROM
LDW280-11435-11) (A4)
INSTALL PER
LSP-14-15303) (A10)
.436-.443 (7/16 DRILL)
LDW280-14344-13 (A3)
B
LDW280-11435-11 (ON-1)
-11-1 (ON-1-1)
LDW280-28347 REF
(A2)
.115-.120 (#32 DRILL)
NAS680A04 (12)
NAS463WK-D10 (12)
MS20426AD3 (24)
GS550K-04-1 (12)
D
D
(ZONE 4A)
A
A
(ZONE 2B)
.436-.443 (7/16 DRILL)
LDW280-14344-13 (A3)
(TYP 10 PLACES)
(A2)
POINT C
X299.000
-Y54.000 REF
+Z31.500
LDW280-11435-11(REF)
-11-1 (REF)
(ZONE 3B)
(A3)
LDW280-14344-13REF
LDW280-28096 REF
POINT A
X254.650
-Y54.000 REF
+Z31.500
X310.500 REF
LDW280-14344-13REF
LDW280-28164 REF
LDW280-28020 REF
+Z27.000 REF
LDW280-11435-13REF
-13-1 REF
LDW280-11435-11REF
LDW280-14344-13REF
SECTION B-B SHOWN (ZONE 4C)
C-C OPP (ZONE 7C)
SCALE: FULL
LDW280-51548 REF
LDW280-11435-11REF
-11-1 REF
SECTION A-A (ZONE 3B)
TYP 10 PLACES
SCALE: FULL
3
2

NOTES:
1. INSTALL FASTENERS PER LSP14-15302
2. MATERIAL, FINISHES, HANDLING AND PERMISSIBLE DEVIATIONS PER LPC-280-16
3. DURING -1. INSTL (OR ASSY OF THERMAL SHIELD SUB-ASSY'S OR DETAILS FOR LTA-8 ONLY) PARTS MAY BE TRIMMED OR SHIMMED AS NOTED TO INSURE PROPER FIT TO MATING PART OR ADJACENT STRUCTURE:
   a. MAX. PERMISSIBLE TRIM TO BE 1/16, PROVIDING A MIN FASTENER EDGE DISTANCE IS HELD AFTER TRIMMING (1 1/2 FASTENER DIA.)
   b. MAX PERMISSIBLE SHIM TO BE .063 THICK, AND IF TAPERED, NOT TO EXCEED 5 INCHES IN LENGTH. SHIM STOCK TO BE 2024-T3 AL ALLOY QQ-A-250/4 FINISH 76, WIDTH AS REQUIRED.
4. WHERE NECESSARY, ON THERMAL SHIELD SUB-STRUCTURE, IT IS PERMISSIBLE TO FLUSH RIVETS TO INSURE PROPER FIT OF MATING PARTS, PROVIDING MATERIAL TO BE CSK IS THICK ENOUGH TO PREVENT "FEATHER EDGED" HOLES. (NAS1097 OR MS20426 RIVETS MAY BE USED.
5. WHERE NECESSARY, DUE TO REDESIGN AND REWORK, THE NEXT LARGER SIZE FASTENER MAY BE USED IN LIEU OF EXISTING FASTENER, PROVIDING A MINIMUM EDGE DISTANCE OF 1 1/2 FASTENER DIA IS MAINTAINED ALSO, EXTRANEOUS HOLES MAY BE PLUGGED AS REQD (NAS1097 OR MS20470 RIVETS PERMISSIBLE) AS LONG AS A MINIMUM SPACING OF 3 DIAMETERS EXISTS BETWEEN PLUG AND NEAREST FASTENER (A 1 INCH SQUARE OF GT835M8 TAPE MAY BE USED FOR HOLES UP TO 1/16 IN DIA IN THERMAL SKINS.
6. WHERE NECESSARY, THE FOLLOWING NUT PLATES MAY BE REPLACEMENTS FOR ONE ONOTHER WITHIN THE GROUPS NOTED BELOW, PROVIDING THERE IS NO CHANGE IN DIAMETER OF SCREW:
   GROUP A: NAS680, NAS682, NAS684, NAS686, NAS687, NAS696, NAS697, NAS698, NAS1067 & NAS1068
   GROUP B: NAS681, NAS683 & NAS685
   IF THE INTERCHANGEABLE ANCHOR NUTS ARE USED, THERMAL SKINS OR SUB-STRUCTURE MAY BE DIMPLED OR CSK AS REQ'D. (SEE NOTE 4 ABOVE.)
7. -1-1, -3-1 & -5-1 SHALL BE MADE FROM -1, -3 & -5 BY REWORKING AS FOLLOWS:

	REMOVE & SCRAP	ADD
FOR-1-1	LDW280-11435-11 LDW280-11435-12 LDW280-11435-13 LDW280-11435-14 LDW280-10743-17	LDW280-11435-11-1 LDW280-11435-12-1 LDW280-11435-13-1 LDW280-11435-14-1 LDW280-10743-17
FOR-3-1	LDW280-11436-11 LDW280-11436-13	LDW280-11436-11-1 LDW280-11436-13-1
FOR-5-1	LDW280-11436-12 LDW280-11436-14 LDW280-11436-15	LDW280-11436-12-1 LDW280-11436-14-1 LDW280-11436-15-1

REMOVE & ADD ATTACHING HDW AS REQD

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	√
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 40 X 96

PRINTING INFO ONLY

03/03

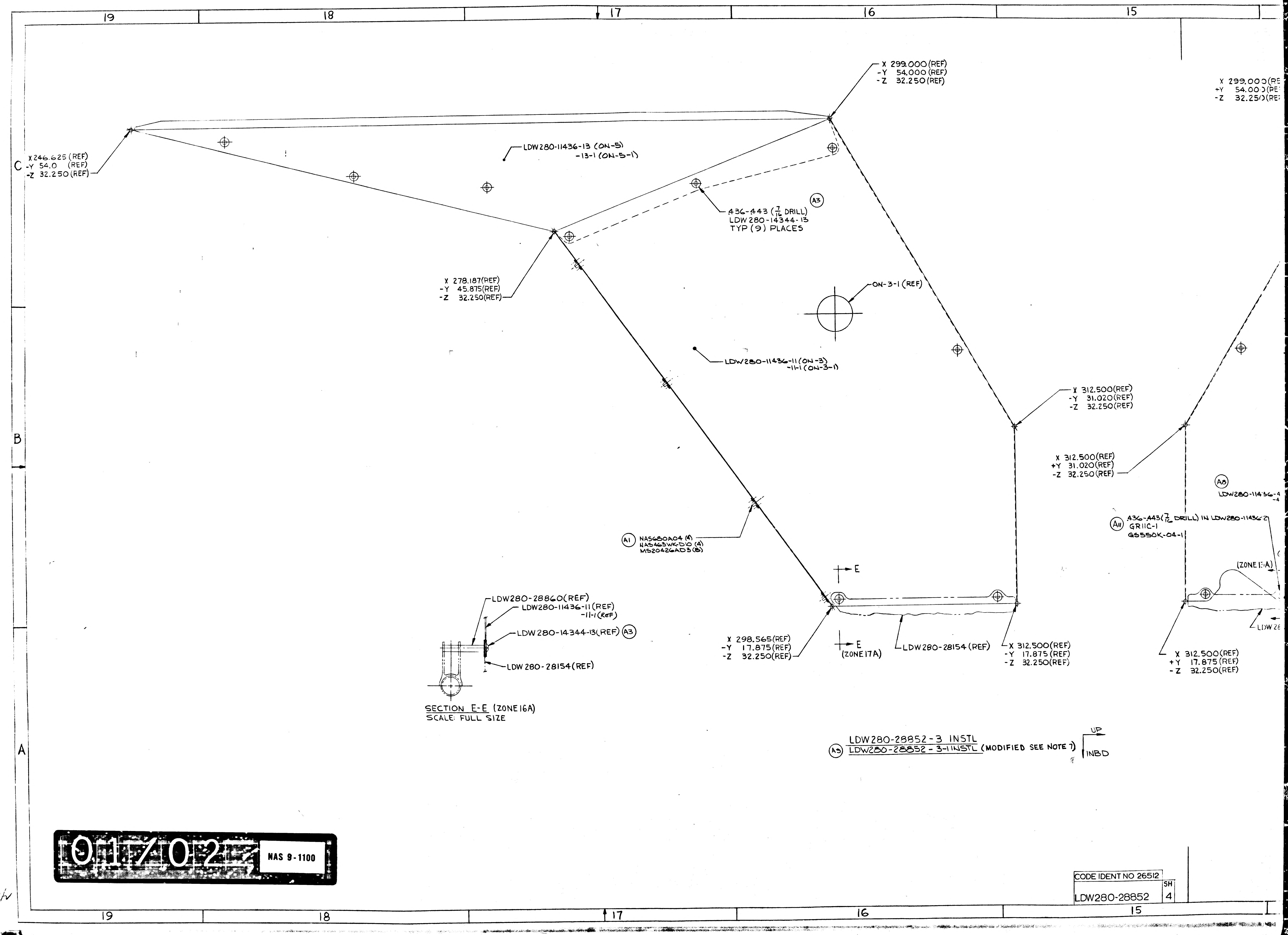
NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	K	26512	LDW280-28852	A
SCALE ½ & NOTED			SHEET 3.00	

LDW280-28852A

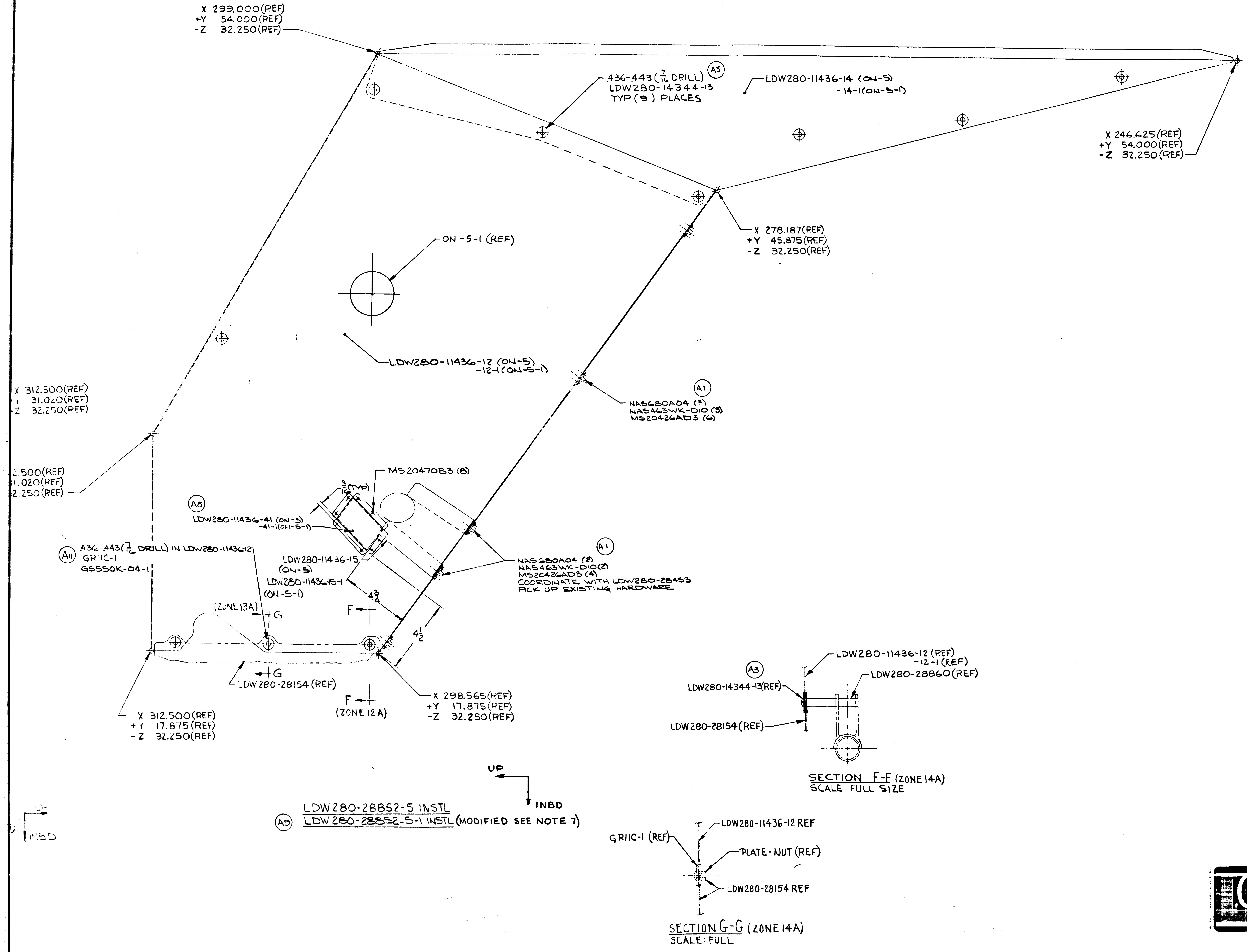
LDW280-28852A


19
18
17
16
15
C
B
A
X 299.000 (REF)
-Y 54.000 (REF)
-Z 32.250 (REF)
X 299.000 (RE
+Y 54.00 (RE
-Z 32.250 (RE
X 246.625 (REF)
-Y 54.0 (REF)
-Z 32.250 (REF)
LDW280-11436-13 (ON-5)
-13-1 (ON-5-1)
.436-.443 (7/16 DRILL)
LDW 280-14344-13
TYP (9) PLACES
A3
X 278.187 (REF)
-Y 45.875 (REF)
-Z 32.250 (REF)
ON-3-1 (REF)
LDW280-11436-11 (ON-3)
-11-1 (ON-3-1)
X 312.500 (REF)
-Y 31.020 (REF)
-Z 32.250 (REF)
X 312.500 (REF)
+Y 31.020 (REF)
-Z 32.250 (REF)
A8
LDW280-11436-4
-4
A11
.436-.443 (7/16 DRILL) IN LDW280-11436-2
GR11C-1
GS550K-04-1
(ZONE 15A)
LDW 28
A1
NAS680A04 (4)
NAS463WK-D10 (4)
MS20426AD3 (8)
E
E
(ZONE 17A)
LDW280-28860 (REF)
LDW280-11436-11 (REF)
-11-1 (REF)
LDW280-14344-13 (REF) A3
LDW 280-28154 (REF)
SECTION E-E (ZONE 16A)
SCALE: FULL SIZE
X 298.565 (REF)
-Y 17.875 (REF)
-Z 32.250 (REF)
LDW280-28154 (REF)
X 312.500 (REF)
-Y 17.875 (REF)
-Z 32.250 (REF)
X 312.500 (REF)
+Y 17.875 (REF)
-Z 32.250 (REF)
UP
INBD

LDW280-28852-3 INSTL
(A3) LDW280-28852-3-1 INSTL (MODIFIED SEE NOTE 7)

01/02 NAS 9-1100

CODE IDENT NO 26512
LDW280-28852 SH 4


X 299.000(REF)
+Y 54.000(REF)
-Z 32.250(REF)
.436-.443 (7/16 DRILL) A3
LDW280-14344-13
TYP (9) PLACES
LDW280-11436-14 (ON-5)
-14-1(ON-5-1)
X 246.625(REF)
+Y 54.000(REF)
-Z 32.250(REF)
X 278.187(REF)
+Y 45.875(REF)
-Z 32.250(REF)
ON-5-1 (REF)
LDW280-11436-12 (ON-5)
-12-1 (ON-5-1)
A1
NAS680A04 (3)
NAS463WK-D10 (3)
MS20426AD3 (6)
X 312.500(REF)
31.020(REF)
-Z 32.250(REF)
2.500(REF)
1.020(REF)
2.250(REF)
MS20470B3 (8)
3/16 (TYP)
A8
LDW280-11436-41 (ON-5)
-41-1(ON-5-1)
A11
.436-.443(7/16 DRILL) IN LDW280-11436-12
GR11C-1
GS550K-04-1
LDW280-11436-15
(ON-5)
LDW280-11436-15-1
(ON-5-1)
A1
NAS680A04 (2)
NAS463WK-D10(2)
MS20426AD3 (4)
COORDINATE WITH LDW280-28453
PICK UP EXISTING HARDWARE
4 3/4
4 1/2
(ZONE 13A)
G
F
G
LDW280-28154 (REF)
F
(ZONE 12A)
X 298.565(REF)
+Y 17.875(REF)
-Z 32.250(REF)
X 312.500(REF)
+Y 17.875(REF)
-Z 32.250(REF)
UP
INBD
INBD
A3
LDW280-11436-12 (REF)
-12-1 (REF)
LDW280-14344-13(REF)
LDW280-28860(REF)
LDW280-28154(REF)
GR11C-1 (REF)
LDW280-11436-12 REF
PLATE-NUT (REF)
LDW280-28154 REF

LDW280-28852-5 INSTL
A9 LDW280-28852-5-1 INSTL (MODIFIED SEE NOTE 7)

SECTION F-F (ZONE 14A)
SCALE: FULL SIZE

SECTION G-G (ZONE 14A)
SCALE: FULL

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED. ✓

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 90)= 22.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 5.625 SQ. FT.

PRINT TRIM LINE

LDW280-28852 A

LDW280-28852A

02/02

NAS 9-1100

CODE IDENT NO 26512
LDW280-28852 SH 4

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

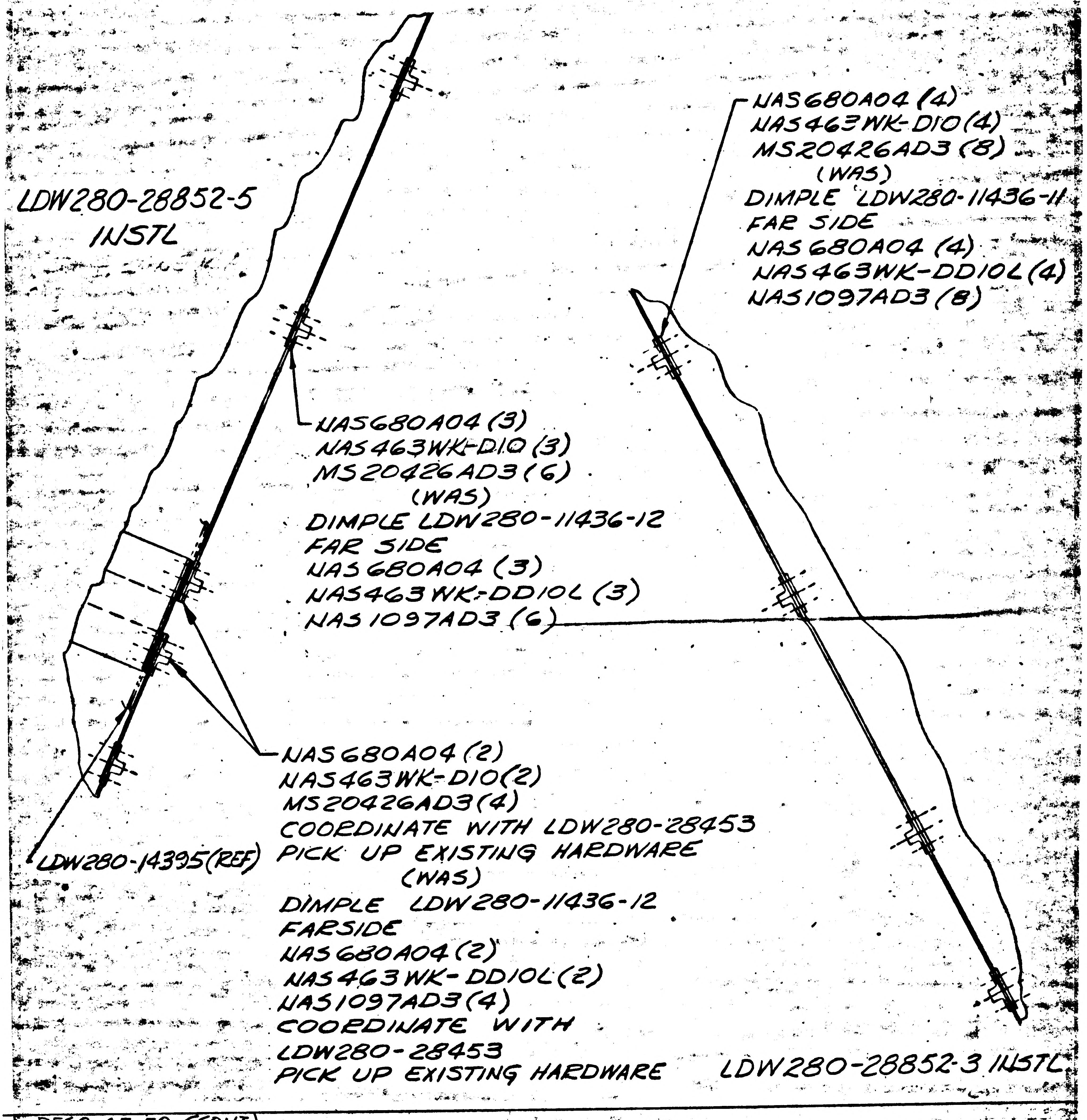
MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	J	26512	LDW280-28852	A
SCALE 1/2 & NOTED			SHEET 4.00	

DWG 32.2 REV 3-65 *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28852		EO NO. A1	
CONTROL INFO NO. LDW280A-2035			

IN F/D & B/M REVISE -3 & -5 INSTL AS NOTED



LDW280-28852-5 INSTL

NAS680A04 (3)
NAS463WK-D10 (3)
MS20426AD3 (6)
(WAS)
DIMPLE LDW280-11436-12
FAR SIDE
NAS680A04 (3)
NAS463WK-DD10L (3)
NAS1097AD3 (6)

NAS680A04 (2)
NAS463WK-D10 (2)
MS20426AD3 (4)
COORDINATE WITH LDW280-28453
PICK UP EXISTING HARDWARE
(WAS)
DIMPLE LDW280-11436-12
FARSIDE
NAS680A04 (2)
NAS463WK-DD10L (2)
NAS1097AD3 (4)
COORDINATE WITH
LDW280-28453
PICK UP EXISTING HARDWARE

LDW280-14395 (REF)

NAS680A04 (4)
NAS463WK-D10 (4)
MS20426AD3 (8)
(WAS)
DIMPLE LDW280-11436-11
FAR SIDE
NAS680A04 (4)
NAS463WK-DD10L (4)
NAS1097AD3 (8)

LDW280-28852-3 INSTL

DESC. OF EO (CONT)
NAS1097AD3 (10) REMOVED "DIMPLE LDW280-11436-12 FAR SIDE" 2 PLACES

DETAIL SPEC RQR		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: SKIN VENTING REQUIRED

DESCRIPTION: ON-3, NAS463WK-D10 (4) WAS NAS463WK-DD10L (4), MS 20426AD3 (8) WAS NAS1097AD3 (8) REMOVED "DIMPLE LDW280-11436-11 FAR SIDE" ON-5, NAS463WK-D10 (5) WAS NAS463WK-D10L (5), MS 20426AD3 (10) WAS

3

GAEC EO RELEASE: 10/25

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-8 (18)		

DRAWING CHANGE REQD: REVISE DWG ✓ · RECORD EO
DISPOSITION OF PARTS: REWORK ✓ · SCRAP

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY					JV			
DATE	10/15/66	10/17/66			10/17		10-17-66	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PANEL INSTL ~ A/S ~ M/S FWD & AFT UPPER BLKHD	LDW280-28852	A1

ISSUED BY R. GORTLER SECTION VDI X1441 GROUP NO. 335 PL 35

01

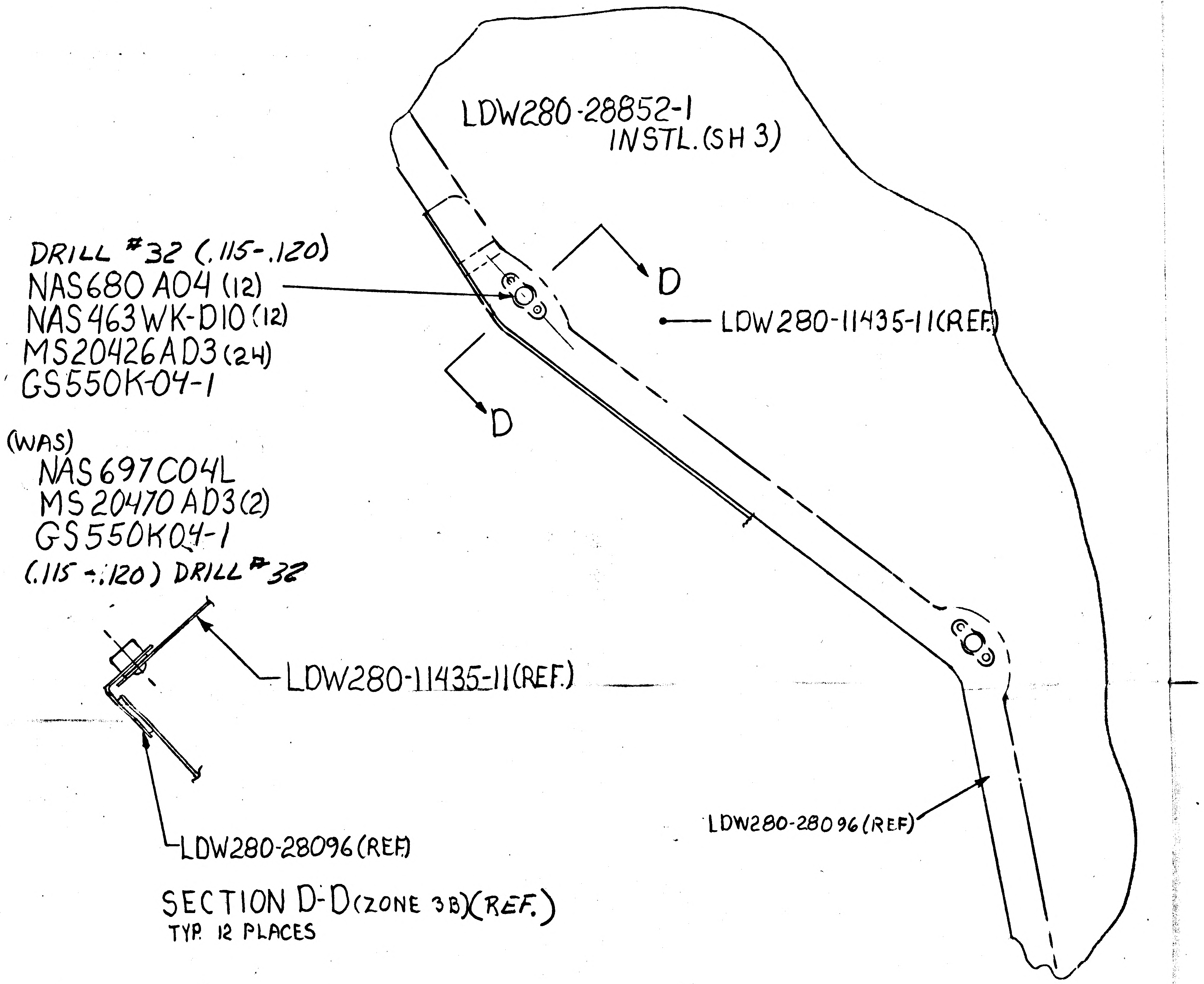
NAS 9-1100

ENG 22.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-28852	EO NO.	A2
CONTROL INFO NO.	LDW280A 2166		

IN F/D & B/M REVISE -1 INSTL. AS NOTED & REMOVE LDW280-11435-15 & 17 & ADD LDW280-11435-14 & -12 RESPECTIVELY.
IN F/D PT "C" WAS PT "B" (ZONE 3C) & PT "D" WAS PT "C" (ZONE 4D).


LDW280-28852-1
INSTL. (SH 3)
DRILL #32 (.115-.120)
NAS680 A04 (12)
NAS463WK-D10 (12)
MS20426AD3 (24)
GS550K-04-1
(WAS)
NAS697C04L
MS20470AD3 (2)
GS550K04-1
(.115-.120) DRILL #32
D
D
LDW280-11435-11 (REF)
LDW280-11435-11 (REF.)
LDW280-28096 (REF)
LDW280-28096 (REF)

SECTION D-D (ZONE 3B) (REF.)
TYP. 12 PLACES

(DESC. OF EO CONT:- PT "C" WAS PT "B" & PT "D" WAS PT "C".

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

3

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
SKIN VENTING REQUIRED	IN F/D & B/M OF -1 INSTL. ADDED "NAS680 A04 (12), NAS463WK-D10 (12), MS20426AD3 (24)" (WAS "NAS697C04L, MS20470AD3 (2) GS550K-04-1"), ADDED LDW280-11435-15 & -17 (WAS LDW280-11435-14 & -12	10/25

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	10/15/66	10/17 KC		10/15	10/17		10-17-66	10/22/66
10/14/66	VDI	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PANEL INSTL. A/S, M/S FWD & AFT UPPER BLK. HD.	LDW280-28852	A2

ISSUED BY P. FRANZESE x 1804 SECTION VDI GROUP NO. 335 PL 35

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28852
EO NO. A3
CONTROL INFO NO. LDW280A-2807

IN F/D AND B/M

LDW280-14344-13 (14 ON-1) WAS-7 (14 ON-1)

LDW280-14344-13 (9 ON-3) WAS-7 (9 ON-3)

LDW280-14344-13 (9 ON-5) WAS-7 (9 ON-5)

3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: TO PROVIDE SKIN VENTING

DESCRIPTION OF EO: IN F/D & B/M LDW280-14344-13 (14 ON-1) WAS-7 (14 ON-1)
LDW280-14344-13 (9 ON-3) WAS-7 (9 ON-3)
LDW280-14344-13 (9 ON-5) WAS-7 (9 ON-5)

Ⓡ GAEC EO RELEASE: LE 10/29

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY								
✓ DATE	10/28	10/28/66		10/27	10 27		10-28-66	10/28/66
5	VDI	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C
DRAWING TITLE: PANEL INSTL. A/S-M/S FWD & AFT UPPER BULKHD.
DRAWING NO.: LDW280-28852
EO NO.: A3

ISSUED BY C. A. PAEZ SECTION V. D. I. GROUP NO. 335 PL 35

01

NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28852 | EO NO. A4
CONTROL INFO NO. LM5-11832

IN MAIN VIEW AT ZONE 4C AT OVERLAP OF LDW280-11435 -11 & -13, ADD TO -1 AS SHOWN:

"GR500A-4A (3)
(LOCATE FROM
LDW280-11435-11)
INSTALL PER LSP-14-16303"

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		✓

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
FASTENER CALLOUT OMITTED FROM DRAWING	ON -1 ADDED GR500A-4A (3)	C FR

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO	SUB CONTR UNIT NO
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	WT ALW				JFJ	JFJ	RMC (W)	
DATE	2/13/67				2-14-67	2-14-67	2-20-67	2-15-67
1	VD1	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PANEL INSTL - ASCENT - MID SECT FWD & AFT UPPER BULKHEAD	LDW280-28852	A4

ISSUED BY ART WILSON X6510 SECTION VD1 GROUP NO. 335 PL. 5

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NAS 9-1100

01

NAS 9-1100

ENG 322 REV 3-65 B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO.	LEO-280	EO NO.	497
CONTROL INFO NO.	LDW 280A-5768		

(ADD) NOTE, "*. MATERIAL, FINISHES, HANDLING AND PERMISSIBLE DEVIATIONS PER LPC-280-16", TO THE FOLLOWING DRAWINGS:

DRAWING NUMBER	TITLE	EFFECTIVITY	CHANGE NUMBER
LDW280-11444	SEE DWG.	LTA-8(18)	A9
LDW280-28160			A8
LDW280-28161			B1
LDW280-28163			A5
LDW280-28851			A7
LDW280-28852			A5
LDW280-28861		LTA-8(18)	A5
LDW280-11524		LM-1(31), LM-2(32)	A6
LDW280-51160			A7
LDW280-51161			A8
LDW280-51163			A3
LDW280-51851			A5
LDW280-51852			A6
LDW280-51861		LM-1(31), LM-2(32)	A7
LDW280-11422		LTA-8(18), LM-1(31), LM-2(32)	A2
LDW280-11423			A2
LDW280-11424			A4
LDW280-11425			B1
LDW280-11426			B5
LDW280-11427			B5
LDW280-11428			B5
LDW280-11429			B7
LDW280-11430			A6
LDW280-11431			B3
LDW280-11432	SEE DWG.	LTA-8(18), LM-1(31), LM-2(32)	B3

NOTE:
* = USE NEXT AVAILABLE №.

DETAIL SPEC REQ	✓	CL II ENGRG CHG	.	CL I ENGRG CHG	3

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE C
LPC'S OMITTED ON DWG.	ADDED NOTE *	JK 3/8/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LM		NOTED		✓		✓	

	VDI		RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	JaP			F.LDR			Dam	
DATE	3/2/67			3/2/67	3/3/67		3/6/67	3/7/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO-280	497

ISSUED BY W. PAILK SECTION VEH. DES. INT. GROUP NO. 335 PI 35

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-28852		EO NO. A6	
CONTROL INFO NO. LM-5-12570			

IN MAIN VIEW AT ZONE 8C AT OVERLAP OF LDW280-11435 -12 & -14, ADD TO -1 AS SHOWN:

"GR500A-4A (3)
(LOCATE FROM
LDW280-11435-12)
INSTALL PER LSP-14-16303"

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		5

REASON FOR EO	DESCRIPTION OF EO	(B) GAEC C EO RELEASE
FASTENER CALLOUT OMITTED FROM DWG.	ON-1, ADDED GR500A-4A(3).	JK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	FDRes			—	JF	CH	RMc	
DATE	4-11-67			—	3-9-67	3-9-67	3-10-67	3/?/67
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	PANEL INSTL - A/S - M/S FWD & AFT UPPER BULKHEAD	LDW280-28852	A6

ISSUED BY LIAISON - J. McGILL X-6226 SECTION VDI GROUP NO.____ PL 35

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG LEO 280
EO NO. 593
CONTROL INFO NO. LM5-13352

TO THE DWGS LISTED BELOW, ADD NOTE * AS SHOWN
(* = NEXT AVAILABLE NOTE NUMBER)

DWG NO.	▲ INSTL	EFF.	CHG NO.	TITLE
LDW280-28153	-1	LTA-8(18)	C6	SEE DWG
28154	-1		B5	
28160	-1		A9	
28161	-1		B2	
28163	-1 & -2		A6	
28851	-5		A9	
28852	-1		A7	
28861	-1		A7	
28096	-3 & -4		D6	
28174	-3		C5	
28175	-3		C6	
28176	-3		D1	
28875	-3		B7	
28178	-3 & -4		J7	
28392	-1 & -2		A10	
28241	-3 & -4		D2	
28242	-1 & -2		C1	
28243	-3 & -4		C7	
28244	-3 & -4		B	
28279	-3		D10	
28347	-1 & -2		D7	
28882	-1		B6	
28499	-3 & -4		B1	
28179	-3 & -4		A4	
28495	-1 & -2		B3	
LDW280-28453	-3	LTA-8(18)	B7	SEE DWG

* DURING ▲ INSTL (OR ASSY OF THERMAL SHIELD SUB-ASSY'S OR DETAILS FOR LTA-8 ONLY), PARTS MAY BE TRIMMED OR SHIMMED AS NOTED TO INSURE PROPER FIT TO MATING PART OR ADJACENT STRUCTURE:

a. MAX. PERMISSIBLE TRIM TO BE 1/16, PROVIDING A MIN. FASTENER EDGE DISTANCE IS HELD AFTER TRIMMING (1 1/2 FASTENER DIA).
b. MAX PERMISSIBLE SHIM TO BE .063 THICK, AND IF TAPERED, NOT TO EXCEED 5 INCHES IN LENGTH. SHIM STOCK TO BE 2024-T3 AL ALLOY QQ-A-250/4 FINISH 76, WIDTH AS REQD.

* A. WHERE NECESSARY, ON THERMAL SHIELD SUB-STRUCTURE IT IS PERMISSIBLE TO FLUSH RIVETS TO INSURE PROPER FIT OF MATING PARTS, PROVIDING MATERIAL TO BE CSK IS THICK ENOUGH TO PREVENT "FEATHER EDGED" HOLES. (NAS1097 OR MS20426 RIVETS MAY BE USED.)

* B. WHERE NECESSARY, DUE TO REDESIGN AND REWORK, THE NEXT LARGER SIZE FASTENER MAY BE USED IN LIEU OF EXISTING FASTENER, PROVIDING A MINIMUM EDGE DISTANCE OF 1 1/2 FASTENER DIA IS MAINTAINED. ALSO, EXTRANEOUS HOLES MAY BE PLUGGED AS REQD (NAS1097 OR MS20470 RIVETS PERMISSIBLE) AS LONG AS A MINIMUM SPACING OF 3 DIAMETERS EXISTS BETWEEN PLUG AND NEAREST FASTENER. (A 1 INCH SQUARE OF GT835M8 TAPE MAY BE USED FOR HOLES UP TO 7/16 IN DIA IN THERMAL SKINS.)

* C. WHERE NECESSARY, THE FOLLOWING NUT PLATES MAY BE REPLACEMENTS FOR ONE ANOTHER WITHIN THE GROUPS NOTED BELOW, PROVIDING THERE IS NO CHANGE IN DIAMETER OF SCREW:

GROUP A: NAS680, NAS682, NAS684, NAS686, NAS687, NAS696, NAS697, NAS698, NAS1067 & NAS1068

GROUP B: NAS681, NAS683 & NAS685

IF THE INTERCHANGEABLE ANCHOR NUTS ARE USED, THERMAL SKINS OR SUB-STRUCTURE MAY BE DIMPLED OR CSK AS REQD. (SEE NOTE * A. ABOVE.)

RELEASED BY LIAISON

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: TO INSURE PROPER FIT WITH MATING PARTS
DESCRIPTION OF EO: ADDED NOTE *
GAEC EO RELEASE C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP
APPROVED BY ALW
DATE 5/11
1 VDI
DAM 5-16-67

PRIORITY C
DRAWING TITLE NOTED
DRAWING NO. LEO 280
EO NO. 593

ISSUED BY ART WILSON X6510 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

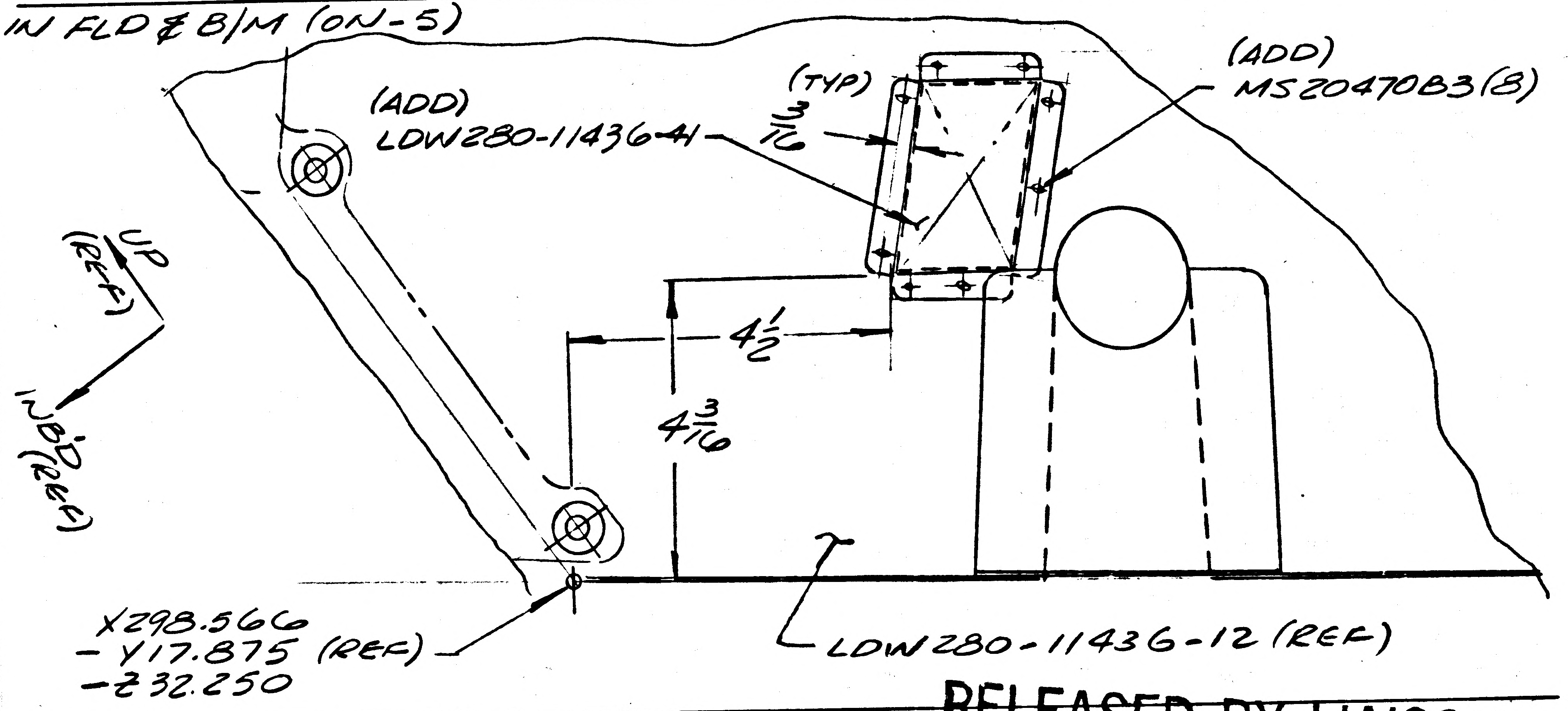
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG NO. LDW280-28852

EO NO. A8

CONTROL INFO NO. LM-5 - 15529



IN FLD & B/M (ON-5)
(ADD)
LDW280-11436-41
(TYP)
3/16
(ADD)
MS20470B3(8)
UP (REF)
INBD (REF)
4 1/2
4 3/16
X298.566
- Y17.875 (REF)
- Z32.250
LDW280-11436-12 (REF)

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: COVER REQ'D TO PROTECT PROTRUDING GSE PIPE ON INSTL

DESCRIPTION OF EO: IN FLD & B/M (ON-5) ADDED LDW280-11436-41 COVER, MS20470B3(8)

GAEC C EO RELEASE: JL

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP

				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JaP			~	JFJ	CH	WRB	
DATE	7/7/67			~	7-3-67	7-3-67	7/7/67	7/3/67
7-3-67	VDI	SUPPORT	RELIAB. GROUP					

PRIORITY: C

DRAWING TITLE: PANEL INSTL, ASCENT STAGE MID SECT + Z32.Y51 Y54 THERMAL SHLD

DRAWING NO. LDW280-28852

EO NO. A8

ISSUED BY LIAISON M.D. REYES X86216 SECTION VDI/F. DESPRINIS GROUP NO. 335 PL 25

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	2.01, 3.00 7.00, 1.10					✓	EO A1	ADDED SECT. KK-KK & NOTE 13 IN FLD; ADDED GT835M-8 TO B/M. ADDED SH 1.10.	LM-1(31) LM-2(32) LTA-8(18)	✓		B. REYES 11-10-67		
	2	2.00 2.01						EO A2	ADDED LDW280P14391-1 & -3 BAY VENTS TO -15, -17, -19 ASSY. REMOVED -9 & -71 DOOR ASSY. REMOVE -7 BLANKET ASSY.	LM-1(31) LM-2(32) LTA-8(18)	NOT REQD				
	3	2.00 2.01						EO A3	REMOVE -13, -15, -17 -19 & -21 ASSY FROM -1 INSTL. ON LDW280-28853-11, -13, -15, -17, -19 & -21 ASSY REMOVE -59 PATCH VENT AND ADD LDW280-14440-31 BLANKET VENT PATCH TO -13, -15, -17, -19 & -21; ON -13, -15, -17, -19, -21 & -23 ADDED LDW280-14441-9 BAY VENT PATCH. ON -13 & -23 ASSY ADDED LDW280P14391-1 & -3 BAY VENT. ON -15 ASSY REMOVED -31 & -67 BLANKET; ON -11, -17 & -21 ASSY REMOVED LDW280-14440-31 BLANKET VENT PATCH; ON -19 & -23 ASSY ADDED LDW280-14440-31 BLANKET VENT PATCH; ADDED -23 BLANKET ASSY TO -3 BLANKET ASSY. ON -1 INSTL ADDED LDW280-14440-33 PATCH	LM-1(31) LM-2(32) LTA-8(18)	✓				
	4	2.00 2.01					✓	EO A4	REVISED B/M AS FOLLOWS: ADDED -15 BLANKET ASSY TO -3 ASSY (WAS -1 INSTL). ADDED -23 BLANKET ASSY TO -3 ASSY (WAS -1 INSTL). ON -21 ADDED LDW280-14440-31 (1). REMOVED -61 ADDED GT835P-8-1.00 (A/R) - REMOVED -63. ADDED GT835M-8-1.00 (A/R). ON -1 INSTL (6) LDW280-14440-33 REQD (WAS AS REQD). QUANTITY OF LDW280-14440-31 BLANKET VENT PATCH AS FOLLOWS (2) ON -13, -17 & -21 ASSY, (3) ON -15 ASSY, (1) ON -19 & -23 ASSY. REMOVED -27 ASSY FROM -1 INSTL. REMOVED -29 ASSY FROM -1 INSTL. REMOVED -65 ADDED GT535B-2-1.00 (A/R). QUANTITY OF LDW280-14441-9 AS FOLLOWS: (6) ON -13, -15 & -17 ASSYS. (WAS AS REQD); (2) ON -19 & -23 ASSYS. (WAS AS REQD); (4) ON -21 ASSY. (WAS AS REQD). ON -11 REMOVED (1) LDW280P14391-1 & -3 BAY VENT.	LM-1(31) LM-2(32) LTA-8(18)	✓				
	5	2.01 5.00					✓	EO A5	IN B/M & F/D ADDED -73 ASSY TO -1 INSTL. IN B/M ONLY REMOVED FROM -13 ASSY (1) LDW280-14391-1 & -3 (WAS 3) & (2) LDW280-14441-9 (WAS 6). ADDED -75 BLANKET (1) TO -73 ASSY	LM-1(31) LM-2(32) LTA-8(18)	✓				
	6	2.00 2.01					✓	EO A6	ON -1 INSTL GR11C-1(67) WAS GR11C-1(19). REMOVED GR11C-7(48). REMOVED LM-1(31), LM-2(32) EFF FROM M/B; CREATED -7 INSTL EFF LM-1(31), LM-2(32) N/A LDW280-51150	LM-1(31) LM-2(32) LTA-8(18)	✓		EC F.R.		

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	RELIABILITY				
A										
B										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28853	B
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

LDW280-28853 C

LFM

LFM 12.6	LDW280-23150	LTA-8(18)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28353-1-2		GAEC SCH NO.	

LM	LDW280-51150	LM-2(32)	, 1
LM	LDW280-51150	LM-1(31)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28853-1-1		GAEC SCH NO.	

LM	LDW 280-28150	LTA-8(18)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO LDW280-28853-1		GAEC SCH NO. 30 —	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	1.11	2.00	2.01	2.02	3.00	4.00	5.00
REV	C	B	C	C	C	C	C	C	C
SHEET	6.00	7.00	8.00						
REV	C	C	C						
SHEET									
REV									

LAST SECT LTR USED PR

LAST DASH NO. USED -83

GRUMMAN REL INFO C		
PRIM NO.	(001)	
215	MP-16C 6/12/8	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
— — —
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM I
DOCUMENTATION TYPE II

DRAWN BY	R. QUINN	THERMO	
LAYOUT BY	R. QUINN		
CHECKED BY			
GR LEADT'R	HENTON 9/9/66		
V.D.I.	1/17/		
STRUCT	9/10/66 for	PROJ ENGR	9-14
STRUCT.	R. HILDEBRAHN	REL GROUP	
WEIGHTS	9-		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

THERMAL BLANKET INSTL
A/S MID SECTION RH TANK

SIZE B
CODE IDENT NO. 26512
LDW280-28853 C
SCALE NONE
SHEET 1.00 OF 12

77.1 12-65

REV'C' CDK 6/12/68 11/1/66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	7	2.00 2.01					✓	EO A7	REF E.O. A6: CREATED -1-1 INSTL EFF LM-1(31), LM-2(32) N/A LDW280-51150. DELETED (1) LDW280P14391-1 & -3 FROM -23. DELETED (2) LDW280-14441-9 FROM -23. ADDED SH1.11	LM-1(31) LM-2(32) LTA-8(18)	✓		B. REYES 11-14-67		
	8	5.00					✓	EO A8	ADDED DETAIL MM IN F/D, TYP FOR LDW280-28860, LDW280-28880 & GS26C	LM-1(31) LM-2(32) LTA-8(18)	✓				
	9	2.01 3.00 4.00 5.00 6.00 7.00			✓			EO A9	ADDED NOTE 14 TO 18, REMOVED NOTE #3 & #5, IN SECT G-G REMOVED CALLOUT; BOND UPPER HALF___ETHYLENE DICHLORIDE. ADDED GT15C-2 TAPE TO SECTIONS TO AGREE WITH LPC280-3. ADDED GT15C-2 TO B/M	LM-1(31) LM-2(32) LTA-8(18)	✓				
	10	3.00					✓	EO A10 LCD 878	ADDED E.O. TO RECORD BLOCK	NOTED	NOTED				
B	1	5.00					✓	EO B1	ON -73 BLANKET ASSY ADDED LDW280P10869-11 & LDW280P10871-11 TAPE. ADDED SECT LL-LL	LTA-8(18) LM-1(31) LM-2(32)	✓				
	2	3.00					✓	EO B2	ON-1 REVISED NOTE 11: LDW360-51296-5 & LDW360-28296-5 WAS LDW280-51296-5 & LDW280-28296-5	NOT REQD	NOT REQD		EC F.R.	T.S.	
	3						✓	LE0280-806	ON INCORP. OF EO B2 "ON-1 & -1-1" WAS "ON-1"	LM-1(31), LM-2(32) LTA-8(18)	NOT REQD		REYES 12-14-67		
	4	1.00, 2.00 2.01, 8.00					✓	EO B4 LCD 20224	IN FLD & B/M ADDED -77 INSTL (SAME AS -1 EXCEPT AS SHN.) ADDED -79, -81, -83 BLANKET, SECT X-X & NOTE XX L.D.	LTA-8	✓				
	5	1, 2, 2.01 & 8.00					✓	LCD 20224	REF EO B4: TO -1 ADDED -79, -81 & -83. -77 INSTL & SECTION XX & NOTE XX NOT REQD	LTA-8	NOT	REQD	H.D.	12-14-67	
C	1	2.00, 8.00			✓			EO C1	ON-1, ADDED LDW360-28296-5 TO FLD & B/M	NOT REQD	NOT	REQD	INGOGLIA 4-10-68		
	2	1.00, 2.00, 2.01, 2.02, 3.00, 4.00 5.00, 6.00, 7.00, 8.00		LFM 126			✓	LCD 1021-33 CCA 498	ADDED -1-2 INSTL, NOTES 19, 20, 21 & 22, DETAIL MN, SECT. MP-MP & SECT. MR-MR.	LTA-8(18)					

CHG APPROVED

LTR	GROUP LDR	VEH DESINT	STRUCT	STRUCT	WEIGHTS	RELIABILITY	THERMO
B-							
C	FDR 6/11/68	Jar 6/11	6/11/68	for FEB			BC 6/11/68

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28853	C
SCALE NONE		SHEET 1.11	

ENG 77.16 3-66

01

NAS 9-1100

		-1-1	-73	-25	-23	-21	-19	-17	-15	-13	-11			-5	-3	-1	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
CL	QTY PER ASSEMBLY																									
																1	LDW280-28853-83	E	BLANKET	SEE NOTE 1				NONE	NONE	
																1	-81									
																1	-79									
			1														-75									
														1			-69									
				1													-51									
					1												-49									
						1											-47									
							1										-45									
								1									-43									
									1								-41									
										1							-39									
											1						LDW280-28853-37	E	BLANKET	SEE NOTE 1						
C																	LDW280-28853-1-1	E	BLANKET INSTL							
C																1	-73		BLANKET ASSY							
C		1														1	-25									
C		1													1		-23									
C															1		-21									
C															1		-19									
C															1		-17									
C															1		-15									
C															1		-13									
C		1														1	-11									
C		1														1	-5									
C		1														1	-3		BLANKET ASSY							
C																	LDW280-28853-1	E	BLANKET INSTL					NONE	NONE	

C.L. = CLEANLINESS PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28853	C
SCALE NONE			SHEET 2,00

ENG 77.2 7-65

01

NAS 9-1100

-1-1	-73	-25	-23	-21	-19	-17	-15	-13	-11	-73-1	-1-2	-5	-3	-1	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1															LDW360-51296-5	E	TRANSDUCER INSTL.	SEE DWG.						
											AR				GT835P-8	E	TAPE	GRUMMAN STD						
											AR				GT835P-32	E	TAPE	GRUMMAN STD						
											67				GB10J-3	E	BUSHING	GRUMMAN STD						
											67				GW10H-3	E	WASHER	GRUMMAN STD						
										1					LDW280-28853-75-1	E	BLANKET	SEE NOTE 19						
											1				LDW280-28853-73-1	E	BLANKET ASSY							
A/R	A/R													A/R	LDW280P10871-11	E	TAPE	SEE DWG						
A/R	A/R													A/R	LDW280P10869-11	↑	TAPE	SEE DWG						
67											67			67	GB10J-1		BUSHING	GRUMMAN STD						
											67			67	GR11C-1		RETAINER	↑						
67															GR11C-7		RETAINER							
		A/R ←											→ A/R		GW10H-1		WASHER							
		A/R ←											→ A/R		GR11B-1		SNAP	↓						
		A/R ←											→ A/R		GS577A-1		STAPLE	GRUMMAN STD						
				2	1	3	3	2							LDW280P14391-3	↓	BAY VENT	SEE DWG						
				2	1	3	3	2							LDW280P14391-1	E	BAY VENT	SEE DWG						
1														1	LDW360-28296-5	E	TRANSDUCER INSTL	SEE DWG						
				4	2	6	6	4							LDW280-14441-9	E	BAY VENT PATCH	SEE DWG						
6														6	LDW280-14440-33	↑	BAY VENT PATCH	SEE DWG						
			1	2	1	2	3	2							LDW280-14440-31		BAY VENT PATCH	SEE DWG						
		A/R ←							→ AR			AR	A/R		GT15C-5		TAPE (SEE NOTE 10)	GT535B-2-1.00						
		A/R ←							→ AR			AR	A/R		GT15C-1		TAPE (SEE NOTE #10)	GT535M-8-1.00						
		A/R ←							→ AR			AR	A/R		GT15C-2	↓	TAPE (SEE NOTE #10)	GT535P-8-1.00						

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW 280-28853	C

SCALE NONE SHEET 2.01

ENG 77.2 7-66

01

NAS 9-1100

QTY PER ASSEMBLY											PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
-25-1	-23-1						-11-1	-5-1	-3-1	-1-2											
									2		LDW280-11965-11	E		WASHER	SEE DWG						
									2		LDW280-54927-1			VENT ASSY	SEE DWG						
										1	LDW280-28853-83-1			BLANKET	SEE NOTE 19						
										1	-81-1								NONE	NONE	
										1	-79-1										
								1			-69-1										
1											-51-1										
	1										-49-1										
									1		-47-1										
									1		-45-1										
									1		-43-1										
									1		-41-1										
									1		-39-1										
							1				LDW280-28853-37-1			BLANKET	SEE NOTE 19						
										1	LDW280-28853-25-1			BLANKET ASSY							
									1		-23-1										
										1	-11-1										
										1	-5-1										
										1	-3-1			BLANKET ASSY							
											LDW280-28853-1-2	E		BLANKET INSTL					NONE	NONE	

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28853	C

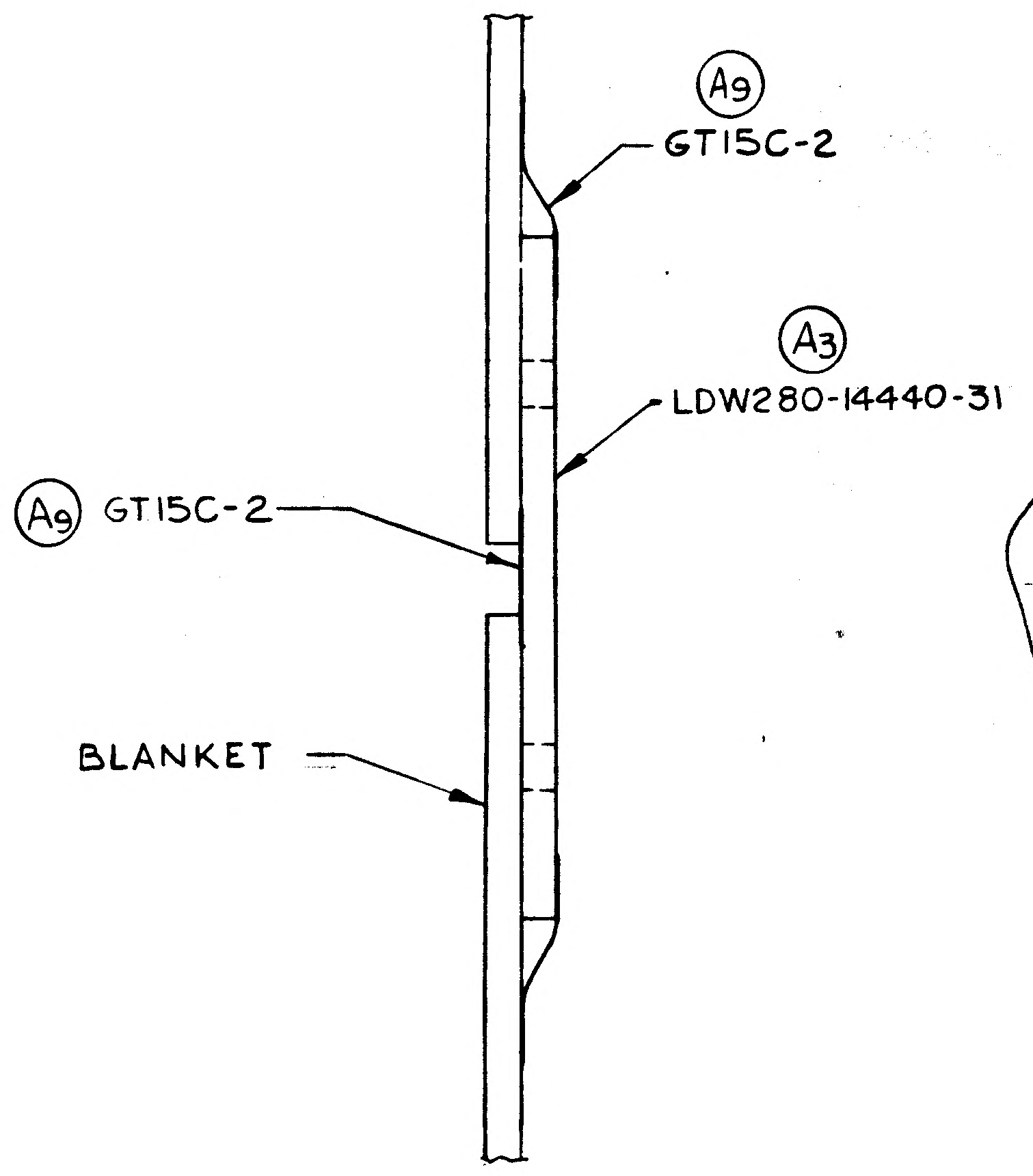
SCALE NONE

SHEET 2.02

ENG 77.2 5-64

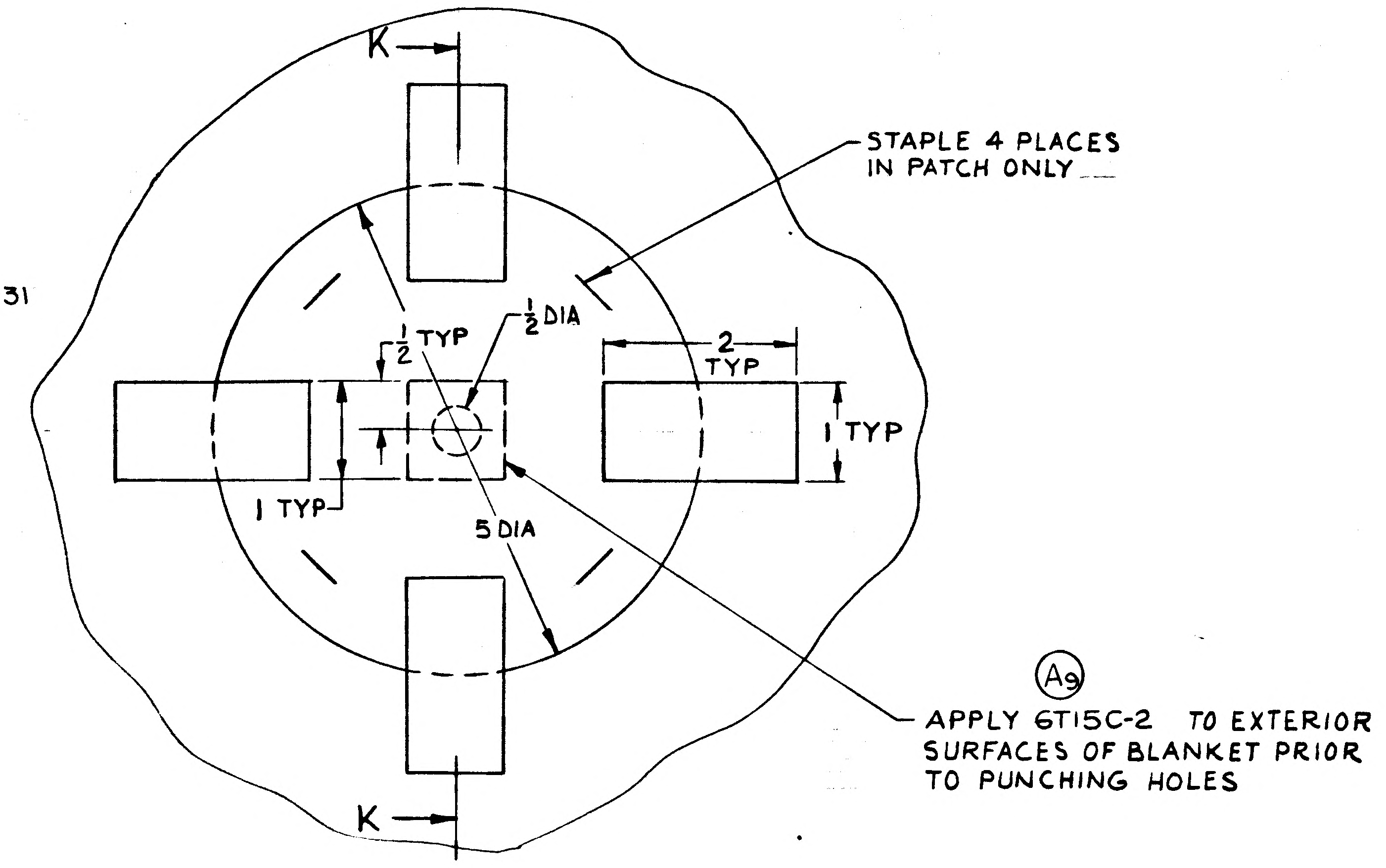
01

NAS 9-1100



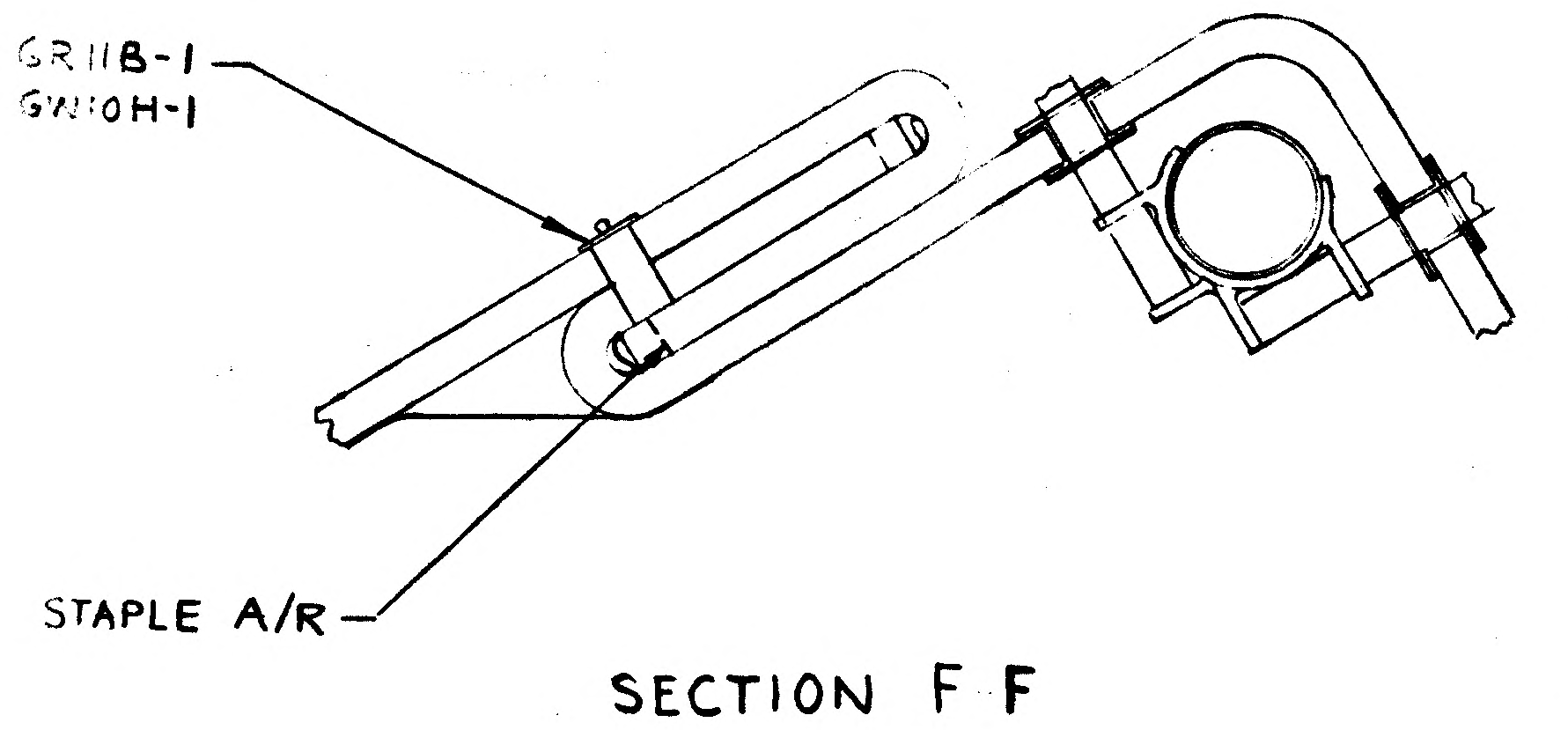
(A9) GT15C-2
(A3) LDW280-14440-31
(A9) GT15C-2
BLANKET

SECTION K-K
(ON-14-1-1)



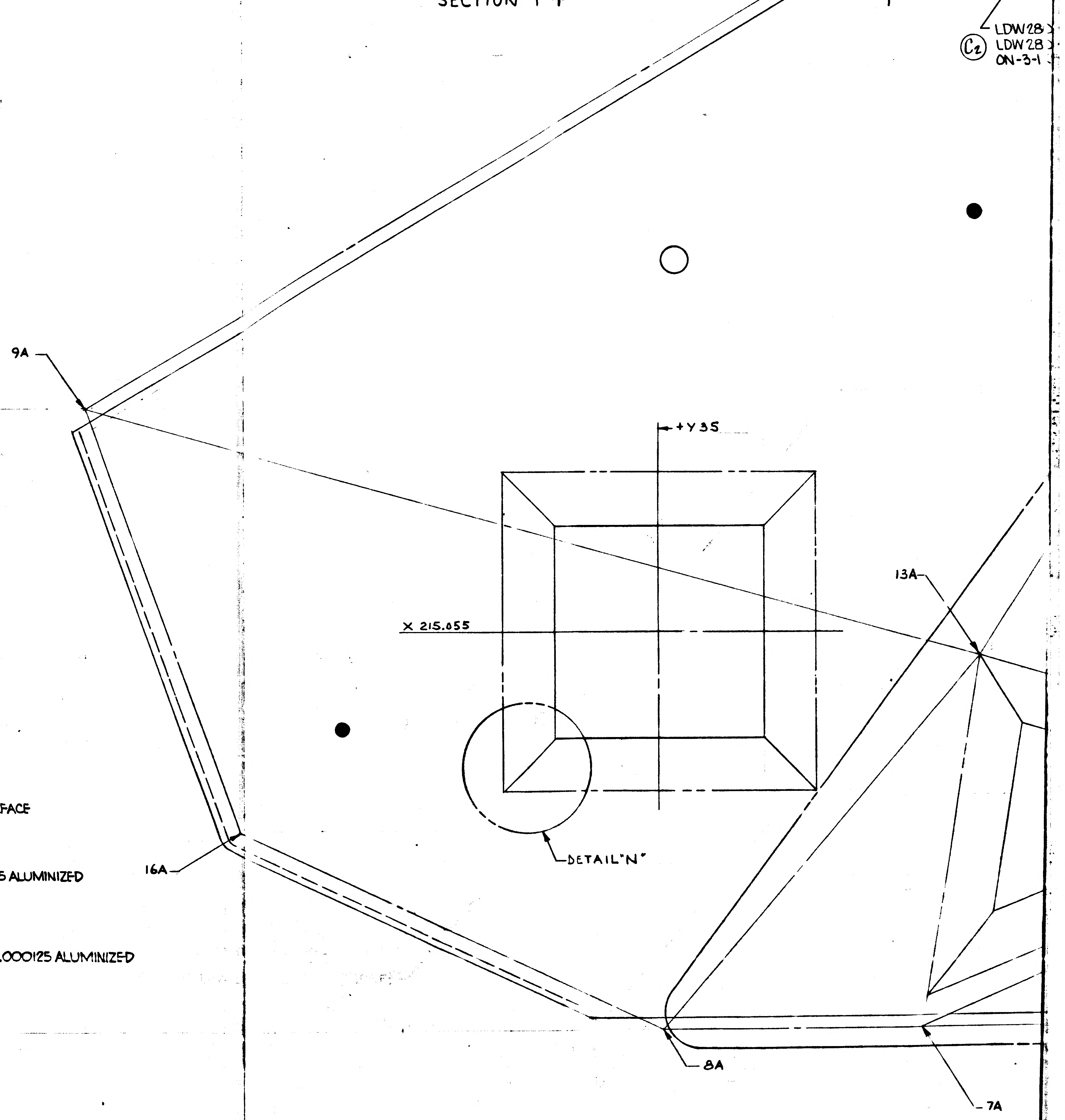
K
K
STAPLE 4 PLACES
IN PATCH ONLY
1/2 TYP
1/2 DIA
2 TYP
1 TYP
1 TYP
5 DIA
(A9) APPLY GT15C-2 TO EXTERIOR SURFACES OF BLANKET PRIOR TO PUNCHING HOLES

DETAIL J (ON-14-1-1)
TYP PATCH FOR BLANKET
VENT 10 REQD
FULL SCALE



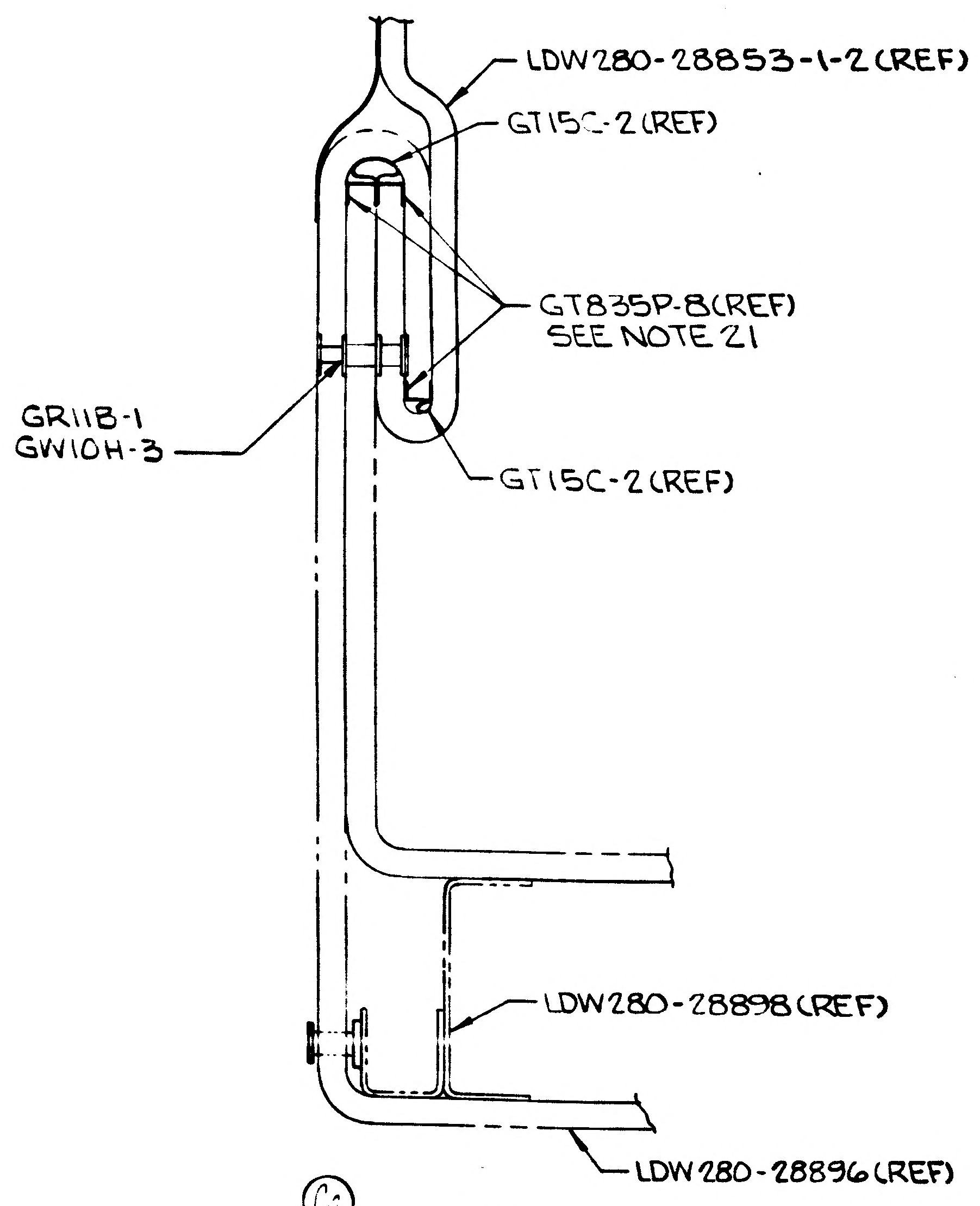
GR11B-1
GW10H-1
STAPLE A/R

SECTION F F



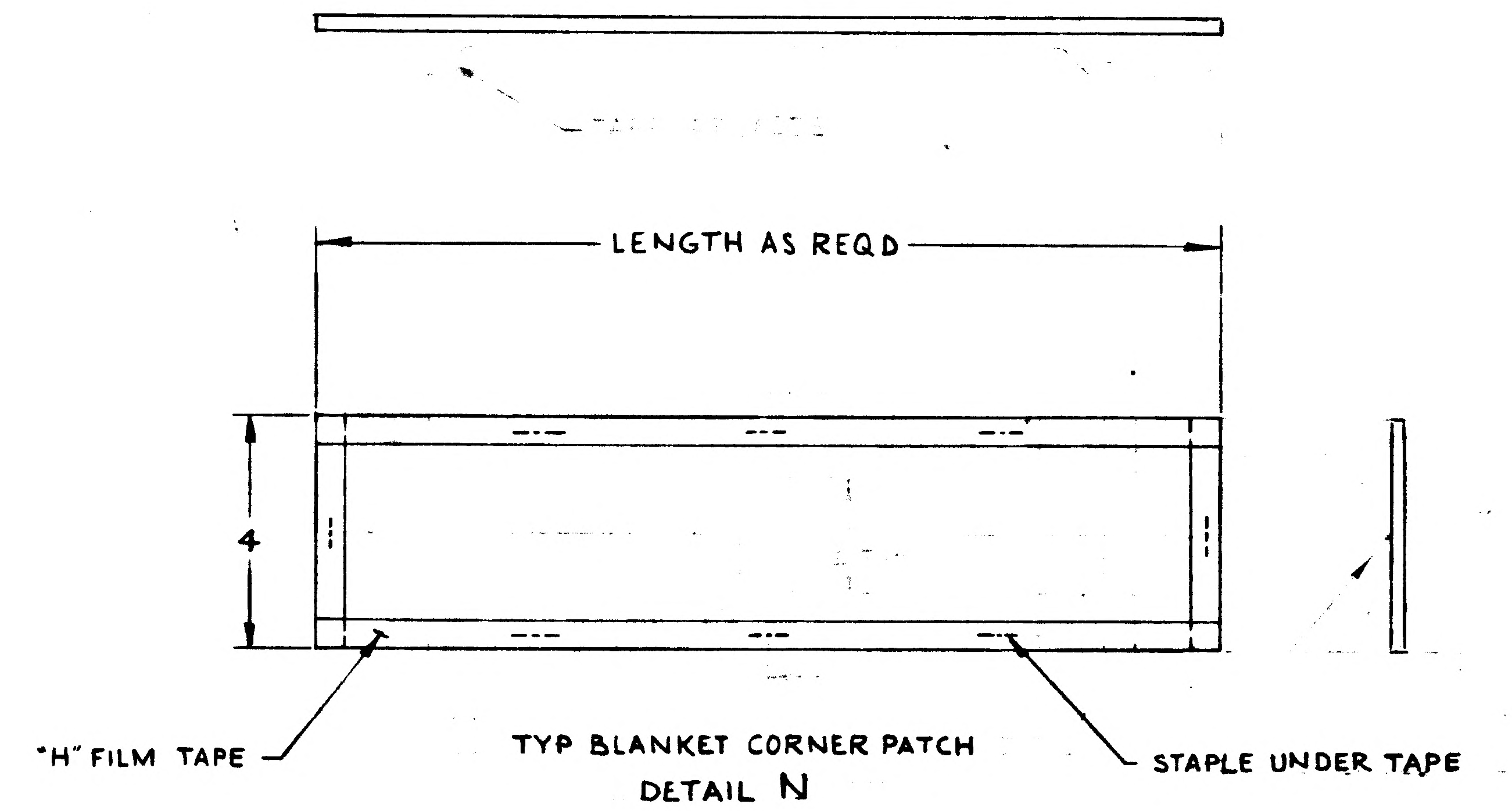
DETAIL "N"
F
F
(C2) LDW28
LDW28
ON-3-1
9A
+Y35
13A
X 215.055
16A
DETAIL "N"
8A
7A

VIEW B-B
RH SIDE LOOKING FWD



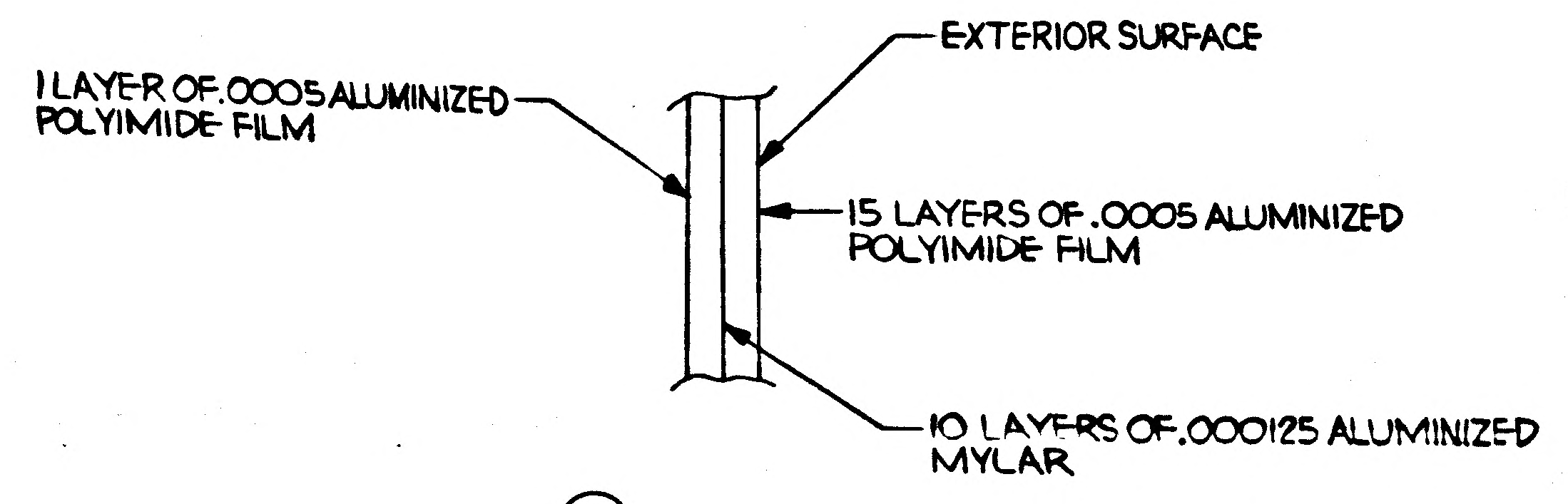
LDW280-28853-1-2 (REF)
GT15C-2 (REF)
GT835P-8 (REF)
SEE NOTE 21
GR11B-1
GW10H-3
GT15C-2 (REF)
LDW280-28898 (REF)
LDW280-28896 (REF)

(C2) SECT. MR-MR (SH 3.00)
(ON-1-2 ONLY)



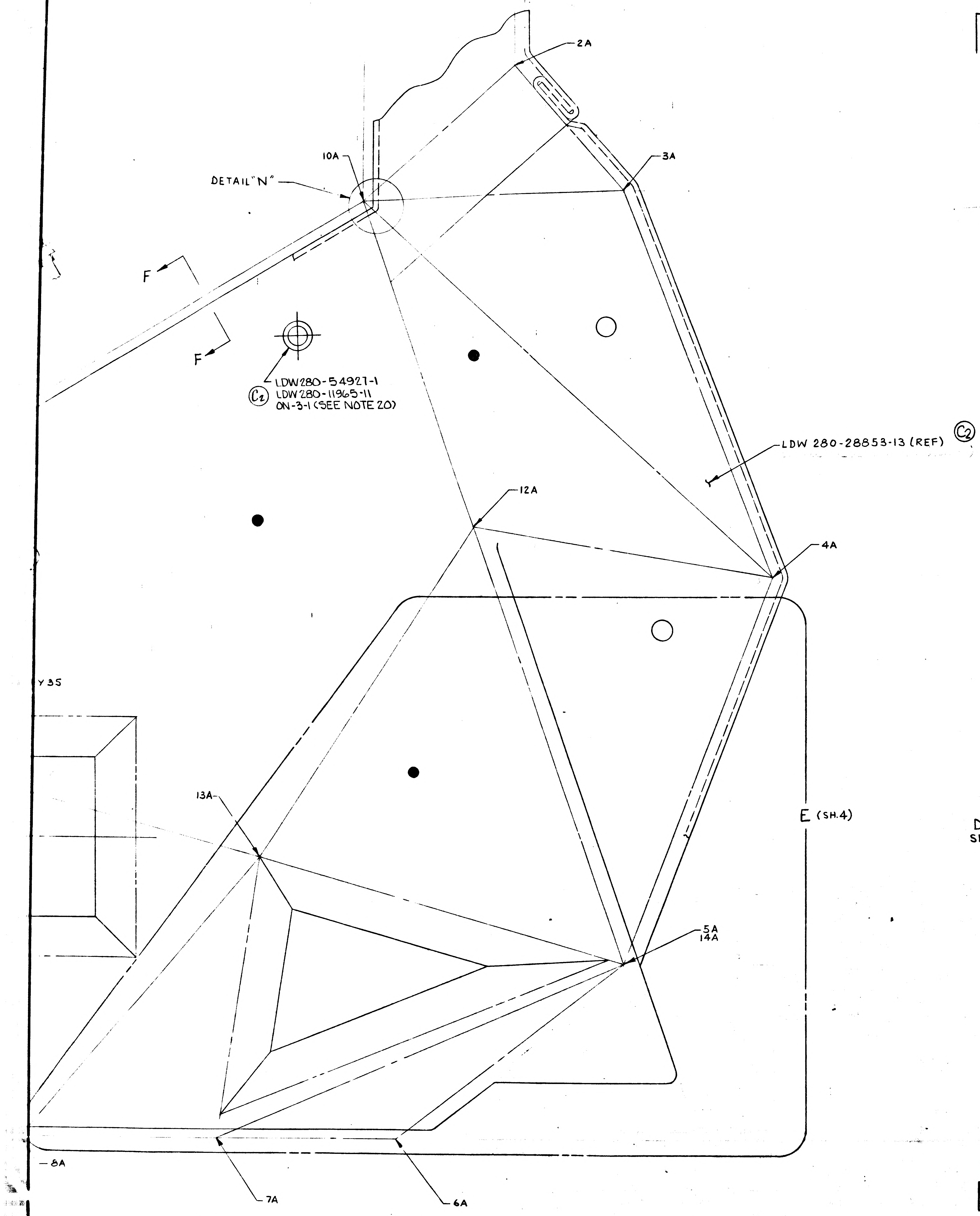
LENGTH AS REQD
4
"H" FILM TAPE
STAPLE UNDER TAPE

TYP BLANKET CORNER PATCH
DETAIL N

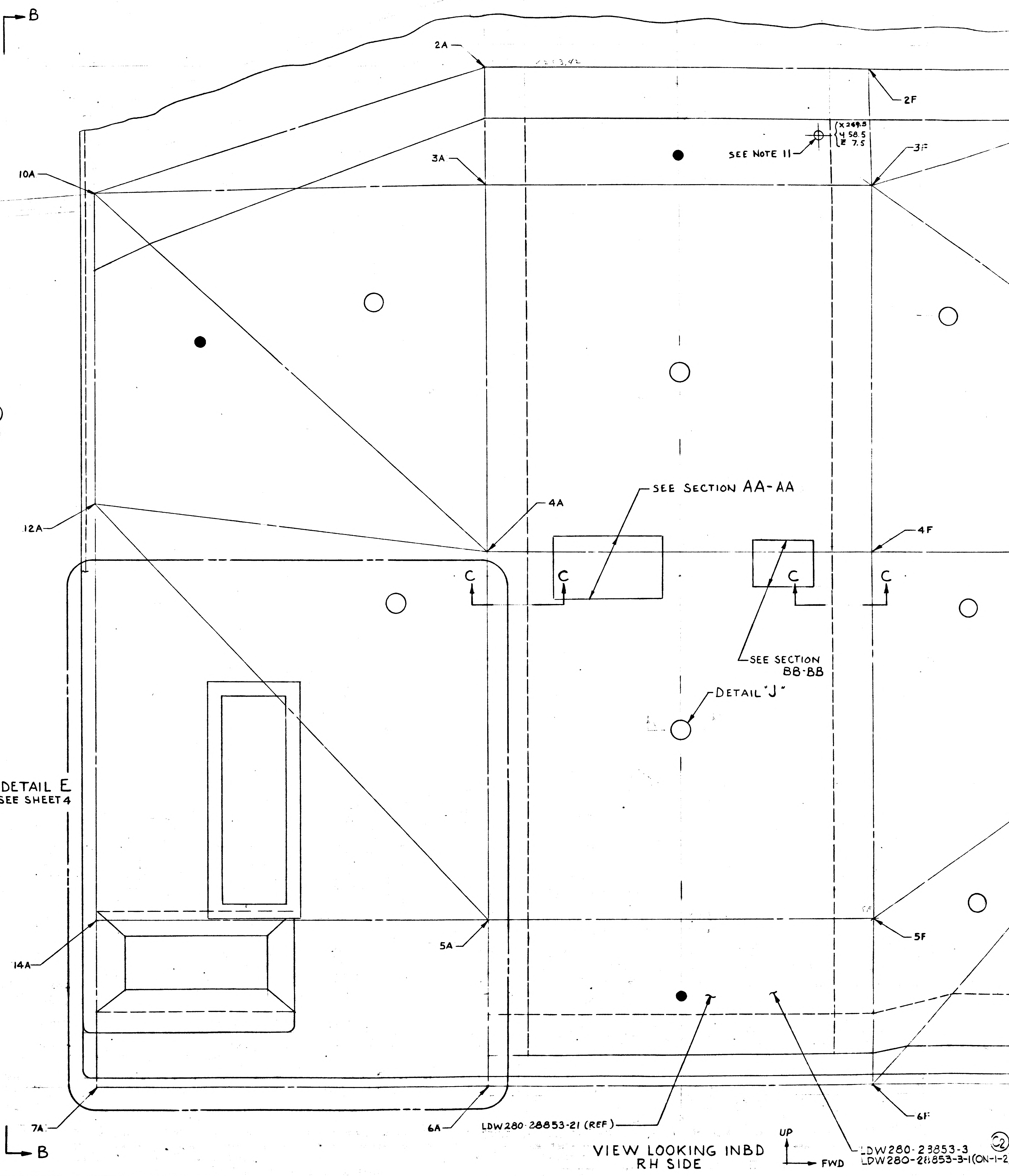


EXTERIOR SURFACE
1 LAYER OF .0005 ALUMINIZED POLYIMIDE FILM
15 LAYERS OF .0005 ALUMINIZED POLYIMIDE FILM
10 LAYERS OF .000125 ALUMINIZED MYLAR

(C2) DETAIL MN
(ON-1-2)


2A
10A
3A
DETAIL "N"
F
F
LDW280-54927-1
(C2) LDW280-11965-11
ON-3-1 (SEE NOTE 20)
LDW 280-28853-13 (REF) (C2)
12A
4A
Y 35
13A
E (SH.4)
5A
14A
8A
7A
6A

VIEW B-B
RH SIDE LOOKING FWD


B
2A
2F
X 249.5
Y 58.5
Z 7.5
SEE NOTE 11
3A
3F
10A
SEE SECTION AA-AA
12A
4A
4F
C
C
C
C
SEE SECTION BB-BB
DETAIL "J"
DETAIL E
SEE SHEET 4
14A
5A
5F
7A
6A
6F
B
LDW280-28853-21 (REF)
UP
FWD
LDW280-23853-3
LDW280-28853-3-1 (ON-1-2
(C2)

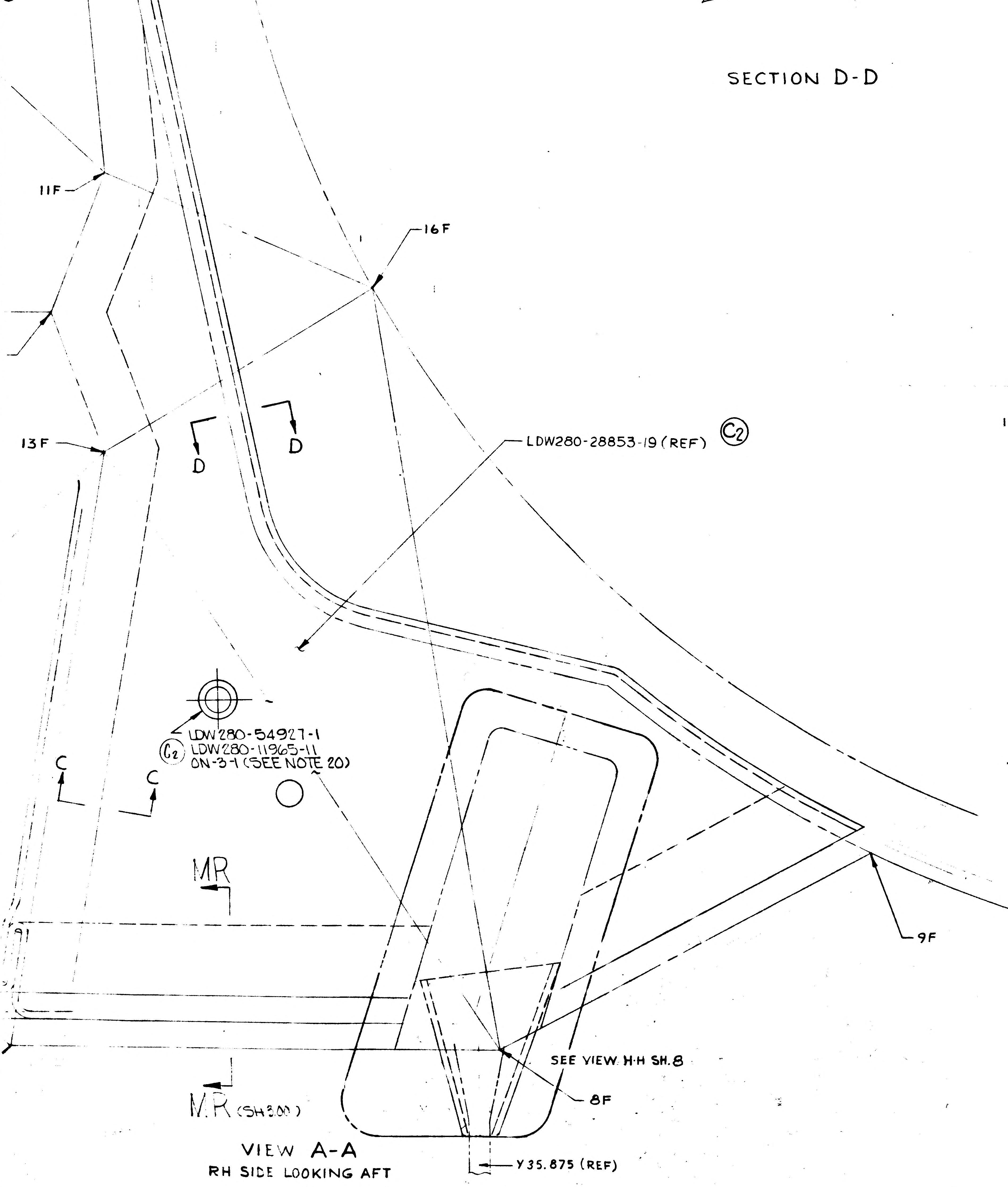
VIEW LOOKING INBD
RH SIDE

02/04 NAS 9-1100

A
10F
2F
X 249.5
Y 58.5
Z 7.5
OTE 11
3F
11F
A-AA
4F
12F
X + 228.00
C
C
E SECTION
BB-BB
"J"
13F
LDW280-28853-17 (REF)
5F
PR
6F
14F
Z + 30.25
PR (SH3.00)
A
UP
FWD
LDW280-28853-3
LDW280-28853-3-1 (ON-1-2)
C2
A9
GT15C-2
TAPE EACH LAYER
1/8 OVERLAP (25 LAYERS)
SECTION C-C
(ON-1-1-1)
2F
10F
3F
11F
4F
12F
13F
16F
G
G
D
D
LDW280-28853-19 (REF)
C2
LDW280-54927-1
LDW280-11965-11
ON-3-1 (SEE NOTE 20)
C2
C
C
5F
MR
9F
SEE VIEW H-H SH.8
8F
6F, 14F
MR (SH3.00)
VIEW A-A
RH SIDE LOOKING AFT
Y35.875 (REF)
A9
GT15C-2
GT15C-1
A9
GS577A-1 A/R
GR118-1 A/R
GW10H-1 A/R
SECTION D-D
H
A9
GT15C-1
10 LAYERS MYLAR

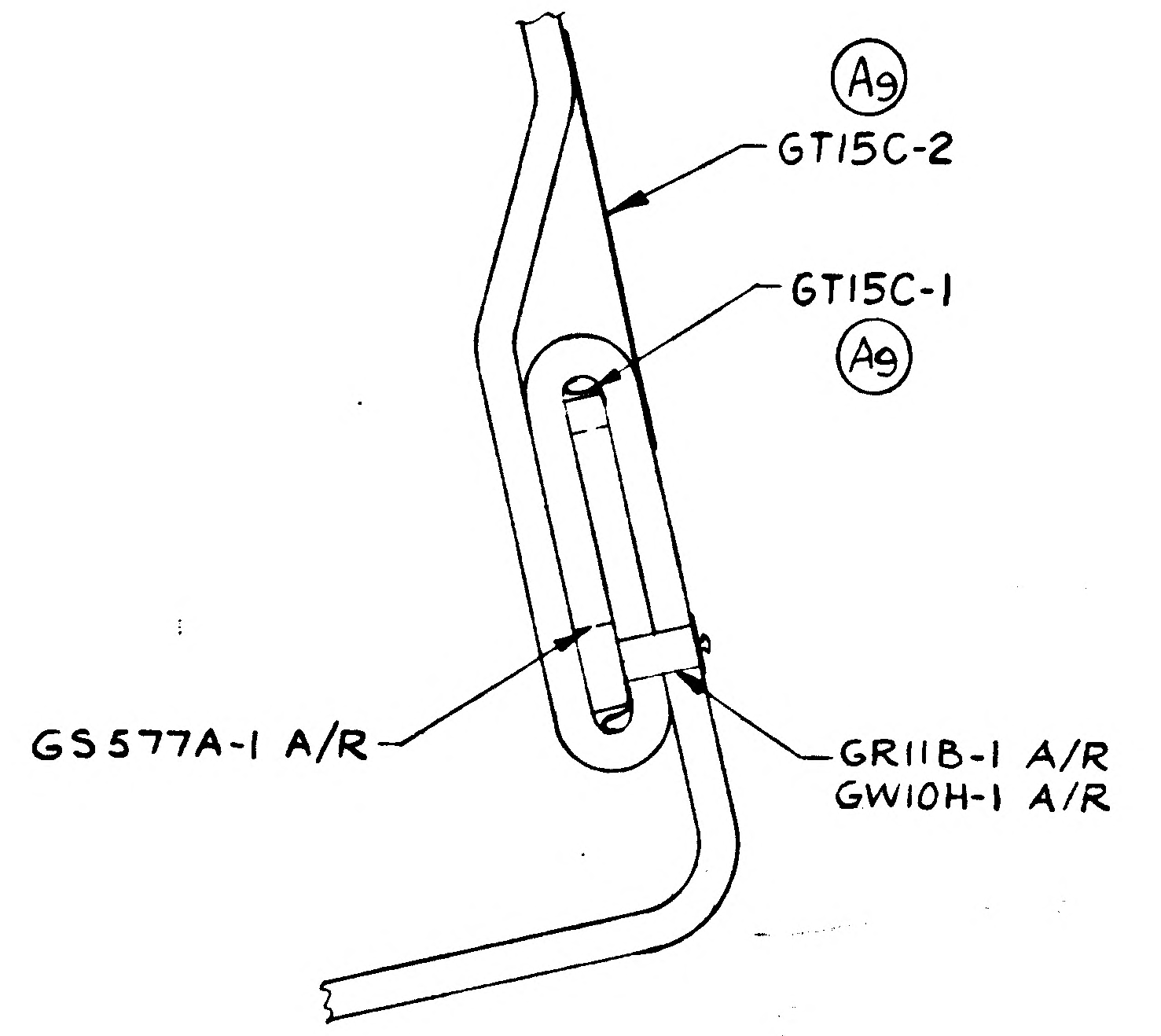
03/04

NAS 9-1100

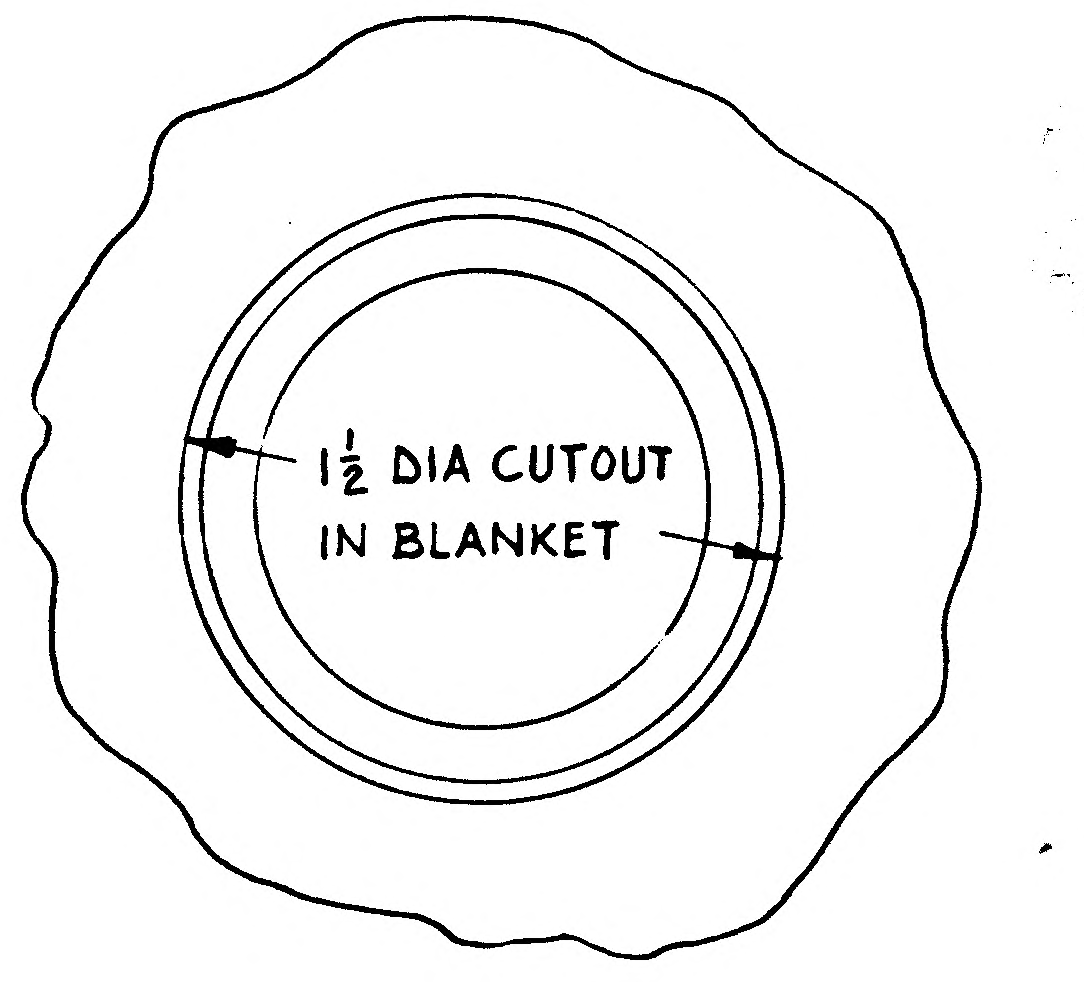


VIEW A-A
RH SIDE LOOKING AFT

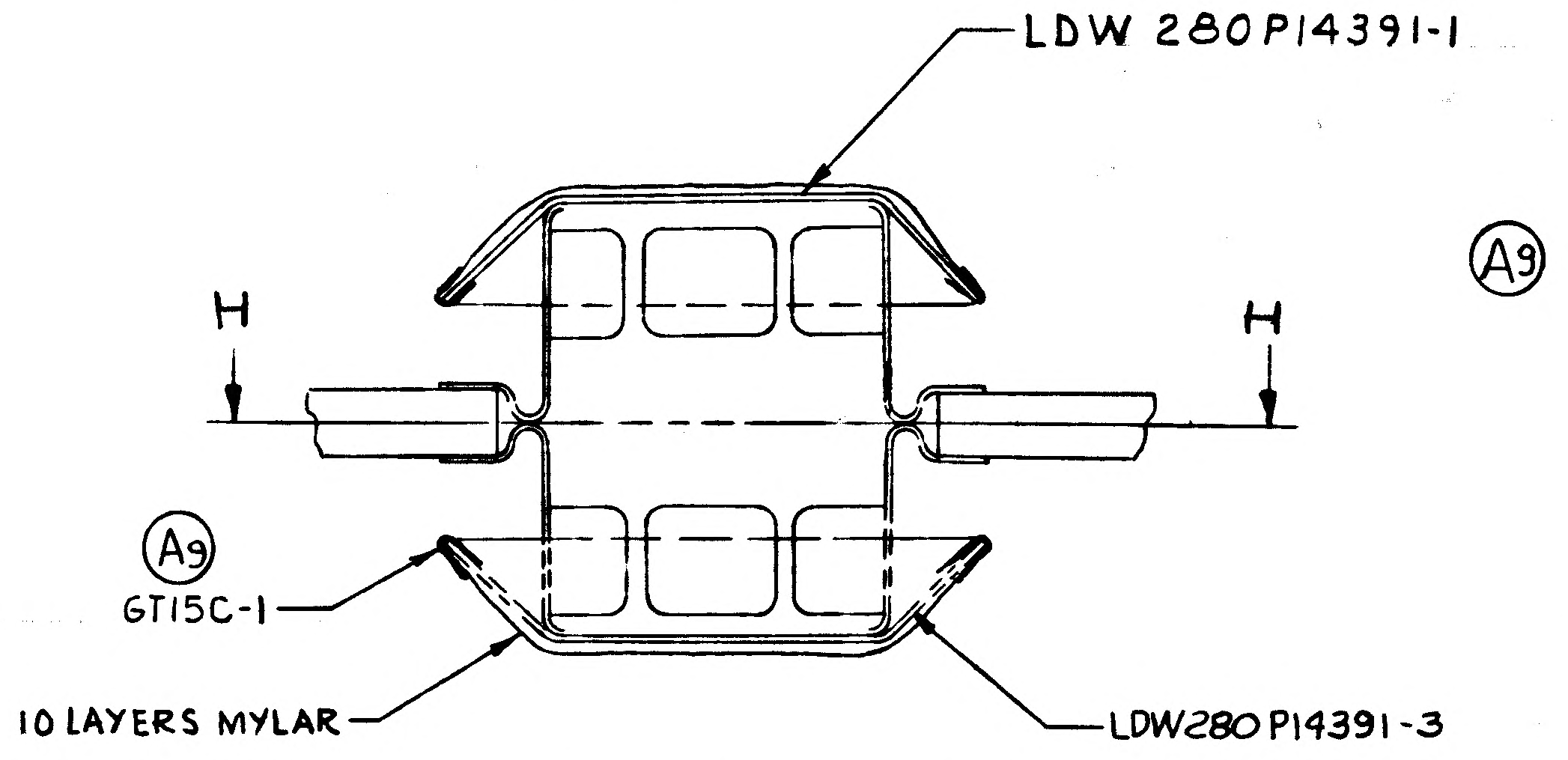
SEE VIEW H-H
SHEET 9



SECTION D-D

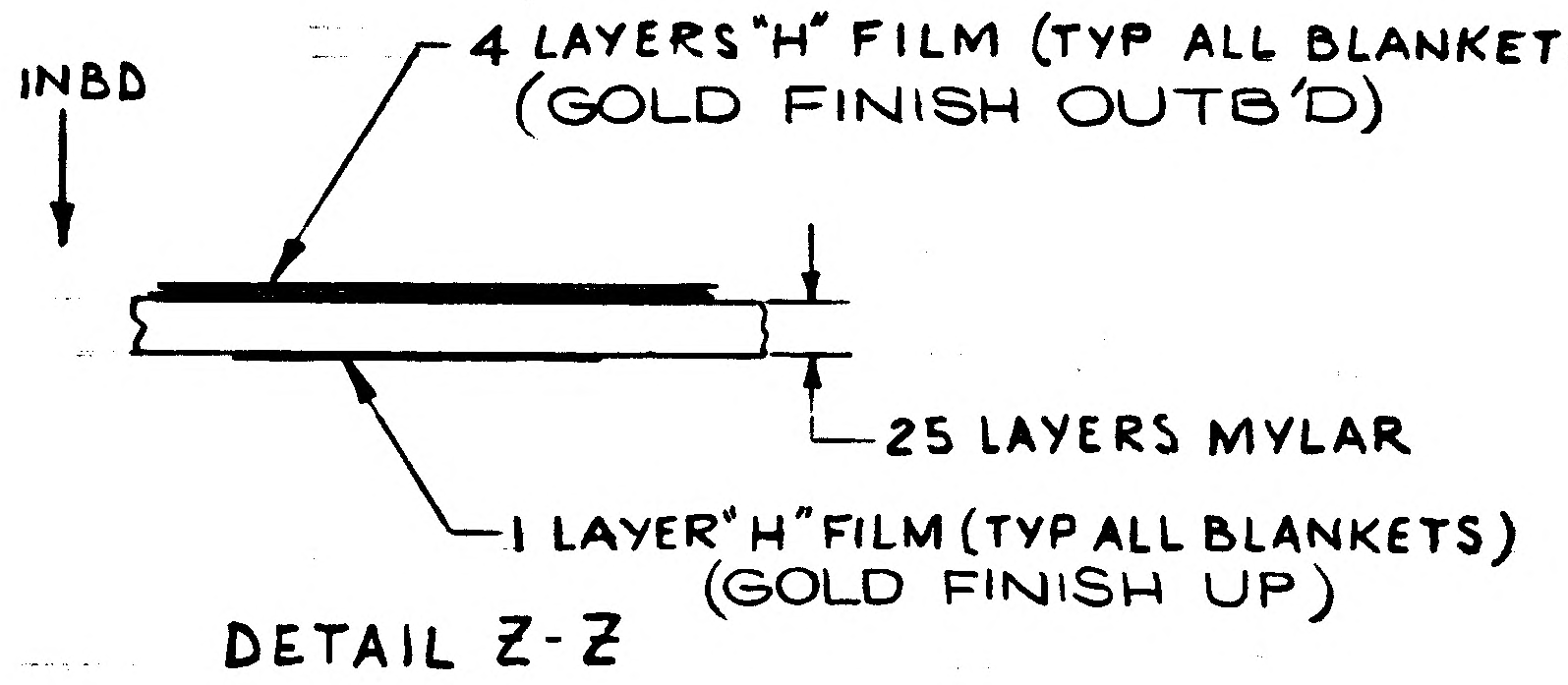


SECTION H-H
(ON-1 & -1-1)



SECTION G-G (ON-1 & -1-1)
SEE HALF SIZE F/P FOR
DIM. LOCATIONS
__ PLACES (TYP)

1. FOR FABRICATION OF BLANKET SEE LPC280-1. SEE DETAIL Z-Z
   REFER TO LPC 280-2 FOR BLANKET FOLD
   REFER TO LPC 280-3 FOR BLANKET VENT
2. STAPLES GS577A-1 MAY BE PURCHASED FROM BOSTITCH, INC., GREENWICH, R.I., (STAPLING PLIER - BOSTITCH P3 REF)
3. ~~SUPER INSULATION SHALL BE HANDLED WITH LINT FREE GLOVES~~
4. INSPECTION ON END ITEMS ONLY. HOLES MAY BE PUNCHED ON ASSEMBLY
5. ~~SUPER INSULATION TO BE FABRICATED UNDER CONDITIONS THAT CONFORM TO ESP14-0011 LEVEL "C"~~
6. BLANKETS TO BE PRE FITTED ON SCALE MODEL
7. + DENOTES GR11C-1
8. + DENOTES GR11C-7
9. ✦ DENOTES GR11B-1 & (1) GW10H-3
10. TAPE "A" MYLAR AL (1) SIDE - 1" WIDE) (PERMACEL EE6600) GT835M-8 TO BE USED ON INTERNAL SIDE OF BLANKET ONLY
    TAPE "B" ("H" FILM) POLYMIDE FILM (NO AL) 1" WIDE GT835P-8 TO BE USED ON EXTERNAL SIDE OF BLANKET UNDER HARD SHIELDING
    TAPE "D" (CLEAR MYLAR) GT535B-2-1.00 TO BE USED ON MYLAR SIDE OF BLANKET IN BUTT SPLICE AREA
11. INSTALL PER LDW 360-51296-5 EFF. LEM-1
    LDW 360-28296-5 EFF. LTA-8, LEM-2
12. ABBREVIATION A/R STANDS FOR AS REQD
13. TAPE "A" MYLAR AL (1) SIDE - 1" WIDE, GT835M-8
14. DIMENSIONAL INFORMATION ON DWG IS FOR REF PURPOSE ONLY. APPROVED MASTER TEMPLATES SHALL BE UTILIZED TO VERIFY BLANKET OUTLINES
15. CUTTING & PATCHING PER LPC280-6.
16. REPAIR PROCEDURE PER LPC280-8
17. BAY VENT INSTL PROCEDURE PER LPC280-9
18. PERMISSIBLE DEVIATIONS & REPAIR PROCEDURE PER LPC280-20
19. BLANKETS TO CONSIST OF THE FOLLOWING (OUTSIDE TO INSIDE, SEE DETAIL MN). 15 LAYERS OF .0005 ALUMINIZED POLYIMIDE FILM. 10 LAYERS OF .000125 ALUMINIZED MYLAR. 1 LAYER OF .0005 ALUMINIZED POLYIMIDE FILM. LAYED UP PER LPC280-1 & LPC280-3 (ALUMINIZED POLYIMIDE FILM PER LSM 14-5301 & ALUMINIZED MYLAR FILM PER LSM 14-5302)
20. INSTALL BAY VENTS PER LPC 280-9 CONFIGURATION II, & BLANKET VENTS PER LPC 280-2 CONFIGURATION II. VENTS ARE TO BE LOCATED IN ACCORDANCE WITH ENGINEERING-APPROVED MASTER TEMPLATE.
21. TAPE ENTIRE EDGE USING GT835P-8. TYP. ALL BLANKETS
22. -1-2 MAY BE MADE BY REWORKING -1 BY REMOVING & SCRAPPING PARTS IN B/M FOR -1 & ADDING PARTS LISTED FOR -1 & -2.


INBD
4 LAYERS "H" FILM (TYP ALL BLANKETS)
(GOLD FINISH OUTB'D)
25 LAYERS MYLAR
1 LAYER "H" FILM (TYP ALL BLANKETS)
(GOLD FINISH UP)

DETAIL Z-Z

RECORD DATA		
MODULE	EO. NO	EFFECTIVITY
LM	A10	LTA-8 (18)

THIS DRAWING TO BE REDRAWN
ON PRODUCTION FORMAT AT A LATER DATE

04/04

NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 36 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

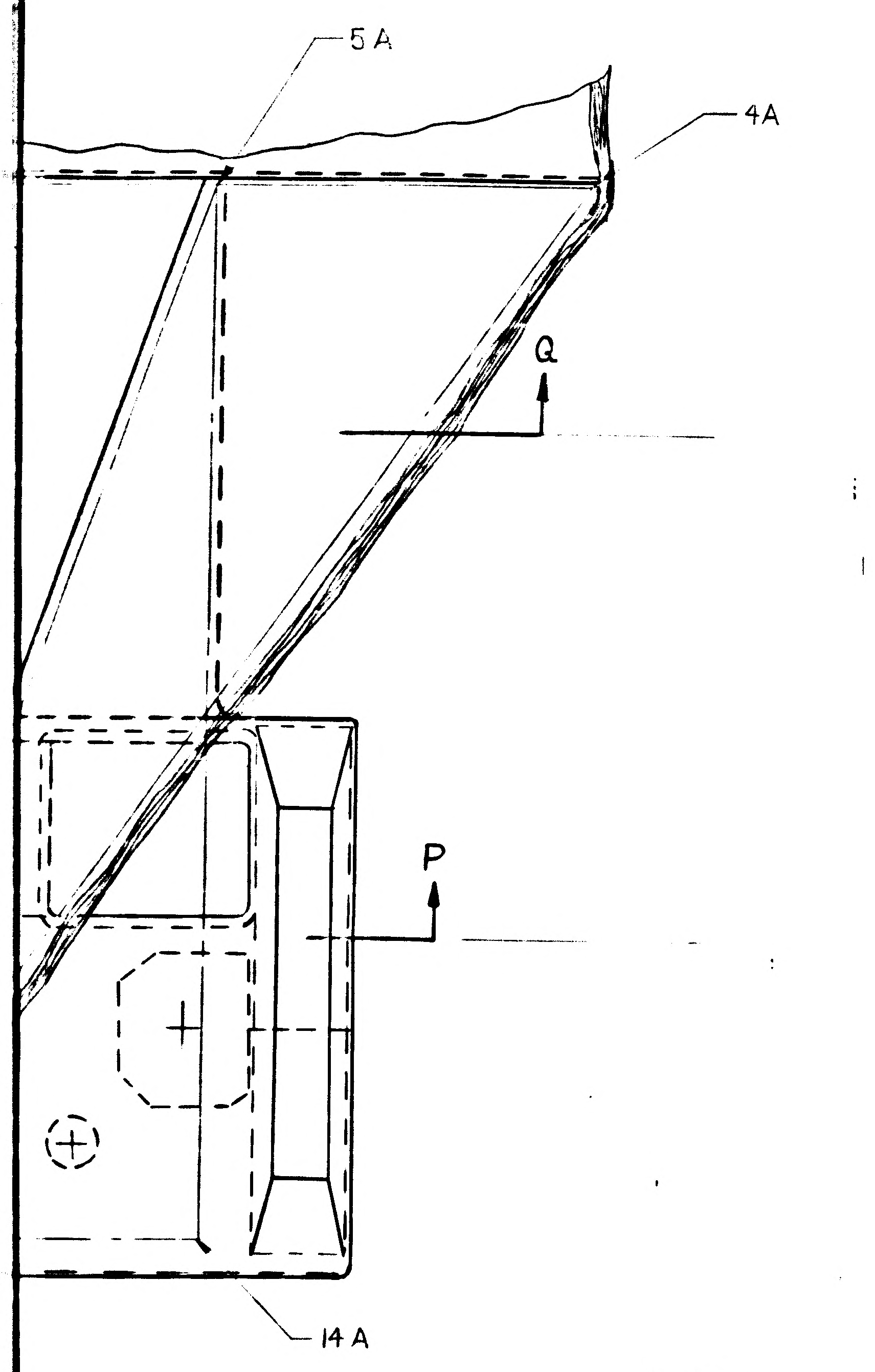
PRINT TRIM LINE

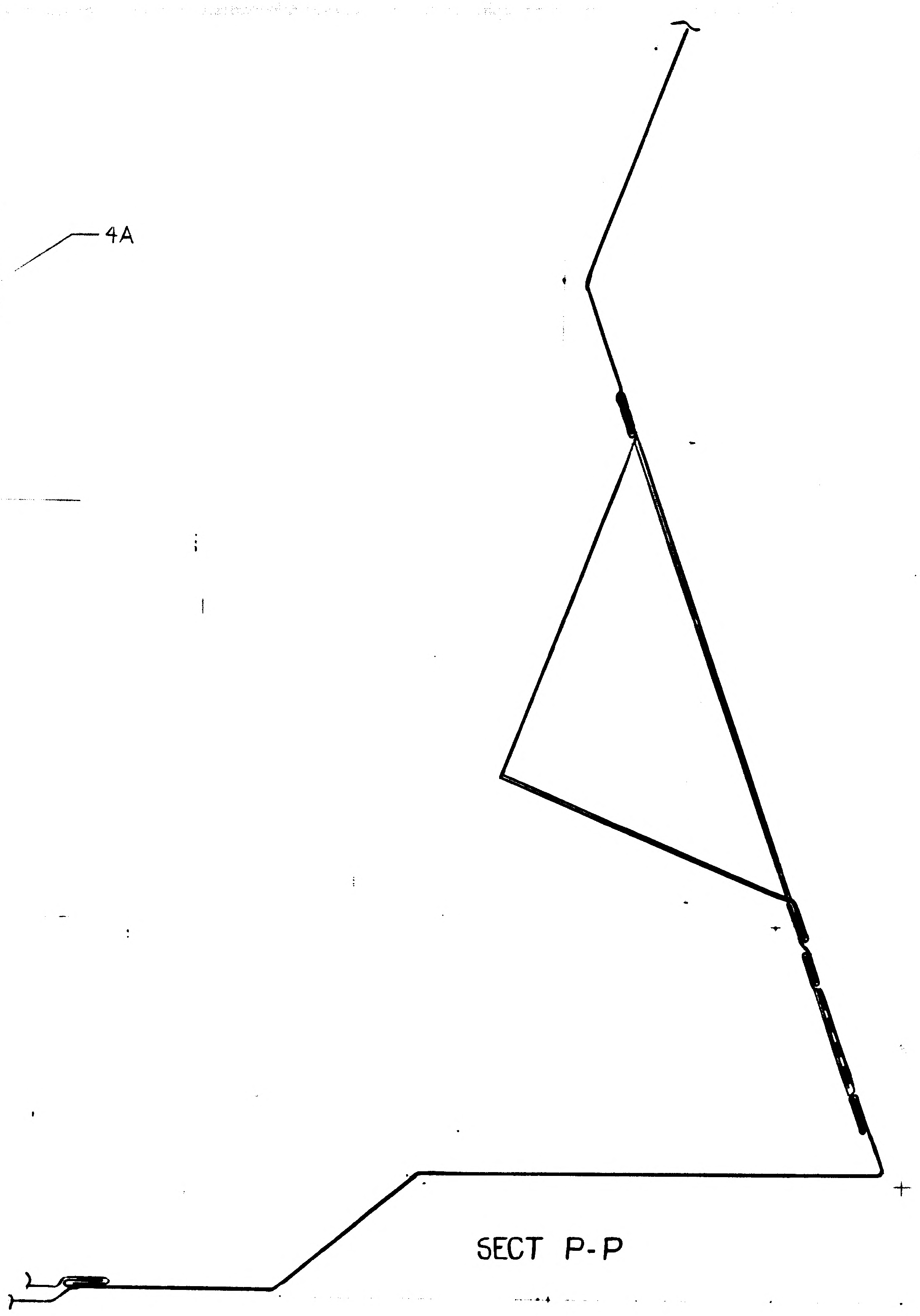
LDW 280-28853C

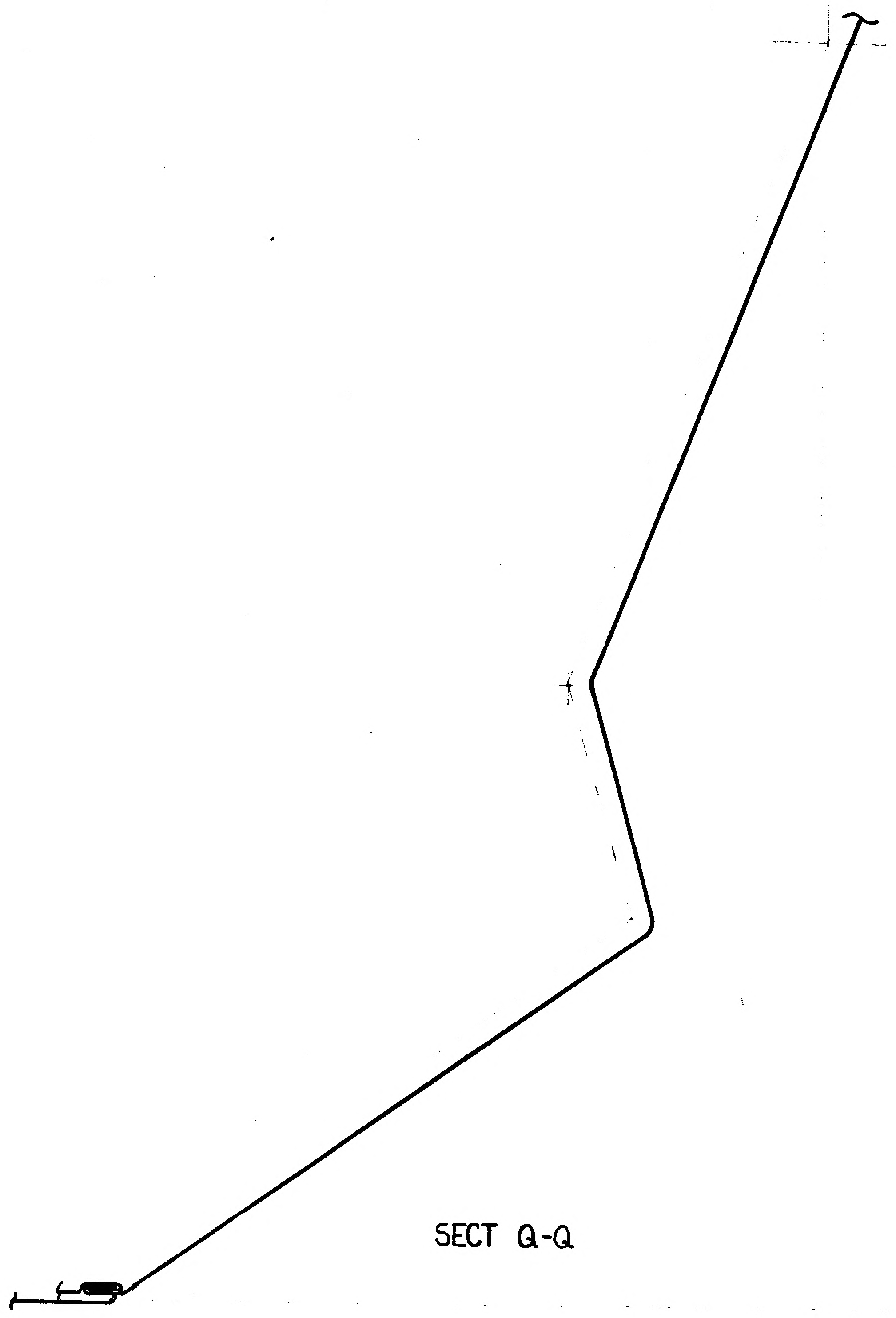
LDW 280-28853C

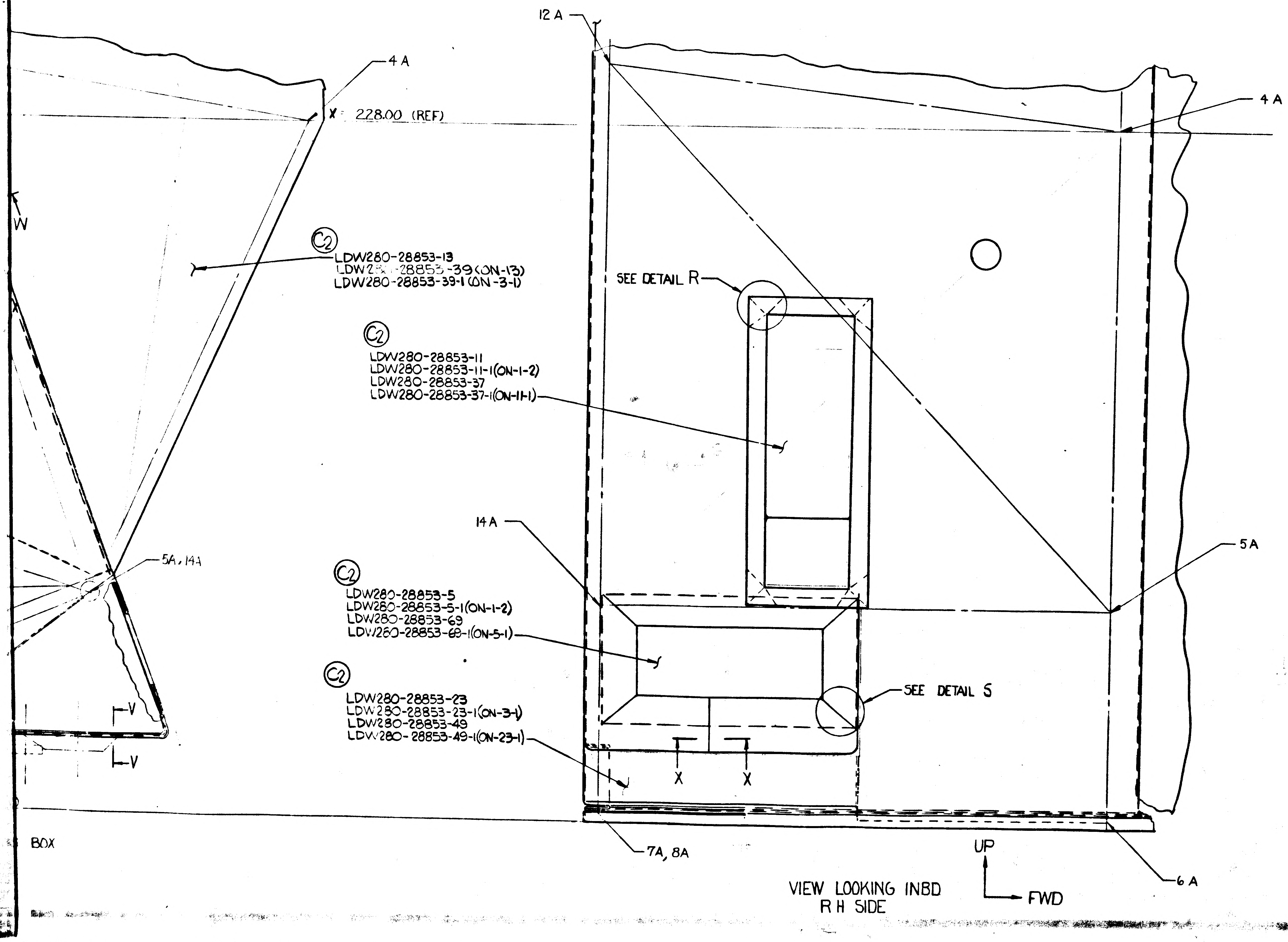
	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW 280-28853	C
MODEL OR END ITEM	SCALE 1:2		SHEET 3.00	

ENG 73.7 6-64

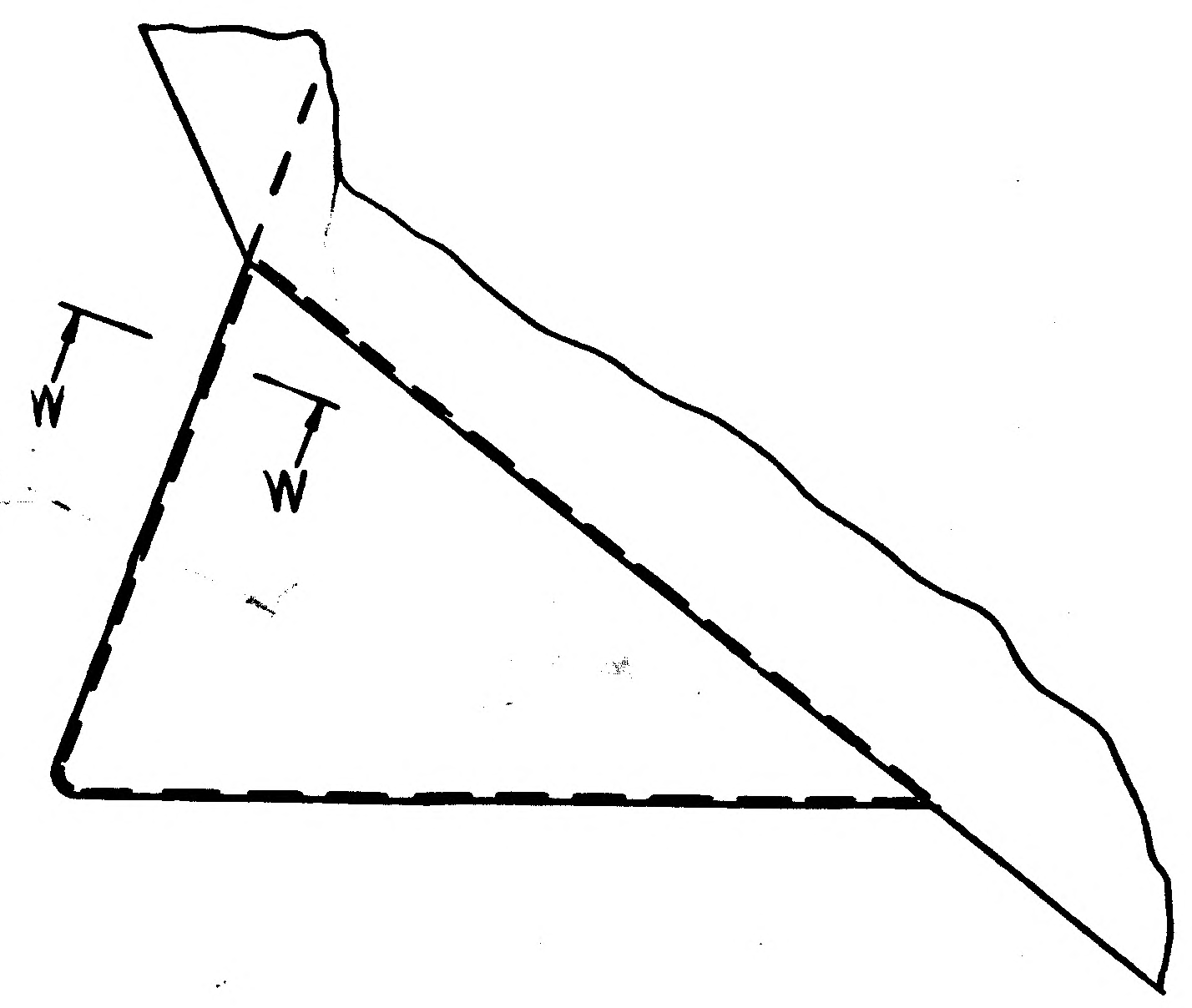



SECT P-P


SECT Q-Q


12 A
4 A
228.00 (REF)
4 A
W
C2
LDW280-28853-13
LDW280-28853-39 (ON-13)
LDW280-28853-39-1 (ON-3-1)
SEE DETAIL R
C2
LDW280-28853-11
LDW280-28853-11-1(ON-1-2)
LDW280-28853-37
LDW280-28853-37-1(ON-11-1)
14 A
5A, 14A
5 A
C2
LDW280-28853-5
LDW280-28853-5-1(ON-1-2)
LDW280-28853-69
LDW280-28853-69-1(ON-5-1)
C2
LDW280-28853-23
LDW280-28853-23-1(ON-3-1)
LDW280-28853-49
LDW280-28853-49-1(ON-23-1)
SEE DETAIL S
V
V
X
X
BOX
7A, 8A
6 A
UP
FWD

VIEW LOOKING INBD
R H SIDE



MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/4	✓
LENGTHS OF AN, NAS & MS ALLOY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

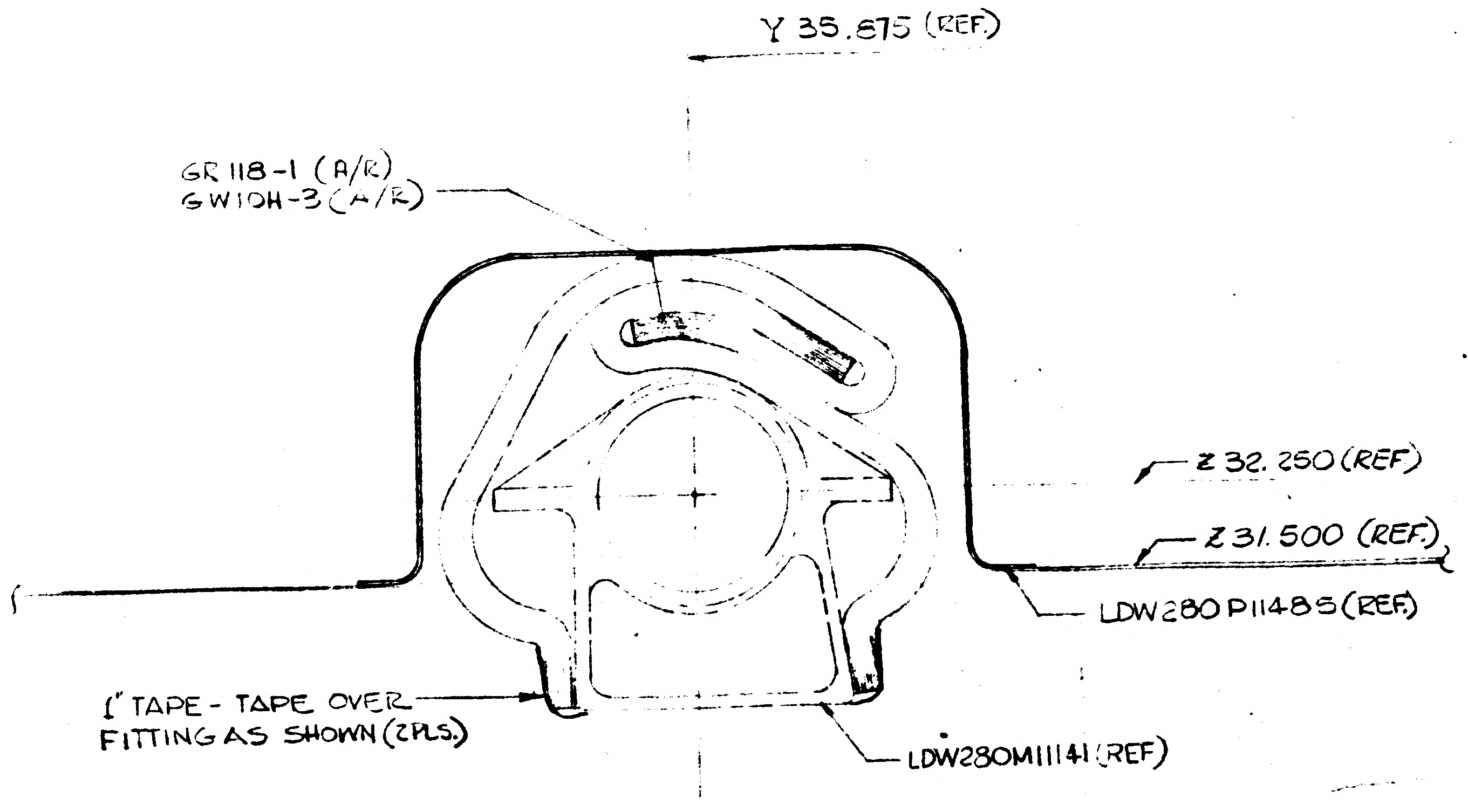
LDW280-28853 C

LDW280-28853 C

02/02

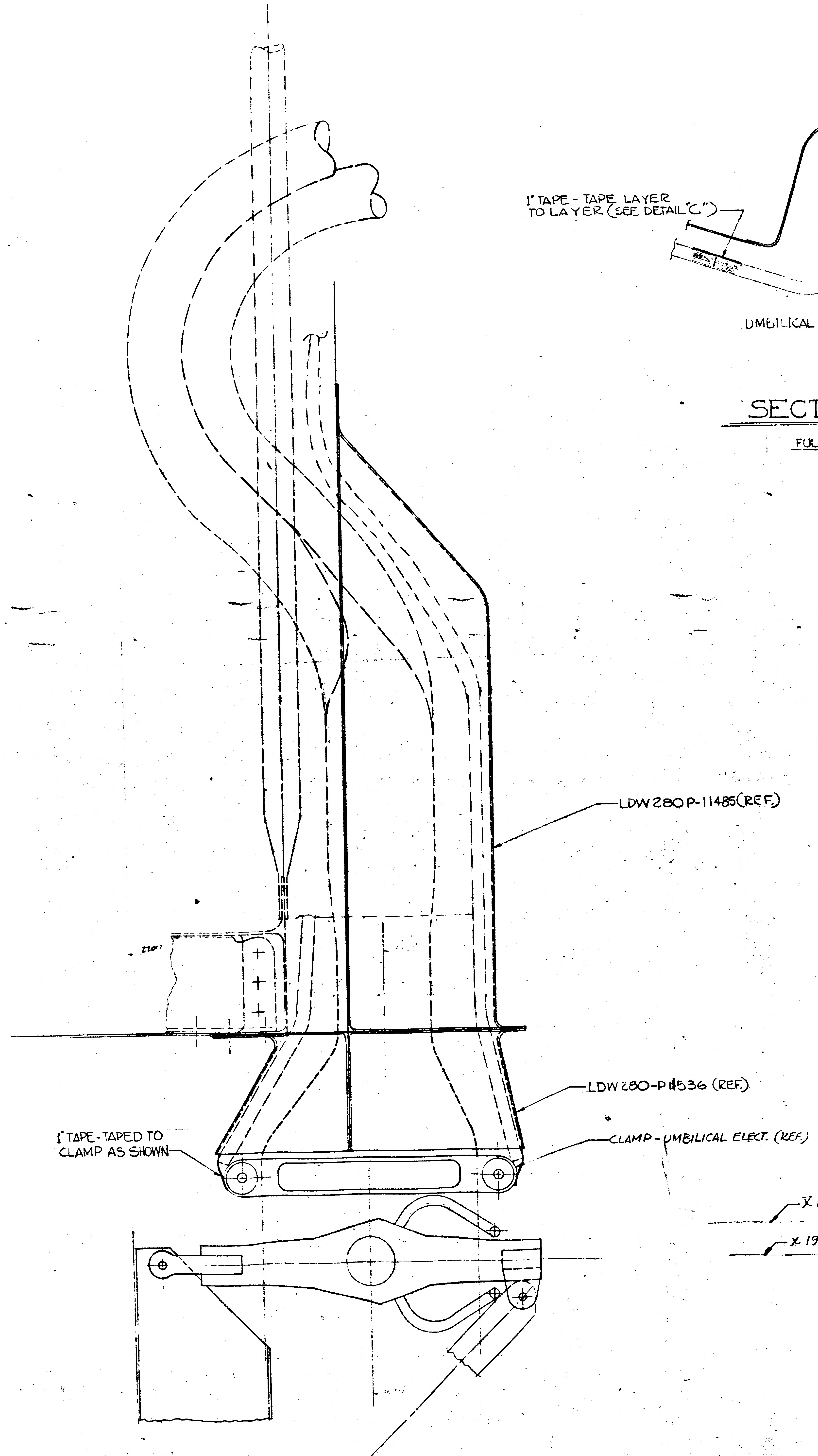
NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28853	C
MODEL OR END ITEM	SCALE HALF		SHEET 4.02	

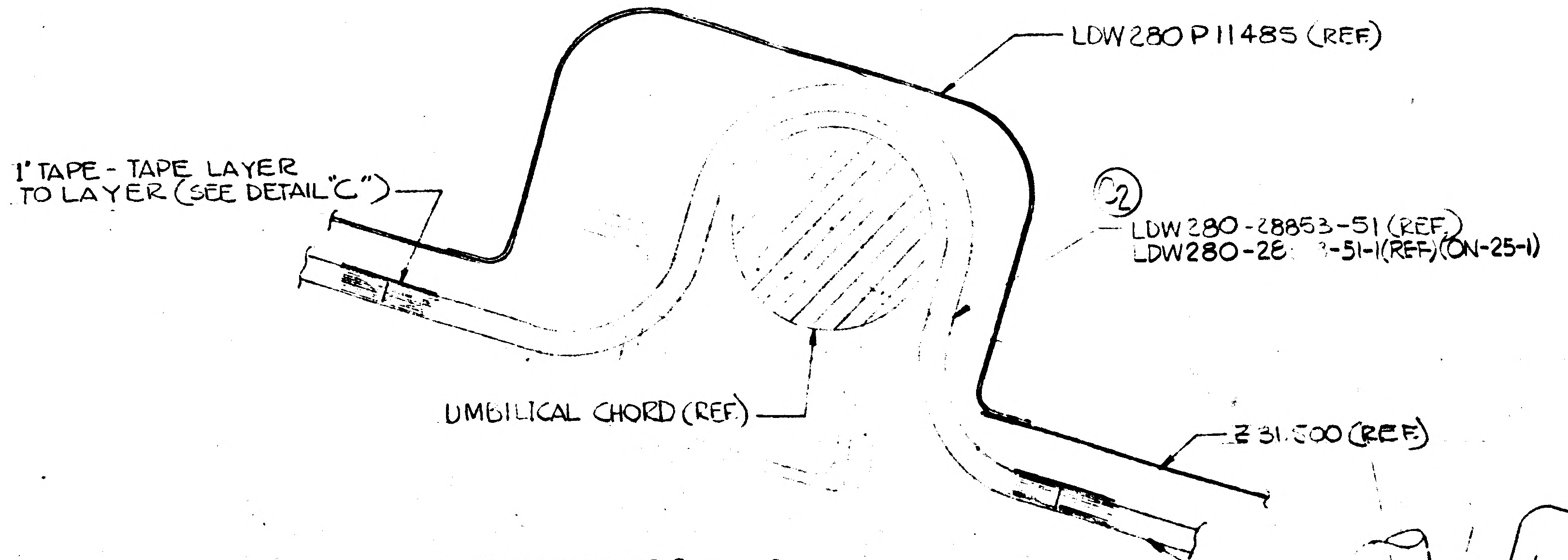

Y 35.875 (REF)
GR 118-1 (A/R)
GW10H-3 (A/R)
Z 32.250 (REF)
Z 31.500 (REF)
LDW280P11485 (REF)
1" TAPE - TAPE OVER FITTING AS SHOWN (2 PLS)
LDW280M11141 (REF)

SECTION M-M

FULL SIZE

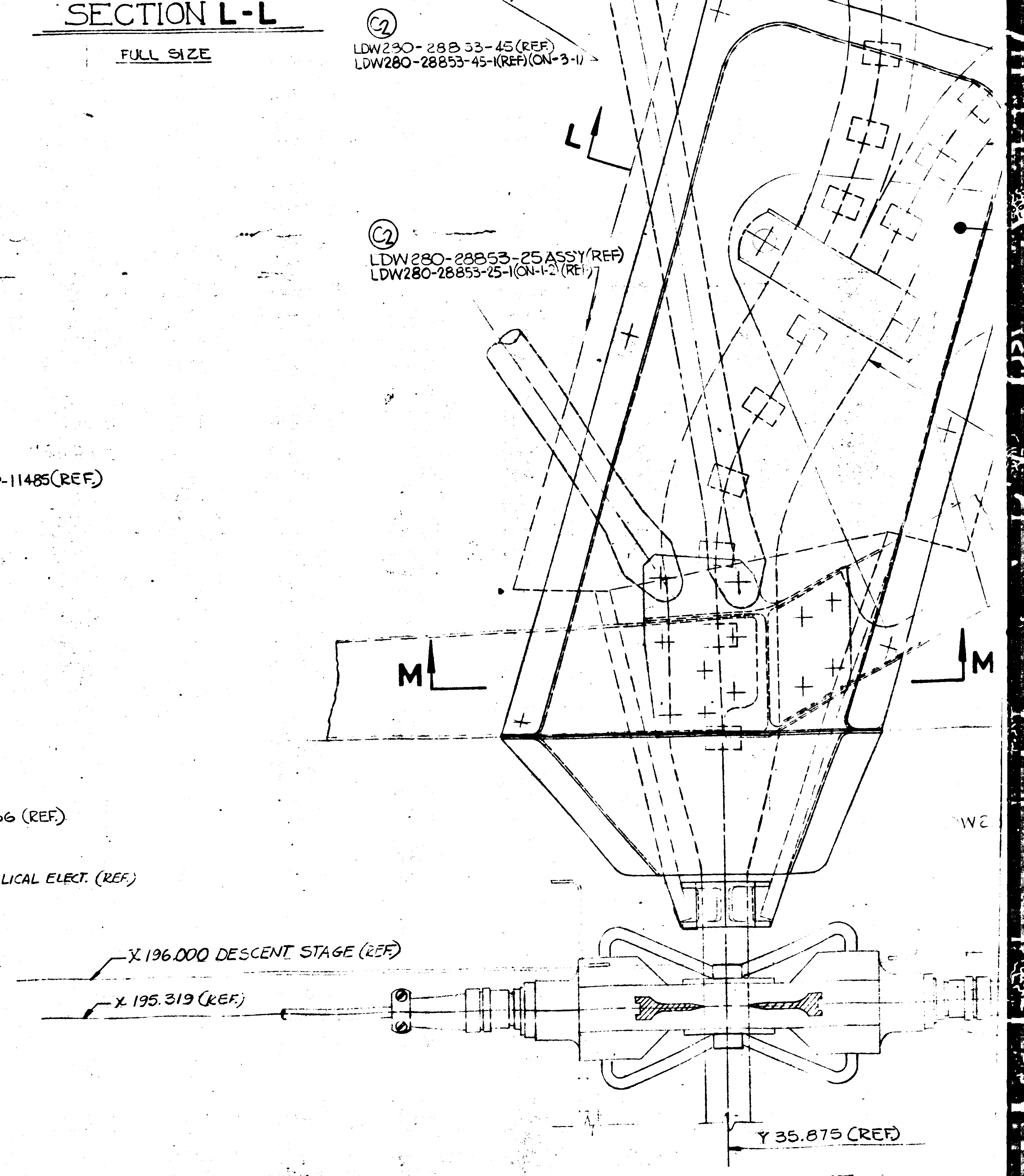

LDW280P-11485(REF)
LDW280-P11536 (REF)
1" TAPE-TAPED TO CLAMP AS SHOWN
CLAMP-UMBILICAL ELECT. (REF)

R.H. SIDE VIEW LOOKING INBOARD


LDW280 P11485 (REF)
1" TAPE - TAPE LAYER TO LAYER (SEE DETAIL "C")
②
LDW280-28853-51 (REF)
LDW280-28 -51-1(REF)(ON-25-1)
UMBILICAL CHORD (REF)
Z 31.500 (REF)

SECTION L-L

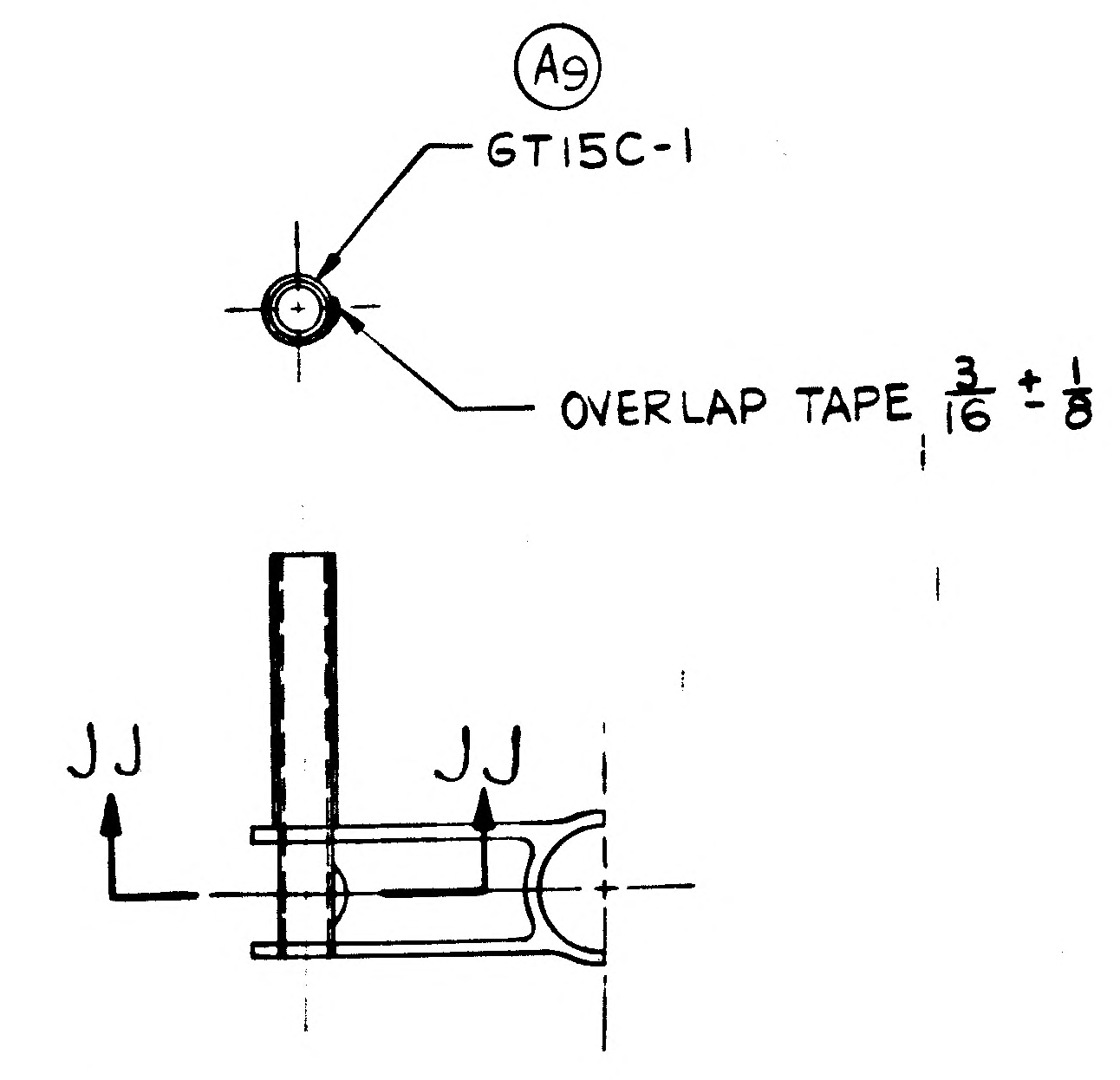
FULL SIZE


②
LDW280-28853-45 (REF)
LDW280-28853-45-1(REF)(ON-3-1)
L
②
LDW280-28853-25 ASSY(REF)
LDW280-28853-25-1(ON-1-2)(REF)
M
M
X 196.000 DESCENT STAGE (REF)
X 195.319 (REF)
Y 35.875 (REF)

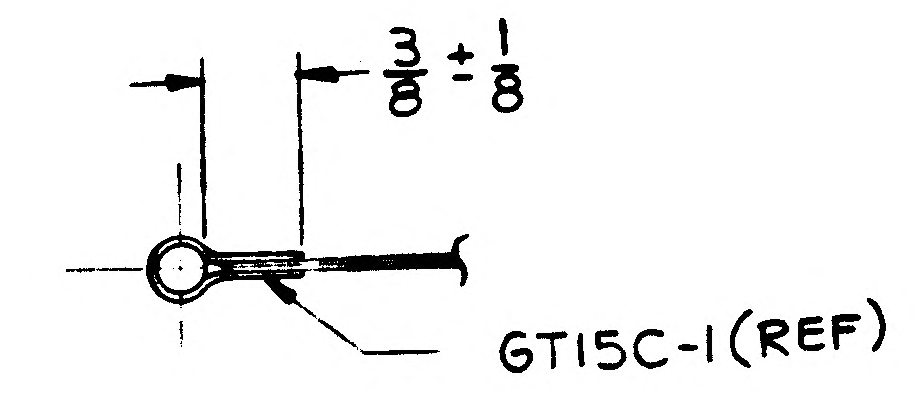
R.H. SIDE LOOKING AFT.

VIEW H-H

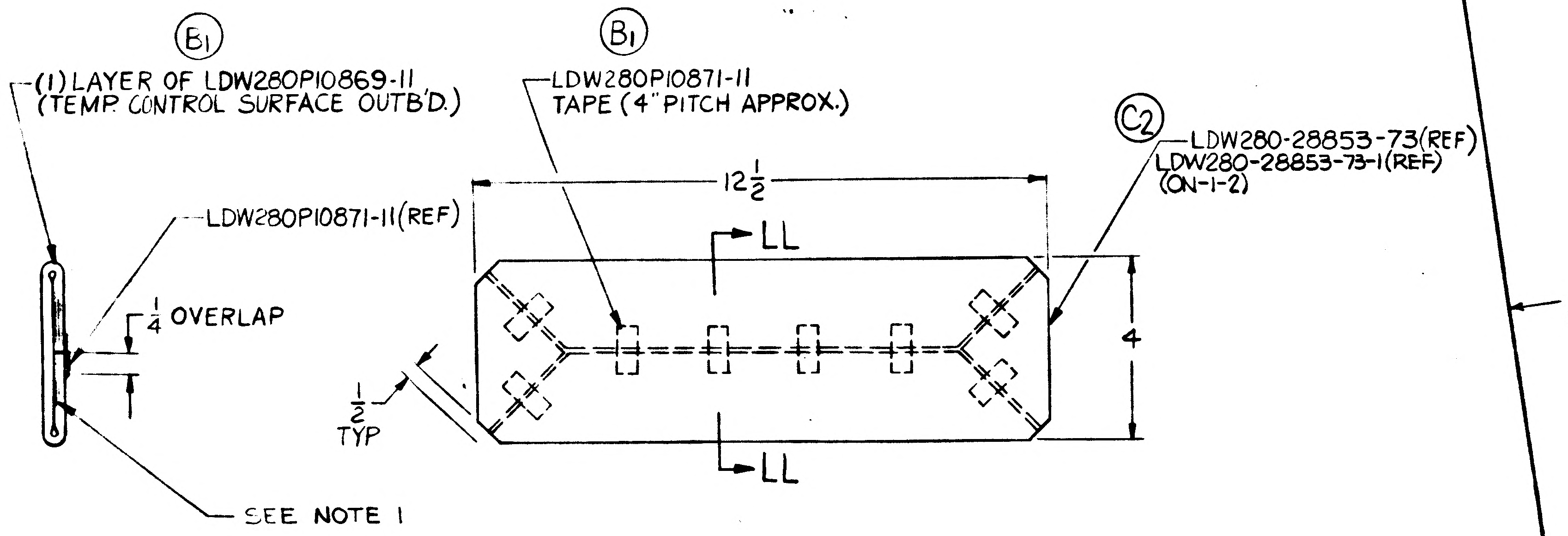
01702 NAS 9-1100


A9
GT15C-1
OVERLAP TAPE $\frac{3}{16} \pm \frac{1}{8}$
JJ
JJ

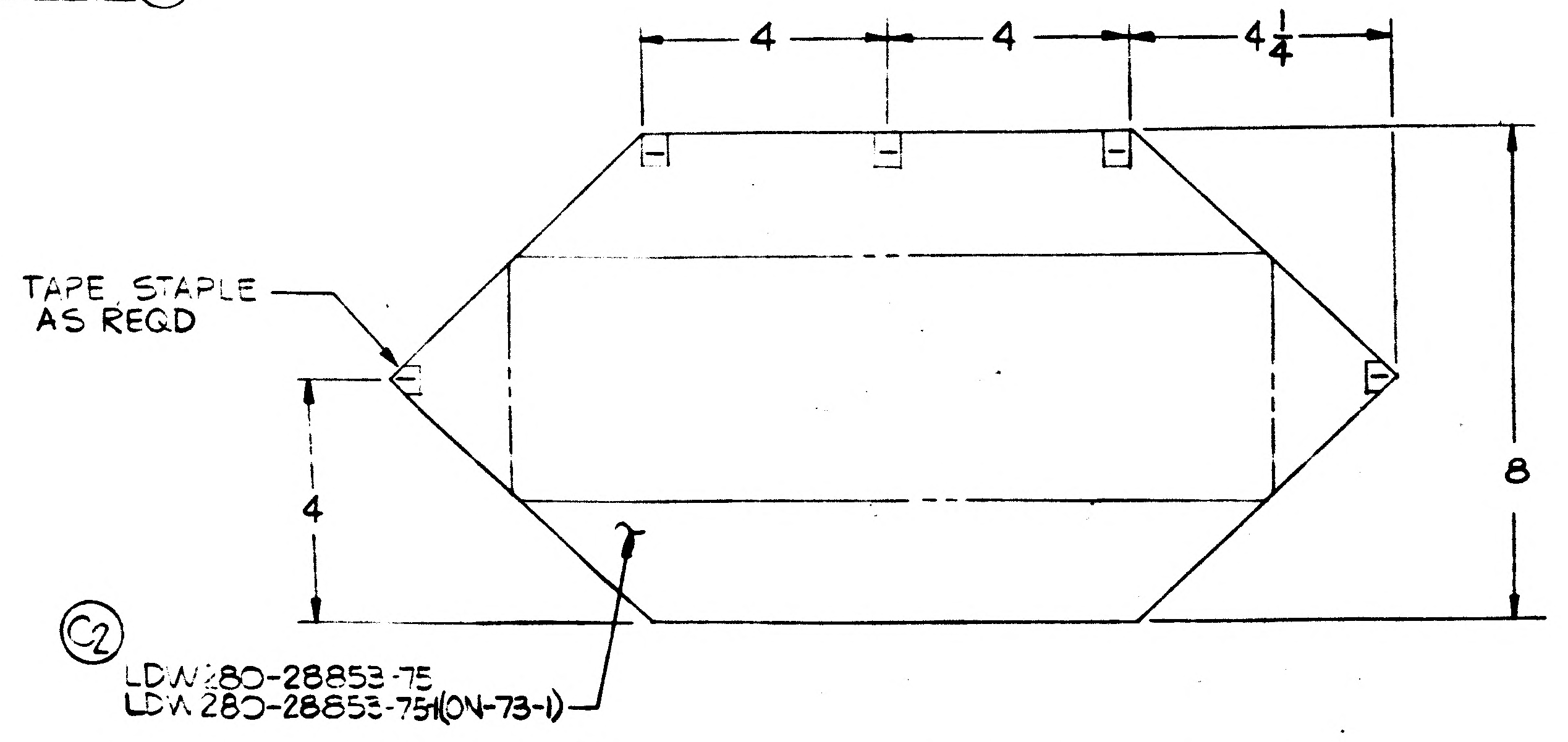
A8 DETAIL MM
TYP FOR LDW280-28860, LDW280-28880 & G526C


$\frac{3}{8} \pm \frac{1}{8}$
GT15C-1(REF)

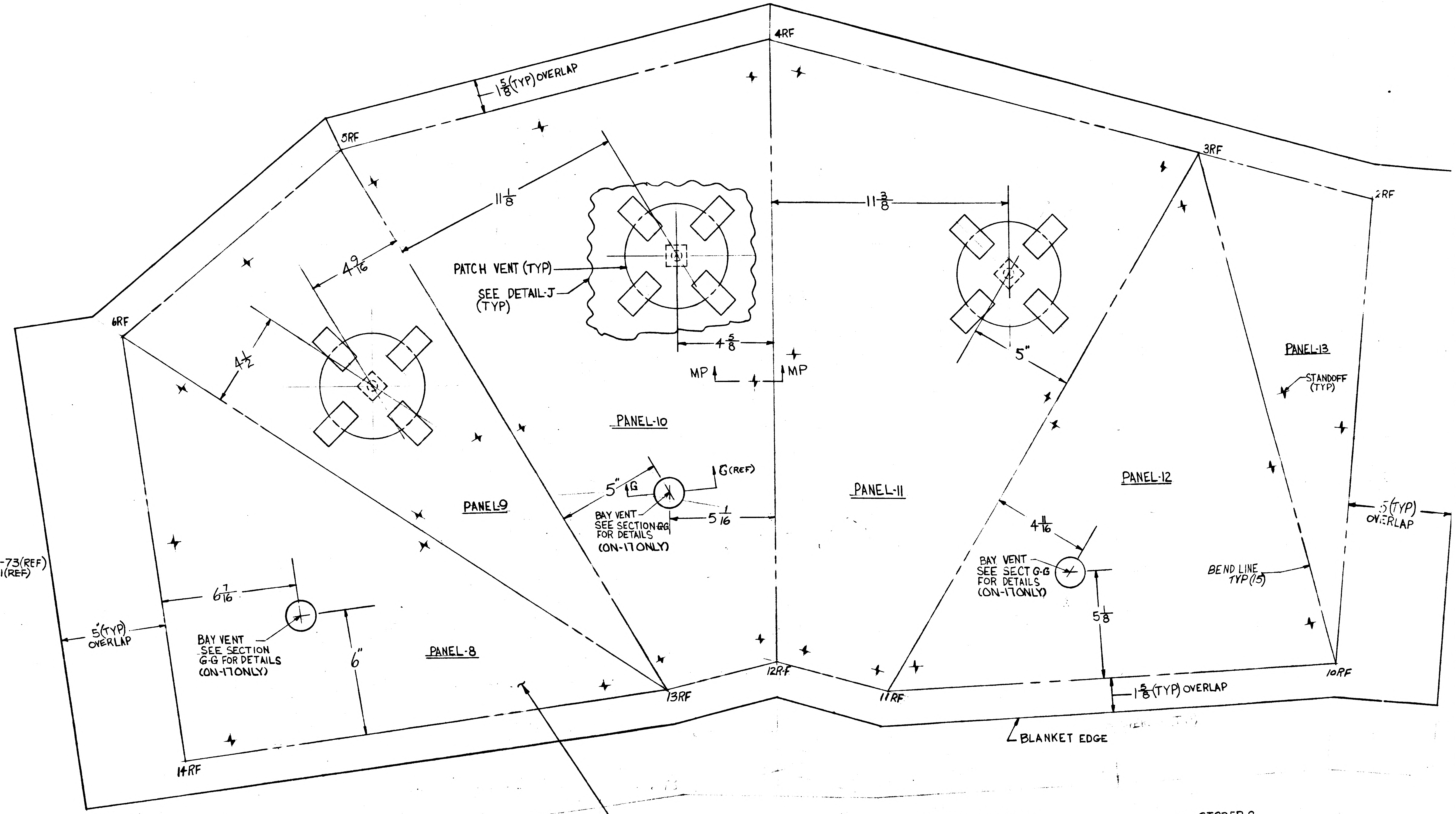
A8 SECTION JJ-JJ

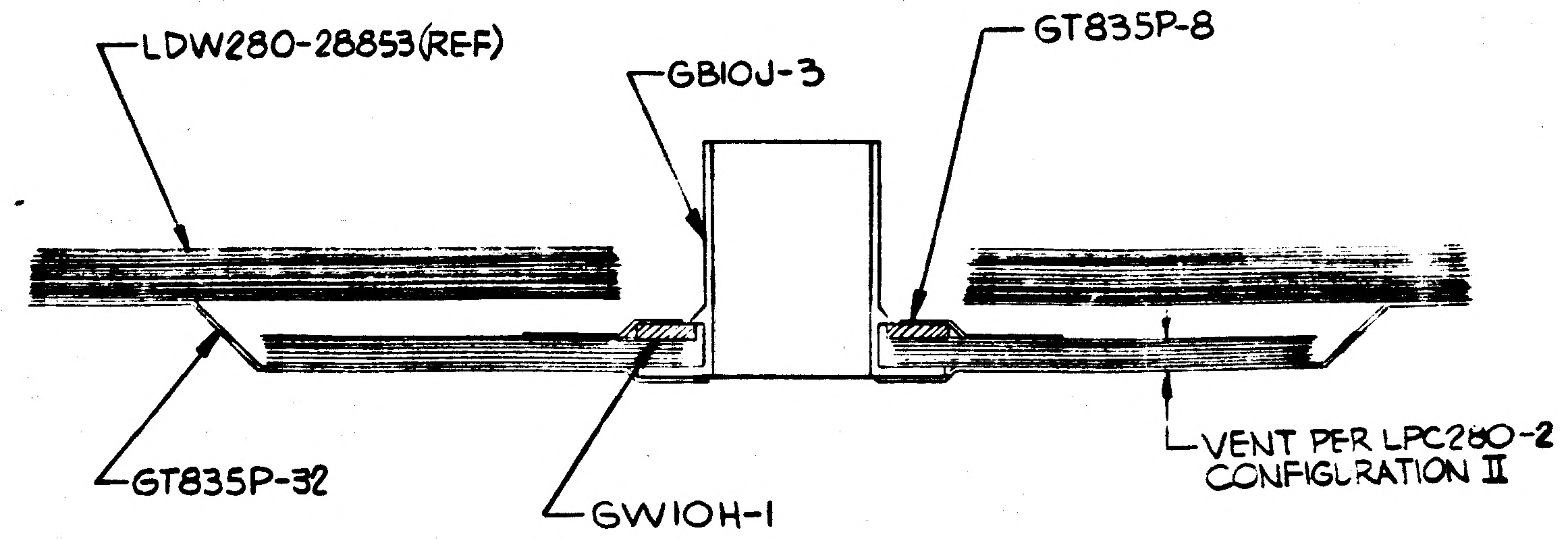

B1
(1) LAYER OF LDW280P10869-11 (TEMP CONTROL SURFACE OUTB'D.)
LDW280P10871-11(REF)
$\frac{1}{4}$ OVERLAP
SEE NOTE 1
B1
LDW280P10871-11 TAPE (4" PITCH APPROX.)
$12\frac{1}{2}$
LL
LL
$\frac{1}{2}$ TYP
4
C2
LDW280-28853-73(REF)
LDW280-28853-73-1(REF) (ON-1-2)

SECTION LL-LL B1


4
4
$4\frac{1}{4}$
TAPE STAPLE AS REQD
4
8
C2
LDW280-28853-75
LDW280-28853-751(ON-73-1)

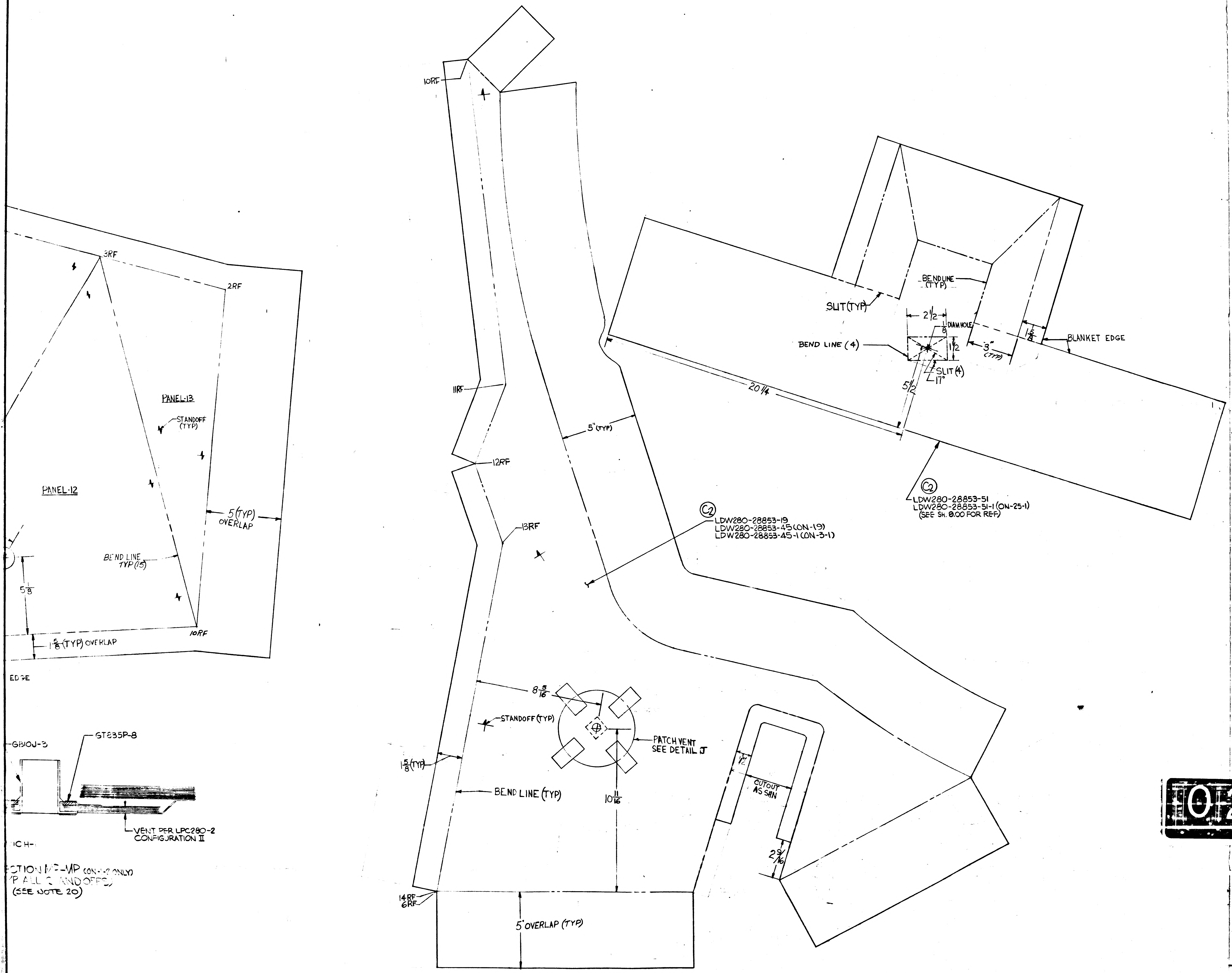
A5 LDW280-28853-73 ASSY
C2 LDW280-28853-73-1 ASSY (ON-1-2)


4RF
5RF
3RF
2RF
6RF
$1\frac{5}{8}$(TYP) OVERLAP
$11\frac{1}{8}$
$11\frac{3}{8}$
$4\frac{9}{16}$
$4\frac{1}{2}$
PATCH VENT (TYP)
SEE DETAIL J (TYP)
$4\frac{5}{8}$
5"
MP
MP
PANEL-13
STANDOFF (TYP)
PANEL-10
PANEL-11
PANEL-12
PANEL 9
5"
G
G (REF)
$5\frac{1}{16}$
BAY VENT SEE SECTION G-G FOR DETAILS (ON-17 ONLY)
$4\frac{11}{16}$
BAY VENT SEE SECT G-G FOR DETAILS (ON-17 ONLY)
BEND LINE TYP (15)
.5(TYP) OVERLAP
$6\frac{7}{16}$
BAY VENT SEE SECTION G-G FOR DETAILS (ON-17 ONLY)
6"
.5(TYP) OVERLAP
PANEL-8
$5\frac{1}{8}$
13RF
12RF
11RF
10RF
14RF
$1\frac{5}{8}$(TYP) OVERLAP
BLANKET EDGE
C2
LDW280-28853-17
LDW280-28853-43 (ON-17)
LDW280-28853-43-1 (ON-3-1)


LDW280-28853(REF)
GB10J-3
GT835P-8
GT835P-32
GW10H-1
VENT PER LPC280-2 CONFIGURATION II

C2 SECTION MP-MP (ON-1-2 ONLY)
(TYP ALL STANDOFFS)
(SEE NOTE 20)

01/02 NAS 9-1100


10RF
11RF
12RF
13RF
14RF
6RF
3RF
2RF
10RF
PANEL-13
PANEL-12
STANDOFF (TYP)
5(TYP) OVERLAP
BEND LINE TYP (15)
5 5/8
1 5/8(TYP) OVERLAP
EDGE
GB10J-3
GT835P-8
VENT PER LPC280-2 CONFIGURATION II
ICH-
CTION MP-MP (ON-1-2 ONLY)
P ALL STANDOFFS)
(SEE NOTE 20)
5"(TYP)
C2
LDW280-28853-19
LDW280-28853-45 (ON-19)
LDW280-28853-45-1 (ON-3-1)
20 1/4
SLIT(TYP)
BEND LINE (TYP)
2 1/2
1/8 DIAM HOLE
BEND LINE (4)
1 1/2
SLIT (4)
17°
5 1/2
3" (TYP)
1 5/8
BLANKET EDGE
C2
LDW280-28853-51
LDW280-28853-51-1 (ON-25-1)
(SEE SH. 8.00 FOR REF)
8 5/16
STANDOFF (TYP)
PATCH VENT SEE DETAIL J
1 5/8(TYP)
BEND LINE (TYP)
10 11/16
1/2
CUTOUT AS SHN
2 9/16
5" OVERLAP (TYP)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

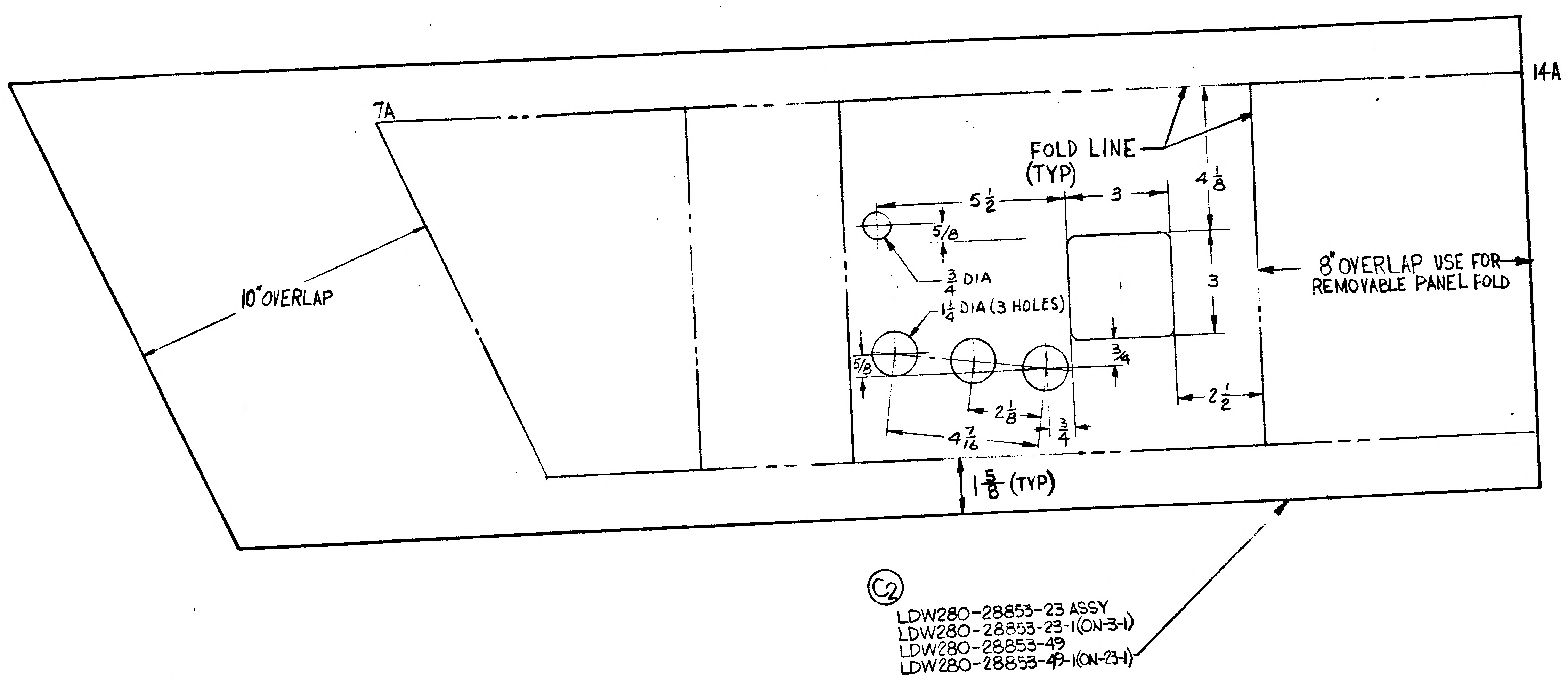
LDW280-28853C

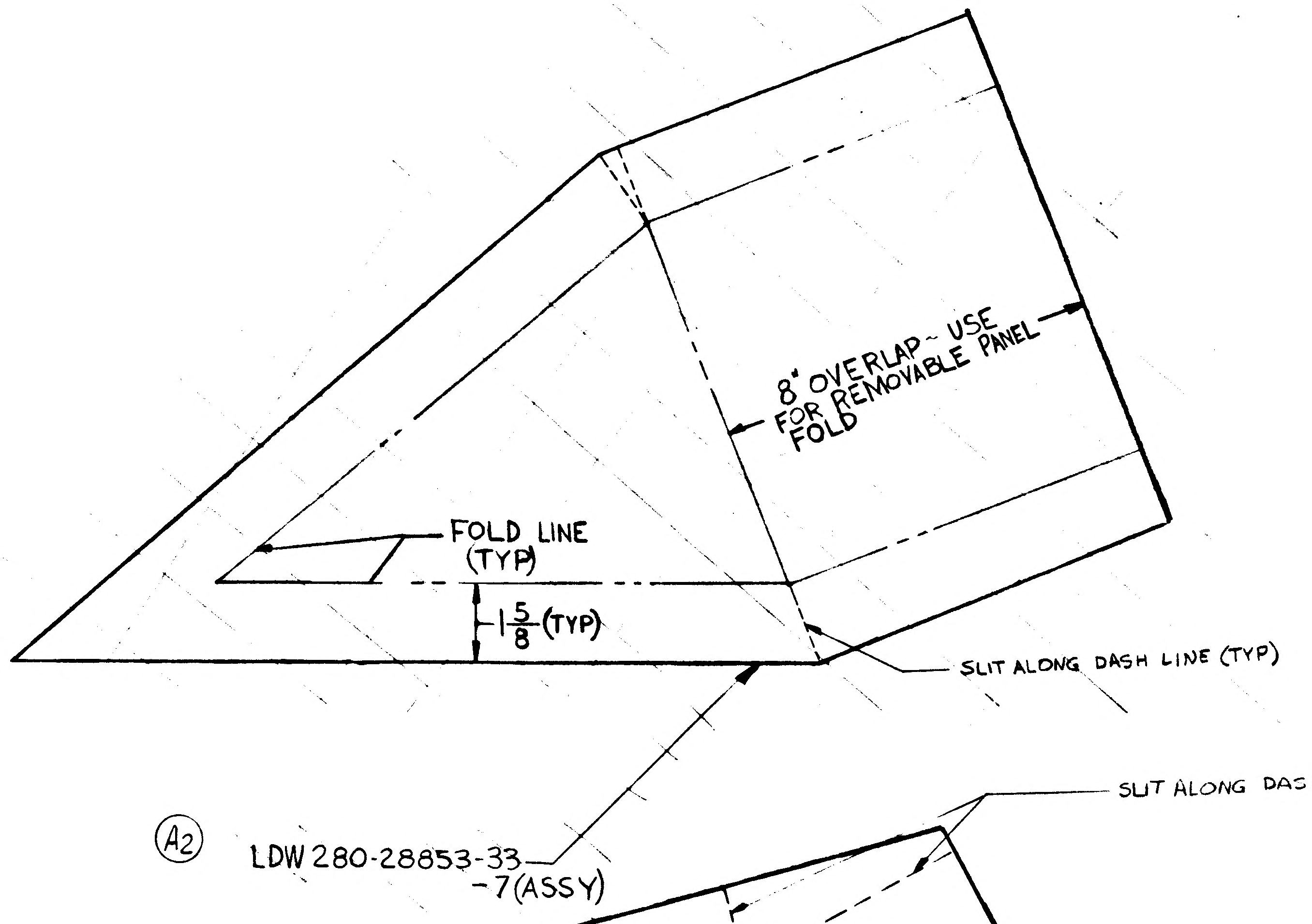
02/02
NAS 9-1100

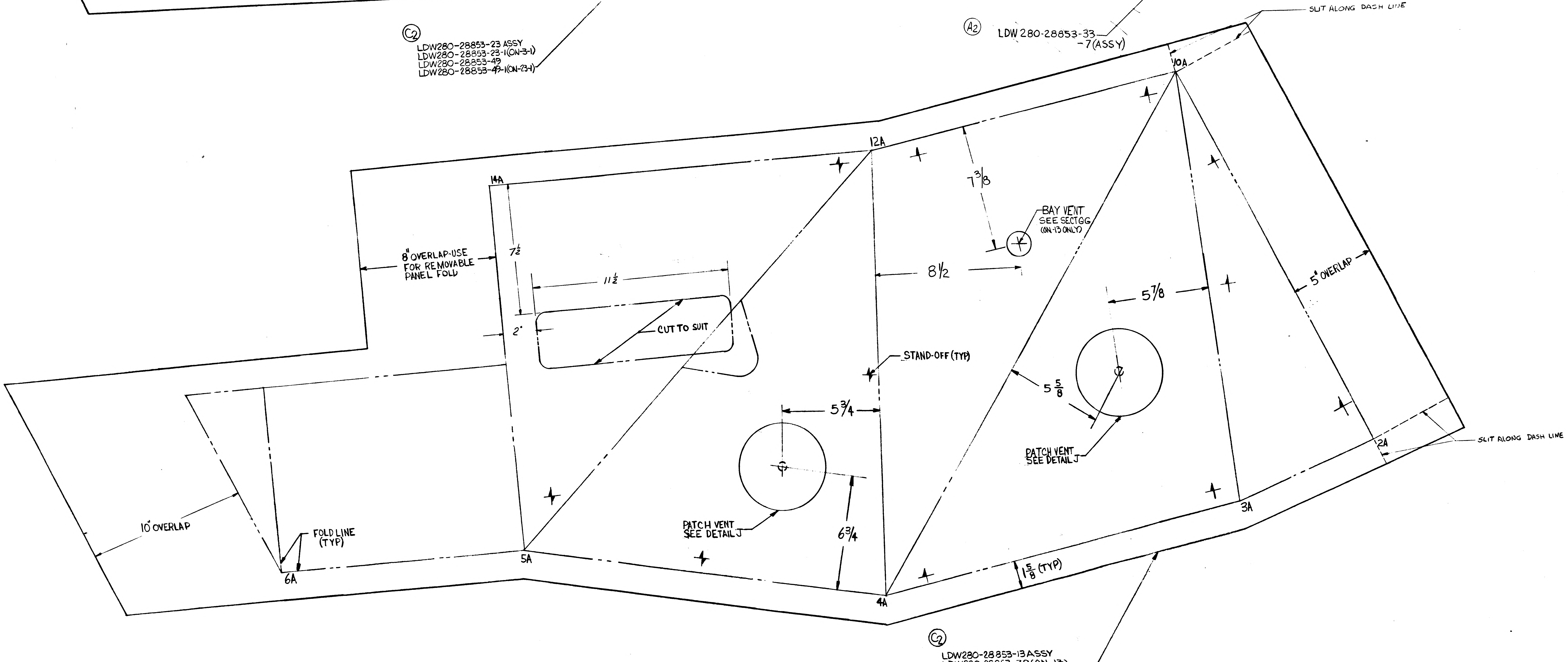
THIS IS A PICTORIAL DWG

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-28853	C
MODEL OR END ITEM	SCALE 1:2		SHEET 5.00	

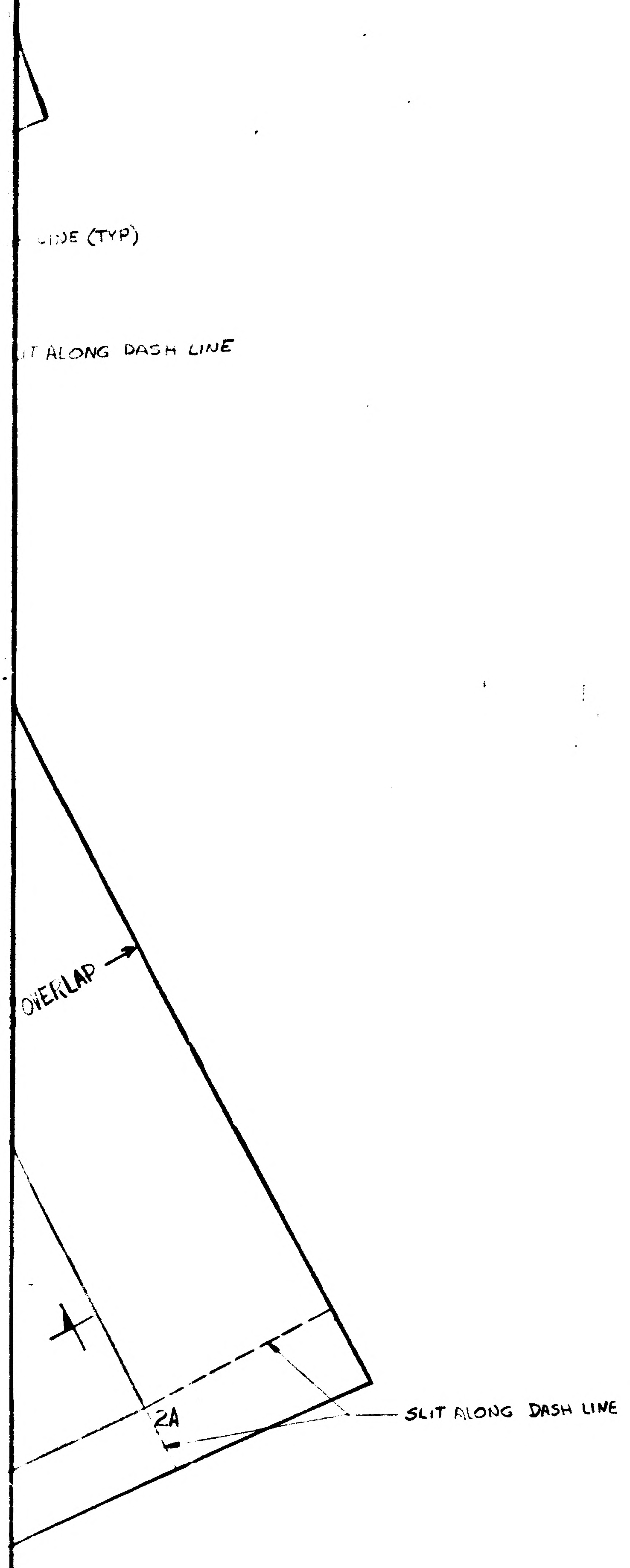
SCALE 1:2

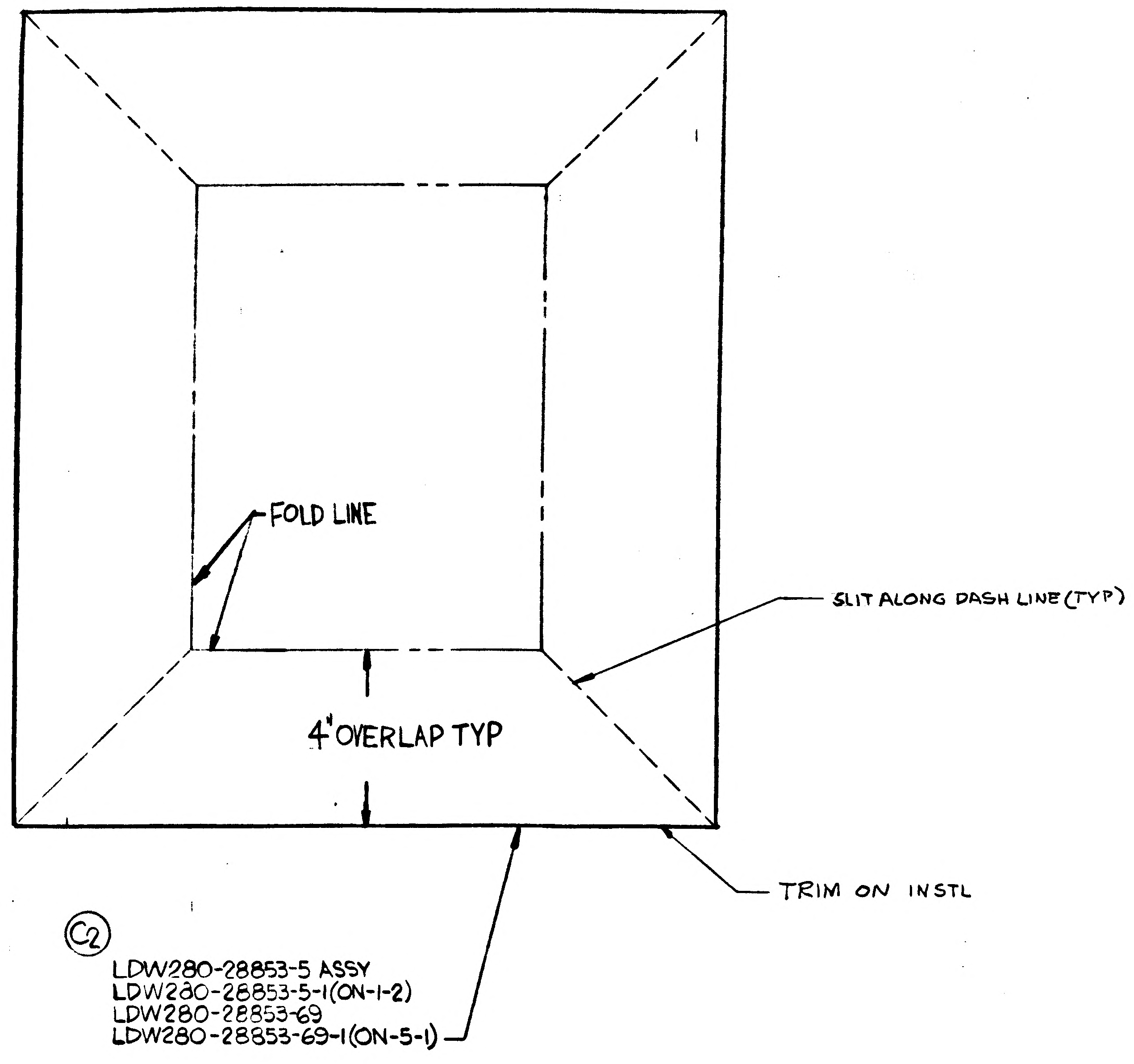

7A
14A
FOLD LINE (TYP)
5 1/2
3
4 1/8
5/8
3/4 DIA
1 1/4 DIA (3 HOLES)
3
5/8
3/4
2 1/8
3/4
2 1/2
4 7/16
8" OVERLAP USE FOR REMOVABLE PANEL FOLD
10" OVERLAP
1 5/8 (TYP)
C2
LDW280-28853-23 ASSY
LDW280-28853-23-1(ON-3-1)
LDW280-28853-49
LDW280-28853-49-1(ON-23-1)

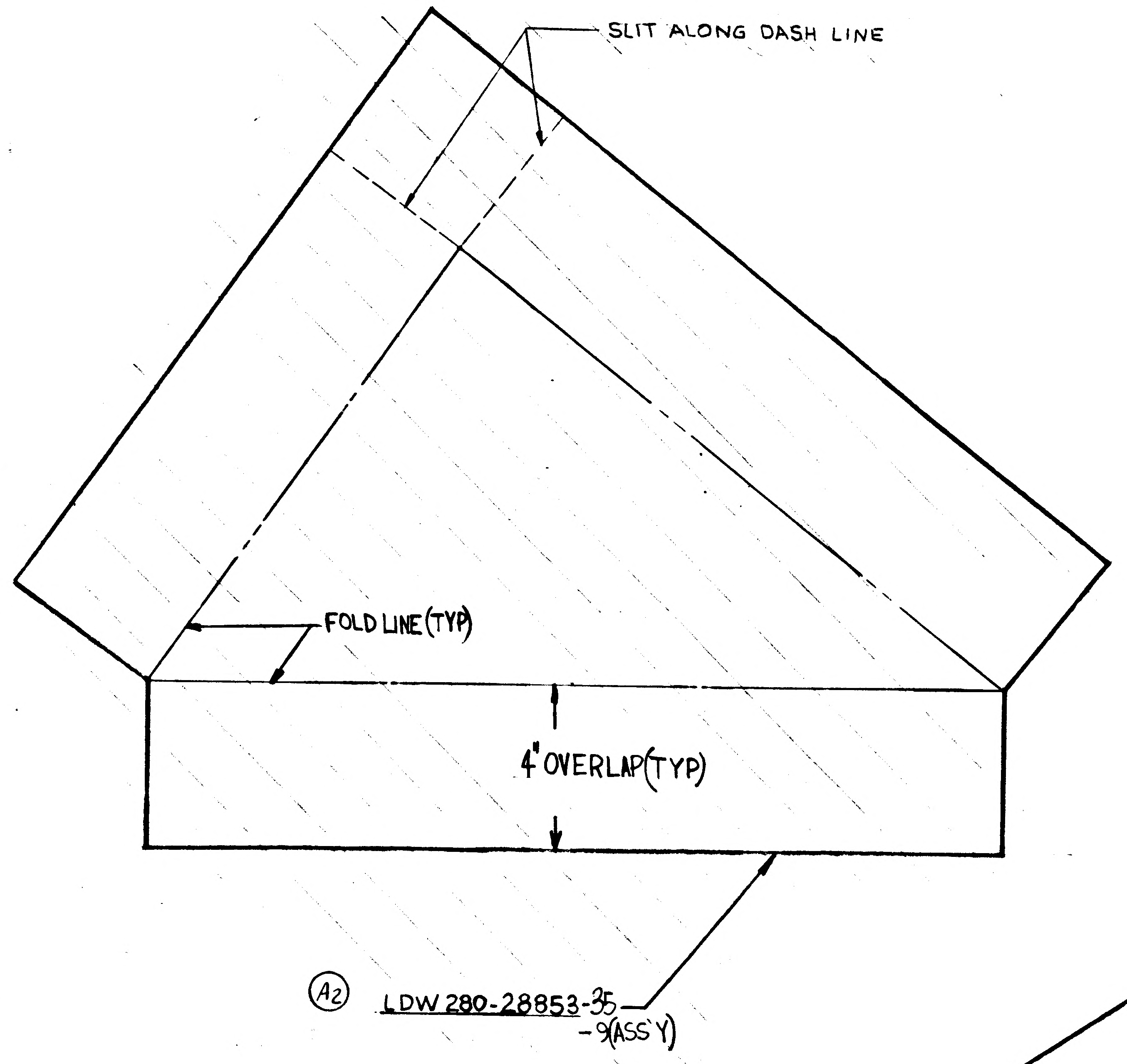

8" OVERLAP - USE FOR REMOVABLE PANEL FOLD
FOLD LINE (TYP)
1 5/8 (TYP)
SLIT ALONG DASH LINE (TYP)
A2
LDW 280-28853-33
-7(ASSY)

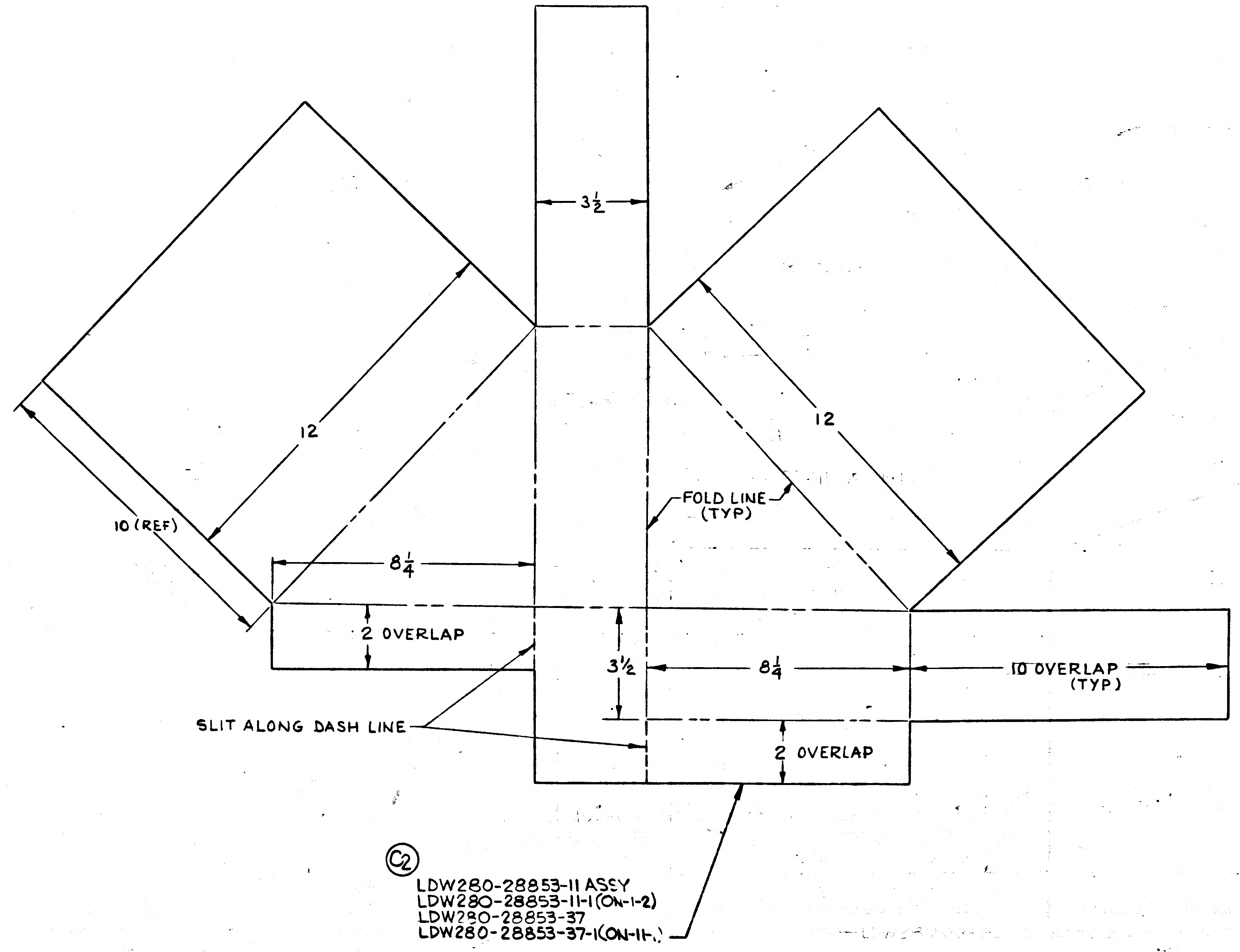

SLIT ALONG DASH LINE
10A
12A
14A
7 3/8
BAY VENT SEE SECT GG (ON-13 ONLY)
8 1/2
8" OVERLAP-USE FOR REMOVABLE PANEL FOLD
7 1/2
11 1/2
CUT TO SUIT
2"
5 7/8
5" OVERLAP
STAND-OFF (TYP)
5 5/8
5 3/4
PATCH VENT SEE DETAIL J
SLIT ALONG DASH LINE
2A
3A
6 3/4
PATCH VENT SEE DETAIL J
10" OVERLAP
FOLD LINE (TYP)
6A
5A
4A
1 5/8 (TYP)
C2
LDW280-28853-13 ASSY
LDW280-28853-39 (ON-13)
LDW280-28853-39-1 (ON-3-1)

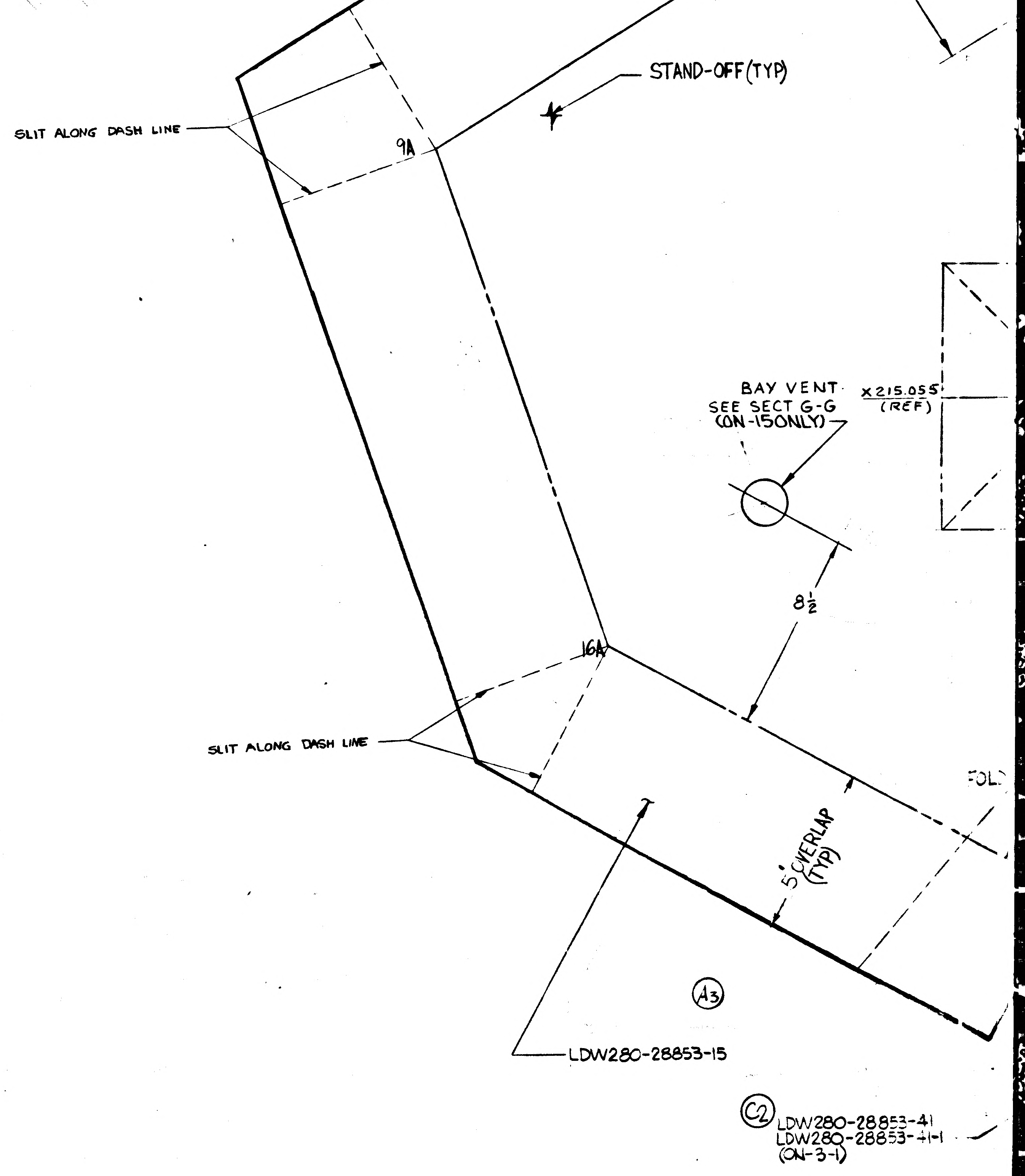
01/03 NAS 9-1100


…IDE (TYP)
…IT ALONG DASH LINE
OVERLAP
2A
SLIT ALONG DASH LINE

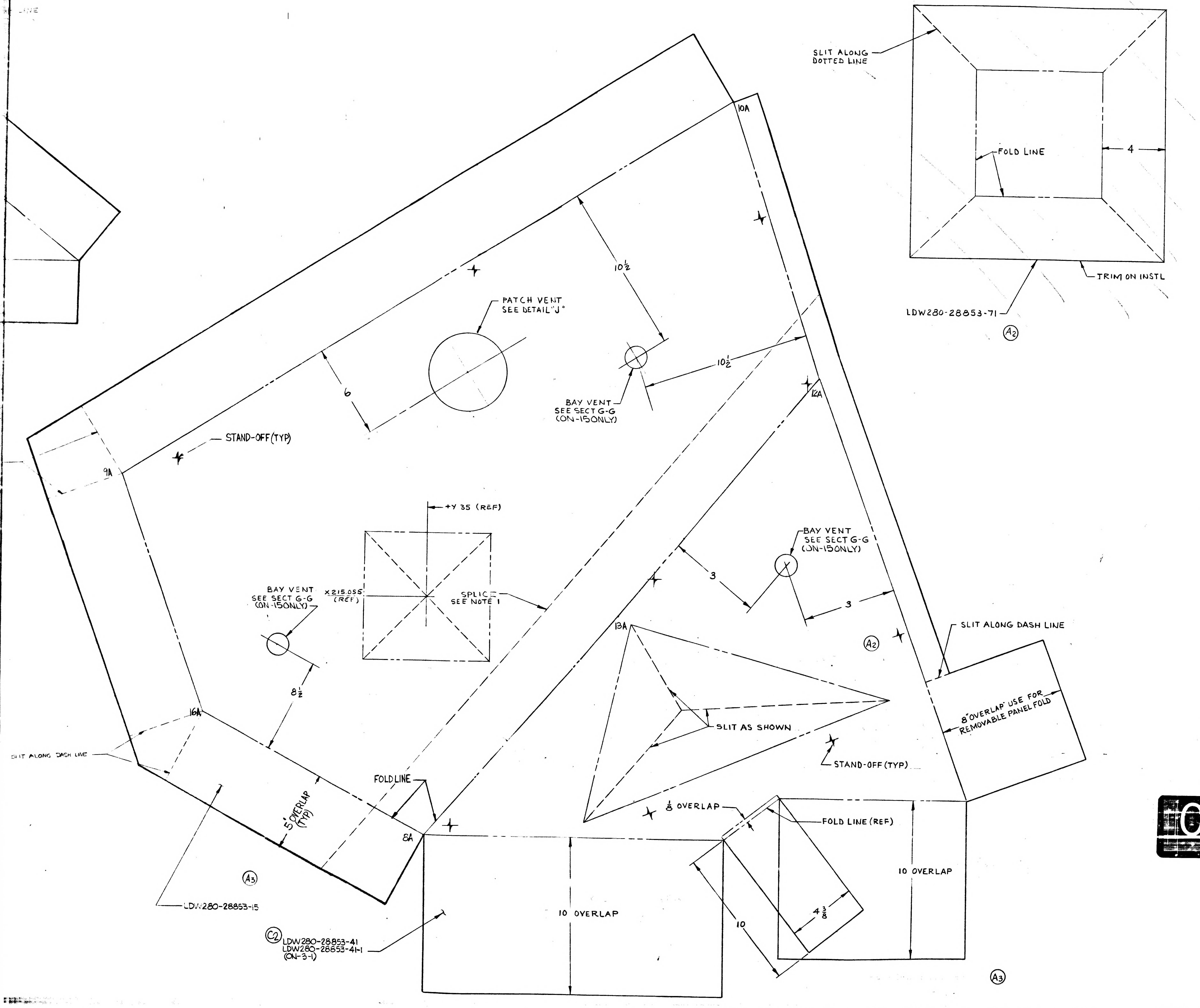

FOLD LINE
SLIT ALONG DASH LINE (TYP)
4" OVERLAP TYP
TRIM ON INSTL
C2
LDW280-28853-5 ASSY
LDW280-28853-5-1 (ON-1-2)
LDW280-28853-69
LDW280-28853-69-1 (ON-5-1)


SLIT ALONG DASH LINE
FOLD LINE (TYP)
4" OVERLAP (TYP)
A2
LDW 280-28853-35
-9 (ASS'Y)


3½
12
12
10 (REF)
FOLD LINE (TYP)
8¼
2 OVERLAP
3½
8¼
10 OVERLAP (TYP)
SLIT ALONG DASH LINE
2 OVERLAP
C2
LDW280-28853-11 ASSY
LDW280-28853-11-1 (ON-1-2)
LDW280-28853-37
LDW280-28853-37-1 (ON-11-…)


6
STAND-OFF (TYP)
SLIT ALONG DASH LINE
9A
BAY VENT
SEE SECT G-G
(ON-15 ONLY)
X215.055 (REF)
8½
16A
SLIT ALONG DASH LINE
FOL…
5" OVERLAP (TYP)
A3
LDW280-28853-15
C2
LDW280-28853-41
LDW280-28853-41-1
(ON-3-1)

02/03 NAS 9-1100



SLIT ALONG DOTTED LINE
FOLD LINE
4
TRIM ON INSTL
LDW280-28853-71
A2
10A
10½
10½
6
PATCH VENT SEE DETAIL "J"
BAY VENT SEE SECT G-G (ON-15 ONLY)
STAND-OFF (TYP)
9A
12A
+Y 35 (REF)
BAY VENT SEE SECT G-G (ON-15 ONLY)
X 215.055 (REF)
SPLICE SEE NOTE 1
BAY VENT SEE SECT G-G (ON-15 ONLY)
3
3
A2
SLIT ALONG DASH LINE
13A
8½
16A
SLIT AS SHOWN
8" OVERLAP USE FOR REMOVABLE PANEL FOLD
STAND-OFF (TYP)
SLIT ALONG DASH LINE
5" OVERLAP (TYP)
FOLD LINE
8A
⅛ OVERLAP
FOLD LINE (REF)
10 OVERLAP
A3
LDW-280-28853-15
10 OVERLAP
4⅜
10
C2 LDW280-28853-41
LDW280-28853-41-1
(ON-3-1)
A3

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

$\overset{125}{\surd}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

$\overset{200}{\surd}$ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL $\surd$ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X) = SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = SQ. FT.

PRINT TRIM LINE

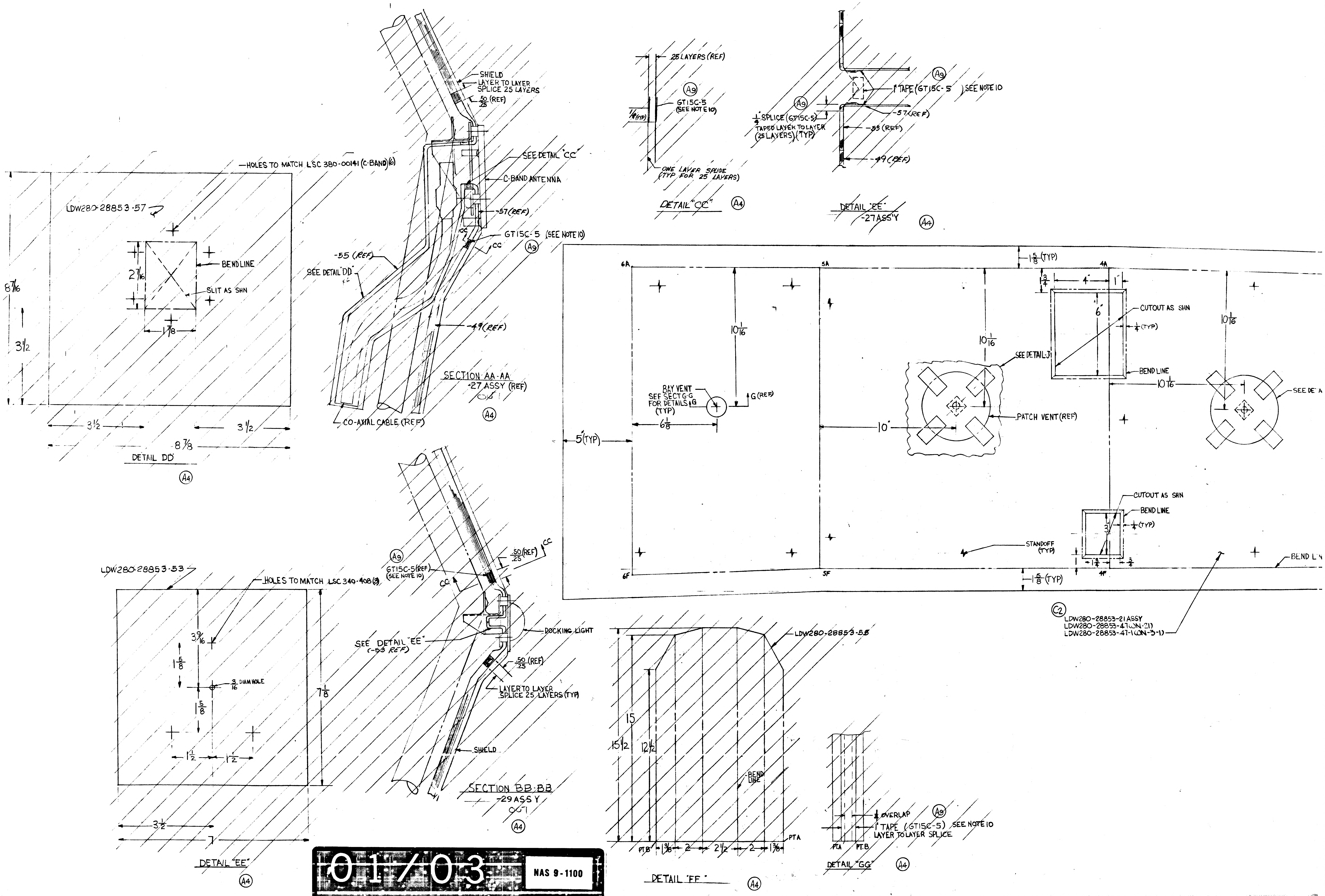
LDW280-28853C

03/03 NAS 9-1100

LDW280-28853C

THIS IS A PICTORIAL DWG

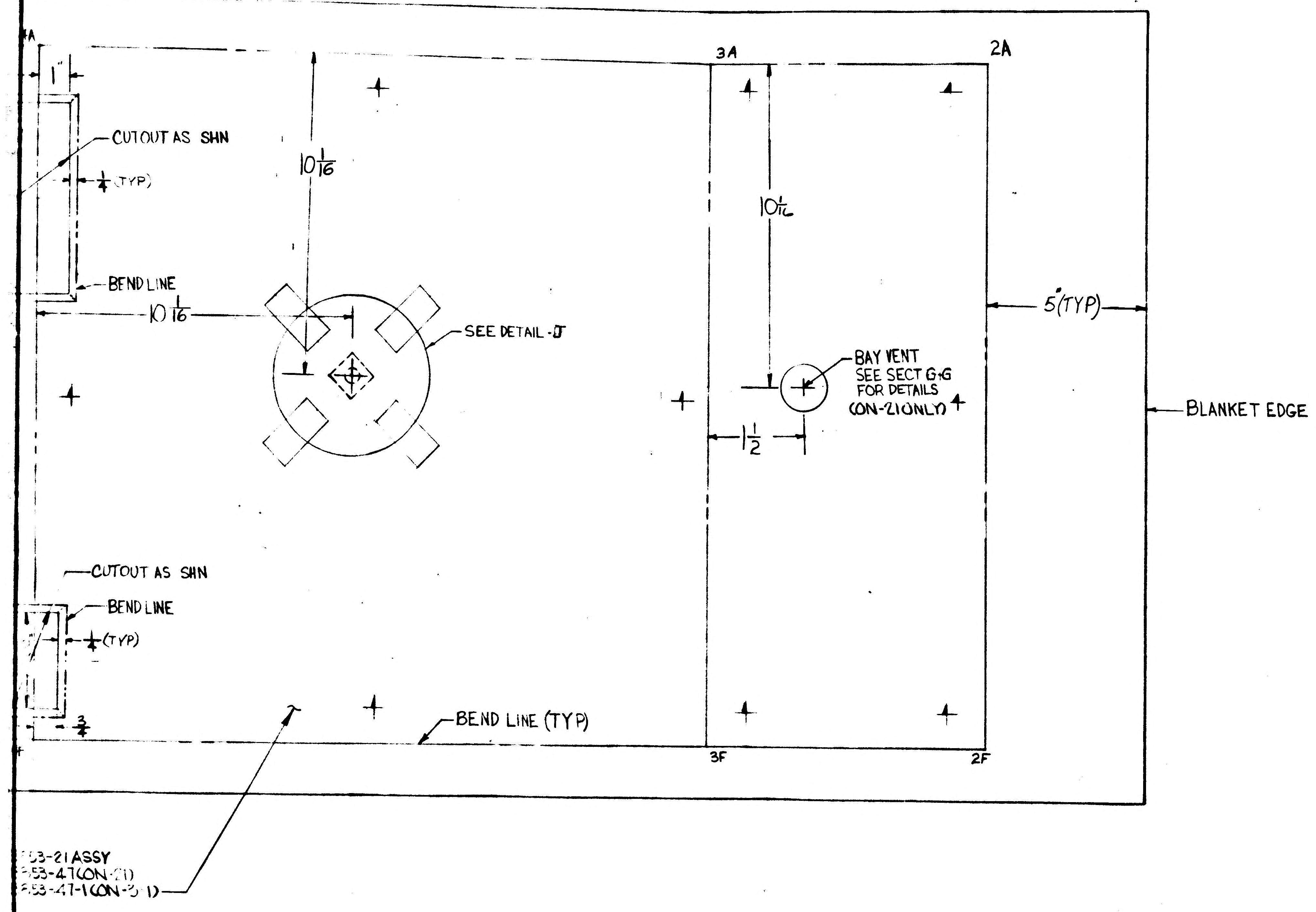
	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW-280-28853	C
MODEL OR END ITEM	SCALE HALF		SHEET 6.00	

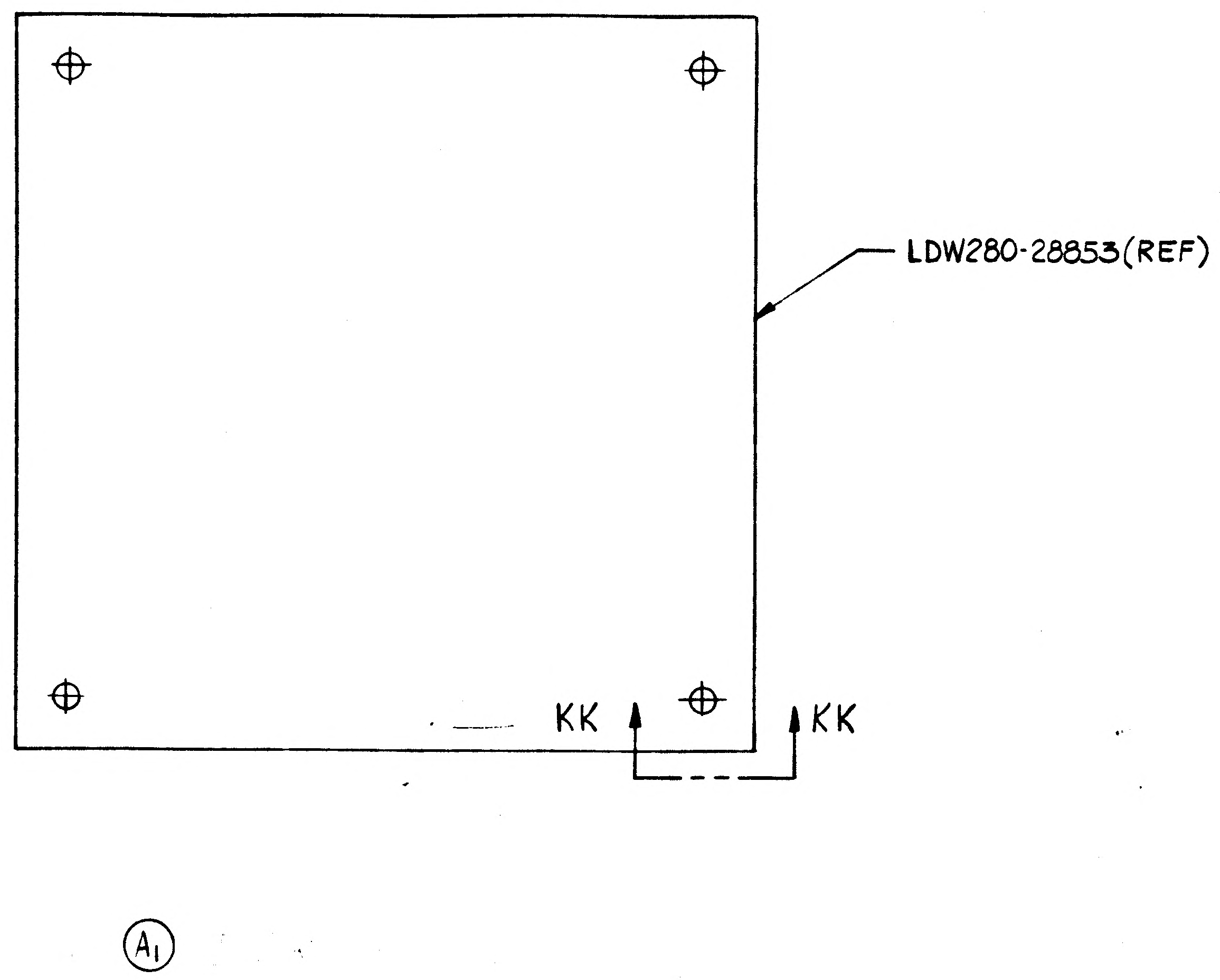


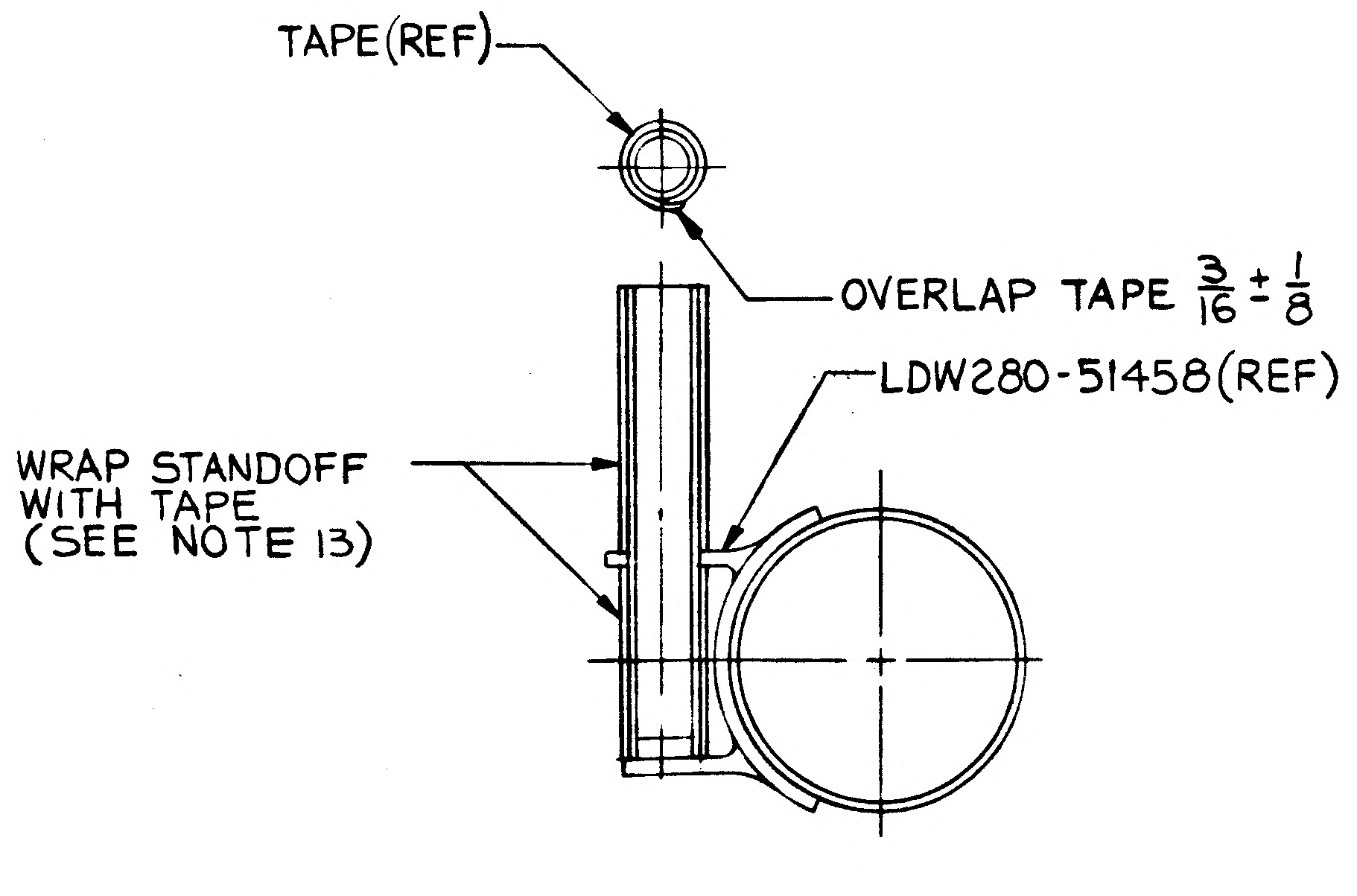
HOLES TO MATCH LSC 380-00141 (C-BAND)(6)
LDW280-28853-57
8 7/16
2 7/16
BENDLINE
SLIT AS SHN
1 7/8
3 1/2
3 1/2
3 1/2
8 7/8
DETAIL DD
A4
SHIELD
LAYER TO LAYER SPLICE 25 LAYERS
.50/.25 (REF)
SEE DETAIL "CC"
C-BAND ANTENNA
-57 (REF)
GT15C-5 (SEE NOTE 10)
A9
CC
-55 (REF)
SEE DETAIL "DD"
-49 (REF)
SECTION AA-AA
-27 ASSY (REF)
CO-AXIAL CABLE (REF)
A4
25 LAYERS (REF)
A9
GT15C-5 (SEE NOTE 10)
1/4 (TYP)
ONE LAYER SPLICE (TYP FOR 25 LAYERS)
DETAIL "CC"
A4
A9
1" TAPE (GT15C-5) SEE NOTE 10
1/4" SPLICE (GT15C-5) TAPED LAYER TO LAYER (25 LAYERS) (TYP)
-57 (REF)
-55 (REF)
-49 (REF)
DETAIL "EE"
-27 ASS'Y
A4
6A
5A
4A
1 5/8 (TYP)
3/4
4"
1"
6"
CUTOUT AS SHN
1/4 (TYP)
10 1/16
10 1/16
10 1/16
SEE DETAIL J
BEND LINE
10 1/16
SEE DE'A
BAY VENT SEE SECT G-G FOR DETAILS (TYP)
G
G (REF)
PATCH VENT (REF)
5" (TYP)
6 5/8
10"
CUTOUT AS SHN
BEND LINE
3"
1/4 (TYP)
STANDOFF (TYP)
1 1/4
3/4
BEND L
6F
5F
4F
1 5/8 (TYP)
C2
LDW280-28853-21 ASSY
LDW280-28853-47 (ON-21)
LDW280-28853-47-1 (ON-3-1)
LDW280-28853-53
HOLES TO MATCH LSC 340-408 (3)
3 9/16
1 5/8
3/16 DIAM HOLE
1 5/8
7 1/8
1 1/2
1 1/2
3 1/2
7
DETAIL "EE"
A4
A9
GT15C-5 (REF) (SEE NOTE 10)
.50/.25 (REF)
CC
SEE DETAIL "EE" (-53 REF)
DOCKING LIGHT
.50/.25 (REF)
LAYER TO LAYER SPLICE 25 LAYERS (TYP)
SHIELD
SECTION BB-BB
-29 ASSY
A4
LDW280-28853-55
15
15 1/2
12 1/2
BEND LINE
PT.B
1 3/8
2
2 1/2
2
1 3/8
PT.A
DETAIL "FF"
A4
1/2 OVERLAP
A9
1" TAPE (GT15C-5) SEE NOTE 10
LAYER TO LAYER SPLICE
PT.A
PT.B
DETAIL "GG"
A4

01/03

NAS 9-1100

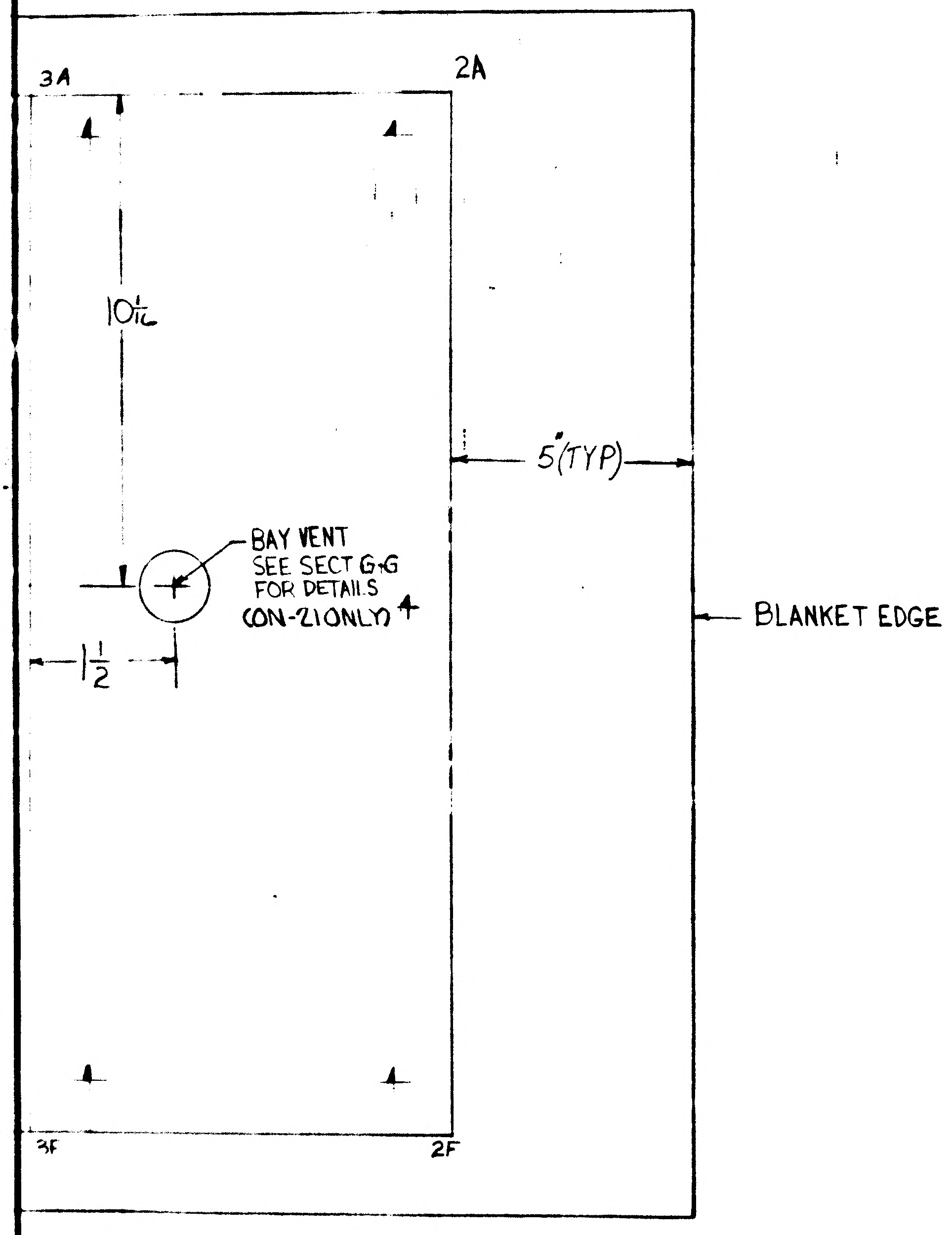

3A
2A
1"
CUTOUT AS SHN
1/4 (TYP)
10 1/16
10 1/2
BEND LINE
10 1/16
SEE DETAIL -J
5"(TYP)
BAY VENT
SEE SECT G-G
FOR DETAILS
(CON-21 ONLY)
1 1/2
BLANKET EDGE
CUTOUT AS SHN
BEND LINE
1/4 (TYP)
3/4
BEND LINE (TYP)
3F
2F
53-21 ASSY
53-47(CON-21)
53-47-1(CON-31)

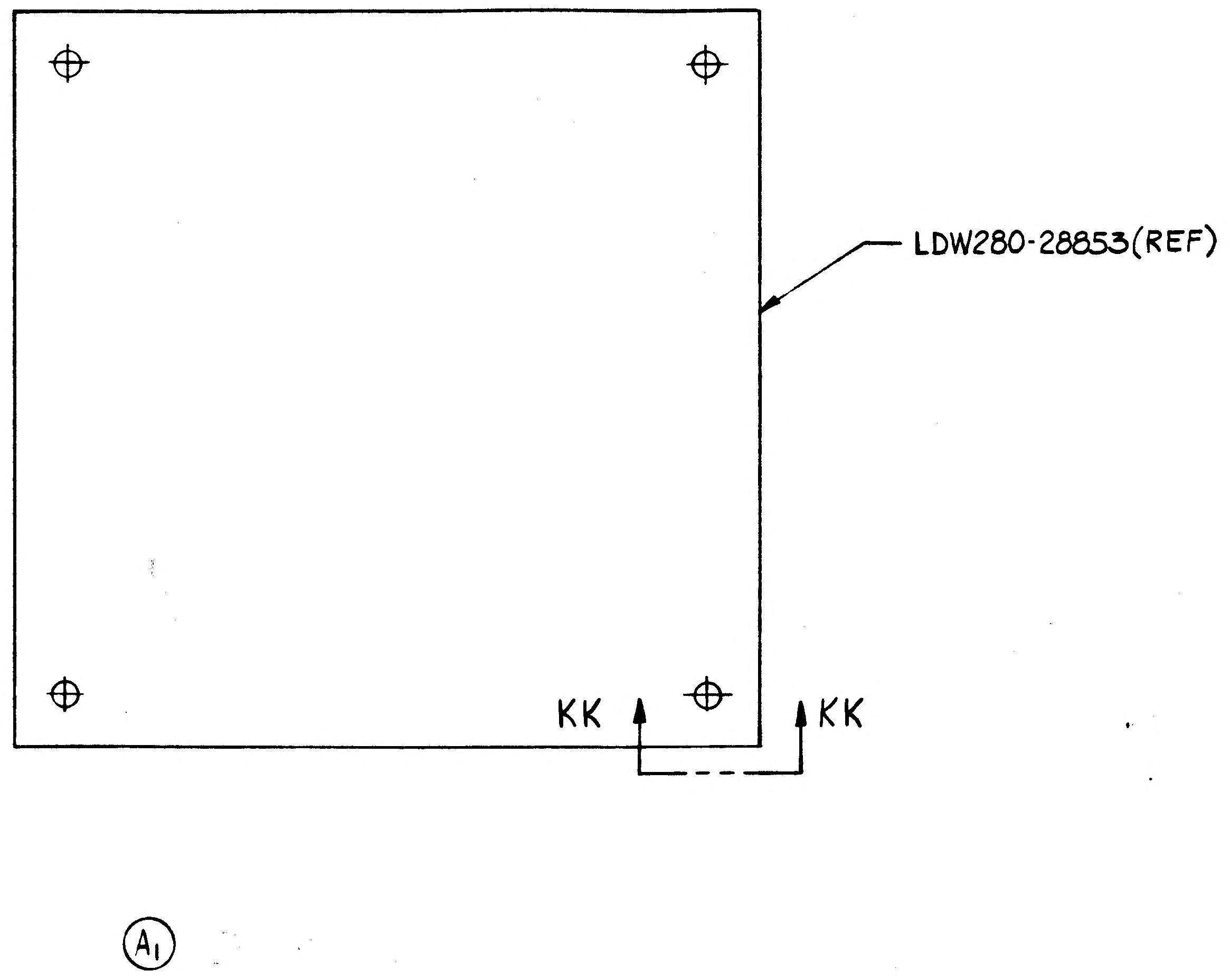

LDW280-28853(REF)
KK
KK
A1

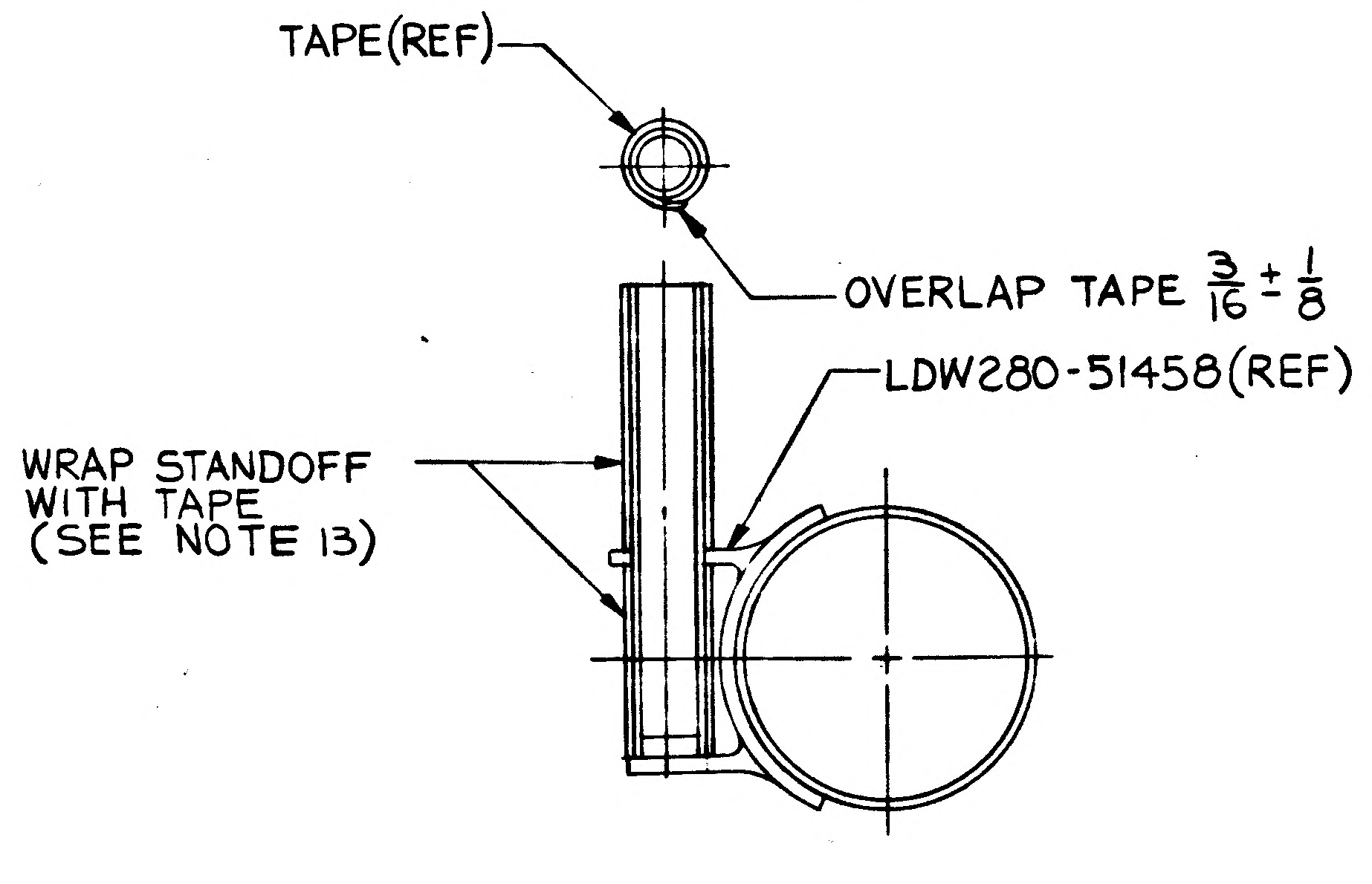

TAPE(REF)
OVERLAP TAPE 3/16 ± 1/8
LDW280-51458(REF)
WRAP STANDOFF
WITH TAPE
(SEE NOTE 13)

A1 SECTION KK-KK

02/03 NAS 9-1100


3A
2A
10 1/16
5"(TYP)
BAY VENT
SEE SECT G-G
FOR DETAILS
(ON-21ONLY) 4
1 1/2
BLANKET EDGE
3F
2F


LDW280-28853(REF)
KK
KK
A1


TAPE(REF)
OVERLAP TAPE 3/16 ± 1/8
LDW280-51458(REF)
WRAP STANDOFF
WITH TAPE
(SEE NOTE 13)

(A1) SECTION KK-KK

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

LDW280-28853C

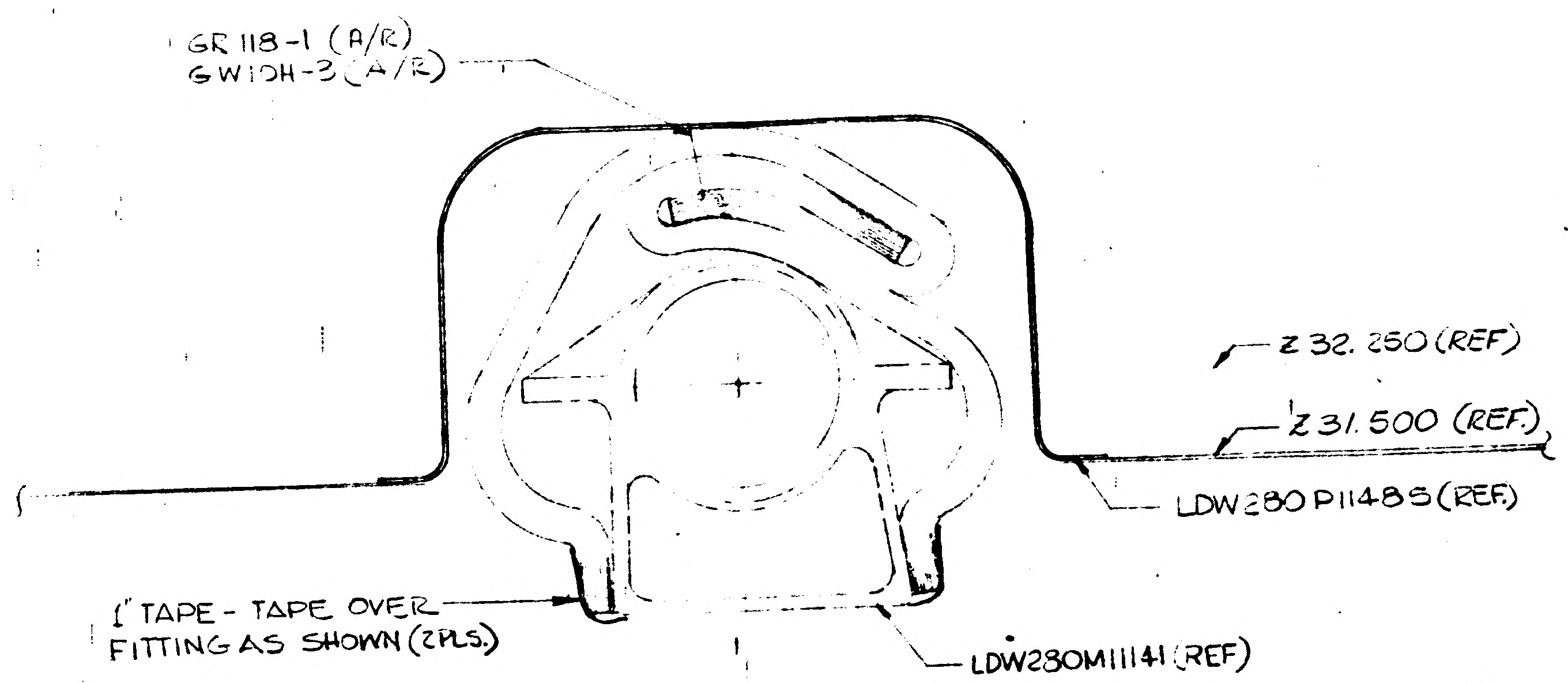
LDW280-28853C

03/03

NAS 9-1100

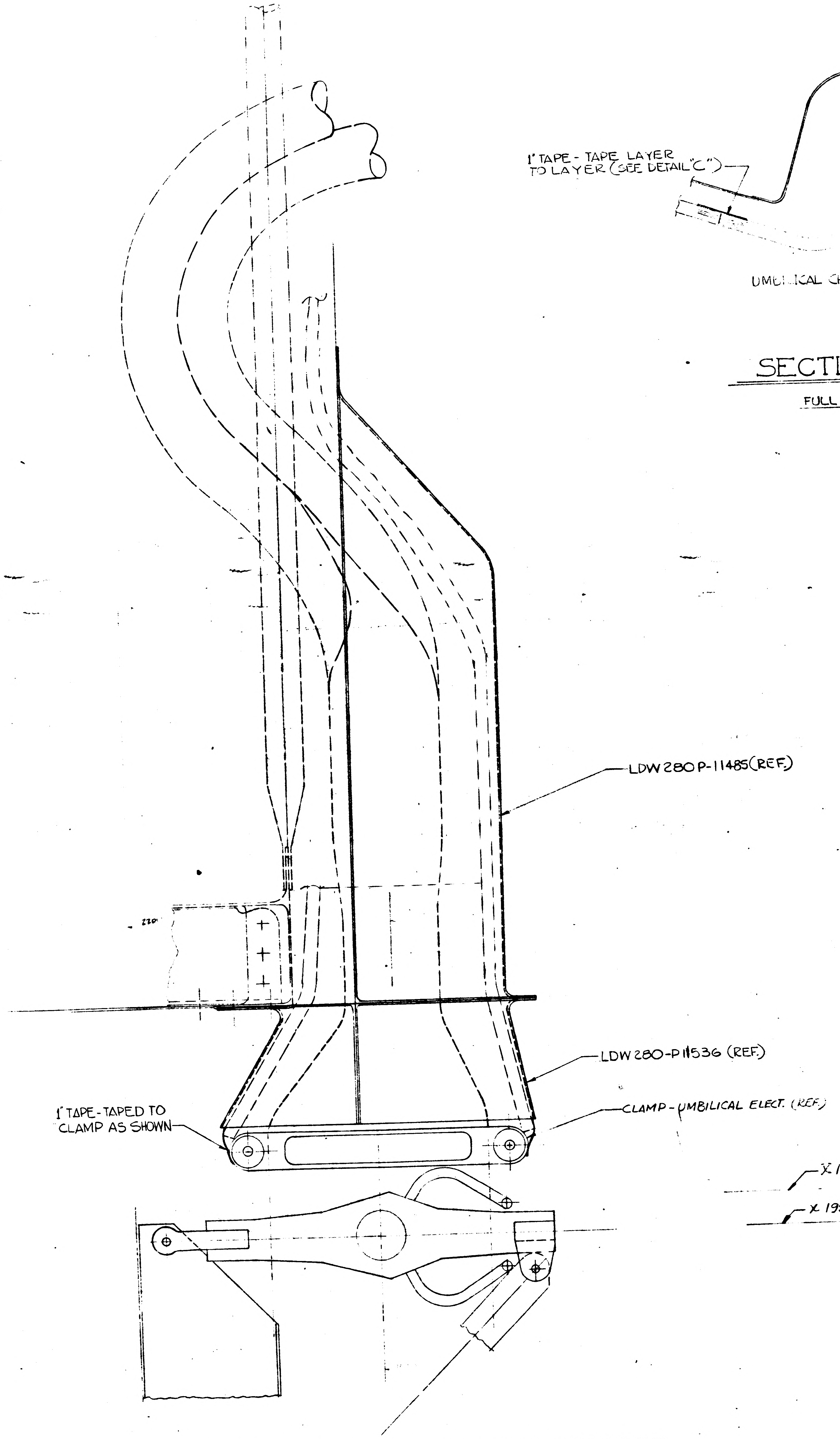
THIS IS A PICTORIAL DWG

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE J	CODE IDENT NO. 26512	LDW 280-28853	C
LEM MODEL OR END ITEM	SCALE AS NOTED		SHEET 7.00	

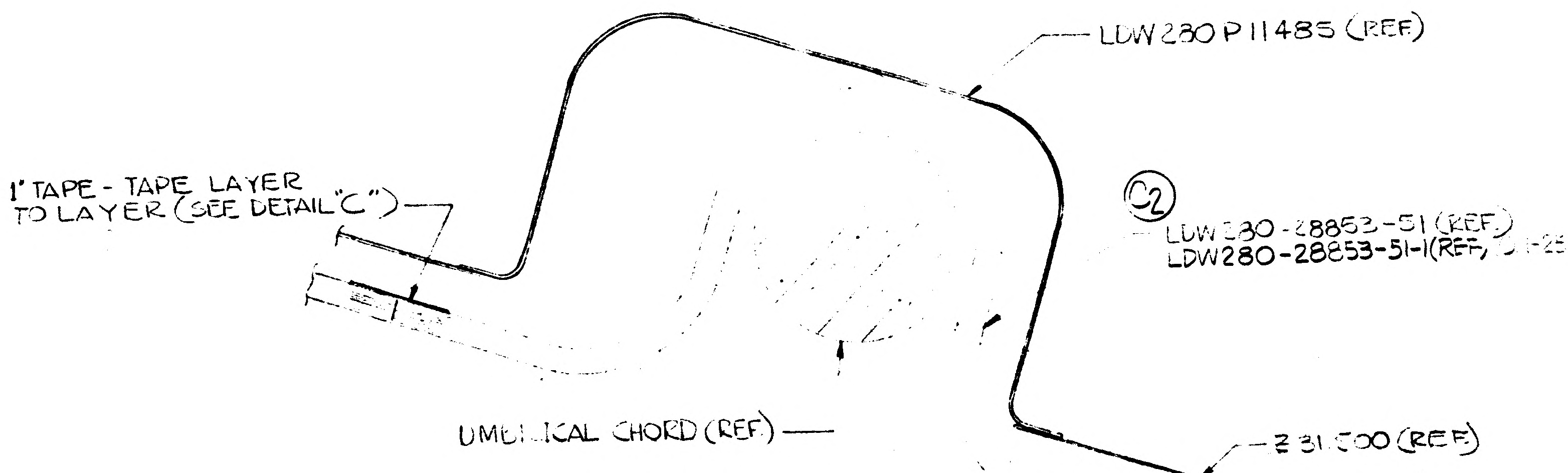

Y 35.875 (REF)
GR 118-1 (A/R)
GW10H-3 (A/R)
Z 32.250 (REF)
Z 31.500 (REF)
LDW280P11485 (REF)
1" TAPE - TAPE OVER FITTING AS SHOWN (2 PLS.)
LDW280M11141 (REF)

SECTION M-M

FULL SIZE

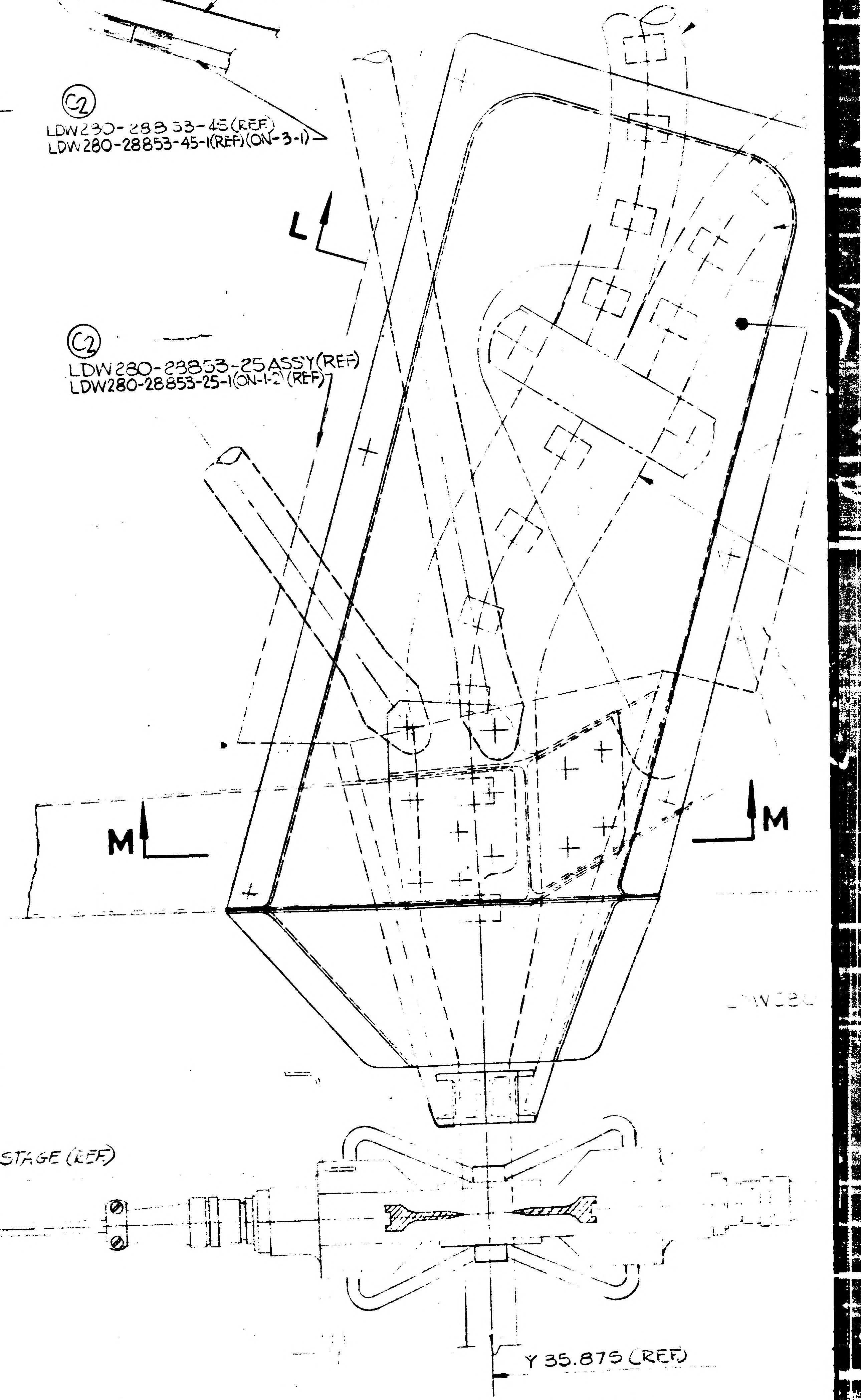

280
LDW280P-11485(REF.)
LDW280-P11536 (REF.)
1" TAPE-TAPED TO CLAMP AS SHOWN
CLAMP-UMBILICAL ELECT. (REF.)

R.H. SIDE VIEW LOOKING INBOARD


LDW280P11485 (REF)
1" TAPE - TAPE LAYER TO LAYER (SEE DETAIL "C")
C2
LDW280-28853-51 (REF)
LDW280-28853-51-1(REF)
UMBILICAL CHORD (REF)
Z 31.500 (REF)

SECTION L-L

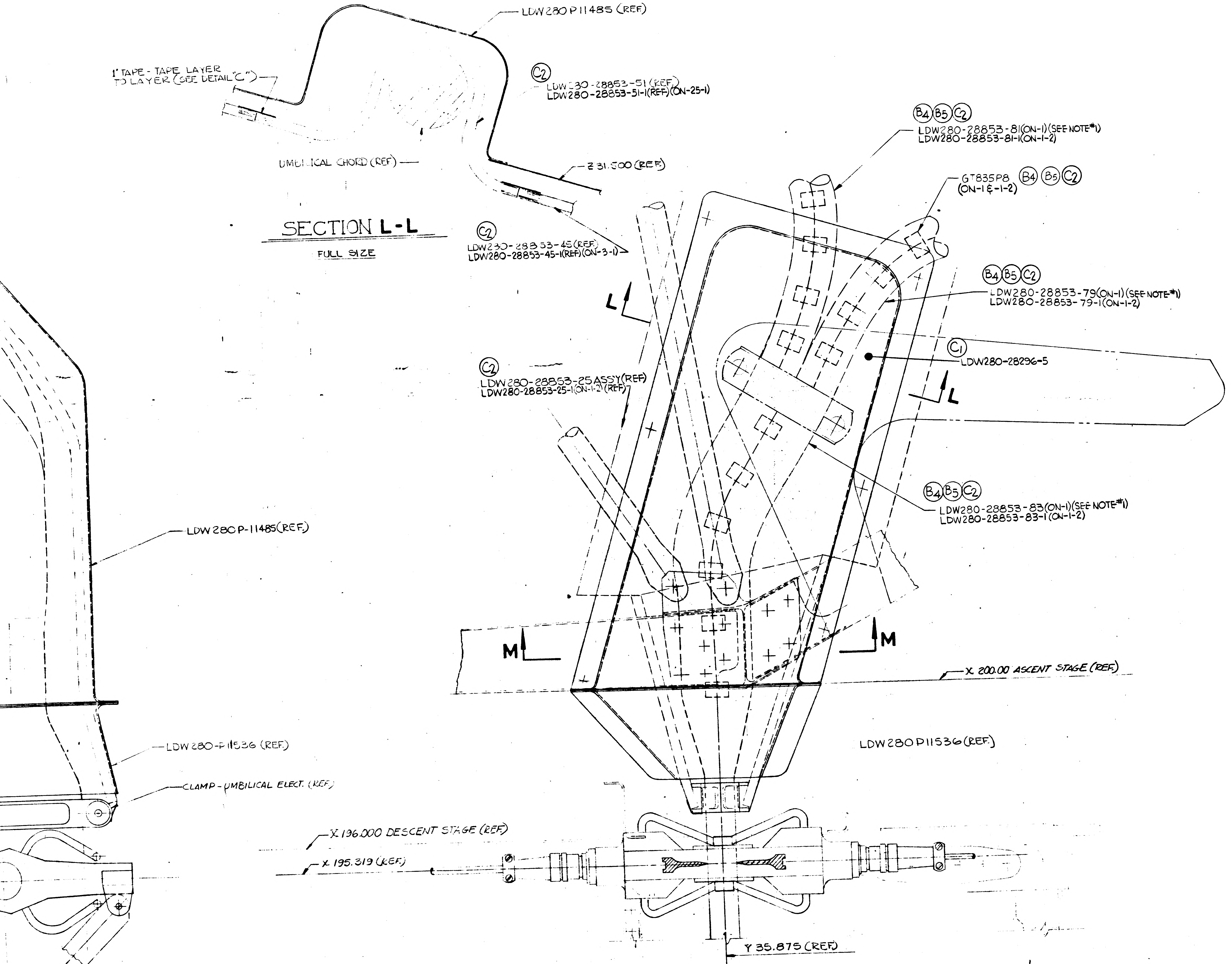
FULL SIZE


C2
LDW280-28853-45 (REF)
LDW280-28853-45-1(REF)(ON-3-1)
L
C2
LDW280-28853-25 ASSY(REF)
LDW280-28853-25-1(ON-1-2)(REF)
M
M
X 196.000 DESCENT STAGE (REF)
X 195.319 (REF)
Y 35.875 (REF)

R.H. SIDE LOOKING AFT.

VIEW H-H

01/02 NAS 9-1100


LDW280P11485 (REF)
1" TAPE - TAPE LAYER TO LAYER (SEE DETAIL "C")
C2
LDW230-28853-51 (REF)
LDW280-28853-51-1(REF)(ON-25-1)
UMBILICAL CHORD (REF)
Z 31.500 (REF)
C2
LDW230-28853-45 (REF)
LDW280-28853-45-1(REF)(ON-3-1)
B4 B5 C2
LDW280-28853-81(ON-1)(SEE NOTE #1)
LDW280-28853-81-1(ON-1-2)
GT835P8 B4 B5 C2
(ON-1 & -1-2)
B4 B5 C2
LDW280-28853-79(ON-1)(SEE NOTE #1)
LDW280-28853-79-1(ON-1-2)
L
L
C1
LDW280-28296-5
C2
LDW280-28853-25 ASSY (REF)
LDW280-28853-25-1(ON-1-2)(REF)
B4 B5 C2
LDW280-28853-83(ON-1)(SEE NOTE #1)
LDW280-28853-83-1(ON-1-2)
LDW280P-11485 (REF)
M
M
X 200.00 ASCENT STAGE (REF)
LDW280-P11536 (REF)
LDW280P11536 (REF)
CLAMP - UMBILICAL ELECT. (REF)
X 196.000 DESCENT STAGE (REF)
X 195.319 (REF)
Y 35.875 (REF)

SECTION **L-L**

FULL SIZE

R.H. SIDE LOOKING AFT.

VIEW **H-H**

EW LOOKING INBOARD

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

02/02 NAS 9-1100

TO BE REDRAWN ON A PRODUCTION
FORMAT AT A LATTER DATE

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
LEM	SIZE J	CODE IDENT NO. 26512	LDW-3 -28853
MODEL OR END ITEM	SCALE FULL	LINE ITEM No. 1	SHEET 6

THIS IS AN ORIGINAL DRAWING

LDW280-28853 C

LDW280-28853 C

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
									RETRACED NO CHANGE LAST REV "A" NO CHANGE SH 1 OF 6 WAS 1 OF 5 J.BIANCHINO 5-16-67						
A	1	4.00, 2.01	2F				✓	E.O. A1	ADDED SECTION AD-AD, IN F/D & B/M ADDED GT835M-8	LTA-8 (18) LM-1 (31) LM-2 (32)	✓		J. BIANCHINO 5-16-67		
	2							E.O. A2	CANCELED BY E.O. A3						
	3	2.00 3.00 4.00					✓	E.O. A3	THIS E.O. CANCELED E.O. A2, ON-13 ASSY REMOVED (1) LDW280P14391-1 (WAS 4) & (1) LDW280P14391-3 (WAS 4), REMOVED -47 PATCH FROM ALL ASSYS & ADDED (5) LDW280-14440-33 TO -1 INSTL, REMOVED -39 BLANKET FROM -19 ASSY, REMOVED -49 BLANKET VENT FROM ALL ASSYS & ADDED LDW280-14440-31 BLANKET VENT PATCH AS FOLLOWS: (2) ON-11, -13, -15 & -17 ASSYS, (3) ON-19 ASSY, ON-15 ASSY REMOVED -29, -31, & -33 BLANKETS, ON-17 REMOVED -35 BLANKET, ON-11 ASSY REMOVED (1) LDW280P14391-1 (WAS 4) & (1) LDW280P14391-3 (WAS 4), REMOVED -41, -43 & -51 BOOT, ON-15 ASSY REMOVED (1) LDW280P14391-1 (WAS 3) & (1) LDW280P14391-3 (WAS 3), ADDED LDW280-14441-9 AS FOLLOWS: (6) ON-11, -13, -17 & -19 ASSY, (4) ON-15 ASSY		✓				
	4						✓	E.O. A4	CANCELED BY E.O. A5						
	5	1.00 2.00 2.01 3.00 4.00	2F 3C 5H				✓	E.O. A5	THIS E.O. CANCELED E.O. A4, IN B/M & F/D ADDED -53 ASSY TO -1 INSTL, IN B/M ONLY ON-11 ASSY ADDED (1) LDW280P14391-1 & -3, & (2) LDW280-14441-9 (WAS 6) IN B/M ON-1 INSTL REMOVED GR11C-7 & ADDED (75) GR11C-1 RETAINER. CREATED -3 INST IDENTICAL TO -1 INSTL EXCEPT GR11C-1 IS REPLACED WITH GR11C-7 (90) EFF LM-1 & -2. ON -1 INSTL (LTA-8 ONLY) ADDED LDW 450-52571-1 & SECT AF-AF & NOTE 15		✓				

FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28854	A Ⓐ
SCALE	NONE		SHEET 1.10

ENG 77.3 5-65

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	6	4.00	2F				✓	E.O. A6	ADDED DETAIL AD-AD & SECTION AE-AE IN F/D, TYP FOR LDW280-28860, LDW280-28880 & GS26C	LTA-8(18) LM-1(31) LM-2(32)	✓		J. BIANCHINO 5-16-67		
	7	2.00 3.00 4.00	6G 1B				✓	E.O. A7	ADDED NOTES 18, 19, 20 & 21. REMOVED NOTE 5. IN SECTION "S-S" REMOVED CALLOUT; BOND UPPER HALF --- ETHYLENE DICHLORIDE. ADDED GT15C-2 TAPE TO SECTIONS TO AGREE WITH LPC280-3. ADDED GT15C-2 TO B/M	LTA-8(18) LM-1(31) LM-2(32) LM-3(33)	✓				
	8	1.00					✓	LEO280-548	(REF E.O. A7) ON INCORPORATION OF E.O. A7 REMOVED LM-3 EFFECTIVITY	LTA-8(18) LM-1 (31) LM-2 (32)	NOT	REQD			
	9	4.00 3.00	3F 5E 3E 3D				✓	E.O. A9	IN F/D & B/M ADDED -3 BLANKET INSTL ADDED -55 PATCH ASSY, SECT AB-AB, & VIEW AC-AC FROM -1 M/B REMOVED LM-1(31) & LM-2 (32) REQUIRMENTS	LM-1(31) LM-2(32)	✓				
	10	1.00 3.00	9E				✓	E.O. A10	(REF E.O. A9) REVISED F/D & B/M AS FOLLOWS: ADDED LDW280-28854-5 INSTL (WAS LDW280-28854-3 INSTL)	LM-1(31) LM-2(32)	✓				
	11	3.00 4.00	6G						DELETED SECTIONS, VIEWS & DETAILS "A-A" THRU & INCLUDING "AA-AA", ADDED SECTIONS, VIEWS & DETAILS "AG-AG" THRU & INCLUDING "AW-AW", REMOVED FLAT PATTERN DETAILS OF -21, -23, -25, -27, -37 & -45; (REF E.O A3) LDW280-14441-9(28) S/B LPC280-9 (30) ON-1 INSTL ADDED LDW280P10871H1 TAPE A/R	LTA-8(18) LM-1(31) LM-2(32)	NOT	REQD			
	12	3.00							DELETED NOTES *1 THRU & INCLUDING *11 ADDED NOTE 22						
	13								(REF E.O. A5) DELETED -53 ASSY						

FOR CONTINUATION OF REVISIONS SEE SHEET ______

ENG 77.3 5-66

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28854	A
SCALE NONE			SHEET 1.11

01

NAS 9-1100

LDW280-28854 B

LFM

LM	LDW280-51150	LM-2(32)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28854-7		GAEC SCH NO.	

LM	LDW280-51150	LM-1(31)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28854-5		GAEC SCH NO.	

LFM 126	LDW280-28150	LTA-3(18)	1
LDW280-28854-1-1			
LM	LDW280-28150	LTA-8(18)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28854-1		GAEC SCH NO. 30	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	1.11		2.00	2.01	3.00	4.00	
REV	B	A	A		B	B	B	B	
SHEET			1.12			2.02			
REV			B			B			
SHEET									
REV									

ST SECT LTR USED	BA	GRUMMAN REL INFO C B			
SH NO. USED	-67	PRIM NO.	LK.001)		
		215	MF-16B-6/12/8		

12-65

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/8 ~ ~

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	M.SHAPIRO 8/26/66	THERMO	
LAYOUT BY	M.SHAPIRO 8/26/66	RELIABILITY	
CHECKED BY			
GR LEADER	P. HENTON 9-1-66		
VEH DES INT	W. BISCHOFF 9-2-66		
STRUCTURES	A.J. PIDGEON 9-3-66	PROJ ENGR	R.M. CARBEE (EV) 9-8-66
STRUCTURES	R. HILDERMAN	REL GROUP	
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BLANKET INSTALLATION
ASCENT STAGE - MID-SECTION L. H.
TANK THERMAL

SIZE B	CODE IDENT NO. 26512	LDW280-28854	B ⑬
SCALE	NONE	SHEET 1.00 OF 9	

"B" REV CDR 6/12/68 THIS DWG SUPERSEDES LDW280-28854 NO CHANGE 8/26/66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
B	1	1.00 2.00 2.01 3.00 4.00 1.12	9A				✓	EO B1	IN F/D & B/M CREATED -7 (-7 MAY BE MADE BY REWORKING -5) ADDED SH 1.12	LM-2	✓		W. CONROY 6-5-68	☒	☒
	2	1.00 3.00 4.00 1.12 2.02	9D 2A 8E	LFM 126		✓		LCD 1021-33 CCA 498	IN F/D & B/M CREATED -1-1 INSTL, -11-1 ASSY, -27-1, -21-1 -23-1 -25-1 -37-1 & -45-1 BLANKETS. ADDED SH 2.02, ① DETAIL AY, AZ, BA & NOTES 23 & 24	LTA-8	NOT	REQD		6/11/68	6-11-68

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS	RELIABILITY	THERMO
	B	FDR		6/11/68	for FEB			6/11/68

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	DRAWING NO.	REV
B	26512	LDW280-28854	B

SCALE NONE SHEET 1.12

ENG 77.16 3-66

01

NAS 9-1100

							A/R			LDW360-51296		(SEE NOTE 22)							
						1		A/R		LDW360-28296-9		(SEE NOTE 22)							
	2	2	3	2	2					LDW280-14440-31		BLANKET VENT PATCH	SEE NOTE 16						
						A/R	A/R	A/R		LDW280-P10871-11		TAPE							
								1		LDW450-52571-1	E	TUBE ASSY	SEE DWG						3C
						5	5	5		LDW280-14440-33	↑	BLANKET PATCH	SEE NOTES						12A
	4	3	3	2	3					LDW280P14391-3		BAY VENT	SEE DWG						6G
	4	3	3	2	3					LDW280P14391-1		BAY VENT	SEE DWG						6G
	8	6	6	4	6					LDW280-14441-9		BAYVENT PATCH	SEE NOTE 18						
C						1	1			LDW280-28854-55		PATCH	SEE NOTES						4F
↑						1	1	1		↑ -45		BLANKET	↑						7D
	1									-37		BLANKET							2B
			1							-27		↑							10C
		1								-25									4B
				1						↓ -23		↓	↓						12C
					1					LDW280-28854-21		BLANKET	SEE NOTES						7B
										LDW280-28854-7		BLANKET INSTL					NONE	NONE	9A
						1	1	1		LDW280-28854-19		BLANKET ASSY					NONE	NONE	9A
						1	1	1		↑ -17		↑					↑	↑	9A
						1	1	1		-15									9A
						1	1	1		↓ -13		↓							9A
						1	1	1		LDW280-28854-11		BLANKET ASSY							9A
↓										LDW280-28854-5	↓	BLANKET INSTL					↓	↓	9A
C										LDW280-28854-1	E	BLANKET INSTL					NONE	NONE	9A
▨	-19	-17	-15	-13	-11	-7	-5	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
C.L.	QTY PER ASSEMBLY																		

C.L. = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28854	B

SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

C.L.	-19	-17	-15	-13	-11	-7	-5	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	QTY PER ASSEMBLY																		
	AS REQD	AS REQD	AS REQD	AS REQD	AR	AR	AR	AR		GW10H-3	E	WASHER	GRUMMAN STD						
	AS REQD	AS REQD	AS REQD	AS REQD	AR	AR	AR	AR		GW10H-1		WASHER							
	AS REQD	AS REQD	AS REQD	AS REQD	AR	AR	AR	AR		GT835 P-8		TAPE							
	AS REQD	AS REQD	AS REQD	AS REQD	AR	AR	AR	AR		GT835 M-8									
	AS REQD	AS REQD	AS REQD	AS REQD	AR	AR	AR	AR		GT535B-2-100									
	AS REQD	AS REQD	AS REQD	AS REQD															
	AS REQD	AS REQD	AS REQD	AS REQD	AR	AR	AR	AR		GT15C-2		TAPE							
	AS REQD	AS REQD	AS REQD	AS REQD	AR					GS577A-1		STAPLE							
						AR	AR	AR		GR11C-7		RETAINER							
						AR	AR	AR		GR11C-1		RETAINER							
	AS REQD	AS REQD	AS REQD	AS REQD	AR	AR	AR	AR		GR11B-1		RETAINER							
	AS REQD	AS REQD	AS REQD	AS REQD	AR					GB10J-1	E	BUSHING	GRUMMAN STD						

C.L. = CLEANLINESS LEVEL PER LSP14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28854	B

Ⓑ

SCALE NONE

SHEET 2.01

ENG 77.2 7-65

01

NAS 9-1100

CL							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					2			LDW280-11965-11	E	WASHER	SEE DWG						11C
					2			LDW280-54927-1	E	VENT ASSY	SEE DWG						11C
						1		LDW450-52571-1	E	TUBE ASSY	SEE DWG						
						A/R		GT835P-8		TAPE	GRUMMAN STD						
								GT835M-8									
								GT535B-2-100									
								GT15C-2		TAPE							
								GR11C-7		RETAINER							
								GR11C-1		RETAINER							
								GR11B-1		RETAINER							
								GW10H-3		WASHER							
						A/R		GW10H-1		WASHER	GRUMMAN STD						
						1		GB10J-		BUSHING	GRUMMAN STD						
						5		LDW280-14440-33		BLANKET PATCH	SEE NOTE 19						
C						1		LDW280-28854-45-1		BLANKET	SEE NOTE 23						7D
					1			-37-1									2E
					1			-27-1									10C
					1			-25-1									4B
					1			-23-1									12C
					1			-21-1		BLANKET	SEE NOTE 23						7B
						1		-11-1		BLANKET ASSY					NONE	NONE	9A
C								LDW280-28854-1-1	E	BLANKET INSTL					NONE	NONE	9A
▨					-11-1	-1-1											
CL	QTY PER ASSEMBLY																

CL- CLEANLINESS LEVEL PER LSP 14-0011 LEVEL "C"

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

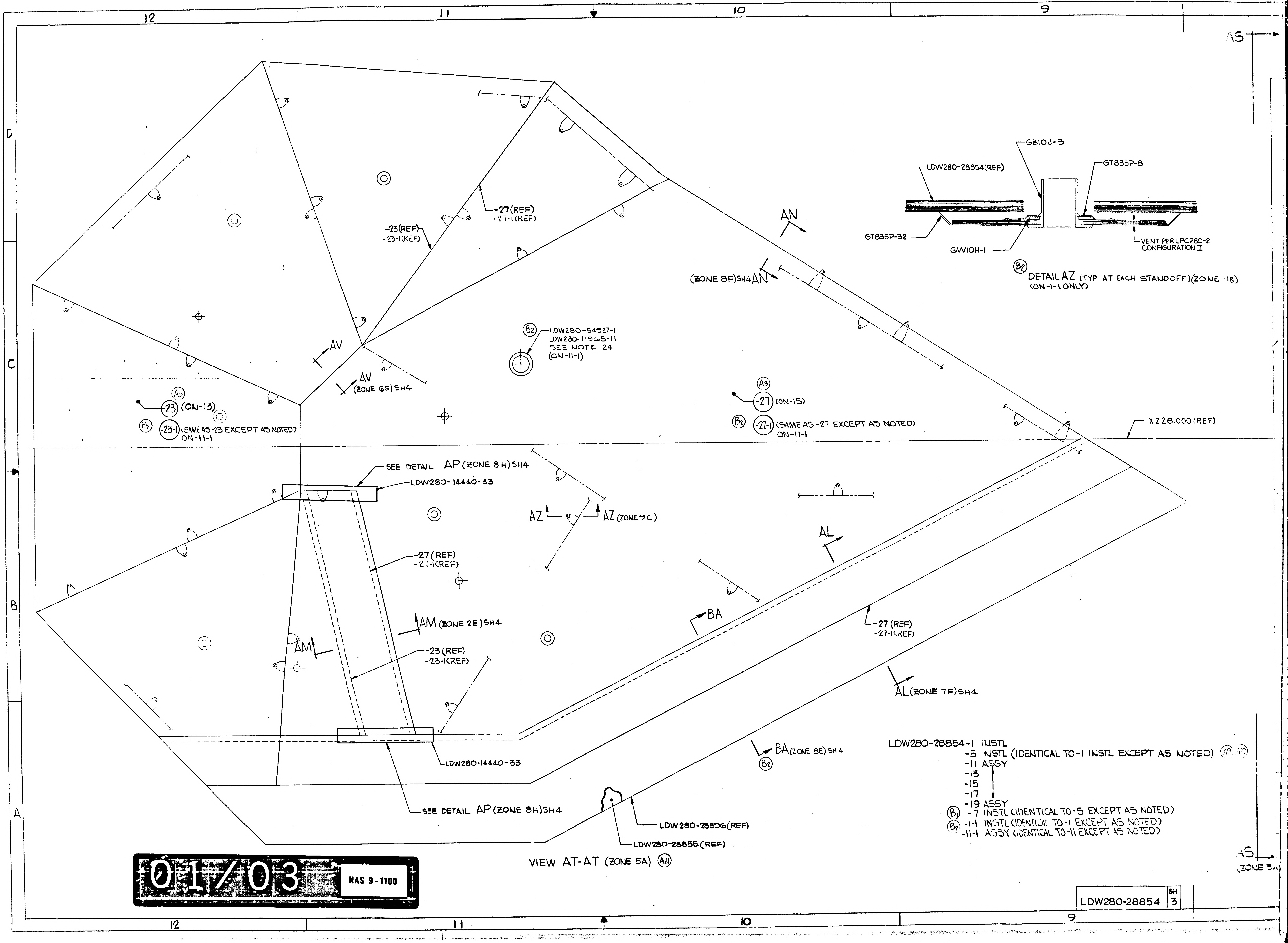
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28854	B
SCALE NONE			SHEET 2.02

ENG 77.2 7-65

01

NAS 9-1100


12
11
10
9
D
C
B
A
AS
-27(REF)
-27-1(REF)
-23(REF)
-23-1(REF)
AN
(ZONE 8F)SH4 AN
AV
AV
(ZONE GF) SH4
(B2) LDW280-54927-1
LDW280-11965-11
SEE NOTE 24
(ON-11-1)
(A3) -23 (ON-13)
(B2) -23-1 (SAME AS -23 EXCEPT AS NOTED)
ON-11-1
(A3) -27 (ON-15)
(B2) -27-1 (SAME AS -27 EXCEPT AS NOTED)
ON-11-1
X228.000(REF)
SEE DETAIL AP (ZONE 8H) SH4
LDW280-14440-33
AZ
AZ (ZONE 9C)
AL
-27 (REF)
-27-1(REF)
AM (ZONE 2E) SH4
AM
-23 (REF)
-23-1(REF)
BA
-27 (REF)
-27-1(REF)
AL(ZONE 7F)SH4
BA(ZONE 8E) SH4
(B2)
LDW280-14440-33
SEE DETAIL AP(ZONE 8H)SH4
LDW280-28896(REF)
LDW280-28855(REF)
AS
(ZONE 3A)
GBIOJ-3
LDW280-28854(REF)
GT835P-8
GT835P-32
GWIOH-1
VENT PER LPC280-2
CONFIGURATION II

VIEW AT-AT (ZONE 5A) (A11)

(B2) DETAIL AZ (TYP AT EACH STANDOFF)(ZONE 11B)
(ON-1-1 ONLY)

LDW280-28854-1 INSTL
-5 INSTL (IDENTICAL TO-1 INSTL EXCEPT AS NOTED) (A9) (A10)
-11 ASSY
-13
-15
-17
-19 ASSY
(B1) -7 INSTL (IDENTICAL TO-5 EXCEPT AS NOTED)
(B2) -1-1 INSTL (IDENTICAL TO-1 EXCEPT AS NOTED)
-11-1 ASSY (IDENTICAL TO-11 EXCEPT AS NOTED)

01/03 NAS 9-1100

LDW280-28854	SH 3

AS
AR
AR
AT
AR(ZONE 7H)SH
AR(ZONE 7H)SH4
AR (ZONE 7H)SH4
AR
GT83SP-8
VENT PER LPC280-2 CONFIGURATION II
(TYP AT EACH STANDOFF)(ZONE 11B)
A3
-45 ON-1
-45-1 (SAME AS -45 EXCEPT AS NOTED ON-1-1
B2
AK
AU
AK (ZONE 5G)SH4
AU(ZONE 5E)SH4
LDW280-28173 (REF)
-25 (REF)
-25-1(REF)
-37 (REF)
-37-1(REF)
-23(REF)
-23-1(REF)
X228.000(REF)
X228.000 (REF)
A3
-21 ON-11
B2
-21-1 (SAME AS -21 EXCEPT AS NOTED) (ON-11-1)
AJ
AG (ZONE 7E)SH4
SH4 (ZONE 2F) AK
AV
AV (ZONE GF) SH4
AK
AV
AV (ZONE GF)SH4
AJ (ZONE 2G)
AG
AH
AH (ZONE 6G) SH4
-1 INCL EXCEPT AS NOTED) A9 A10
-37(REF)
-37-1(REF)
-23(REF)
-23-1(REF)
-21 (REF)
-21-1(REF)
-21 (REF)
-21-1(REF)
5 EXCEPT AS NOTED)
EXCEPT AS NOTED)
EXCEPT AS NOTED)
AS (ZONE 3A)
+Z30.250 (REF)
+Z10.250 (REF)
±Z0.000 (REF)
-Z10.250 (REF)
-Z31.000 (REF)
AT (ZONE 11A)

VIEW LOOKING INBOARD, L.H. SIDE

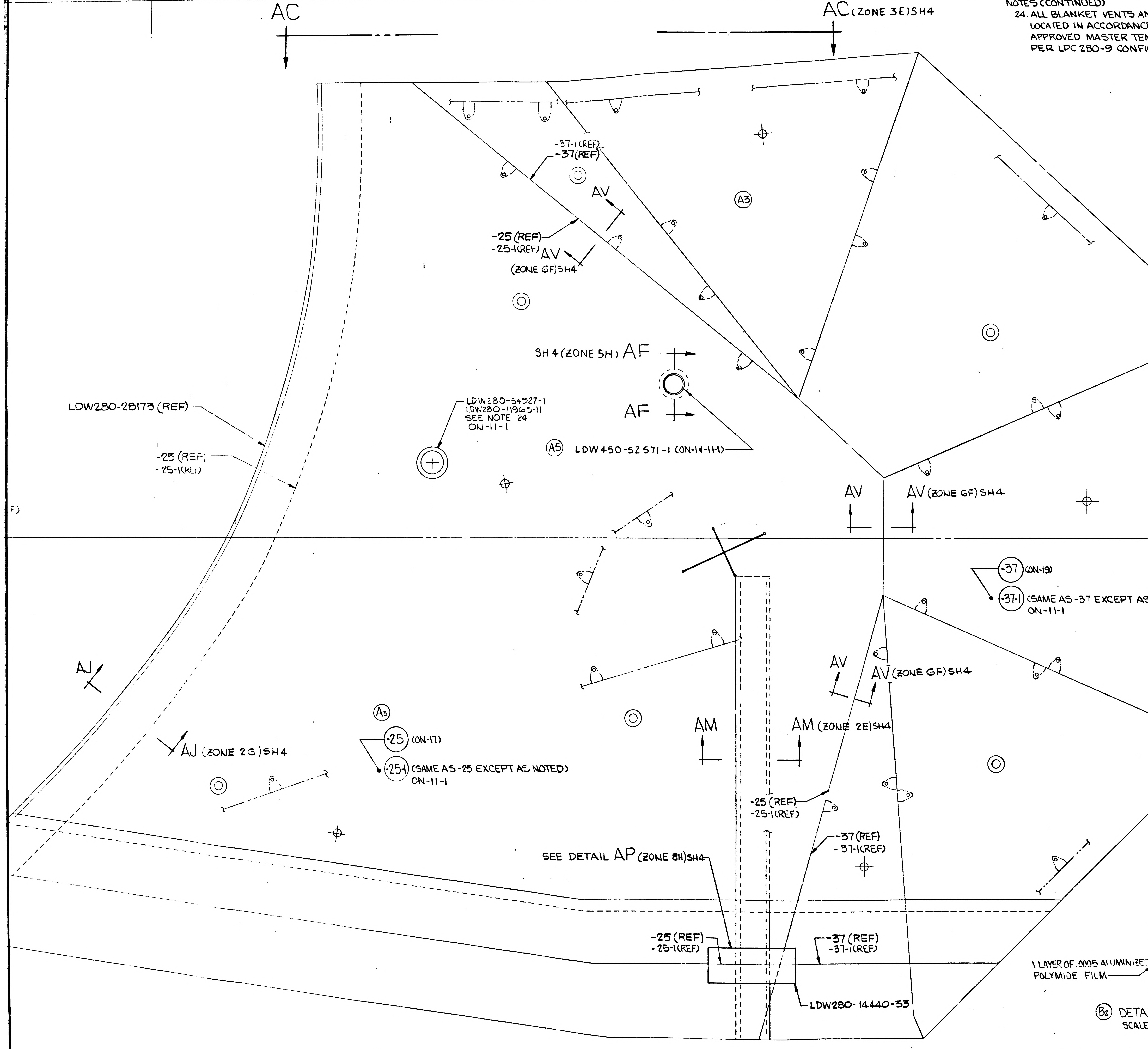
LDW280-28854	SH 3

LDW280-28854	SH 3

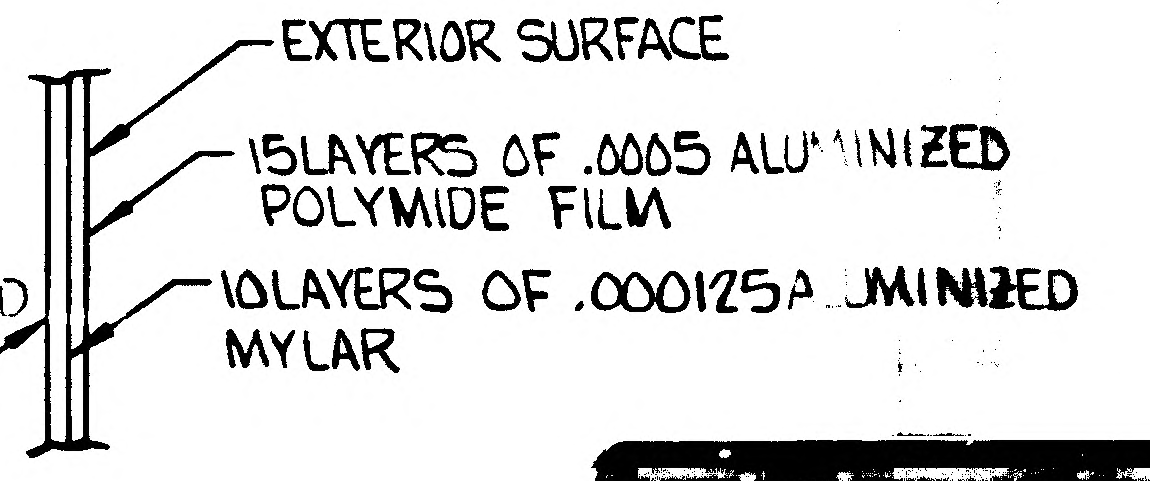
02/03 NAS 9-1100

NOTES (CONTINUED)

24. ALL BLANKET VENTS AND BAY VENTS ARE TO BE LOCATED IN ACCORDANCE WITH ENGINEERING APPROVED MASTER TEMPLATES & CONSTRUCTED PER LPC 280-9 CONFIGURATION II.


AC
AC (ZONE 3E) SH4
-37-1 (REF)
-37 (REF)
AV
A3
-25 (REF)
-25-1 (REF)
AV
(ZONE GF) SH4
SH 4 (ZONE 5H) AF
AF
LDW280-54927-1
LDW280-11965-11
SEE NOTE 24
ON-11-1
A5
LDW450-52571-1 (ON-14-11-1)
LDW280-28173 (REF)
-25 (REF)
-25-1 (REF)
AV
AV (ZONE GF) SH4
-37 (ON-19)
-37-1 (SAME AS -37 EXCEPT AS NOTED) ON-11-1
AJ
AV
AV (ZONE GF) SH4
A3
-25 (ON-17)
-25-1 (SAME AS -25 EXCEPT AS NOTED) ON-11-1
AJ (ZONE 2G) SH4
AM
AM (ZONE 2E) SH4
-25 (REF)
-25-1 (REF)
-37 (REF)
-37-1 (REF)
SEE DETAIL AP (ZONE 8H) SH4
-25 (REF)
-25-1 (REF)
-37 (REF)
-37-1 (REF)
LDW280-14440-33

VIEW AS-AS (ZONE 8A) (A11)


EXTERIOR SURFACE
15 LAYERS OF .0005 ALUMINIZED POLYMIDE FILM
10 LAYERS OF .000125 ALUMINIZED MYLAR
1 LAYER OF .0005 ALUMINIZED POLYMIDE FILM

(B2) DETAIL AY
SCALE: NONE

NOTES:

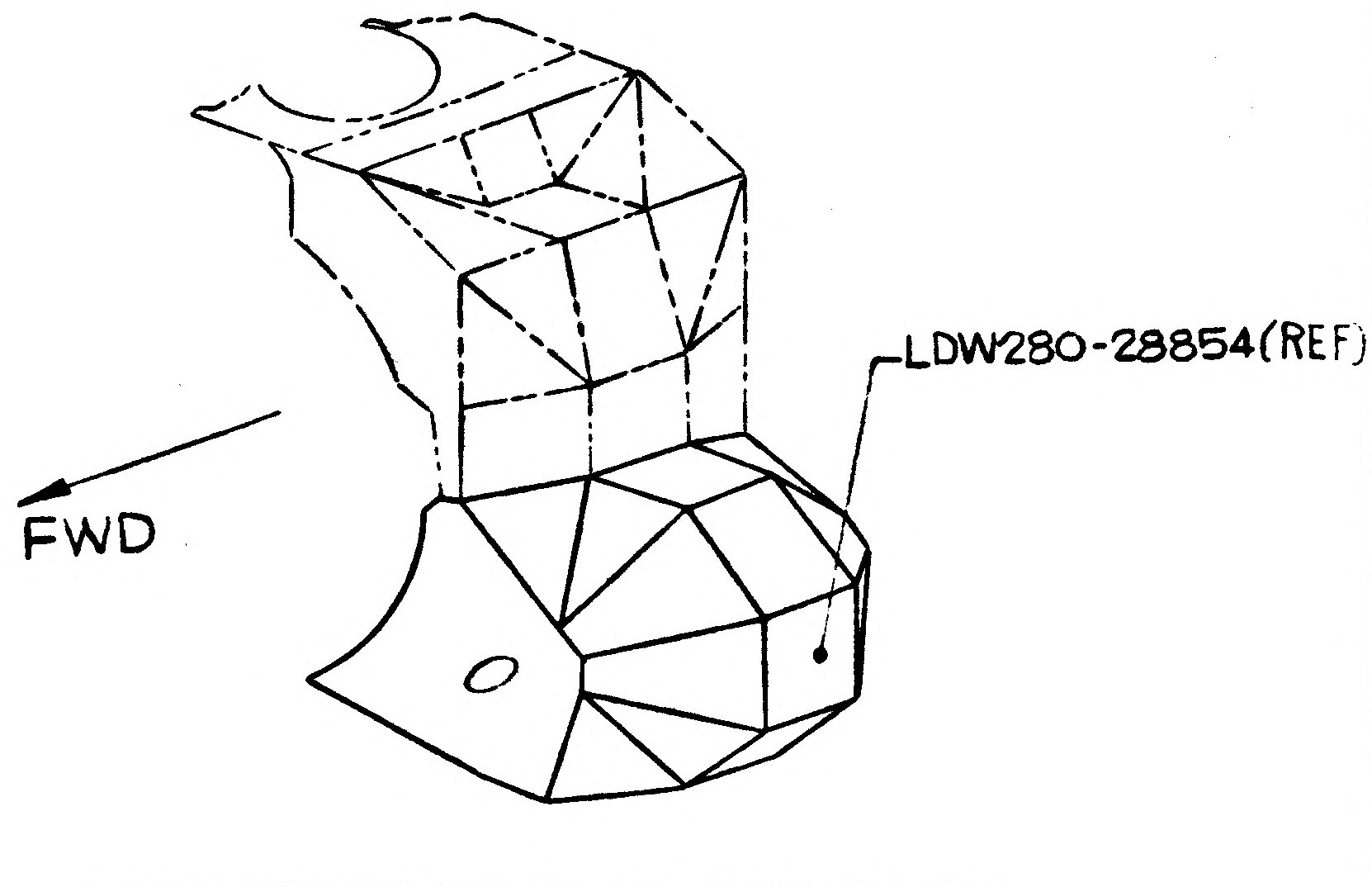
1. ~~MAKE BLANKET PER LPC 280-1 25 LAYERS MYLAR & 5 LAYERS H FILM SEE DETAIL Z-Z.~~
2. ~~STAPLES GS577A-1 MAY BE PURCHASED FROM BOSTITCH INC., GREENWICH R.I. (STAPLING PLIER - BOSTITCH P3 REF)~~
3. ~~DELETED~~
4. ~~INSPECTION ON END ITEMS ONLY. HOLES MAY BE PUNCHED ON ASSEMBLY.~~
5. ~~SUPER INSULATION TO BE FABRICATED UNDER CONDITIONS THAT CONFORM TO LSP 14-001 LEVEL E~~
6. ~~BLANKETS TO BE PREFITTED ON SCALE MODEL.~~
7. ~~✦ DENOTES GR11C-1~~
   ~~✦ DENOTES GR11C-7~~
   ~~✦ (1) GR11B-1 & (1) GW10H-3~~
8. ~~TAPE A (MYLAR TAPE AL (1) SIDE 1" WIDE) (PERMACEL EE6600) GT835M-8 TO BE USED ON INTERNAL SIDE OF BLANKET ONLY TAPE B (H-FILM) (POLYMIDE FILM) (NO AL) 1" WIDE - GT835P-8 TO BE USED ON EXTERNAL SIDE OF BLANKET UNDER HARD SHIELDING TAPED (CLEAR MYLAR) GT835B-2-1.00 TO BE USED ON MYLAR SIDE OF BLANKET IN BUTT SPLICE AREA~~
9. ~~INSTALL PER LDW 280-51296-9 EFF LEM-1~~
   ~~LDW280-28296-9 EFF LTA-8 AND LEM-2.~~
10. ~~MAKE BLANKET FOLD PER LSP 280-3 SEE SECTION M-M.~~
11. ~~MAKE BLANKET PATCH VENT PER LPC 280-2 SEE SECTION H-H.~~
12. BLANKETS TO CONSIST OF 25 LAYERS OF ALUMANIZED MYLAR 5 LAYERS OF ALUMANIZED POLYIMIDE (H-FILM) TO BE LAYED UP PER LPC 280-1 (MAY BE PURCHASED FROM MC CORDI CORP. MAMARONECK N.Y. CODE IDENT NO. 24761 ONE LAYER OF "H" FILM TO BE ON INTERIOR SURFACE OF BLANKET, THE REMAINING LAYERS ALL EXTERIOR THICKNESS PER LAYER TO BE .0005.
13. BLANKETS TO CONSIST OF 25 LAYERS OF ALUMANIZED MYLAR TO BE LAYED UP PER LPC 280-1 (MAY BE PURCHASED FROM MC CORDI CORP MAMARONECK N.Y. CODE IDENT NO. 24761 THICKNESS PER LAYER TO BE .00015.
14. FINAL CONFIGURATION OF BLANKET ASSY SHALL BE DETERMINED FROM APPROVED MASTER TEMPLATES.
15. DWG OUTLINE (DIMENSIONL INFOMATION IS FOR REFERENCE PURPOSES ONLY APPROVED MASTER TEMPLATES SHALL BE UTILIZED TO VERIFY BLANKET OUTLINES
16. BLANKET VENTS TO BE MADE AND INSTALLED PER LPC 280-2
17. BLANKET SEAM PROCEDURE PER LPC 280-3
18. BAY VENTS AND BAY VENT PATCHES TO BE INSTALLED PER LPC 280-9.
19. CUTTING AND PATCHING PROCEDURE PER LPC 280-6.
20. REPAIR PROCEDURE PER LPC 280-8
21. PERMISSIBLE DEVIATIONS AND REPAIR PROCEDURE PER LSP 280-20.
22. INSTRUMENTATION TO BE LOCATED PER MASTER TEMPLATE.
23. BLANKETS TO CONSIST OF THE FOLLOWING (OUTSIDE TO INSIDE, SEE DETAIL AY)
    15 LAYERS OF .0005 ALUMINIZED POLYMIDE FILM
    10 LAYERS OF .000125 ALUMINIZED MYLAR
    1 LAYER OF .0005 ALUMINIZED POLYMIDE FILM
    LAID UP PER LPC 280-1 & LPC 280-3 (MAY BE PURCHASED FROM M^c CORDI CORP., MAMARONECK NY. CODE IDENT # 24761)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 132

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 144) = 36 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 9 SQ. FT.

PRINT TRIM LINE


LDW280-28854 (REF)
FWD

FOR ENGINEERING REF ONLY
NO SCALE

03/03

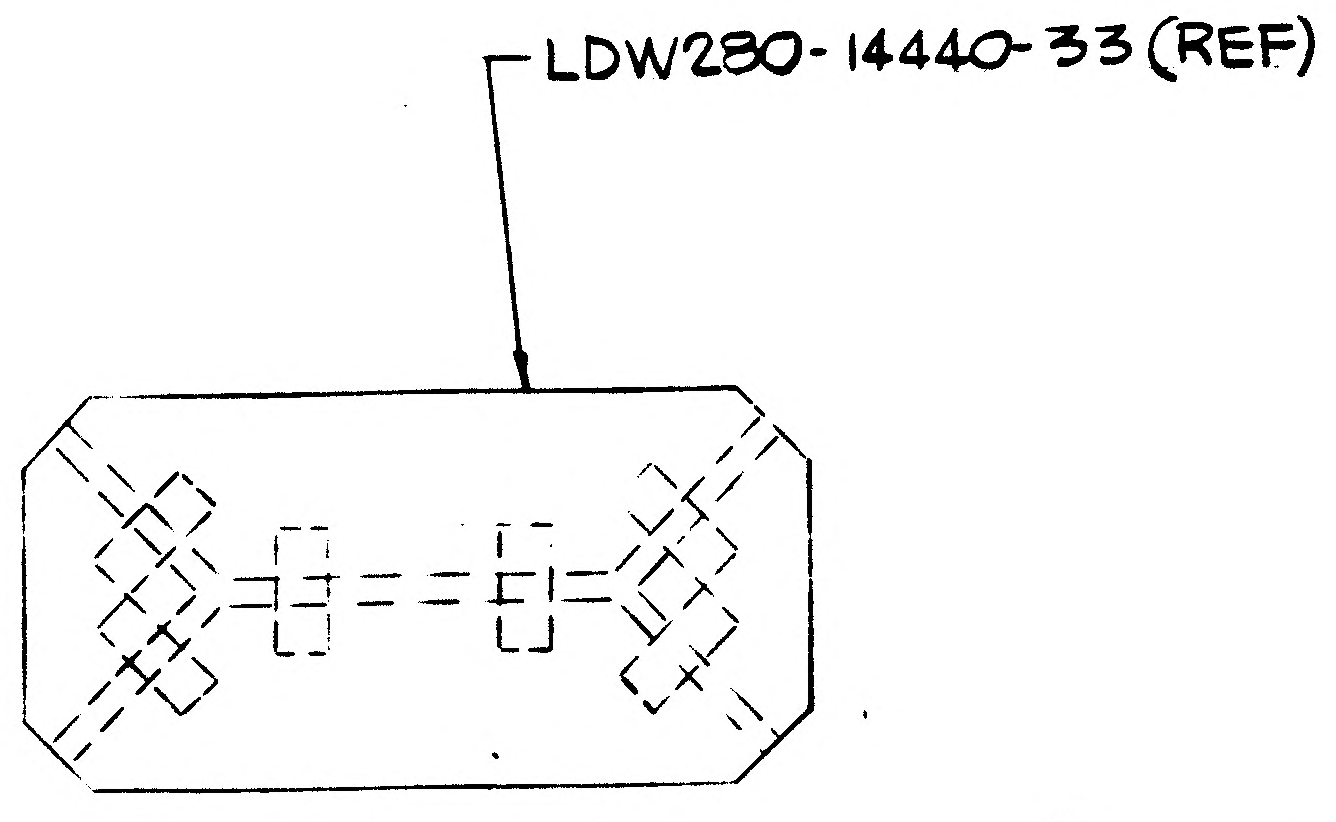
NAS 9-1100

LDW280-28854 B

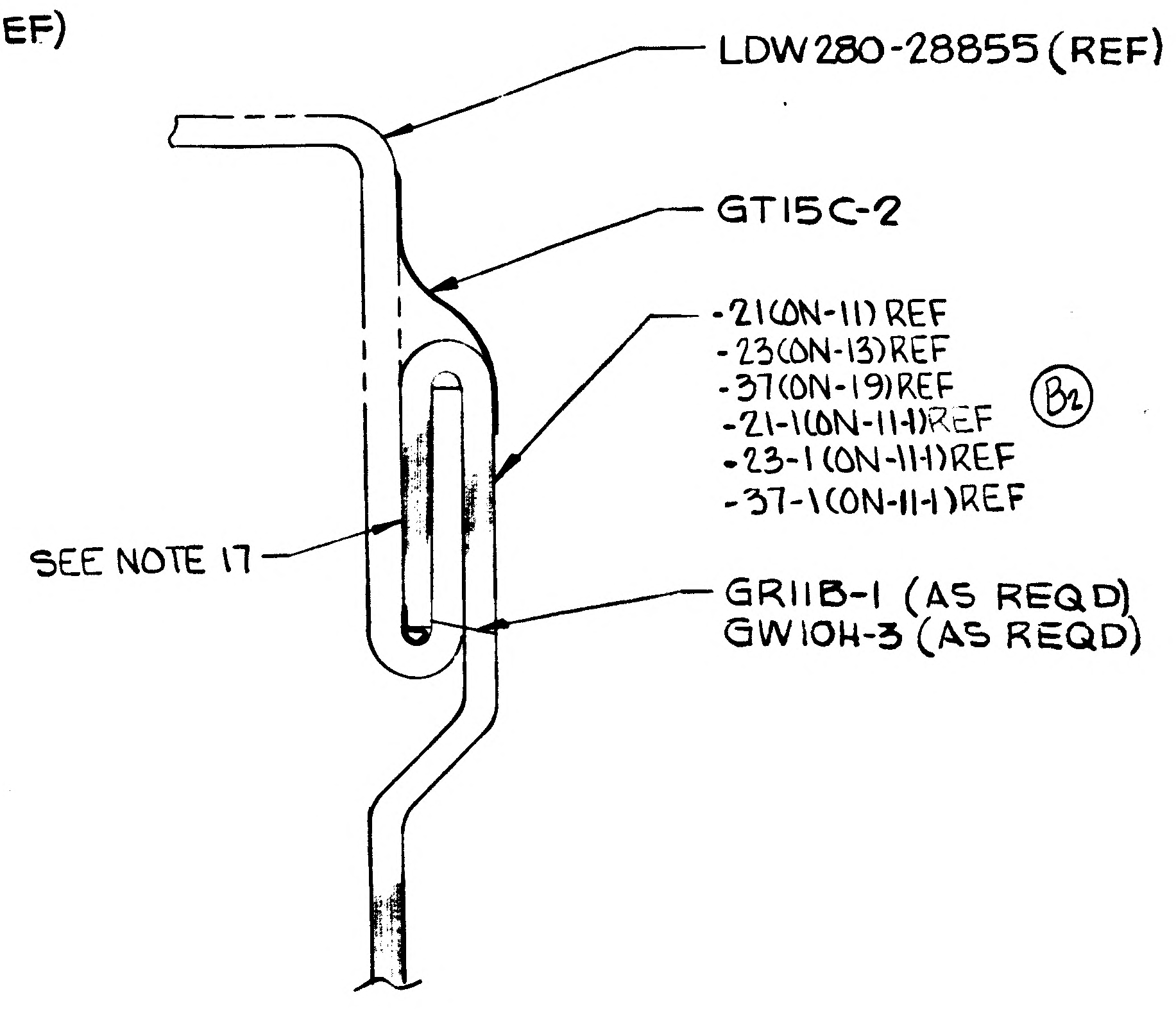
	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28854	B
MODEL OR END ITEM	SCALE HALF		SHEET 3.00	

LDW280-28854 SH 3

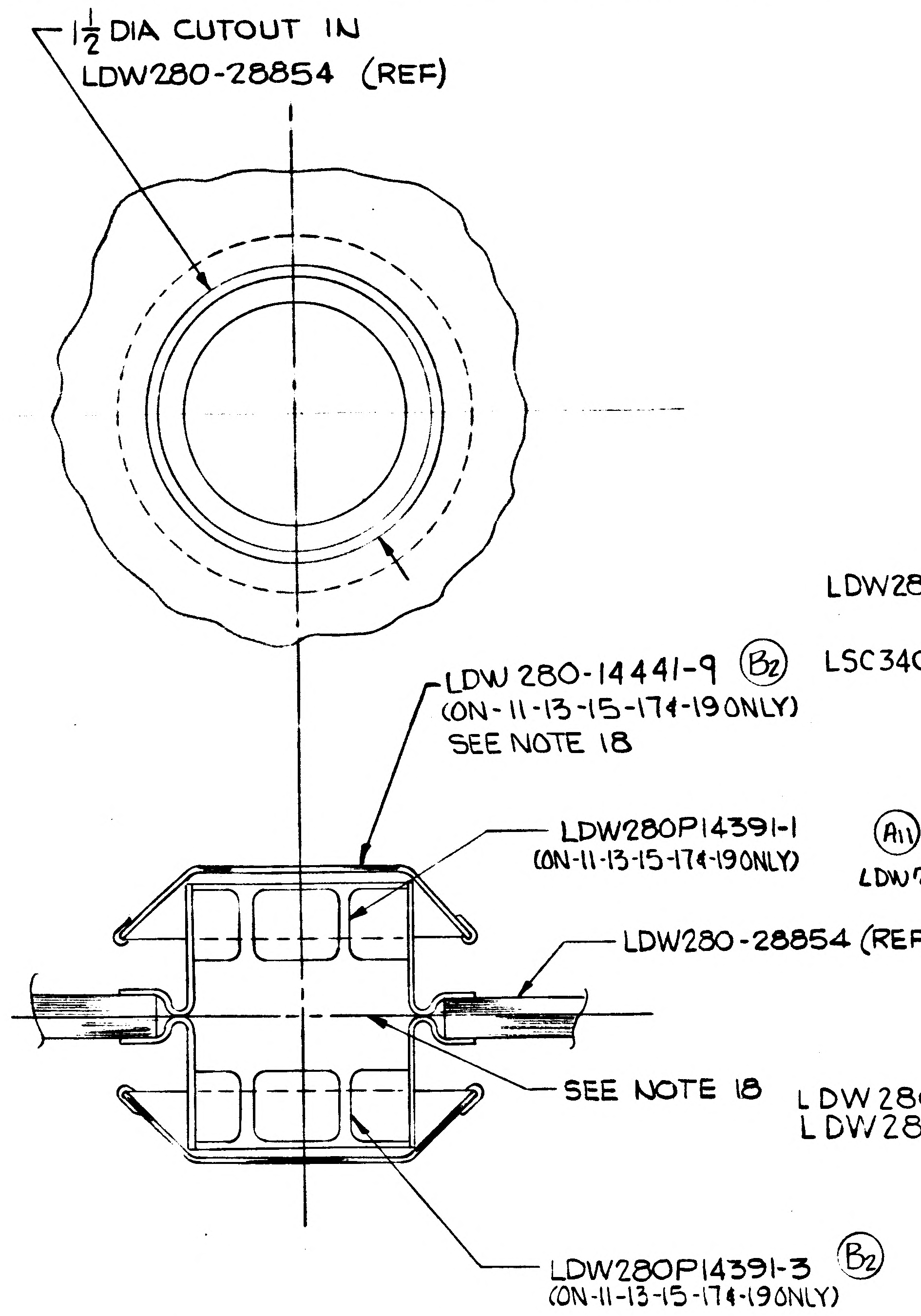
3 FR


LDW280-14440-33 (REF)

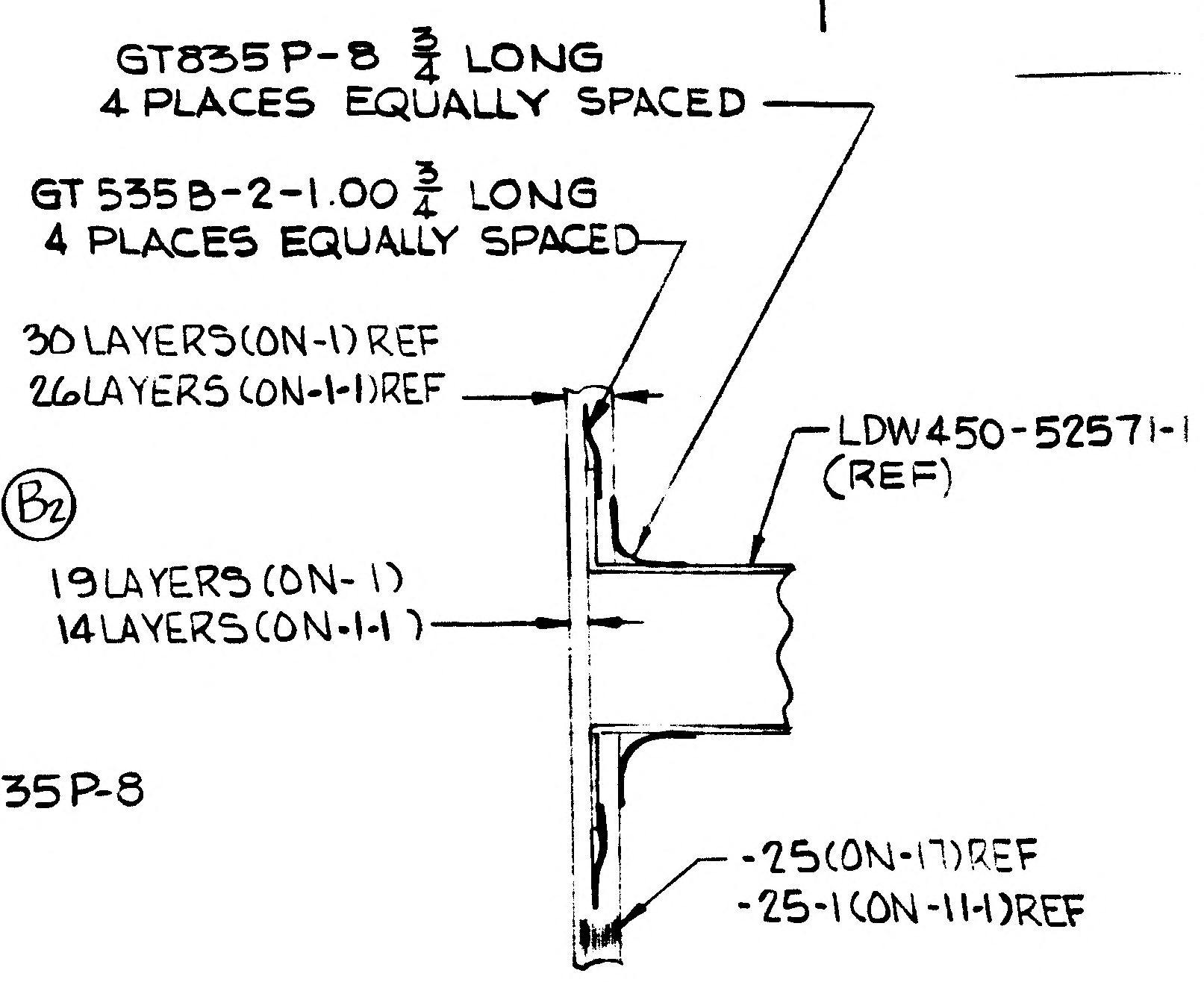
DETAIL AP (ZONE 11A) SH3 (A11)
HALF SCALE


LDW280-28855 (REF)
GT15C-2
-21(ON-11) REF
-23(ON-13)REF
-37(ON-19)REF
-21-1(ON-11-1)REF
-23-1(ON-11-1)REF
-37-1(ON-11-1)REF
(B2)
SEE NOTE 17
GR11B-1 (AS REQD)
GW10H-3 (AS REQD)

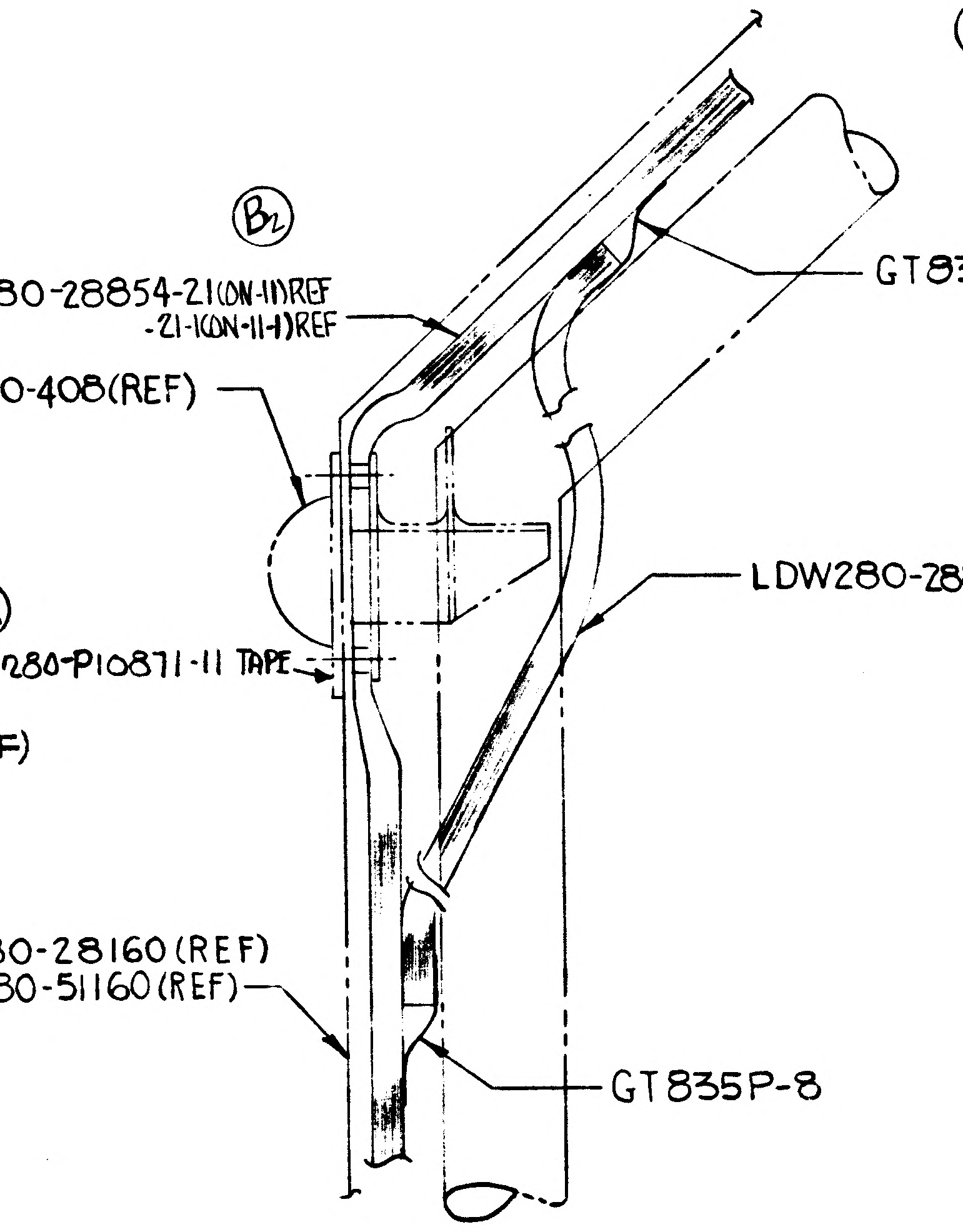
SECTION AR-AR (ZONE 6D) SH3 (A11)
FULL SCALE


1 1/2 DIA CUTOUT IN
LDW280-28854 (REF)
LDW 280-14441-9 (B2)
(ON-11-13-15-17&-19 ONLY)
SEE NOTE 18
LDW280P14391-1
(ON-11-13-15-17&-19 ONLY)
(A11)
LDW280-28854 (REF)
SEE NOTE 18
LDW280P14391-3 (B2)
(ON-11-13-15-17&-19 ONLY)

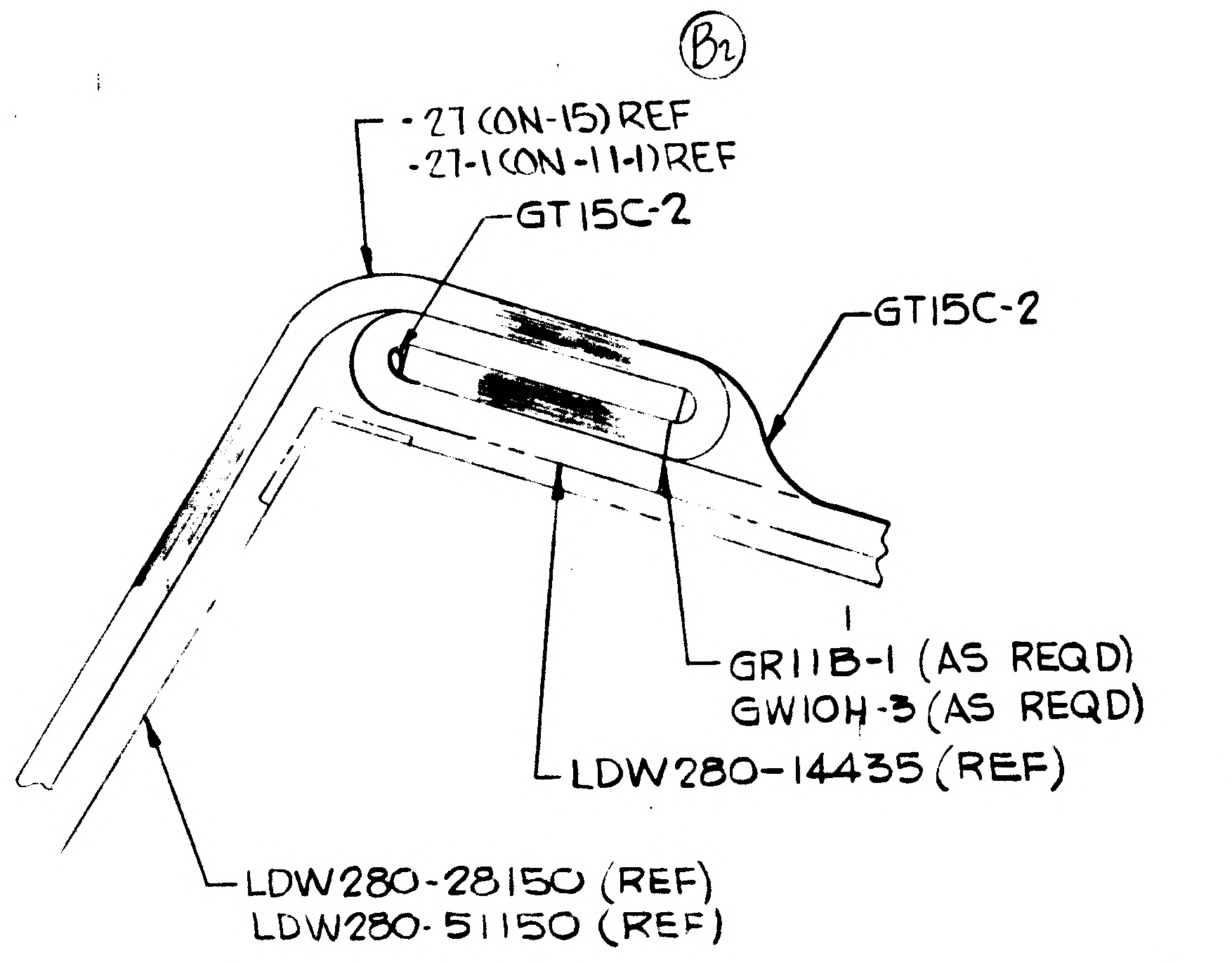
SECTION AH-AH (ZONE 6B) SH3 (A7)
FULL SCALE (TYP 15 PLACES) (A11)
(ON-11-13-15-17&-19 ONLY)


GT835P-8 3/4 LONG
4 PLACES EQUALLY SPACED
GT 535B-2-1.00 3/4 LONG
4 PLACES EQUALLY SPACED
30 LAYERS (ON-1) REF
26 LAYERS (ON-1-1) REF
LDW450-52571-1
(REF)
(B2)
19 LAYERS (ON-1)
14 LAYERS (ON-1-1)
-25(ON-17)REF
-25-1(ON-11-1)REF

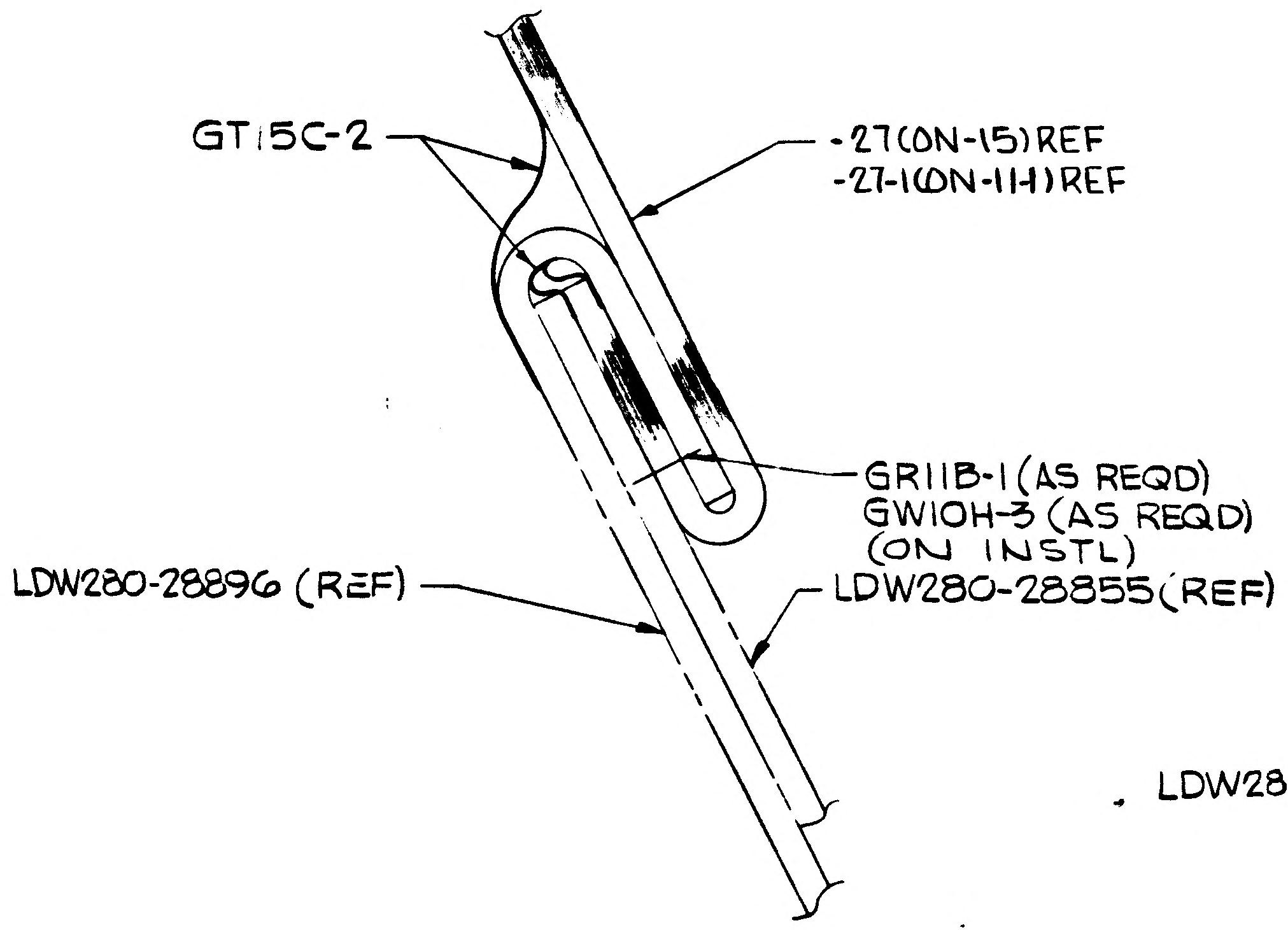
SECTION AF-AF (ZONE 3C) SH3 (A5)
FULL SCALE


(B2)
LDW280-28854-21(ON-11)REF
-21-1(ON-11-1)REF
LSC340-408(REF)
GT835P-8
LDW280-28854-45(REF)
LDW280-P10871-11 TAPE
LDW 280-28160 (REF)
LDW 280-51160 (REF)
GT835P-8

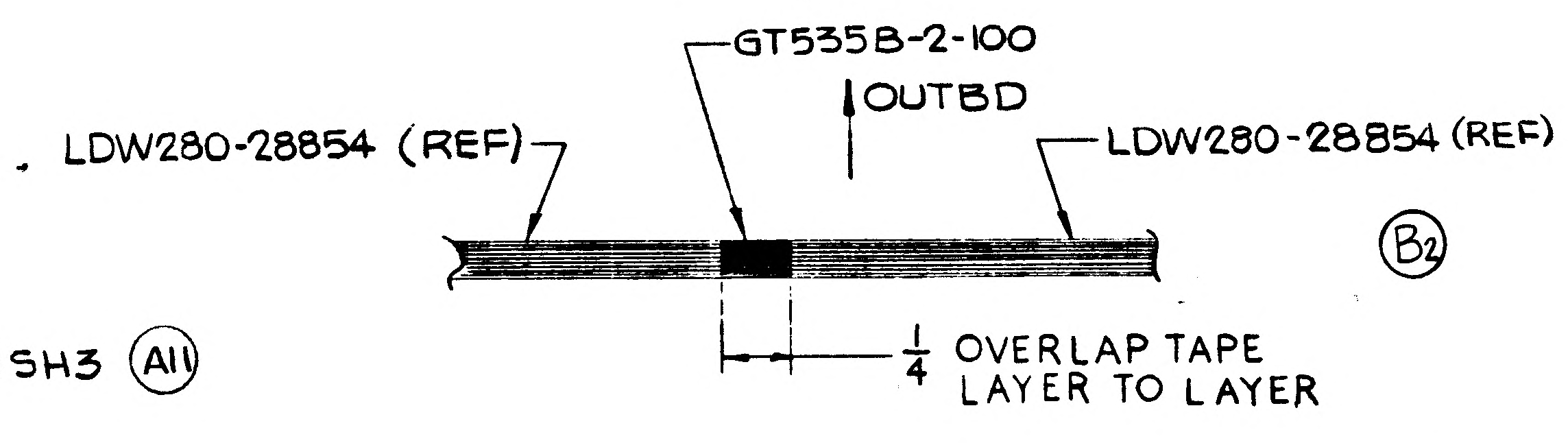
SECTION AK-AK (ZONE 7C) SH3 (A11)
FULL SCALE


(B2)
-27 (ON-15) REF
-27-1(ON-11-1)REF
GT15C-2
GT15C-2
GR11B-1 (AS REQD)
GW10H-3 (AS REQD)
LDW280-14435 (REF)
LDW280-28150 (REF)
LDW280-51150 (REF)

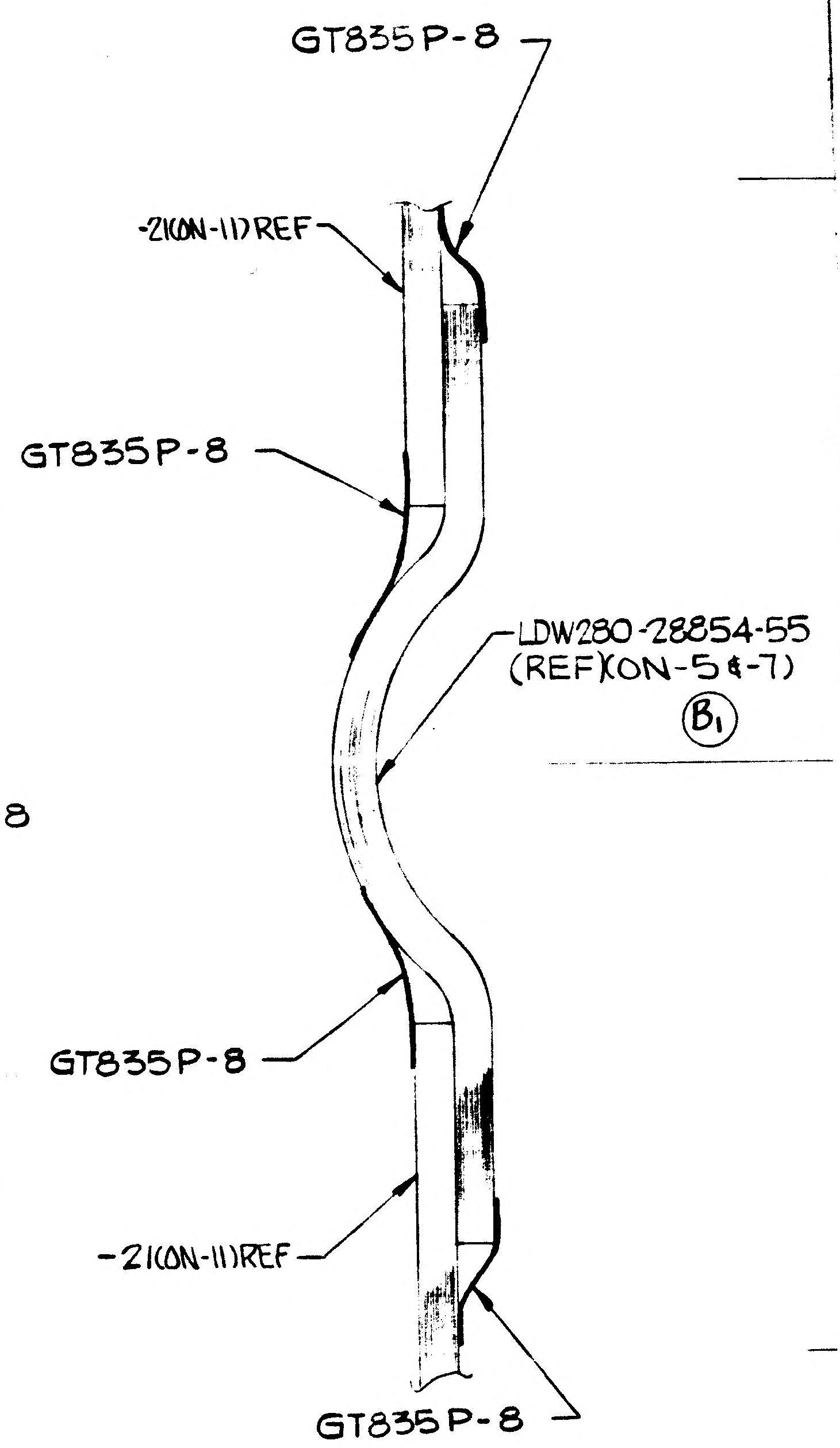
SECTION AN-AN (ZONE 10D) SH3 (A11)
FULL SCALE


GT15C-2
-27(ON-15)REF
-27-1(ON-11-1)REF
GR11B-1 (AS REQD)
GW10H-3 (AS REQD)
(ON INSTL)
LDW280-28896 (REF)
LDW280-28855(REF)

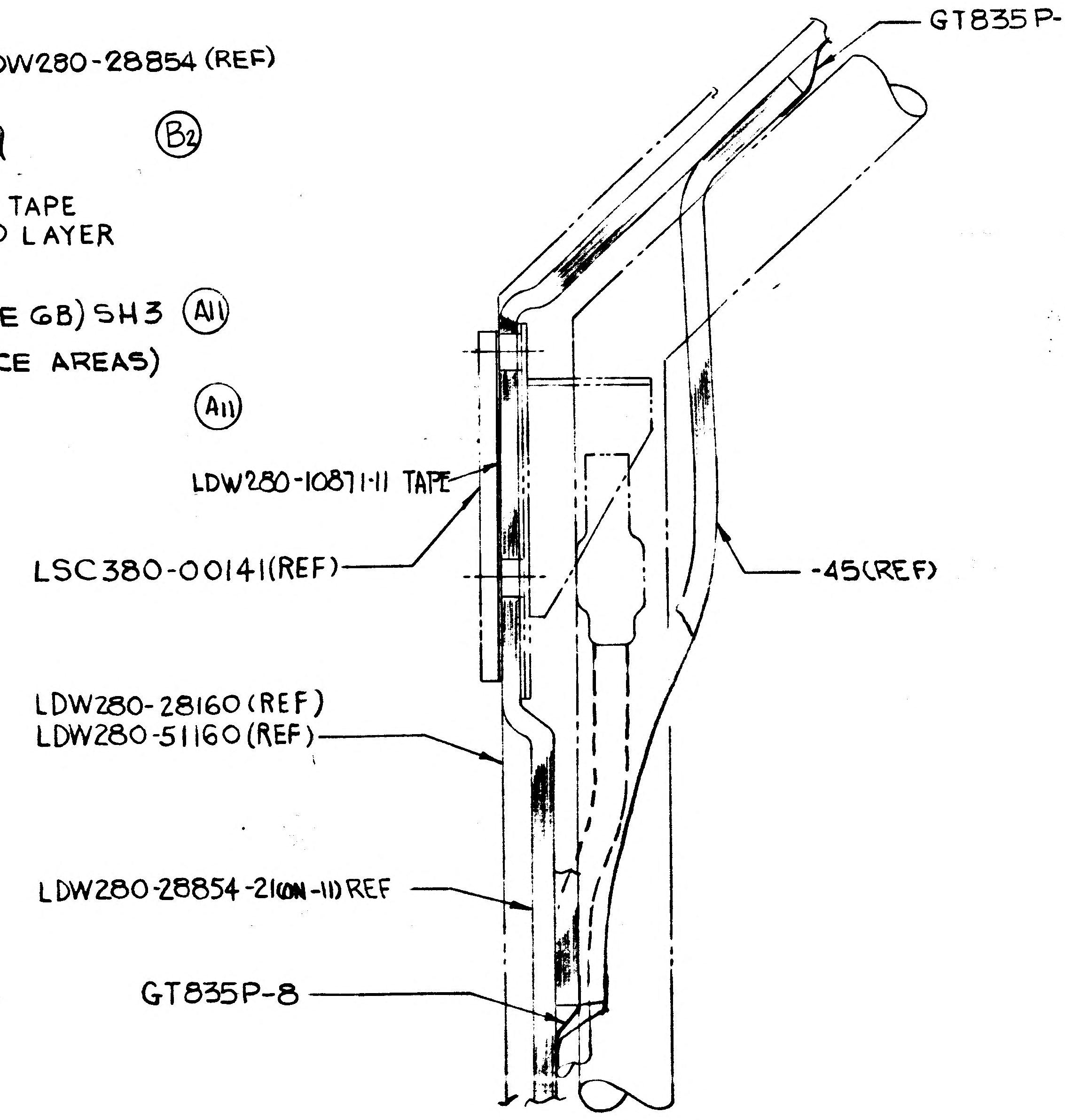
SECTION AL-AL (ZONE 10B) SH3 (A11)
FULL SCALE


GT535B-2-100
OUTBD
LDW280-28854 (REF)
LDW280-28854 (REF)
(B2)
1/4 OVERLAP TAPE
LAYER TO LAYER

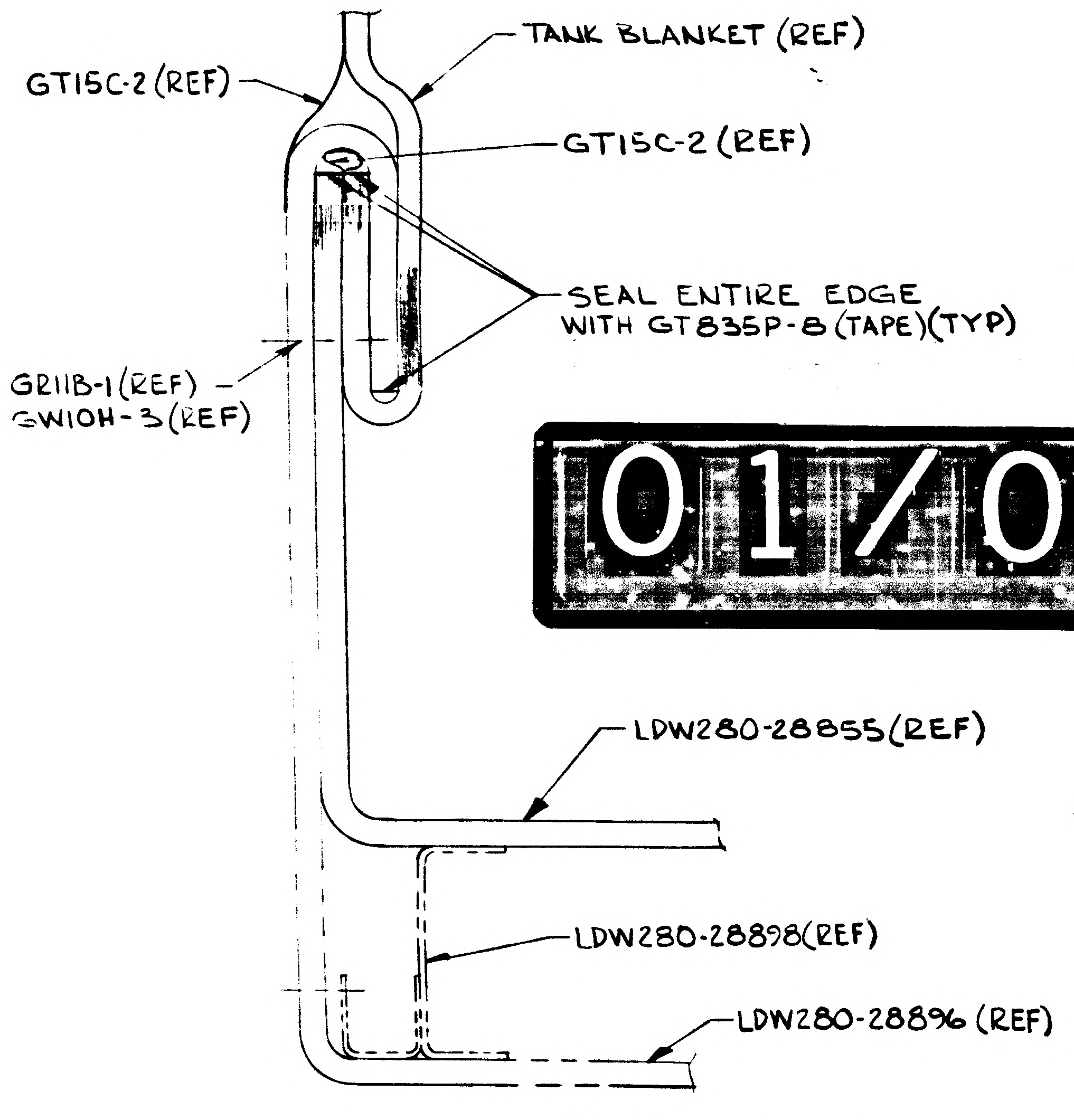
SECTION AV-AV (ZONE 6B) SH3 (A11)
(TYP SECTION FOR ALL SPLICE AREAS)
(NO SCALE)
(ON-11-13-15-17&-19 ONLY)


GT835P-8
-21(ON-11)REF
GT835P-8
LDW280-28854-55
(REF)(ON-5&-7)
(B1)
GT835P-8
-21(ON-11)REF
GT835P-8

SECTION AB-AB (ZONE 4F) (A9)
FULL SCALE
(ON-5&-7 ONLY)

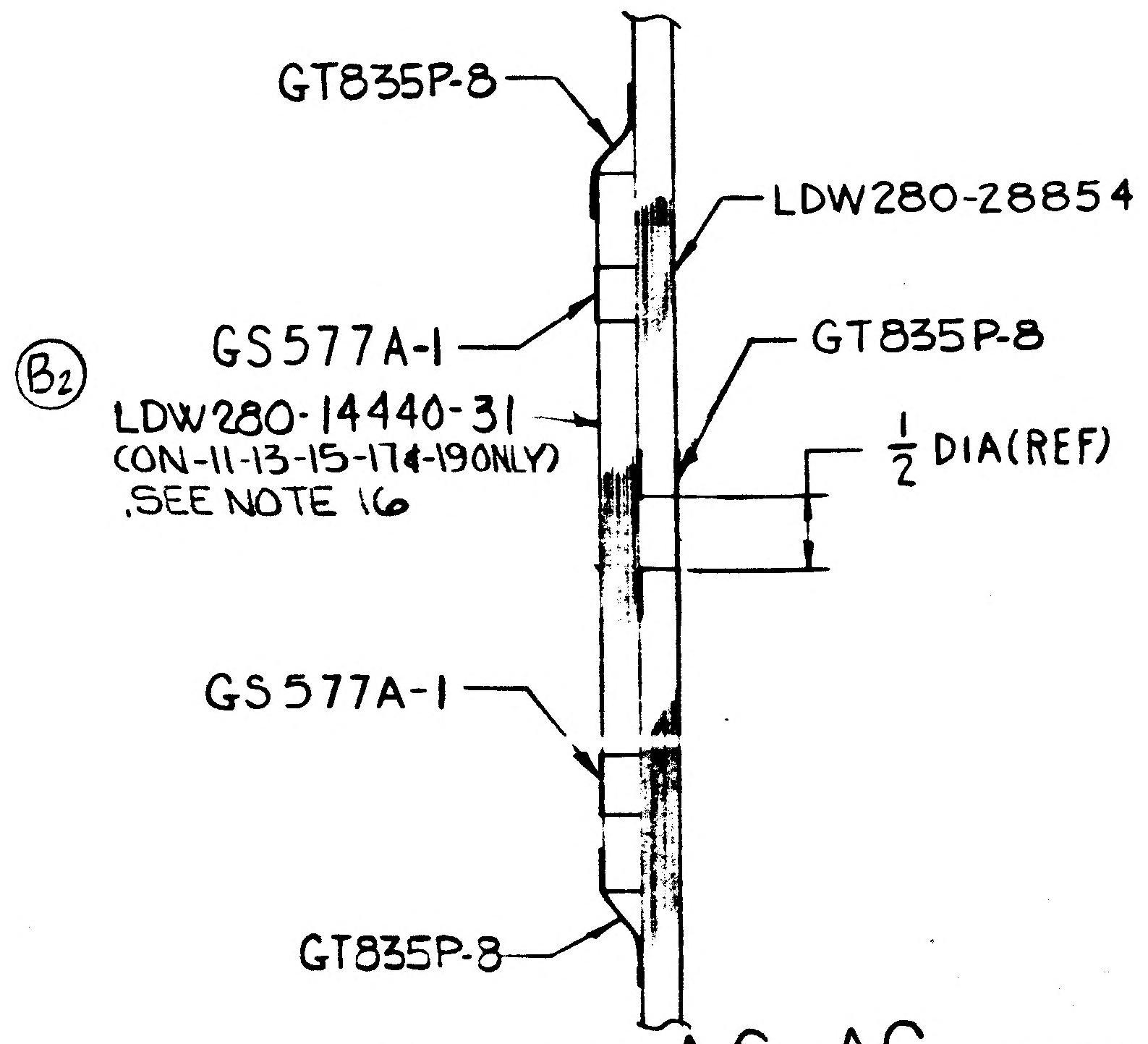

(A11)
GT835P-8
LDW280-10871-11 TAPE
LSC380-00141(REF)
-45(REF)
LDW280-28160 (REF)
LDW280-51160 (REF)
LDW280-28854-21(ON-11) REF
GT835P-8

SECTION AU-AU (ZONE 7C) SH3 (A11)
FULL SCALE
(ON-5&-7 ONLY)


GT15C-2 (REF)
TANK BLANKET (REF)
GT15C-2 (REF)
SEAL ENTIRE EDGE
WITH GT835P-8 (TAPE)(TYP)
GR11B-1(REF)
GW10H-3(REF)
LDW280-28855(REF)
LDW280-28898(REF)
LDW280-28896 (REF)

(B2) SECTION BA-BA (ZONE 10A) SH 4 (ON -1-1 ONLY)
FULL SCALE
TYP FOR ALL BLANKETS

01/02 NAS 9-1100

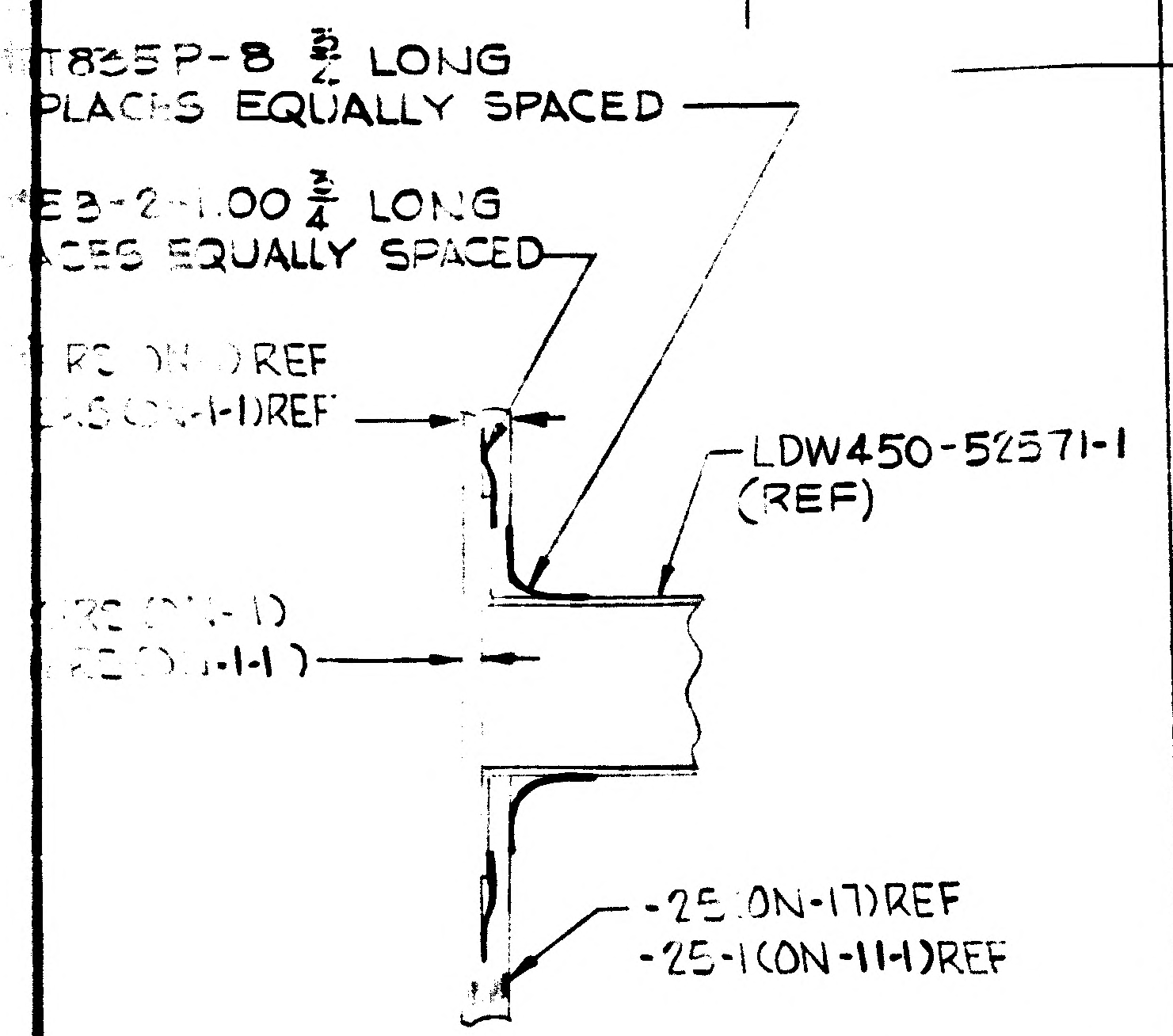

GT835P-8
LDW280-28854 (REF)
(B2)
GS577A-1
GT835P-8
LDW280-14440-31
(ON-11-13-15-17&-19 ONLY)
SEE NOTE 16
1/2 DIA(REF)
GS577A-1
GT835P-8

SECTION AG-AG (ZONE 7A) SH3 (A11)
TYP 11 PLACES
FULL SCALE
(ON-11-13-15&-17 ONLY)

-Y46.390 (REF)-

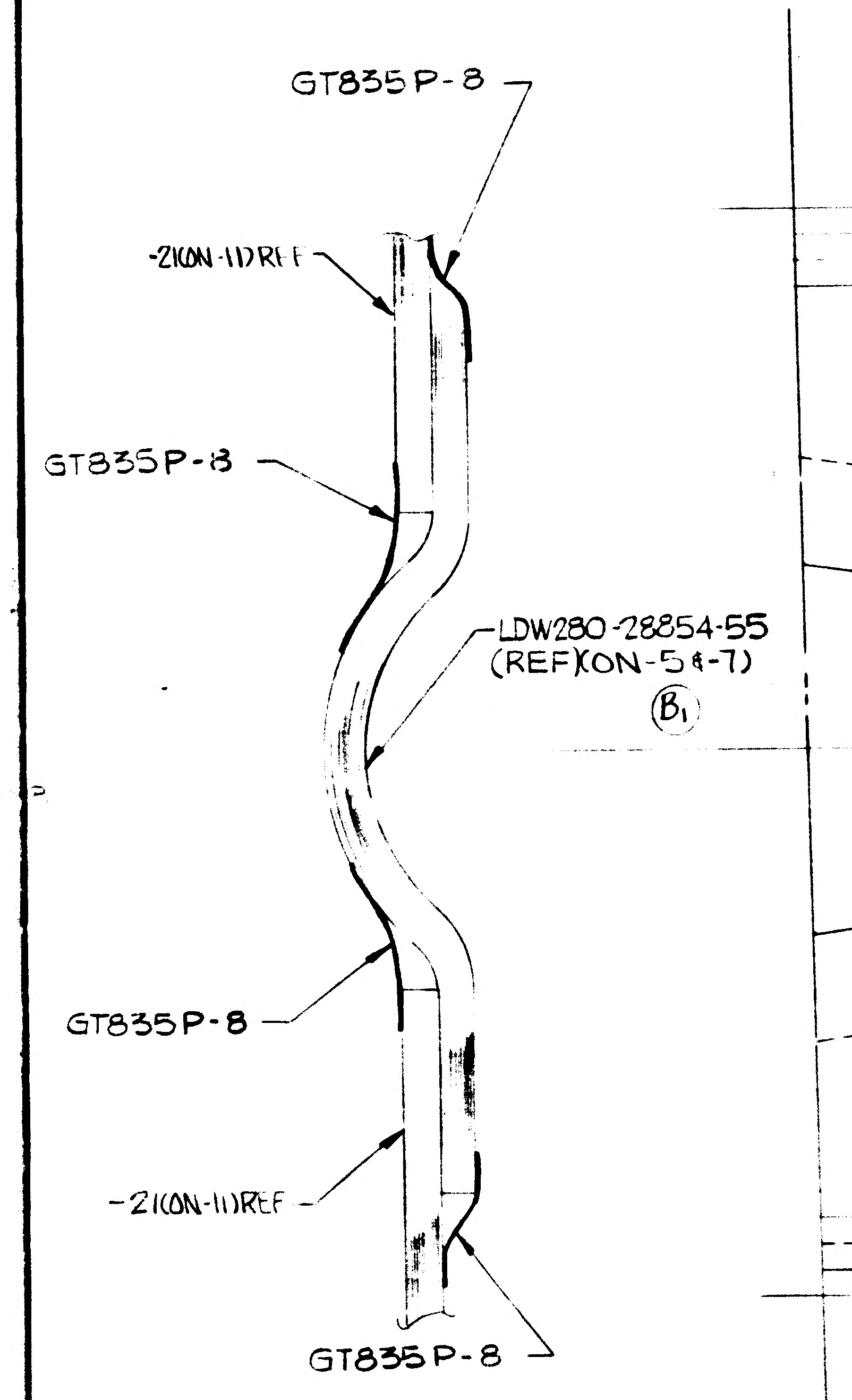
LDW280-28854	SH 4

4 3 2 1

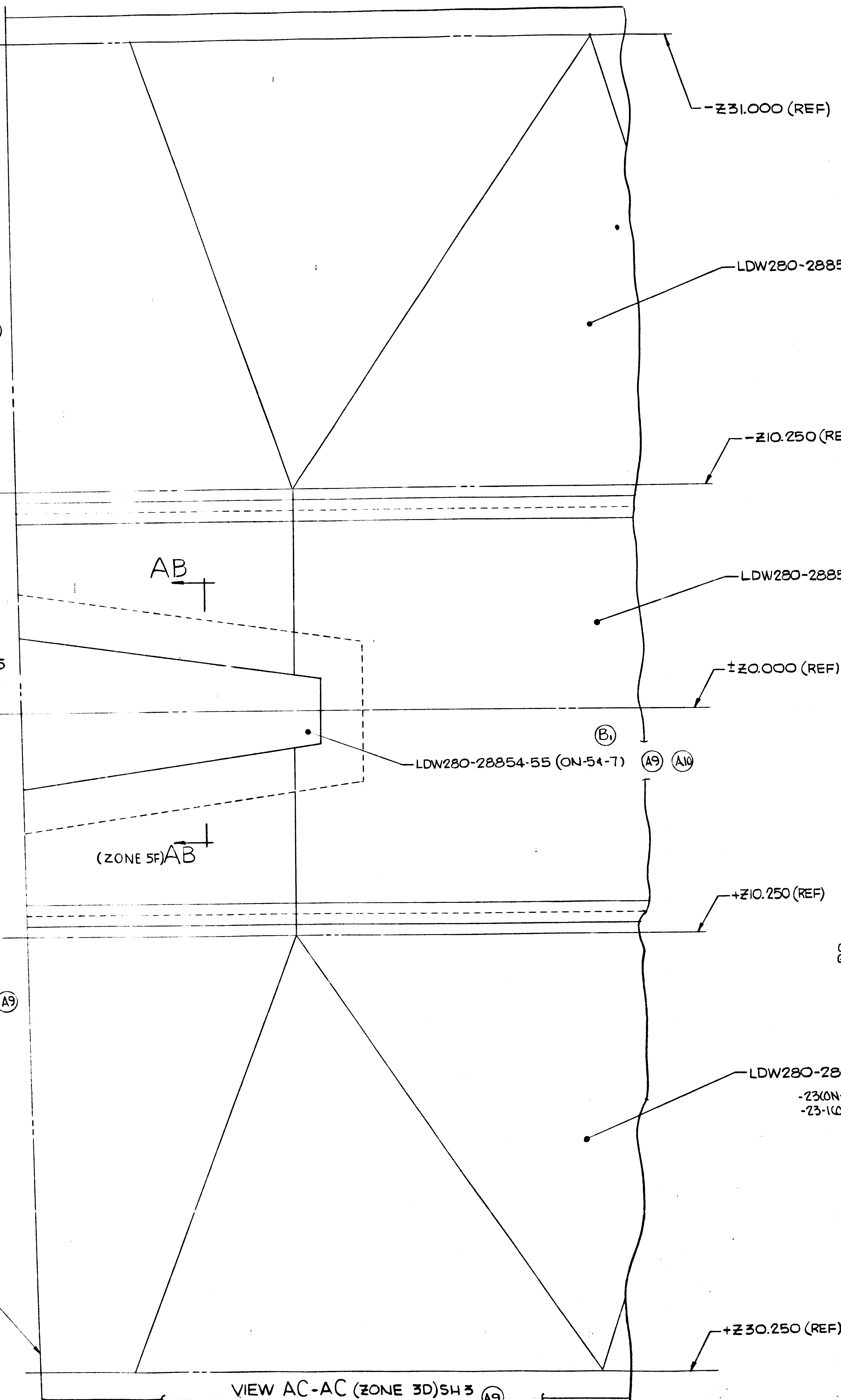

T835P-8 3/4 LONG
PLACES EQUALLY SPACED
E3-2-1.00 3/4 LONG
ACES EQUALLY SPACED
RC (ON-1)REF
RS (ON-1-1)REF
LDW450-52571-1
(REF)
RS (ON-1)
RS (ON-1-1)
-25(ON-17)REF
-25-1(ON-11-1)REF

SECTION AF-AF (ZONE 3C) SH3 Ⓐ5
FULL SCALE

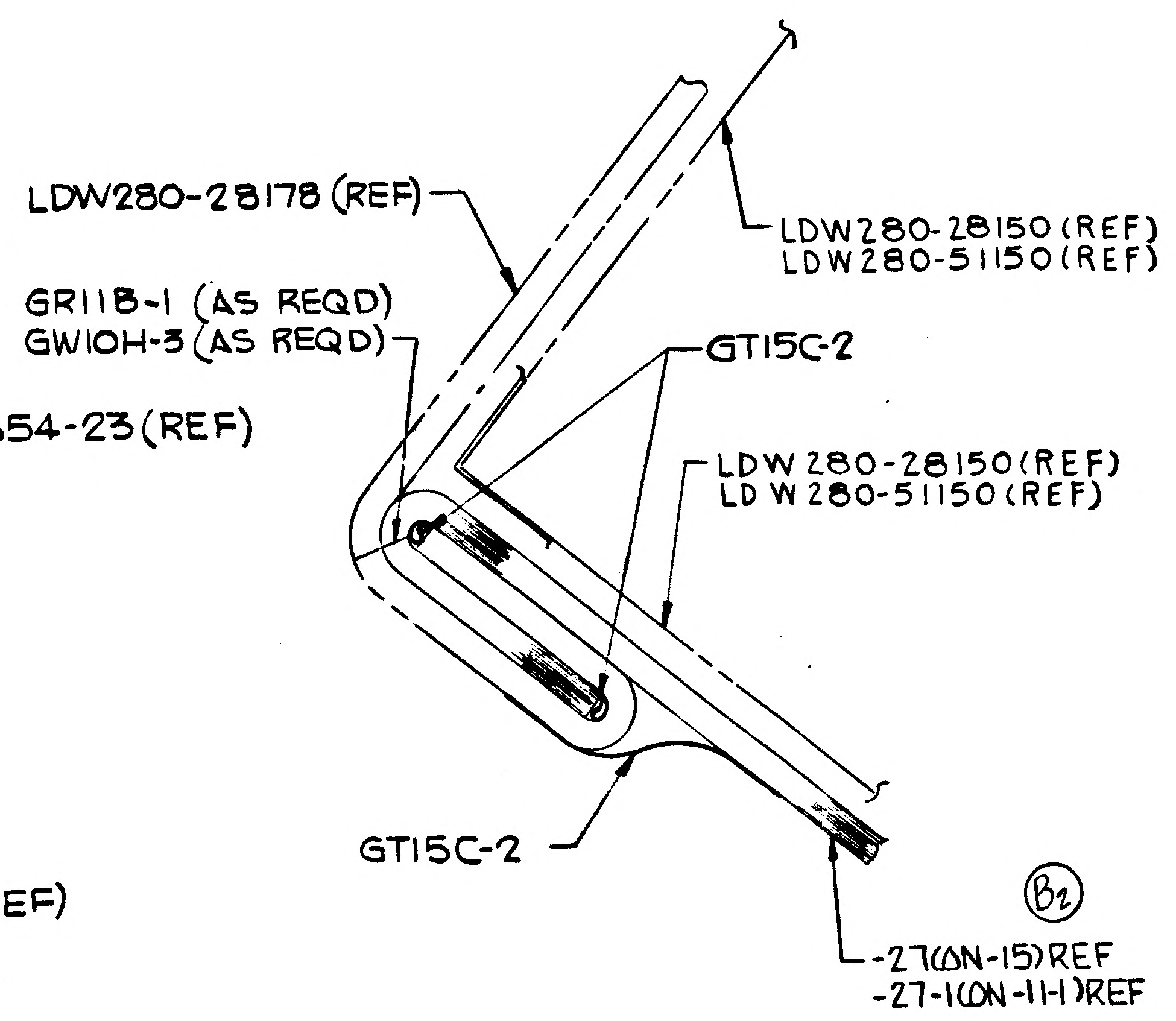
REF)


GT835P-8
-21(ON-11)REF
GT835P-8
LDW280-28854-55
(REF)(ON-54-7)
B1
GT835P-8
-21(ON-11)REF
GT835P-8

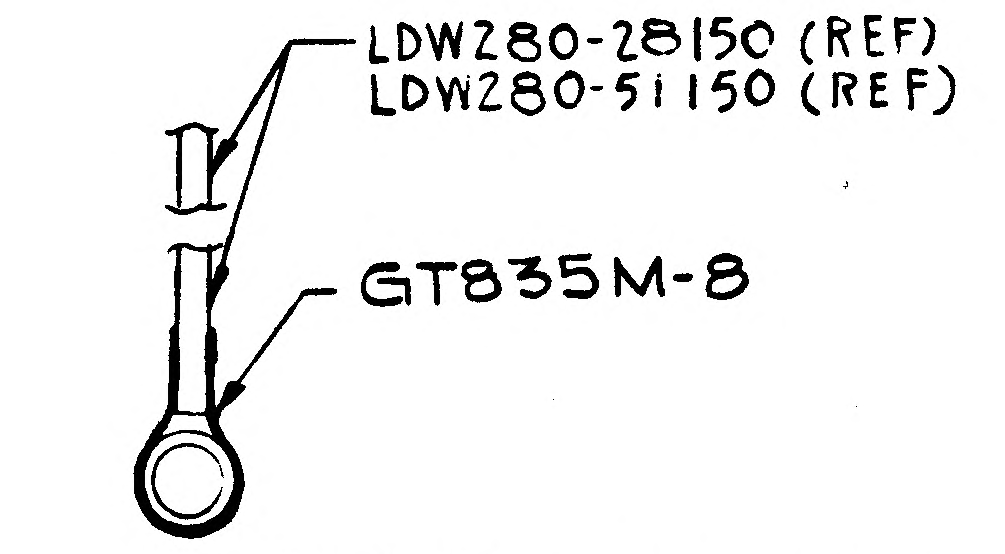
SECTION AB-AB (ZONE 4F) Ⓐ9
FULL SCALE
(ON-54-7 ONLY)


-Z31.000 (REF)
LDW280-28854-23 (REF)
-Z10.250 (REF)
AB
LDW280-28854-21 (REF)
±Z0.000 (REF)
B1
LDW280-28854-55 (ON-54-7) A9 A10
(ZONE 5F) AB
+Z10.250 (REF)
LDW280-28854-37 (REF)
-23(ON-13)REF
-23-1(ON-11-1)REF
-Y46.390 (REF)
+Z30.250 (REF)

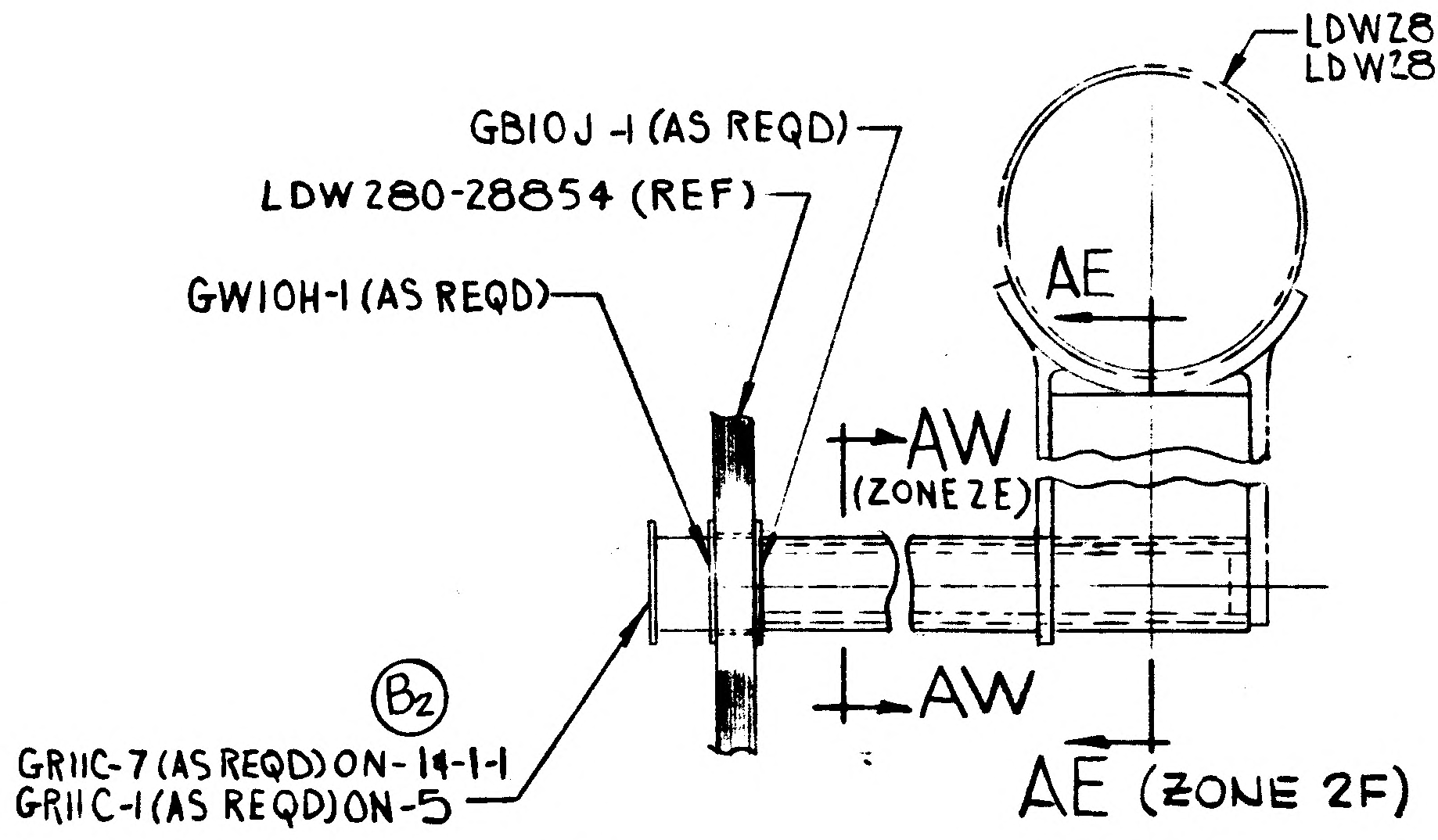
VIEW AC-AC (ZONE 3D) SH3 Ⓐ9
HALF SCALE


LDW280-28178 (REF)
LDW280-28150 (REF)
LDW280-51150 (REF)
GR11B-1 (AS REQD)
GW10H-3 (AS REQD)
GT15C-2
LDW280-28150 (REF)
LDW280-51150 (REF)
GT15C-2
B2
-27(ON-15)REF
-27-1(ON-11-1)REF

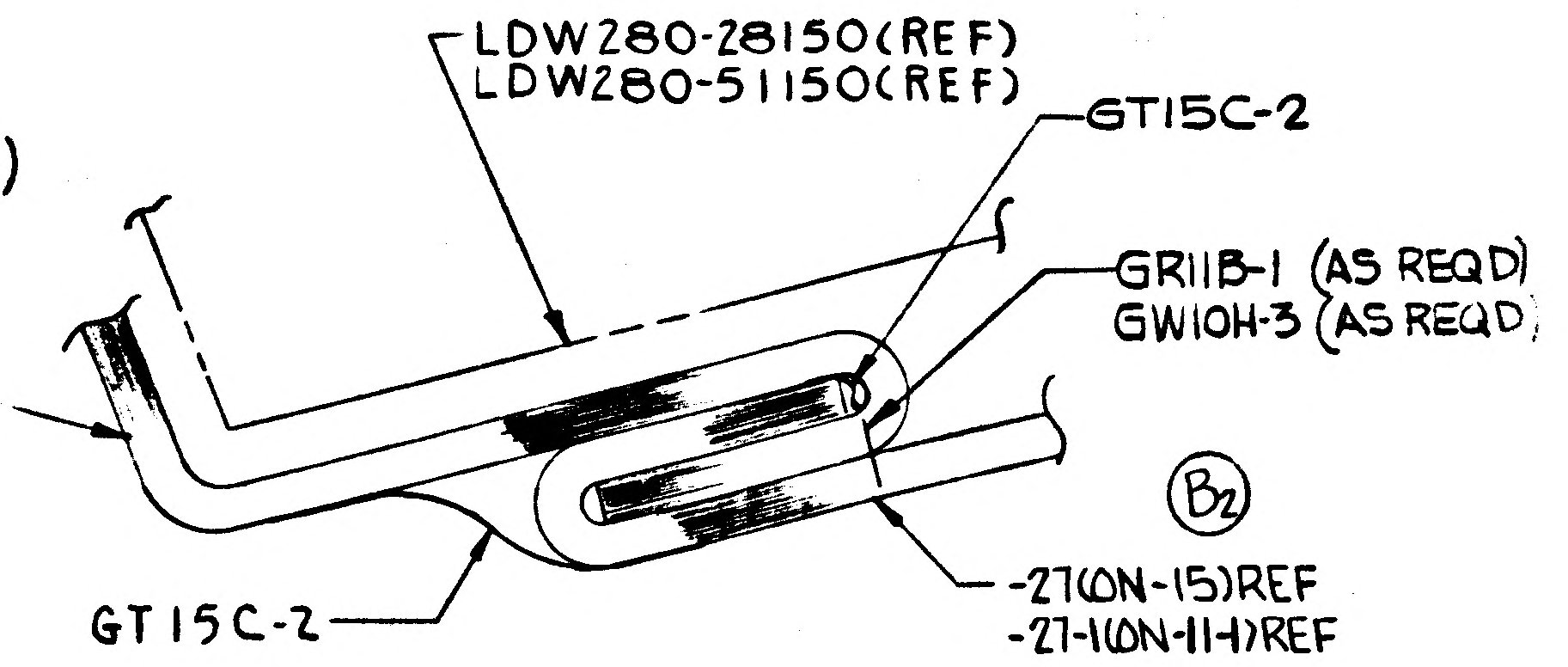
SECTION AJ-AJ (ZONE 4B) SH3 Ⓐ11
FULL SCALE


LDW280-28150 (REF)
LDW280-51150 (REF)
GT835M-8

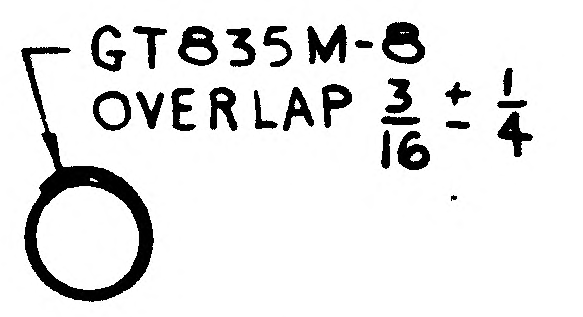
Ⓐ1 Ⓐ6 SECTION AE-AE (ZONE 2F)
(TYP SECTION FOR ALL STANDOFFS)
2X SCALE


LDW280-28150 (REF)
LDW280-51150 (REF)
GB10J-1 (AS REQD)
LDW280-28854 (REF)
GW10H-1 (AS REQD)
AE
AW
(ZONE 2E)
AW
B2
GR11C-7 (AS REQD) ON-14-1-1
GR11C-1 (AS REQD) ON-5
AE (ZONE 2F)

Ⓐ1 Ⓐ6 Ⓐ5 SECTION AD-AD (ZONE 7B) SH3
(TYP SECTION FOR ALL STANDOFFS)
2X SCALE


LDW280-28150(REF)
LDW280-51150(REF)
GT15C-2
GR11B-1 (AS REQD)
GW10H-3 (AS REQD)
B2
GT15C-2
-27(ON-15)REF
-27-1(ON-11-1)REF

SECTION AM-AM (ZONE 11B) SH3 Ⓐ11
FULL SCALE


GT835M-8
OVERLAP 3/16 ± 1/4

SECTION AW-AW (ZONE 2F)
SCALE 2X

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL ƒ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 132

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 144)— SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)— SQ. FT.
PRINT TRIM LINE

H G F E

LDW280-28854B
LDW280-28854B

02/027

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28854	B
MODEL OR END ITEM	SCALE NOTED		SHEET 4.00	

LDW280-28854	SH 4

4 3 2 1

EFR

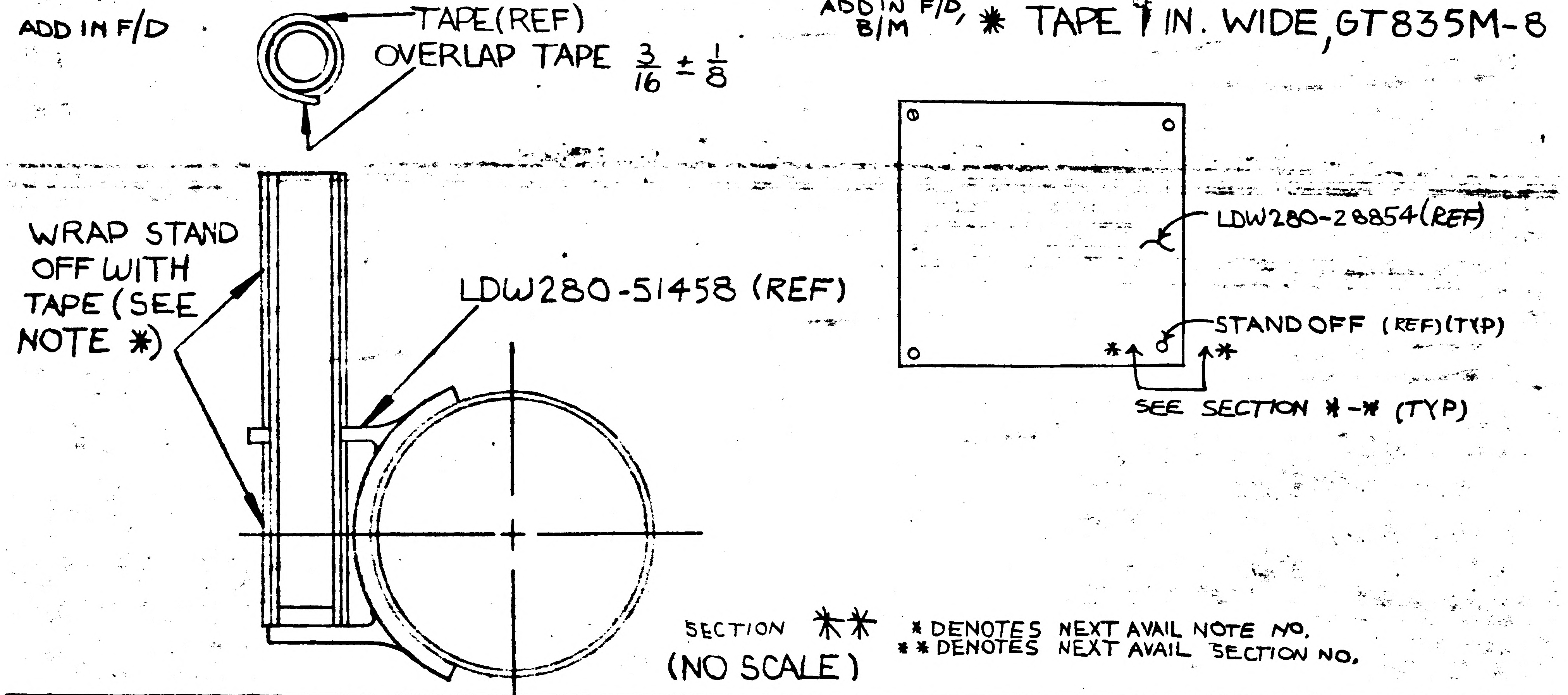
ENG 20.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28854 | EO NO. A1
CONTROL INFO NO. LDW280A-0549

ADD IN F/D

ADD IN F/D, B/M * TAPE 1 IN. WIDE, GT835M-8


TAPE (REF)
OVERLAP TAPE 3/16 ± 1/8
WRAP STAND OFF WITH TAPE (SEE NOTE *)
LDW280-51458 (REF)
LDW280-28854 (REF)
STAND OFF (REF) (TYP)
*
**
SEE SECTION *-* (TYP)

SECTION **
(NO SCALE)

* DENOTES NEXT AVAIL NOTE NO.
** DENOTES NEXT AVAIL SECTION NO.

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		3

REASON FOR EO: THERMAL RQMTS.

DESCRIPTION OF EO: ADDED SECTION ** & NOTE * IN F/D; ADDED GT835M-8 TO B/M

② GAEC EO RELEASE: FK 10/11/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
LM		LM-1(31)	
LM		LTA-8(18)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: REWORK | SCRAP

APPROVED BY		4R		V.J.I.			RMC	
DATE	9/21	10-4	9/21	10/6 THERMO	9/27		9-30	9/28/66
	VDI	SUPPORT WJ	GROUP	GROUP	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: THERMAL BLANKET INSTAL. A/S M/S LH TANK
DRAWING NO.: LDW280-28854
EO NO.: A1

ISSUED BY G.BELEV X1441 9-20-66 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28854
EO NO. A2
CONTROL INFO NO. LDW 280A-3012

REVISE B/M AS FOLLOWS:

1. ON LDW280-28854-13, ASSY (3) LDW280P14391-1 & -3 BAY VENTS (WAS 4)
2. REMOVE LDW280-28854-47 PATCH FROM-11,13;15,17 & -19 ASSY & ADD TO -1 INSTL.
3. REMOVE LDW 280-28854-39 BLANKET FROM-19 ASSY.
4. ON LDW280-28854-11,-13;15,-17 & -19 ASSYS ADD LDW280-14441-9 BAYVENT PATCH
5. REMOVE LDW280-28854-49 FROM-11,-13,-15,-17 & -19 ASSYS. & ADD
   LDW280-14440-31 BLANKET VENT PATCH TO-11,13,-15,-17 & -19
6. ON LDW280-28854-13 (2) LDW280-14440-31 BLANKET VENT PATCH (WAS 3)
7. ON LDW 280-28854-15 (2) LDW280-14440-31 BLANKET VENT PATCH (WAS 3)
8. ON LDW 280-28854-15 BLANKET ASSY. REM-29,-31 & -33 BLANKETS.
9. ON LDW 280-28854-17 BLANKET ASSY. REMOVE-35 BLANKET
10. ON LDW 280-28854-17 BLANKET ASSY. REMOVE (1) LDW280P14391-1 & -3 (2) (WAS 3)
11. ON LDW 280-28854-11,13,-15,17 & -19 ASSYS REMOVE-47 PATCH & ADD LDW280-14440-33 PATCH.

CONTINUED – LDW280-14441-9 BAY VENT PATCH. REMOVED-49 PATCH FROM-11,-15,-17 & -19 ASSY. & ADDED LDW280-14440-31 BLANKET VENT PATCH; ON-13 (2) LDW280-14440-31 ON-15 ASSY (2) LDW280-14440-31 (WAS 3); REM-29,-31 & 33 FROM-15 ASSY; ON-17 ASSY REM.-35 BLNKET, & (1) LDW280 P14391-1 & 3 BAY VENT. (2) (WAS 3)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		3

REASON FOR EO
TO UPDATE B/M TO AGREE WITH BLANKET DEVELOPED ON MANNEQUIN.

DESCRIPTION OF EO
ON-13 BLANKET ASSY (3) LDW280P14391-1 & -3 BAY VENT (WAS 4). REM -47 PATCH FROM-11,13,15,17 & -19 ASSY & ADD LDW280-14440-33 PATCH (AS REQD) ON -1 INSTL. REMOVED -39 BLANKET FROM -19 ASSY. ON -11,-13,-15,17 & -19 ADDED

① GAEC EO RELEASE: FR 11/23/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
	EFFECTIVITY		
LM		LTA8 (18)	
LM		LM1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY				HF			Rme	
DATE	11/18/66	11/18					11-18-66	11-22-66
#5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: THERMAL BLANKET INSTL. A/S MID SECTION L/H TANK
DRAWING NO.: LDW280-28854
EO NO.: A2

ISSUED BY P KEISER X1441 11/22/66 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28854
EO NO. A3
CONTROL INFO NO. LDW280A-3821

DESCRIPTION OF E.O THIS E.O. CANCELS E.O. A2

1. ON -13 ASSY. REMOVED (1) LDW280P14391-1 (WAS 4) & (1) LDW280P14391-3 (WAS 4)
2. REMOVED -47 PATCH FROM ALL ASSYS & ADDED (5) LDW280-14440-33 TO -1 INSTL.
3. REMOVED -39 BLANKET FROM -19 ASSY.

4. REMOVED -49 BLANKET VENT FROM ALL ASSYS. & ADDED LDW280-14440-31 BLANKET VENT PATCH AS FOLLOWS: (2) ON -11, -13, -15 & -17 ASSYS, (3) ON -19 ASSY
5. ON -15 ASSY. REMOVED -29, -31 & -33 BLANKETS
6. ON -17 ASSY. REMOVED -35 BLANKET
7. ON -11 ASSY. REMOVED (1) LDW280P14391-1 (WAS 4) & (1) LDW280P14391-3 (WAS 4)
8. REMOVED -41, -43 & -51 BOOT.
9. ON -15 ASSY. REMOVED (1) LDW280P14391-1 (WAS 3) & (1) LDW280P14391-3 (WAS 3)

10. ADDED LDW280-14441-9 AS FOLLOWS: (6) ON -11, -13, -17 & -19 ASSYS, (4) ON -15 ASSY.

3

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: TO UPDATE B/M TO AGREE WITH BLANKET DEVELOPED ON MANNEQUIN

DESCRIPTION OF EO: NOTED ABOVE

GAEC C EO RELEASE: ⓒ 1E 12/1

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	Jap	AB							
DATE	12/1/66	12/1/66		12/1	12/1			12-1-66	12-1-66
#5	VDI	~~SUBSET~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG		PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: THERMAL BLANKET INSTL. A/S MID SECTION L.H. TANK
DRAWING NO. LDW280-28854
EO NO. A3

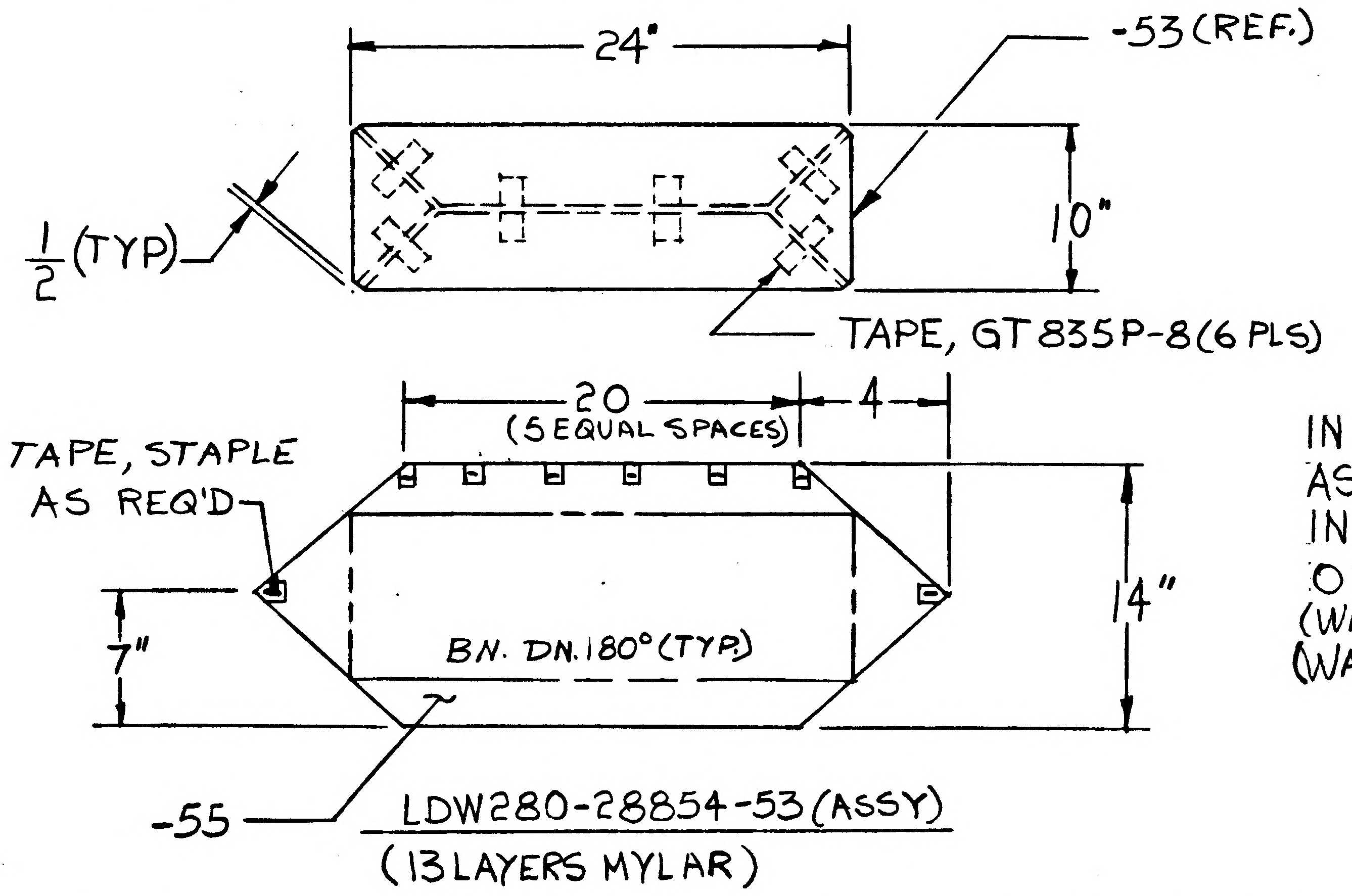
ISSUED BY L Lupinaci X1441 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28854
EO NO. A4
CONTROL INFO NO. LDW280A-3934


24"
-53 (REF.)
1/2 (TYP)
10"
TAPE, GT835P-8 (6 PLS)
20 (5 EQUAL SPACES)
4
TAPE, STAPLE AS REQ'D
14"
7"
BN. DN. 180° (TYP)
-55
LDW280-28854-53 (ASSY)
(13 LAYERS MYLAR)

IN B/M & F/D ADD -53 TUBE BLANKET ASSY TO -1 INSTL (1) REQ'D PER INSTL. IN B/M ONLY ADD ON -13 ASSY (1) LDW280P14391-1 & -3 (WAS 3) & (2) LDW280-14441-9 (WAS 3)

THERMAL SHIELD 3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO
TO UPDATE B/M TO AGREE WITH BLANKET DEVELOPED ON MANNEQUIN

DESCRIPTION OF EO
IN B/M & F/D ADDED -53 ASSY TO -1 INSTL
IN B/M ONLY ADDED ON -13 ASSY (1) LDW280-14391-1 & -3 (WAS 3) & (2) LDW280-14441-9 (WAS 3)

GAEC EO RELEASE C
FR 12/7/66

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY								
DATE	12/6/66	12/6		12/6	12/6		12/6	12-6-66
#5	VDI	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	THERMAL BLANKET INSTL A/S ~ M/S L.H TANK	LDW280-28854	A4

ISSUED BY L. LUPINACI X1441 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

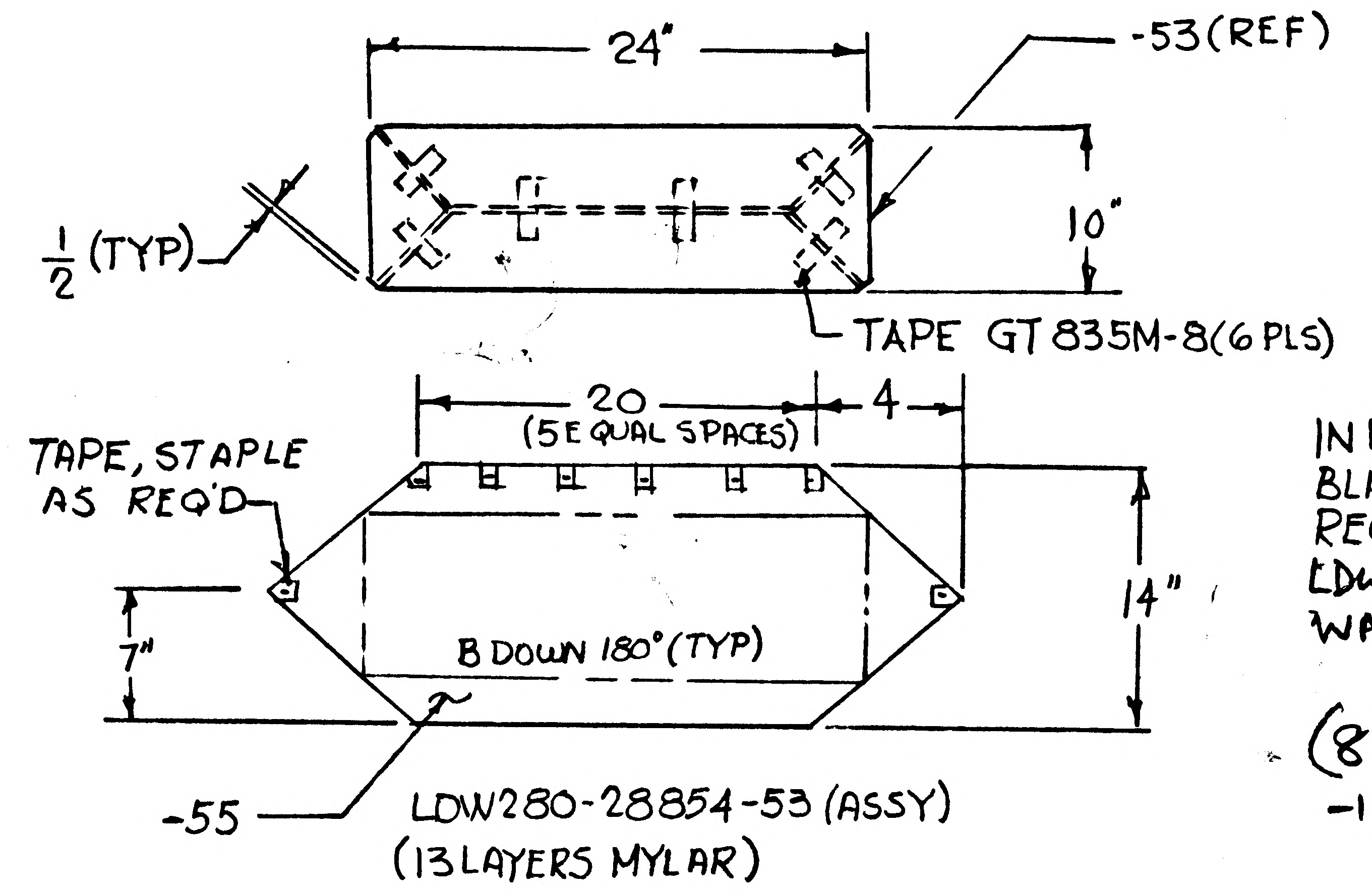
01 NAS 9-1100

NO 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

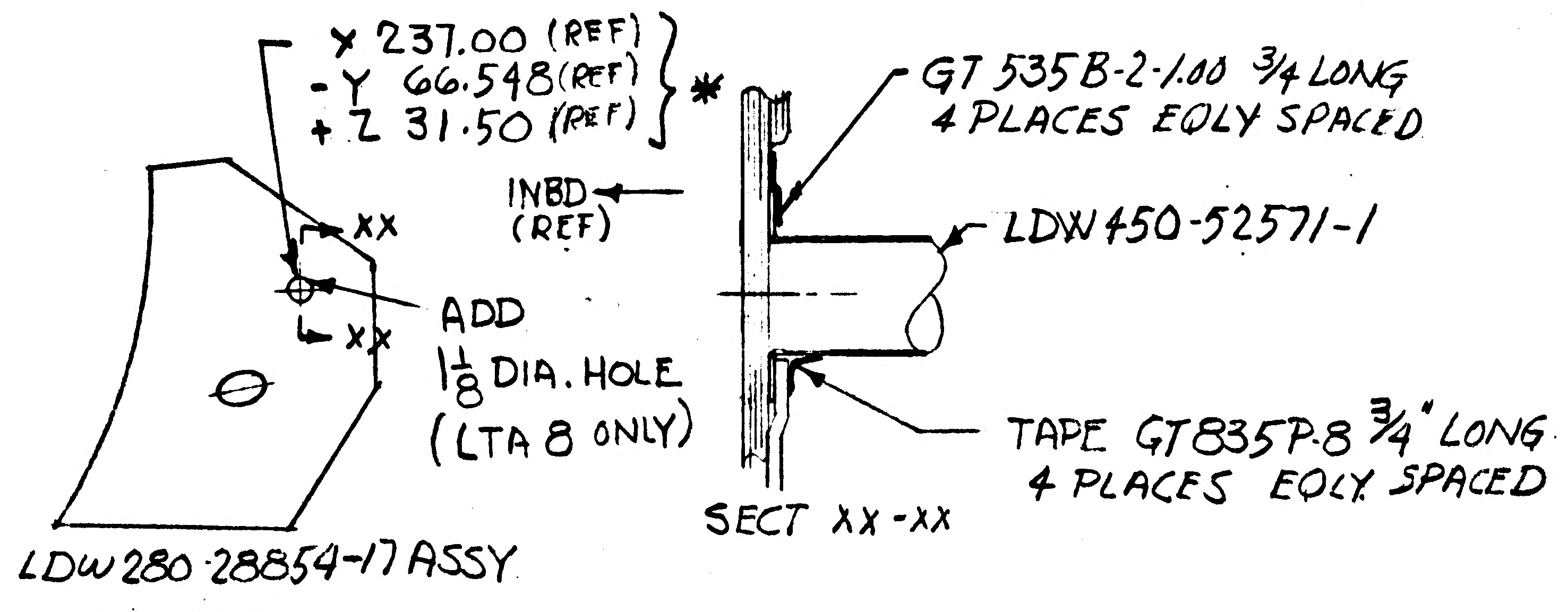
DWG. NO. LDW280-28854	EO NO. A5
CONTROL INFO NO. LDW280 A-4254	

THIS EO CANCELS EO A4


24"
-53(REF)
1/2 (TYP)
10"
TAPE GT 835M-8(6 PLS)
20
(5 EQUAL SPACES)
4
TAPE, STAPLE AS REQ'D
7"
14"
8 DOWN 180°(TYP)
-55
LDW280-28854-53 (ASSY)
(13 LAYERS MYLAR)

IN B/M & F/D ADD -53 TUBE BLANKET ASSY. TO -1 INSTL (1) REQD. PER INSTL. IN B/M LDW280P-14391-1 & -3 (4EA) WAS (3EA) ON -11 ASSY; & LDW280-14441-9 (8 EA) WAS (6 EA). ON -11 ASSY.

ON-1 INSTL. ADD GR11C-1 RETAINERS 75 (WAS 15)
EFF LTA8 (WAS LTA8, LEM 1 & 2) REMOVE LM-1 & -2 FROM -1
CREATE -3 INSTL IDENTICAL TO -1 EXCEPT, REPLACE GR11C-1 WITH GR11C-7 (90)
EFF. LM 1 & 2 N/A LDW280-51150.


X 237.00 (REF)
-Y 66.548 (REF)
+Z 31.50 (REF)
*
INBD (REF)
XX
XX
ADD 1/8 DIA. HOLE (LTA 8 ONLY)
GT 535B-2-1.00 3/4 LONG 4 PLACES EQLY SPACED
LDW450-52571-1
TAPE GT835P-8 3/4" LONG 4 PLACES EQLY SPACED
SECT XX-XX
LDW280-28854-17 ASSY

ADD NOTE ***
LOFTED OUTLINE (DIMENSIONAL INFORMATION) IS FOR REF PURPOSE ONLY APPROVED MASTER TEMPLATES SHALL BE UTILIZED TO VERIFY BLANKET OUTLINES.

* FOR EO REF ONLY. DO NOT INCORP. ON DWG.
XX USE NEXT AVAILABLE SECTION
*** USE NEXT AVAILABLE NOTE NO.

DESCRIPTION OF E.O. CONT'D.
IDENTICAL TO -1 INSTL EXCEPT. GR11C-1 IS REPLACED WITH GR11C-7(90) EFF LM 1 & 2. ON -1 INSTL (LTA8 ONLY) ADDED (3) LDW450-52571-1 & SECT XX-XX & NOTE XXX (THERMO SW)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	MCE-531

REASON FOR EO
(1) PROVISION FOR INSTRUMENTATION INSTALLATION FOR THERMAL TEST.
(2) UPDATE EFF

DESCRIPTION OF EO
THIS EO. CANCELS EO A4
IN B/M/F/D ADDED -53 ASSY TO -1 INSTL IN B/M ONLY ON -11 ASSY ADD (1) LDW280P14391-1 & -3 & (2) LDW280-14441-9 (WAS 6). IN B/M ON -1 INSTL REM GR11C-7 & ADDED (75) GR11C-1 RETAINER. CREATED -3 INSTL

GAEC EO RELEASE: LE 12/17

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA 8 (13)		
LM	LM-1 (31)		
LM	LM-2 (32)		

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY		A.F.		HENTON	NM		HTW	
DATE #5	12/10/66	12/10		12/10	12-10-66		12-12-66	12-12-66
		~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: THERMAL BLANKET INSTL. A/S M/S LH TANK
DRAWING NO.: LDW280-28854
EO NO.: A5

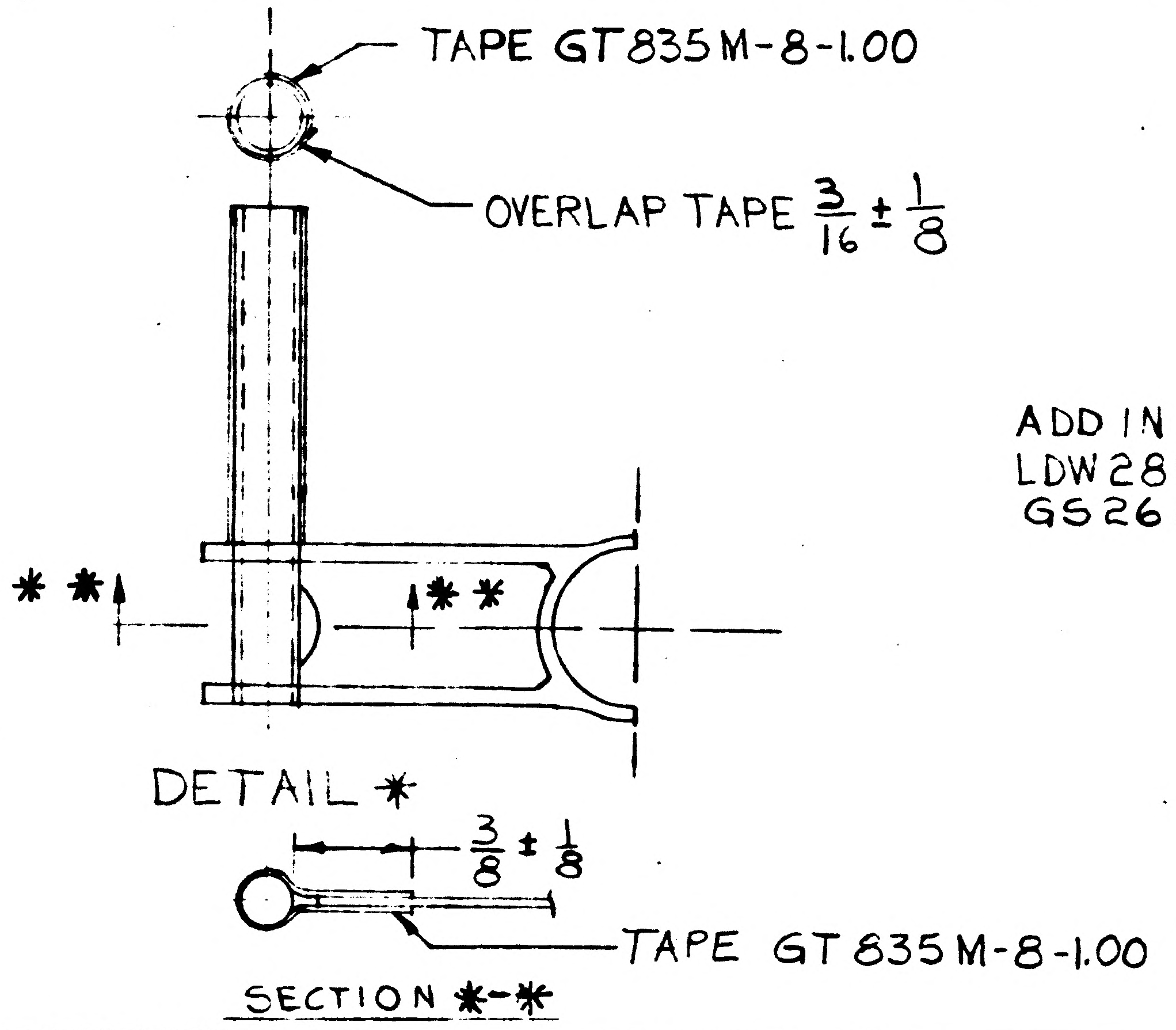
ISSUED BY P KEISER 1981 SECTION [illegible] GROUP NO. 335 PL 35

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28854
EO NO. A6
CONTROL INFO NO. LDW 280 A - 4802


TAPE GT835M-8-1.00
OVERLAP TAPE $\frac{3}{16} \pm \frac{1}{8}$
✱ ✱
✱ ✱
DETAIL ✱
$\frac{3}{8} \pm \frac{1}{8}$
TAPE GT 835M-8-1.00
SECTION ✱-✱

ADD IN F/D DETAIL ✱ TYP FOR LDW280-28860, LDW280-28880 & GS26C

MANUF. INFO ONLY.
THIS WORK IS BEING ACCOMPLISHED ON VERBAL INFO FROM THERMO. DEPT.

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		3 /

REASON FOR EO: THERMAL REQUIREMENTS

DESCRIPTION OF EO: ADDED DETAIL ✱ IN F/D, TYP FOR LDW280-28860, LDW 280-28880 & GS26C.

GAEC C EO RELEASE ⓒ 1/12/7

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	1/11/67	1/12/67		1/11	1/11		1-11-67	1-11-67
#5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	THERMAL BLANKET INSTL ~ A/S ~ M/S L.H. TANK.	LDW280-28854	A6

ISSUED BY L. Lupinaci x1441 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65 B *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28854		EO NO. A7
CONTROL INFO NO. LDW280A-5738		

(ADD) NOTE:

△1 CUTTING & PATCHING PROCEDURE PER LPC280-6.
△2 REPAIR PROCEDURE PER LPC280-8.
△3 BAY VENT INSTL PROCEDURE PER LPC280-9.
△4 PERMISSIBLE DEVIATIONS & REPAIR PROCEDURE PER LPC280-20.

REMOVE NOTE #5.
IN SECT S-S REMOVE CALLOUT; BOND UPPER HALF---- ETHYLENE DICHLORIDE.

ADD GT15C-2 TAPE TO SECTIONS TO AGREE WITH LPC280-3.
ADD GT15C-2 TO B/M.

△1 TO △4 USE NEXT AVAILABLE NO.

3

DETAIL SPEC REQ	✓	CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: LPC'S OMITTED ON DWG

DESCRIPTION OF EO: ADDED NOTE △1 TO △4. REMOVED NOTE #5. IN SECT S-S REMOVED CALLOUT; BOND UPPER HALF---. ETHYLENE DICHLORIDE. ADDED GT15C-2 TAPE TO SECTIONS TO AGREE WITH LPC280-3. ADDED GT15C-2 TO B/M.

(B) GAEC EO RELEASE C: JK 3/7/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31) THRU	LM-3(33)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY			RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CGNT
	JaP		7.DR				Dam	JLP
DATE	3/2/67		3/2/67		3/3		3/6/67	3/7/67
1	VDI	~~SUPPORT~~ THERMO						

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	THERMAL BLANKET INSTL A/S-MID-SECT - LH TANK	LDW280-28854	A7

ISSUED BY JOHN K. LEE SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65 C

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 548

CONTROL INFO NO. LM-3-4941

DRAWING NO.	CHG	DESCRIPTION OF CORRECTION	EFFECT.
✓LDW280-54026	B2	IN FIELD & B/M REMOVE LDW280-10546-25 (REF. E.O. LDW280-10546 B5)	LM-4 (34) THRU LM-15 (45)
✓LDW280-28896	A9	ON INCORPORATION OF E.O. A7 REMOVE LM-1, LM-2 EFFECTIVITY	LM-1 (31) LM-2 (32)
✓LDW280-11275	A5	ON INCORPORATION OF E.O. A4 -35 WAS -31	LM-3 (33) THRU LM-15 (45)
✓LDW280-28854	A8	ON INCORPORATION OF E.O. A7 REMOVE LM-3 EFFECTIVITY.	LM-3 (33)
LDW280-10310	D2	ON INCORPORATION OF CHG D1 NEXT ASSY LDW280-54074 WAS LDW280-23074 (REF. LEO280-526)	LM-7 (37) THRU LM-15 (45)
LDW280-28203	C5	ON INCORPORATION OF E.O. C1 -17 PANEL INSTL. WAS -11 PANEL INSTL.	LM-1 (31) LM-2 (32)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

3

REASON FOR EO: PROVIDE MULTIPLE DRAWING CORRECTIONS

DESCRIPTION OF EO: NOTED

GAEC C EO RELEASE: C JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO

DISPOSITION OF PARTS: NOT REQD | REWORK | SCRAP 6 V.D.I

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	FKR			—	—		RMC (EJ)	
DATE	4/13/67			~	—	4-4-67	4-5-67	4/4/67

PRIORITY: C | DRAWING TITLE: SEE DRAWING | DRAWING NO. LEO 280 | EO NO. 548

ISSUED BY LIAISON / VIC BOLLO X2151 SECTION VDI GROUP NO. 335 PL 25

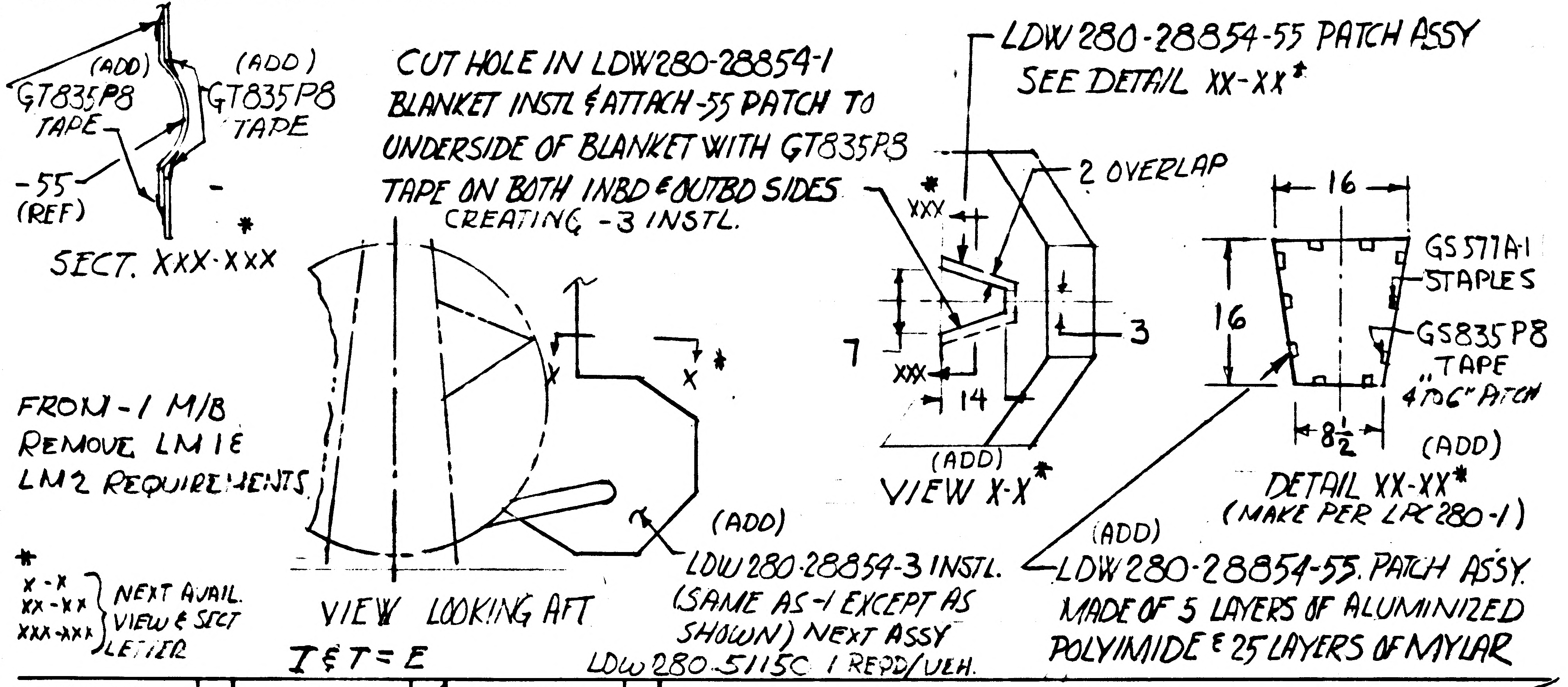
01 NAS 9-1100

ENG 32.1 REV 3-65 RELEASED BY LIAISON

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 28854 | EO NO. A9
CONTROL INFO NO. LM5-13153

REVISE F/D & B/M AS FOLLOWS:



CUT HOLE IN LDW280-28854-1 BLANKET INSTL & ATTACH -55 PATCH TO UNDERSIDE OF BLANKET WITH GT835P8 TAPE ON BOTH INBD & OUTBD SIDES CREATING -3 INSTL.

LDW 280-28854-55 PATCH ASSY SEE DETAIL XX-XX*

(ADD) DETAIL XX-XX* (MAKE PER LPC 280-1)

FROM -1 M/B REMOVE LM 1 & LM 2 REQUIREMENTS

VIEW LOOKING AFT

(ADD) LDW 280-28854-3 INSTL. (SAME AS -1 EXCEPT AS SHOWN) NEXT ASSY LDW 280-5115C 1 REQD/VEH.

(ADD) LDW 280-28854-55. PATCH ASSY. MADE OF 5 LAYERS OF ALUMINIZED POLYIMIDE & 25 LAYERS OF MYLAR

I & T = E

* X-X, XX-XX, XXX-XXX } NEXT AVAIL. VIEW & SECT LETTER

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

5

REASON FOR EO: TO PROVIDE CLEARANCE FOR FUEL LINE

DESCRIPTION OF EO: IN F/D & B/M ADDED -3 BLANKET INSTL. ADDED -55 PATCH ASSY. ADDED SECT X-X, XXX-XXX & VIEW XX-XX. FROM -1 M/B REMOVED LM 1 & LM 2 REQ.

R GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
LM		LM2 (32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	WT	VDI		~	JF	JF	RMc	Bott.	
DATE	4/10/67	4/10		~	4-11-67	4-11-67	4-13-67	4-11-67	
1	VDI	SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONF	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLANKET INSTL. ASCENT STAGE MID SECT. LH TANK.	LDW280-28854	A9

ISSUED BY P. KEISER x4709 SECTION V.D.I. GROUP NO. 335 PL 5

01

NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28854
EO NO. A10
CONTROL INFO NO. LMS-13206

THIS IS A REVISION OF E.O. A9

REVISED F/D & B/M AS FOLLOWS:

ADDED LDW280-28854-5 INSTL. (WAS LDW280-28854-3 INSTL)

RELEASED BY LIAISON

5

DETAIL SPEC REQ		CL II ENGRG CHG	X	CL I ENGRG CHG	

REASON FOR EO: TO CORRECT INSTL. NO.

REF. E.O. A9

DESCRIPTION OF EO: NOTED ABOVE

GAEC EO RELEASE: JK —

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LM1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD REVISE DWG	DRAWING CHANGE REQD RECORD EO	DISPOSITION OF PARTS REWORK	DISPOSITION OF PARTS SCRAP
✓		✓	

APPROVED BY	WT	VDJ		~	FJ	CH			
DATE	4/19/67	4/19		~	4-20-67	4-20		4-20-67	
1	VDI	~~SUPPORT~~ THERMAL	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLANKET INSTL. ASCENT STAGE MID SECTION. L.H. TANK.	LDW280-28854	A10

ISSUED BY P. KEISER X 9709
SECTION VD.1
GROUP NO. 335
PL 5

01

NAS 9-1100

ENG 32.1 REV 3-65

Ⓐ

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28854
EO NO. B1
CONTROL INFO NO. LM 29-1069

IN F/D & B/M CREATE -7 SAME AS -5 EXCEPT LDW360-28296-9 (1) WAS LDW360-51296 (A/R). FOR LM-2 (32)

IN F/D & B/M REMOVE LM-2 (32) EFF FROM -5

-7 MAY BE MADE BY REWORKING -5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

29

REASON FOR EO: TO AGREE WITH LDW360-28296 DWG.

DESCRIPTION OF EO: IN F/D & B/M CREATED -7

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	

DRAWING CHANGE REQD: ☑ REVISE DWG ☐ RECORD EO

DISPOSITION OF PARTS: ☑ REWORK ☐ SCRAP

APPROVED BY				—	~	WZ		
DATE	8/31/67			—	~	8-18-67	8/31/67	8/26/67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	QUAL

PRIORITY: C
DRAWING TITLE: BLANKET INSTALLATION ASCENT STAGE-MID SECTION L.H. TANK THERMAL
DRAWING NO.: LDW280-28854
EO NO.: B1

ISSUED BY LIAISON C.J. MONTEBELLO X7930 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

LDW280-28855 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51150	LM-2 (32)	1
LM	LDW280-51150	LM-1 (31)	1
PART NO. LDW280-28855-65		GAEC SCH NO. 30	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28150	LTA-8 (18)	1
PART NO. LDW280-28855-1		GAEC SCH NO. 30	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

WORK PKG FUNCTION NO. 110 5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	1.11	2.00	2.01	3.00			
REV	B	B	B	B	B	B			
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	T	GRUMMAN REL INFO B	
LAST DASH NO. USED	-81	PRIM NO. 215	JK(001) mP-16B-8/9/?

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100 | LINE ITEM | DOCUMENTATION TYPE II

DRAWN BY	G. DAVIS	9/9/66	THERMO	K Taml	7-6-67
LAYOUT BY	G. DAVIS	9/9			
CHECKED BY					
GR. LEADER	HENTON	9/9			
VEH DES INT	BISCHOFF	9/9			
STRUCTURE	FEB	9/10	PROJ ENGR	R.M. CARBEE	9/13
STRUCTURE	HILDERMAN	9/10	REL GROUP	E.J.R.	
WEIGHTS					

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

BLANKET INSTALLATION ASCENT STAGE - LOWER MID-SECTION INTERNAL

SIZE	CODE IDENT NO.		
B	26512	LDW280-28855	B
SCALE NONE		SHEET 1.00 OF 6	

ENG 77.1 12-65

THIS DWG SUPERSEDES LDW280-28855 NO CHANGE 9/13/66

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOV'T APPD
								-	RETRACED NO CHANGE. LAST REV. NO CHANGE ADDED SH 1.10, 2.01 DELETED SH. 4.00 & 5.00 6/12/67 H. DEUTSCH.						
A	1	1.10					✓	EO A1	ADDED SECTION * * & NOTE * IN F/D; ADDED GT835M-8 TO B/M (NOT APPLICIABLE)	LTA-8 (18) LM-1 (31) LM-2 (32)	NOT	REQ'D	H. DEUTSCH 6-12-67		
	2	1.10, 2.00 3.00	7C					EO A2	ON-1 INSTL: ADDED LDW280-28855-17 & 39 BOOT ASSY. WAS ON-5, -3 & -9 RESP., REMOVED -11 & -13 BLANKET ASSY. ADDED LDW280-28855-53 BLANKET ASSY. ON-3 ASSY REMOVED -33, ON-9 ASSY REMOVED -35, ON -1 INSTL REMOVED -47.						
	3	1.10, 2.00 3.00	10A 10B					EO A3	ON-7 ASSY. REMOVED -17 BOOT ASSY. ON-1 INSTL ADDED -17, -55 & -57 TUBE WRAP.		✓				
	4	1.10, 2.00 3.00	4A 3D 7B 7C 8A				✓	EO A4	REVISED B/M AS FOLLOWS: ON-1 INSTL LDW280-14440-33 (10) WAS AS REQ'D. REMOVED -41, ADDED GT835P-8-1.00 (A/R) REMOVED -43 ADDED GT835E-8-1.00 (A/R). REMOVED -45 ADDED GT535B-2-1.00 (A/R). ADDED LDW280-14440-31 AS FOLLOWS: (4) ON-3 & -5 ASSYS, (6) ON-7 ASSY. (2) ON-9 ASSY.						
	5	1.10, 3.00						EO A5 LEO-280-431	ON INCORP. OF E.O. A4 ON-1 INSTL ADD LDW280-14440-33 (10 REQD) WAS "ON-1 INSTL. LDW280-14440-33 (10) WAS AS REQUIRED." IN NOTE 7 LEVEL "C" WAS LEVEL "E".		NOT	REQ'D			
	6	1.10, 3.00	2A 12B				✓	EO A6 LCD 878	ADDED EO TO RECORD EO BLOCK.	LTA-8 (18)	✓				
	7	1.00, 300			✓			EO A7	ADDED NOTES: 19, 20, & 21. REMOVED NOTES #5, #7, SECTION L-L & DETAIL "A".	LTA-8 (18) LM-1 (31) LM-2 (32)					
	8	1.00, 1.10 2.00, 3.00					✓	EO A8	ADDED -59 BLANKET INSTL. & -61 BLANKET ASSY & -63 PATCH, REMOVE LM-1 FROM -1 MOD. BLOCK.	LM-1 (31	-1				
	9	1.00, 1.10 2.00, 3.00	11A 12A 11C 4A 3D				✓	EO A9 LCD 1244	IN F/D & B/M ADDED -65 BLANKET INSTL. MADE OF (1) -67, -69 -71 & BLANKET ASSYS, & -75 & -79 DOOR ASSYS., ADDED (10) LDW280-14440-33 PATCHES, ADDED SECTION S-S & V-V. & DETAIL U. ADDED (3) -55 TO -65 INSTL. REMOVED -59 INSTL FROM -1 MOD. BLK	LM-1 (31) LM-2 (32)	✓	-59			

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS	THERMO					
B											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-28855 | B ③

SCALE NONE | SHEET 1.10

ENG 77.16 3-66

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
B	1	1.10, 2.00 3.00					✓	EO B1	IN F/D, IN DETAIL E, LDW280-28855-39 (WAS-49) (NOT APPLICIABLE)	NOT REQD	NOT	REQ'D	H. DEUTSCH 6-12-67	☒	☒
	2	1.10.2.00							REF. EO A3: LDW280-28855-57 TUBE WRAP (25 REQ'D) WAS (12 REQD) LDW280-28855-55 (4 REQ'D) WAS (2 REQD)	LTA-8 (18) LM-1 (31) LM-2 (32)	✓				
	3	1.10, 2.00 3.00	7B 7D 6D 5B 3B				✓		IN F/D & B/M GT835 P-8 & GT835E-8 WAS GT835P-8-1.00 & GT835E-8-1.00 REMOVED LDW280-14440-31. ADDED DETAIL "T". VENT PATCH TO BE MANUFACTURED PER NOTE 2. (16 PLACES) REF. EO A4						
	4	1.10, 2.00 3.00	8A						IN F/D & B/M: LDW280-14440-33 (6 REQ'D) WAS (10 REQ'D) REF EO A5		NOT	REQ'D			
	5	1.10, 2.00 3.00	4A 3D 11C				✓	LCD 1244	REF. EO A9: IN F/D OF EO, LDW280-14440-31 SHOULD BE -33 -75 & -79 DOOR ASSYS ON -73 & -67 WAS ON -65 INSTL. LDW280-14440-33 ON -67, -79, -71, & -73 WAS ON -65 INSTL	LM-1 (31) LM-2 (32)					
	6	1.10 2.00 3.00	7D 12D						IN F/D & B/M: REMOVED LDW280-11506-17, LDW280P11526-15 & LDW280P14391-1 & -3. ADDED GT835M-8 TO DET "F," LDW280P11582 (REF) COVER WITH GT835M-8 & DIM FOR -17. ADDED LDW280P10871-11 (DWG ERROR CORRECTION)	LTA-8 (18) LM-1 (31) LM-2 (32)	NOT	REQD			
	7	1.00 3.00	9B						IN FIELD ADDED DET "K". DELETED NOTES 1, 4, 8 THRU 14. ADDED NOTES 15 THRU 22. (THIS CHG WAS MADE TO CONFORM TO STD BLANKET CONFIGURATION PROCEDURE)	NOT REQD	NOT	REQD			
	8	1.00					✓	LCD 1244	REF EO A9: ON-1 REMOVED LM-2	LM-2		-1	JOC		

	LTR	GROUP LDR	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS	THERMO
CHG APPROVED	B	FAR 7/6/67	J. Purston 7/6	JV 7/6/67	7/18		7/7/67

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28855	B
SCALE NONE		SHEET 1.11	

ENG 77.16 3-66

01

NAS 9-1100

	QTY PER ASSEMBLY												CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	-79	-75	-73	-71	-69	-67	-65	-9	-7	-5	-3	-1											
			A/R	A/R	A/R	A/R		A/R	A/R	A/R	A/R			GW10H-3	E	WASHER	GRUMMAN STD						
	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R		GT835P-8		TAPE							
							A/R					A/R		GT835M-8									
							A/R					A/R		GT535B-2-1									
							A/R					A/R		GT15C-2		TAPE							
	A/R	A/R					A/R					A/R		GS577A-1		STAPLE							
			A/R	A/R	A/R	A/R		A/R	A/R	A/R	A/R			GR11B-1		RETAINER	GRUMMAN STD						
			4	1	1	4	6					6		LDW280-14440-33		BLANKET PATCH	SEE DWG						4A
	1													LDW280-28855-81		DOOR	SEE NOTE 15				NONE	NONE	4A
						1								-79		DOOR ASSY							3D
		1												-77		DOOR	SEE NOTE 15						12A
			1											-75		DOOR ASSY							4A
							1							-73		BLANKET ASSY							4A
							1							-71									4A
							1							-69									4A
							1							-67		BLANKET ASSY							4A
														-65		BLANKET INSTL							4A
							25					25		-57		TUBE WRAP	SEE NOTE 17						10B
							7					4		-55		TUBE WRAP	SEE NOTE 17						10A
							1					1		-53		ENGINE BELL COLLAR	SEE NOTE 16						7C
						1		1						-27		BLANKET	SEE NOTE 15						2D
					1				1					-25			SEE NOTE 16						2C
				1						1				-23			SEE NOTE 16						2C
			1								1			-21		BLANKET	SEE NOTE 15						2B
							16					16		-17		BOOT	SEE NOTE 16						12D
												1		-9		BLANKET ASSY							4A
												1		-7									4A
												1		-5									4A
												1		-3		BLANKET ASSY							4A
														LDW280-28855-1	E	BLANKET INSTL					NONE	NONE	4A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28855	B (B)
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

		5	3	3	5		5	3	3	5			LDW280-14440-31		BLANKET VENT	SEE NOTE 3						
											A/R		LDW280P10871		TAPE							
										1			LDW280-28855-19	E	BLANKET							
								1	2				LDW280-28855-15	E	PATCH	SEE NOTE 22						
						A/R					A/R		GT835E-8	E	TAPE	GRUMMAN STD						
-79	-75	-73	-71	-69	-67	-65	-9	-7	-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
QTY PER ASSEMBLY																						

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28855	B

(B)

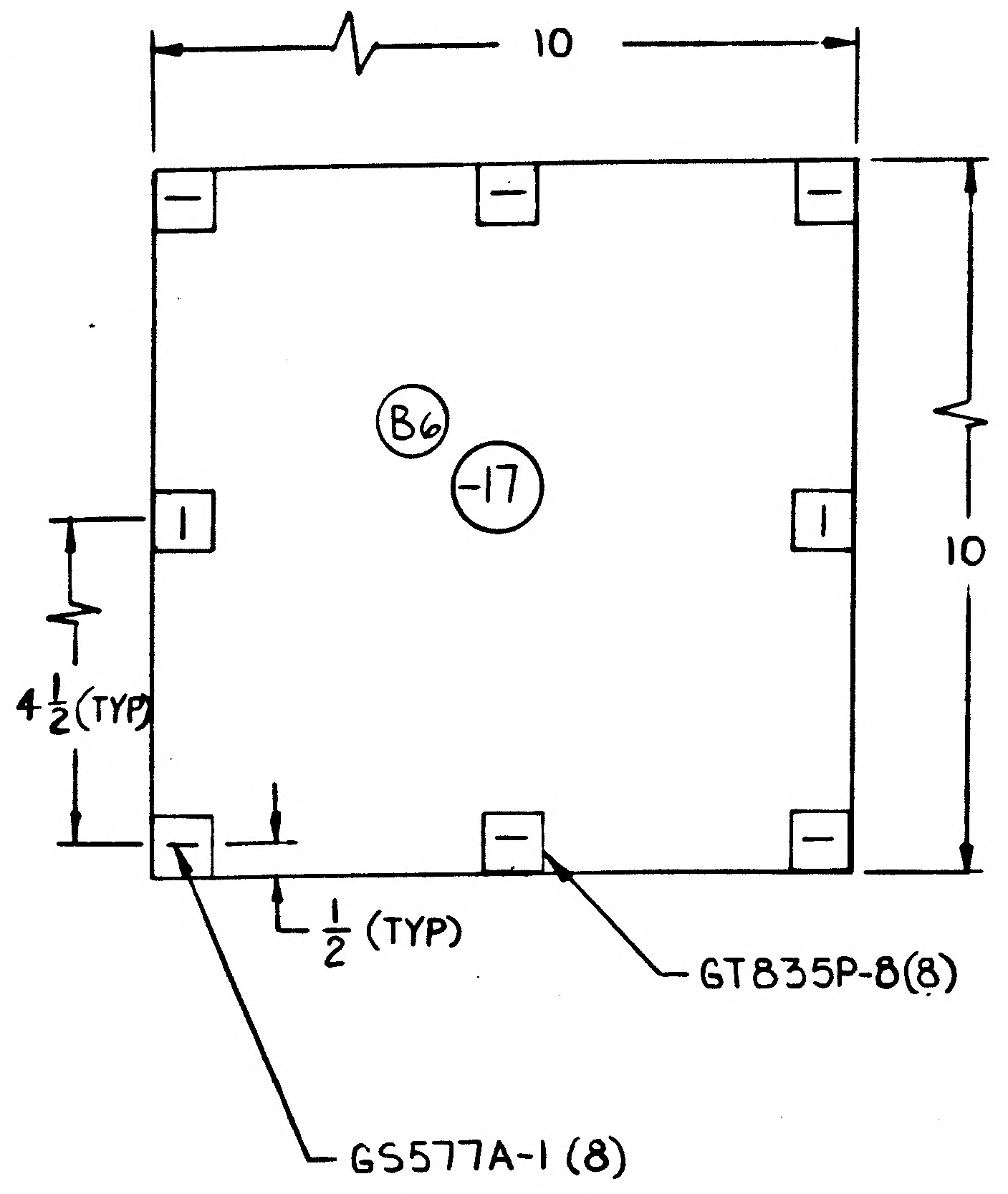
SCALE NONE

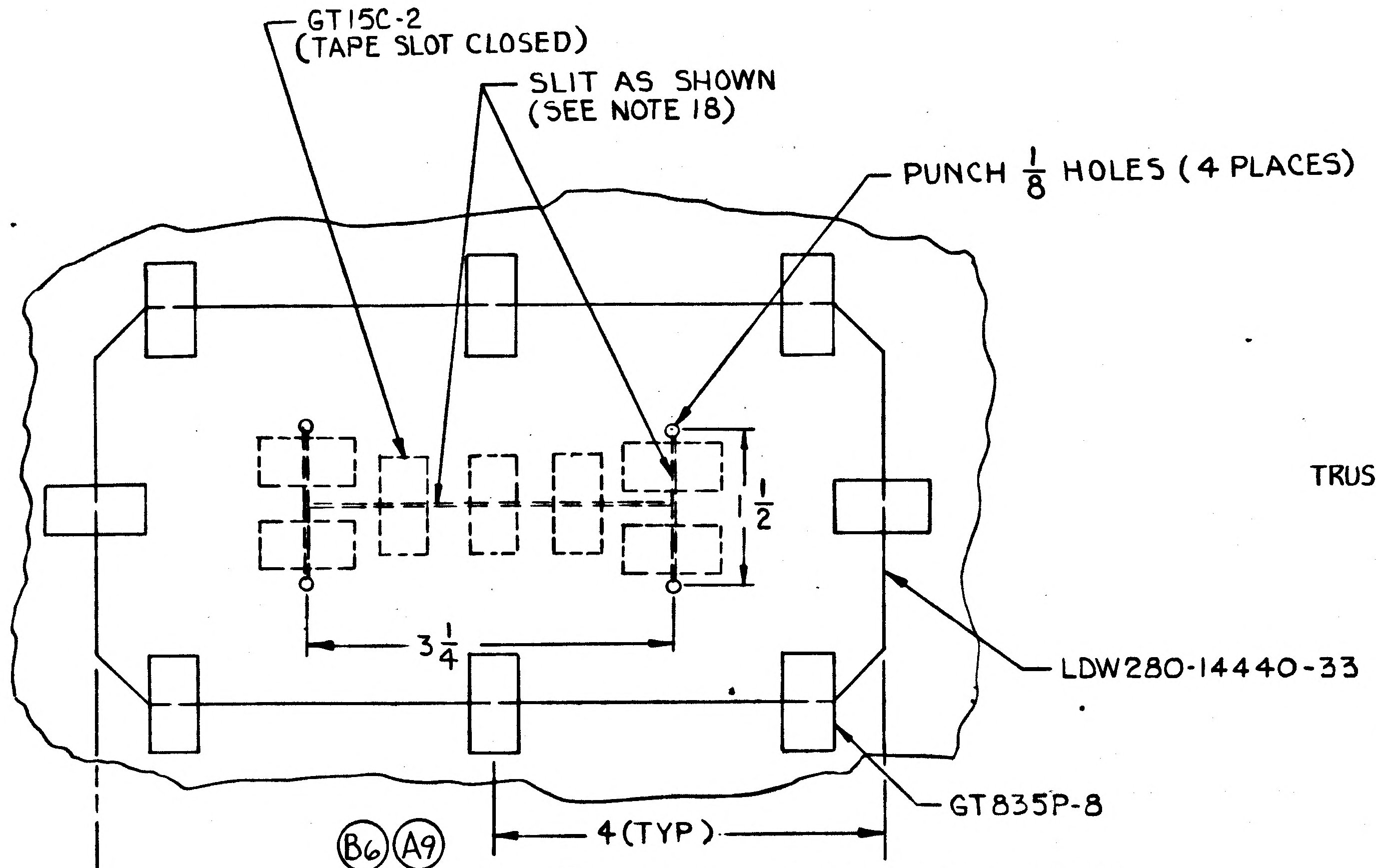
SHEET 2.01

ENG 77.2 7-65

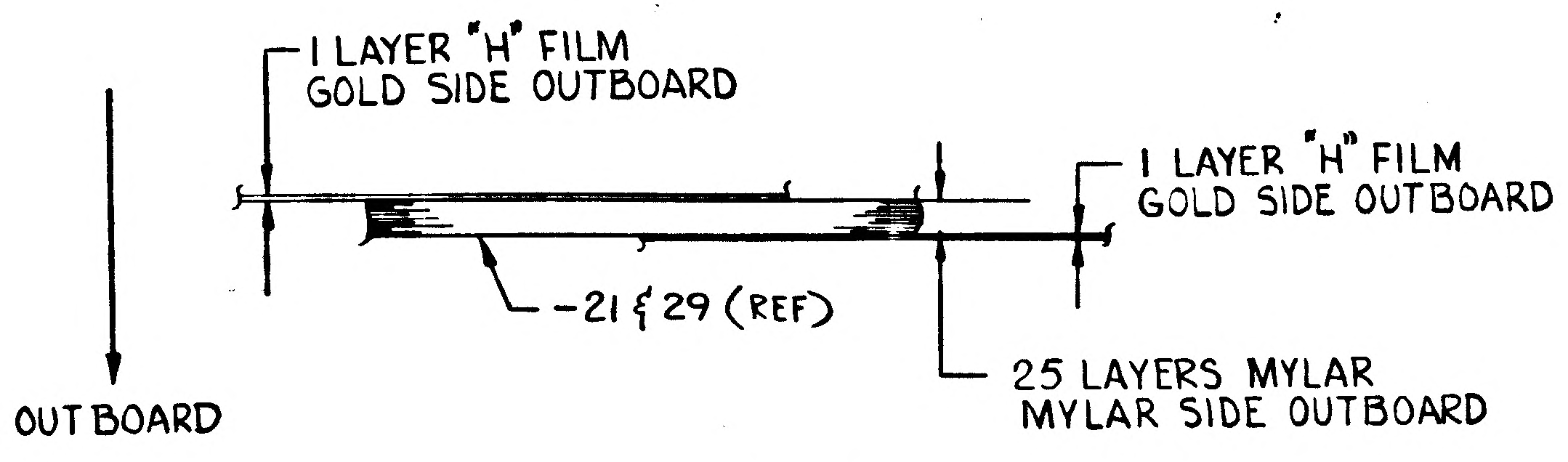
01

NAS 9-1100

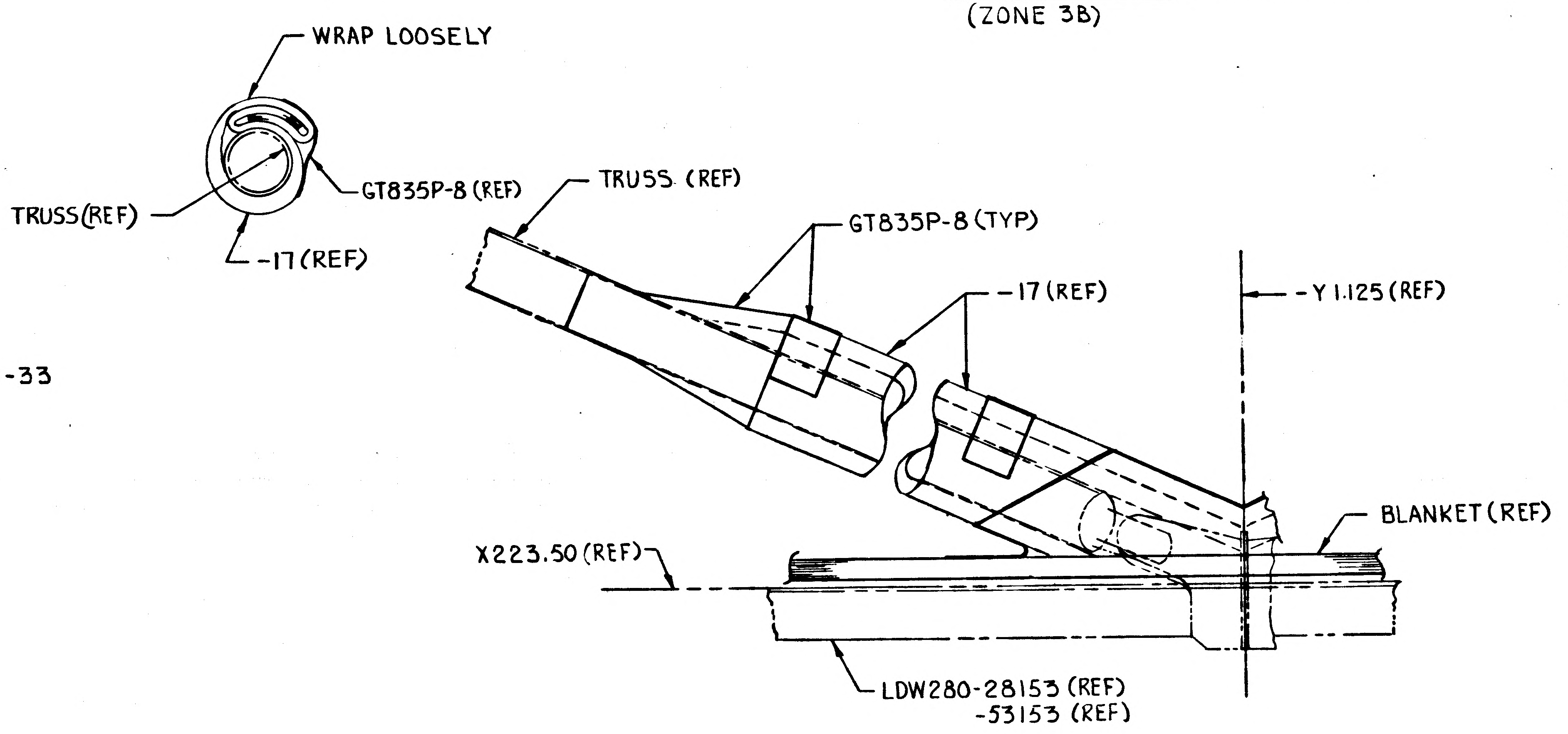

10
10
B6
-17
1
1
4 1/2 (TYP)
1/2 (TYP)
GT835P-8(8)
GS577A-1 (8)


GT15C-2
(TAPE SLOT CLOSED)
SLIT AS SHOWN
(SEE NOTE 18)
PUNCH 1/8 HOLES (4 PLACES)
1/2
3 1/4
LDW280-14440-33
4 (TYP)
GT835P-8

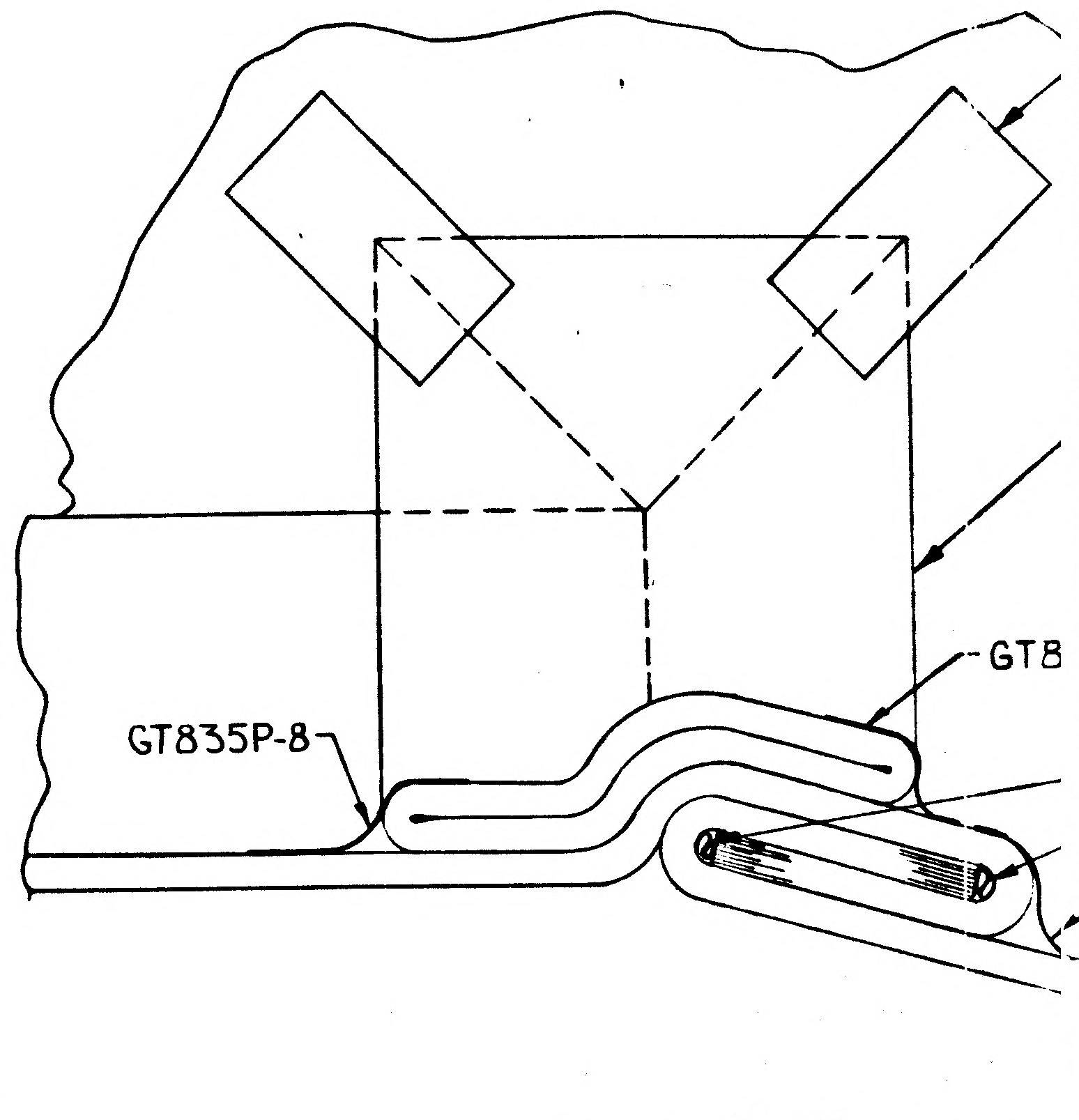
B6 A9 DETAIL P (TYP 2 PLACES) (ON-69 & -71)
(ZONE 3B)
-Z 10.250 (REF)


1 LAYER "H" FILM
GOLD SIDE OUTBOARD
1 LAYER "H" FILM
GOLD SIDE OUTBOARD
-21 & 29 (REF)
25 LAYERS MYLAR
MYLAR SIDE OUTBOARD
OUTBOARD

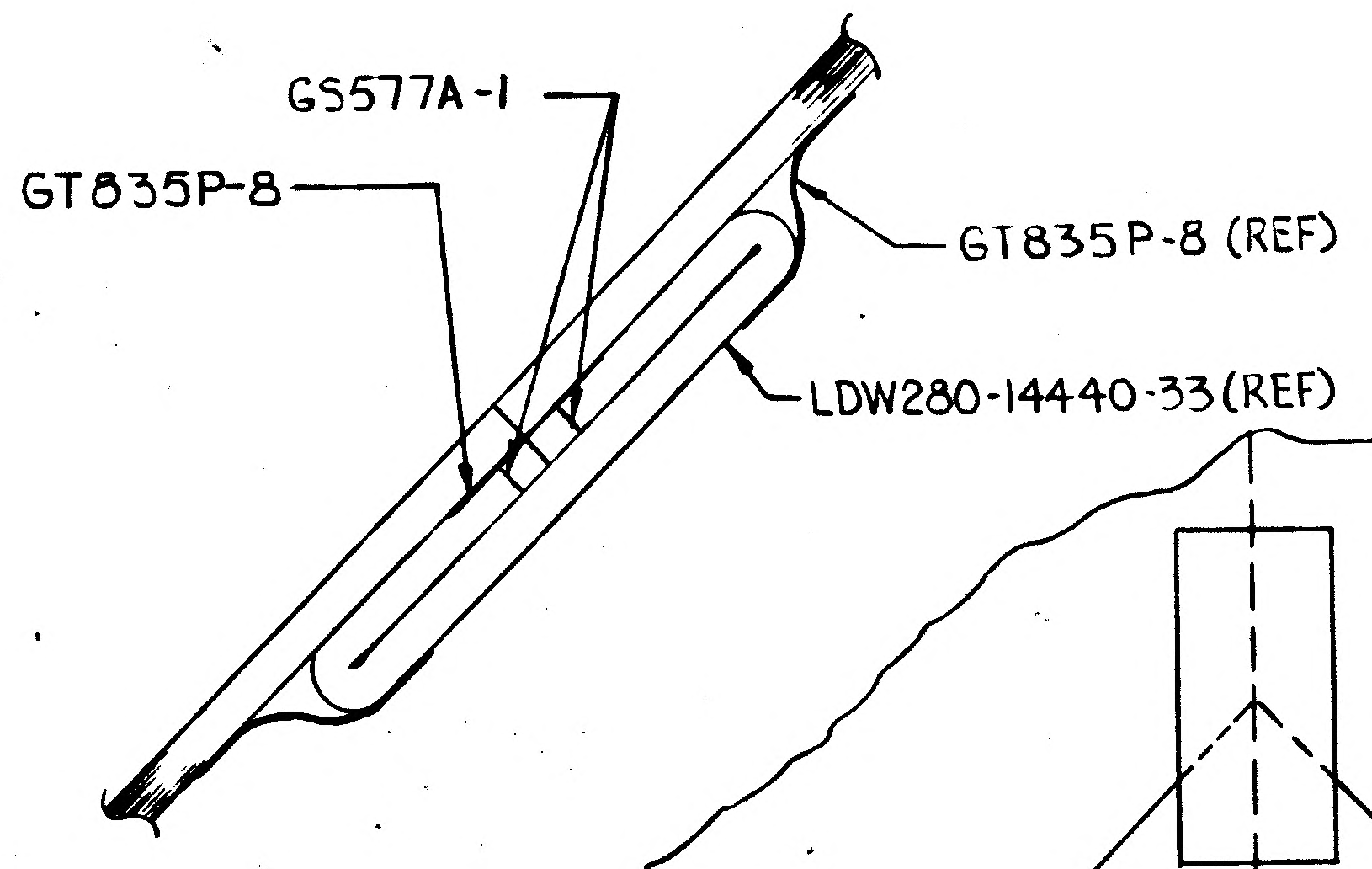
SECTION J-J (SEE NOTE 15)
(ZONE 3B)


WRAP LOOSELY
TRUSS(REF)
GT835P-8 (REF)
-17 (REF)
TRUSS (REF)
GT835P-8 (TYP)
-17 (REF)
-Y 1.125 (REF)
BLANKET (REF)
X223.50 (REF)
LDW280-28153 (REF)
-53153 (REF)

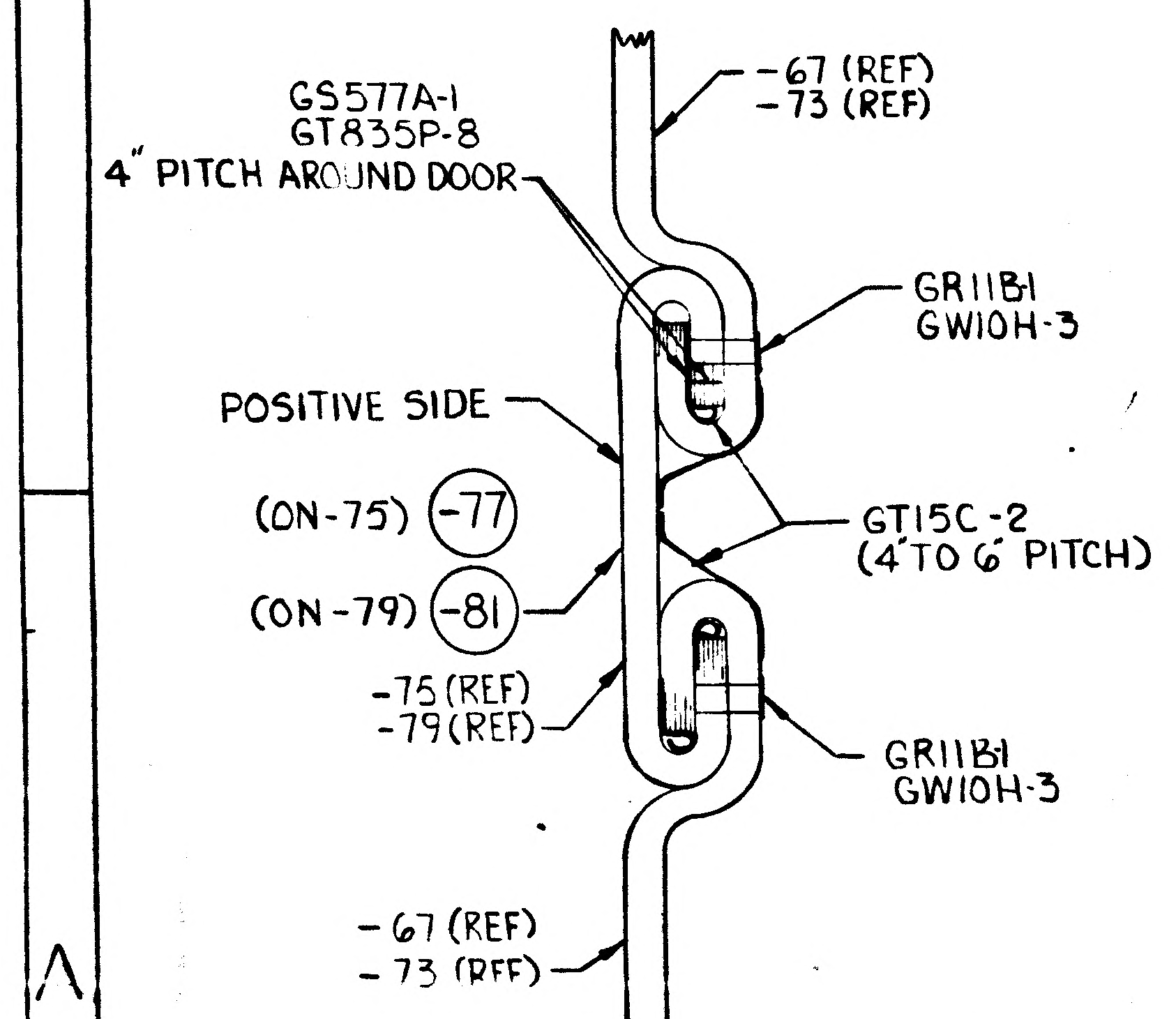
B7 DETAIL K (TYP 16 PLACES)
(ZONE 2C)


GT835P-8
GT8

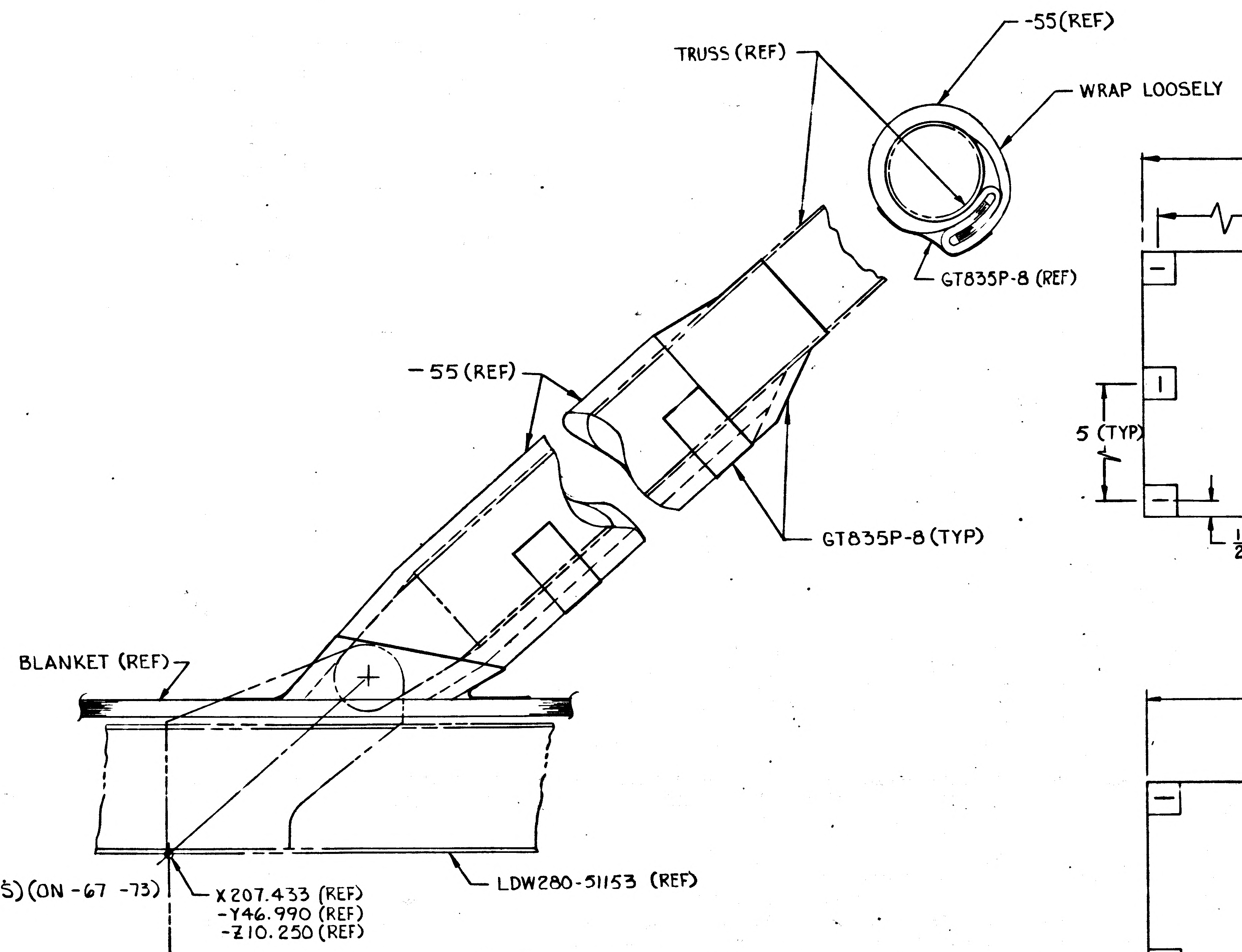
SECTION G-G (TYP 2 P
(ZONE 4B)


GS577A-1
GT835P-8
GT835P-8 (REF)
LDW280-14440-33 (REF)

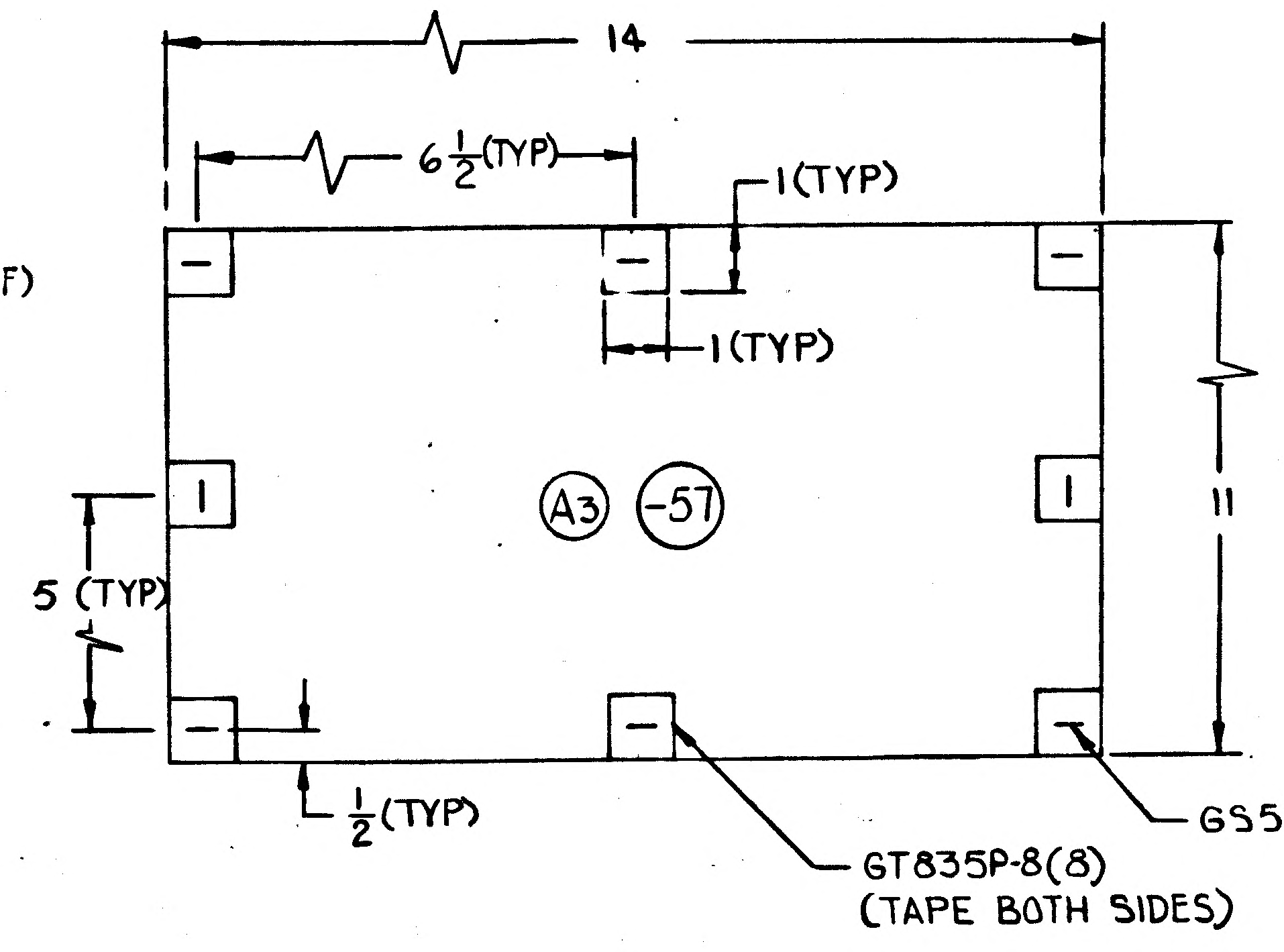
SECTION N-N
(ZONE 8B)

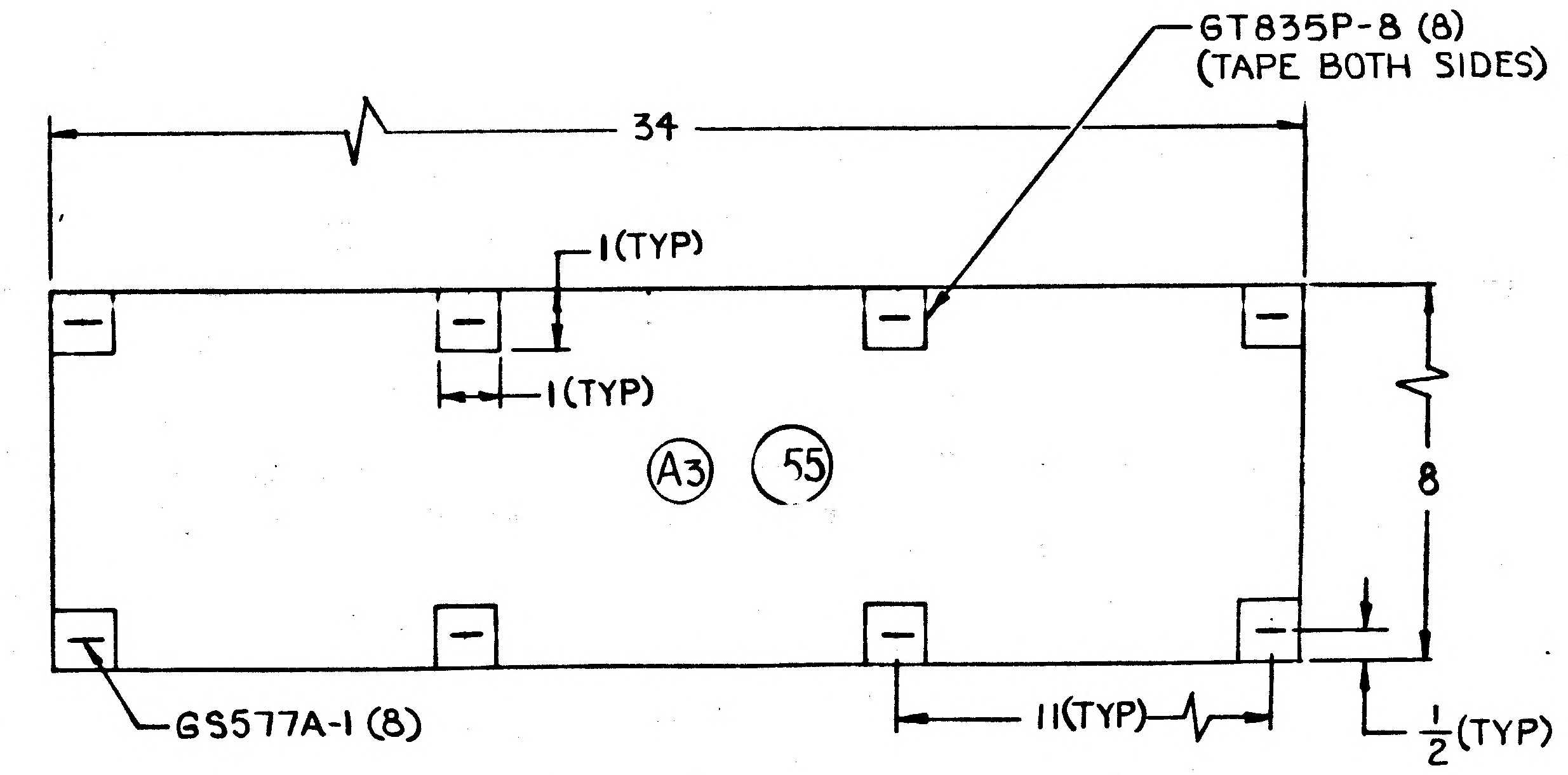

-67 (REF)
-73 (REF)
GS577A-1
GT835P-8
4" PITCH AROUND DOOR
GR11B1
GW10H-3
POSITIVE SIDE
(ON-75) -77
(ON-79) -81
GT15C-2
(4" TO 6" PITCH)
-75 (REF)
-79 (REF)
GR11B1
GW10H-3
-67 (REF)
-73 (REF)

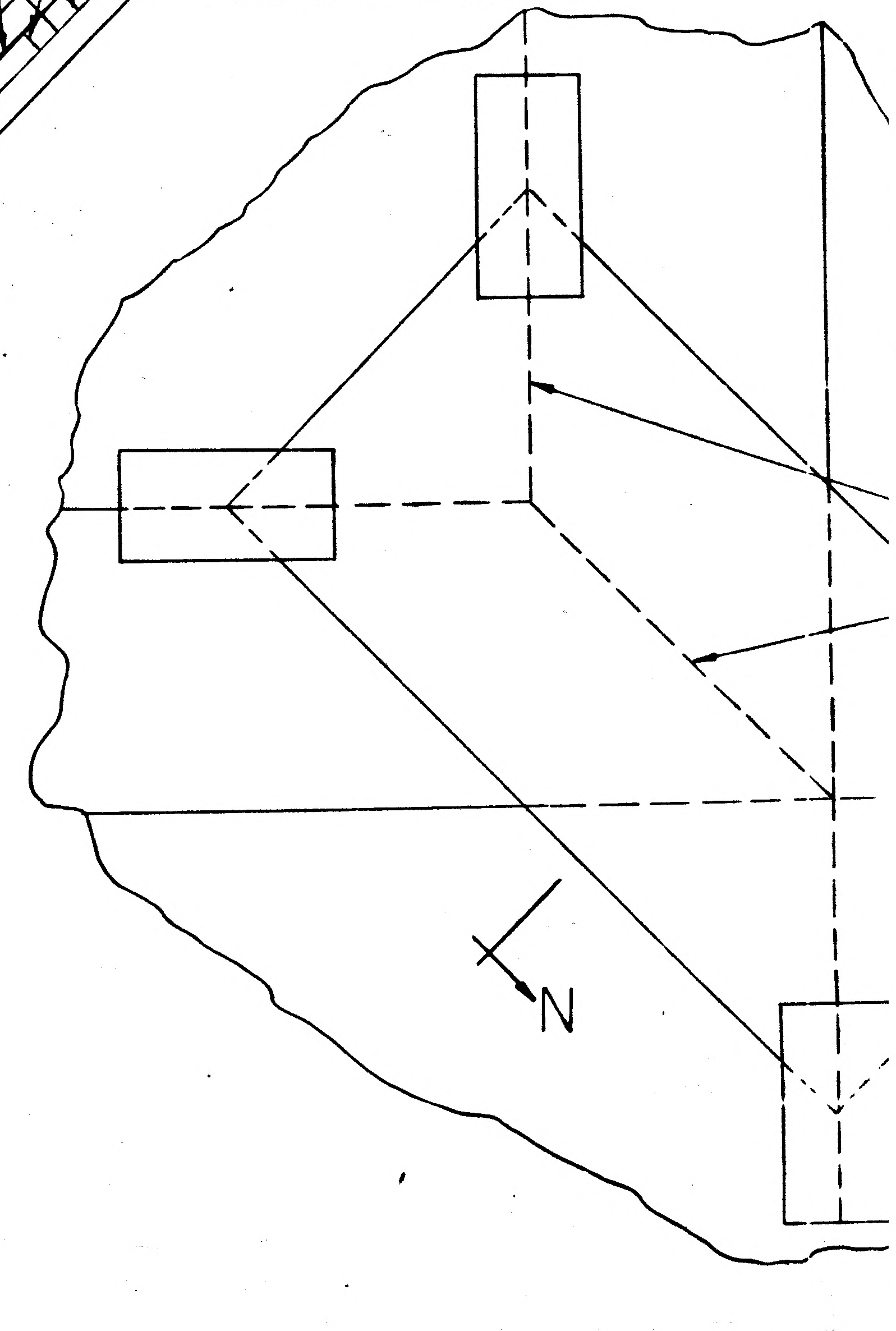
A9 SECTION R-R (TYP 2 PLACES) (ON -67 -73)
(ZONE 3A)
SCALE: NONE


TRUSS (REF)
-55 (REF)
WRAP LOOSELY
GT835P-8 (REF)
-55 (REF)
GT835P-8 (TYP)
BLANKET (REF)
LDW280-51153 (REF)
X207.433 (REF)
-Y46.990 (REF)
-Z10.250 (REF)

A9 SECTION S-S (TYP 3 PLACES) (ON -65)
(ZONE 3A)


14
6 1/2 (TYP)
1 (TYP)
1 (TYP)
5 (TYP)
A3
-57
1
1
11
1/2 (TYP)
GT835P-8(8)
(TAPE BOTH SIDES)
GS577A-1(8)


GT835P-8 (8)
(TAPE BOTH SIDES)
34
1 (TYP)
1 (TYP)
A3
55
8
GS577A-1 (8)
11 (TYP)
1/2 (TYP)

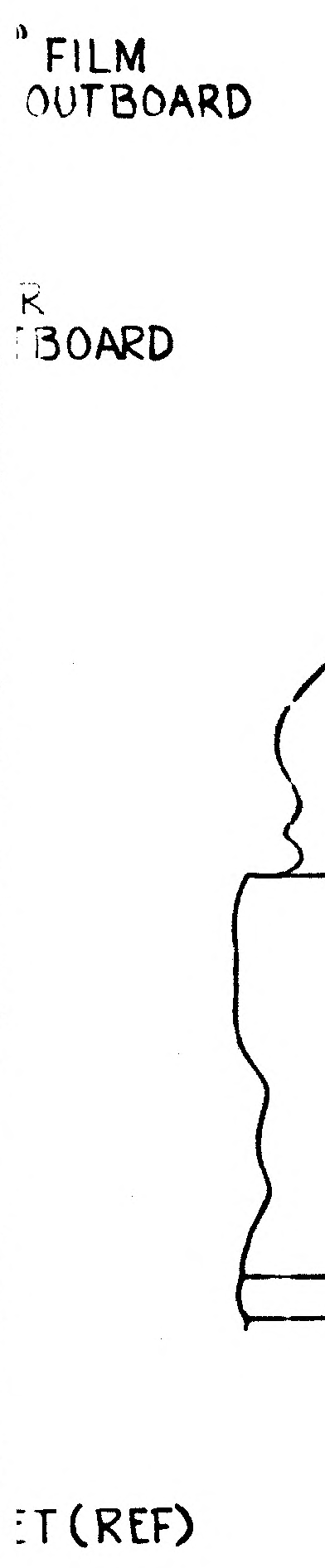


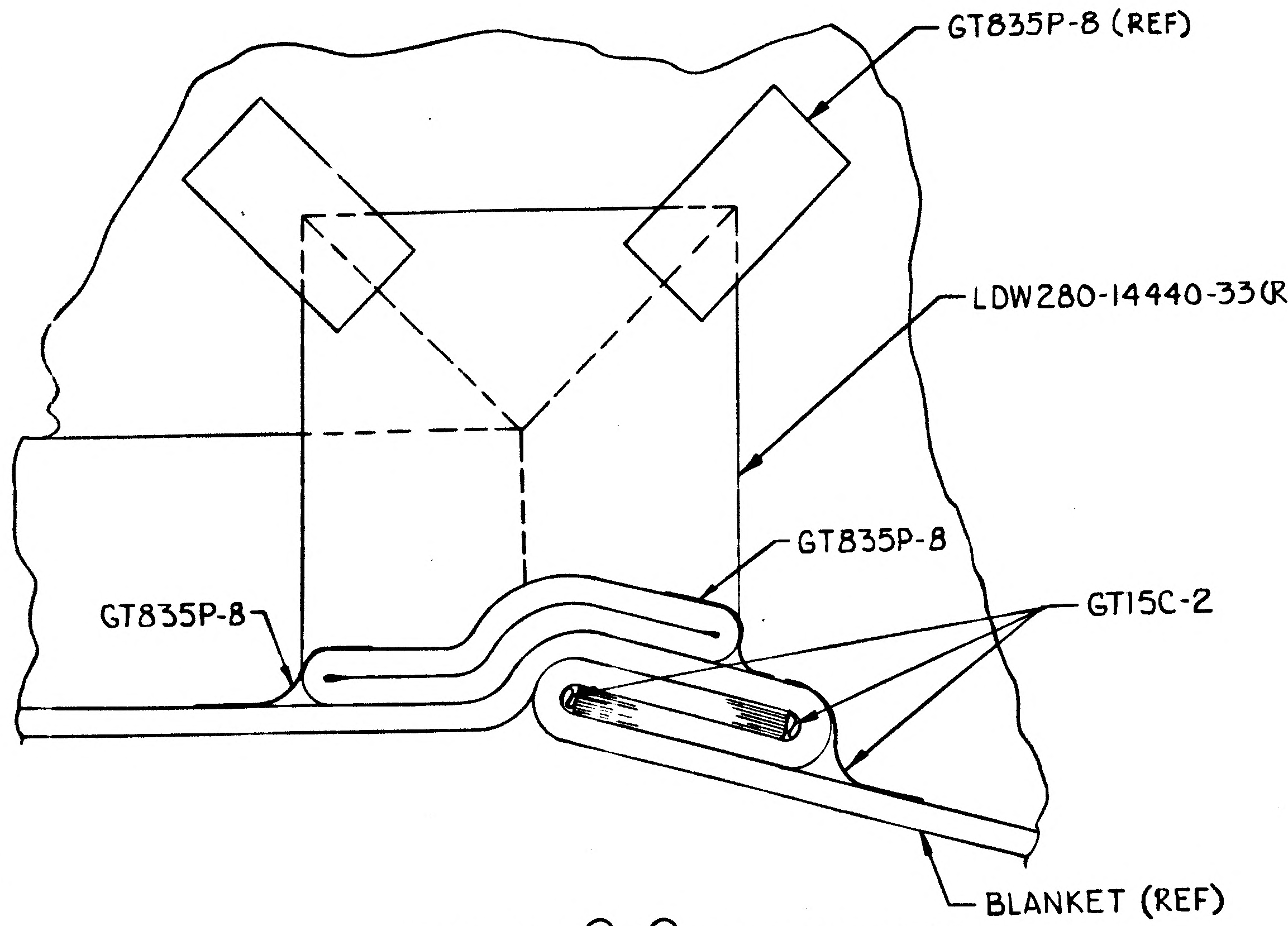
DETAIL M
(ZONE 4

LDW280-28855 SH 3

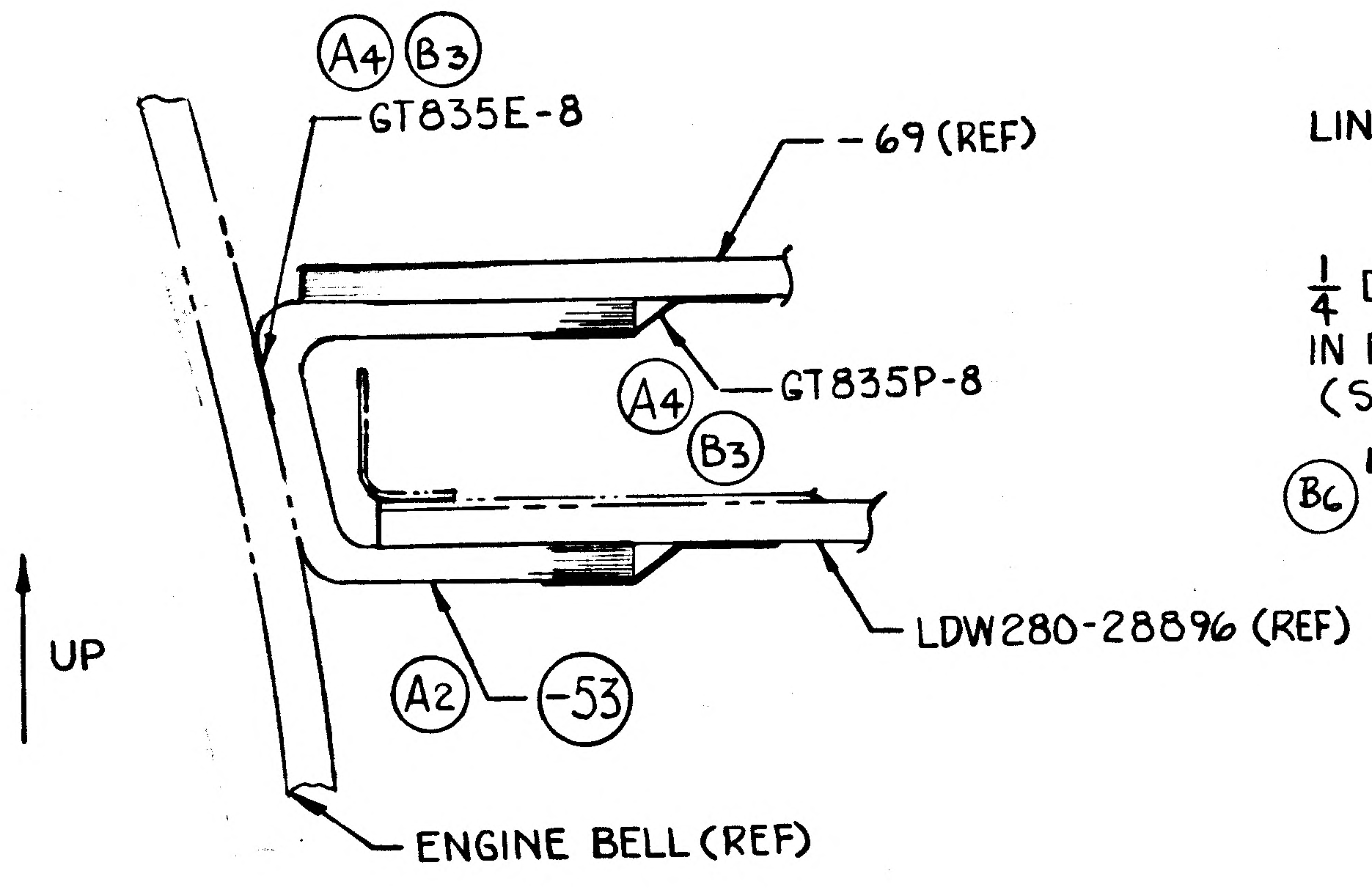
01/03

NAS 9-1100

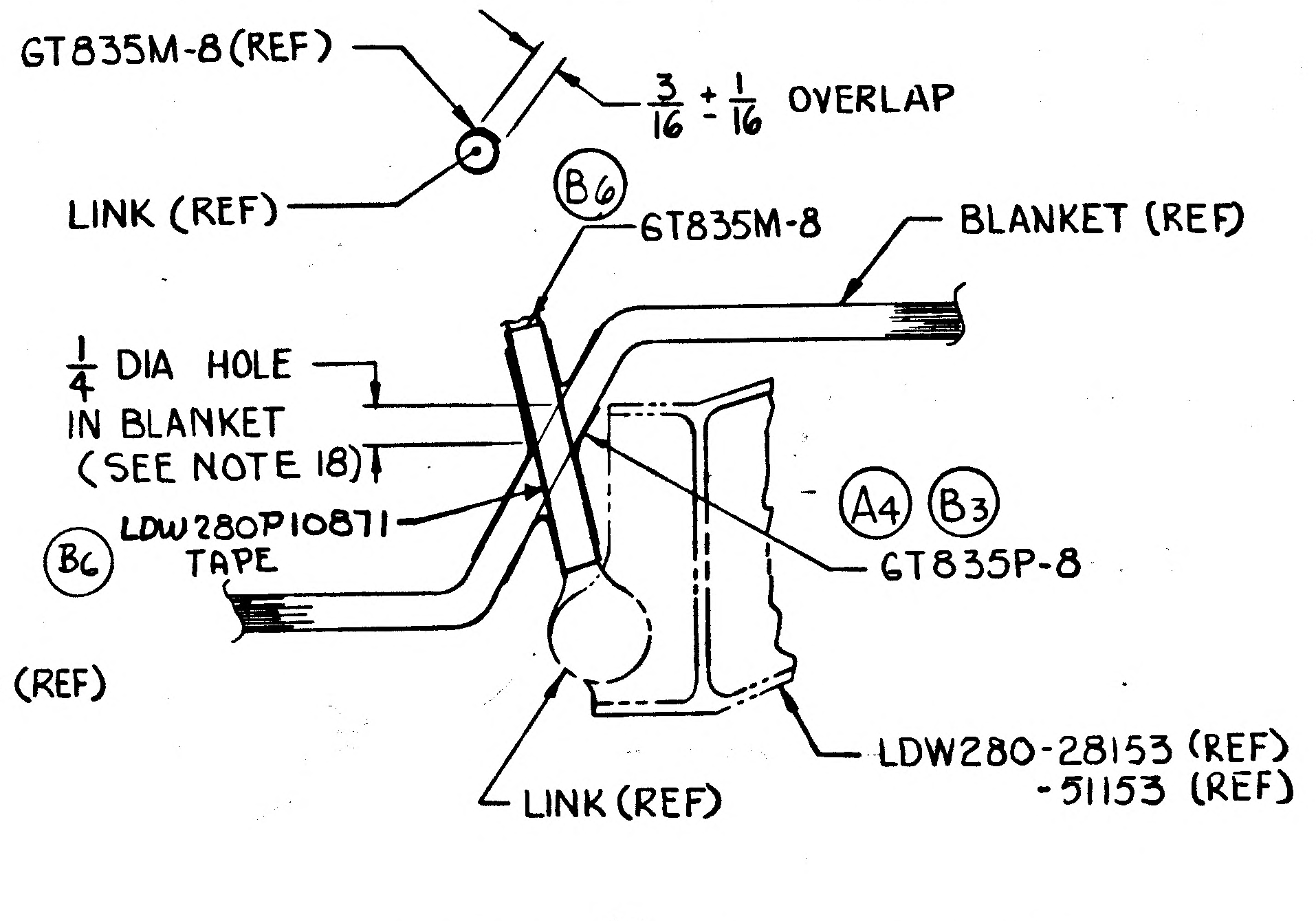

FILM
OUTBOARD
BOARD
T (REF)


GT835P-8 (REF)
LDW280-14440-33 (REF)
GT835P-8
GT835P-8
GT15C-2
BLANKET (REF)

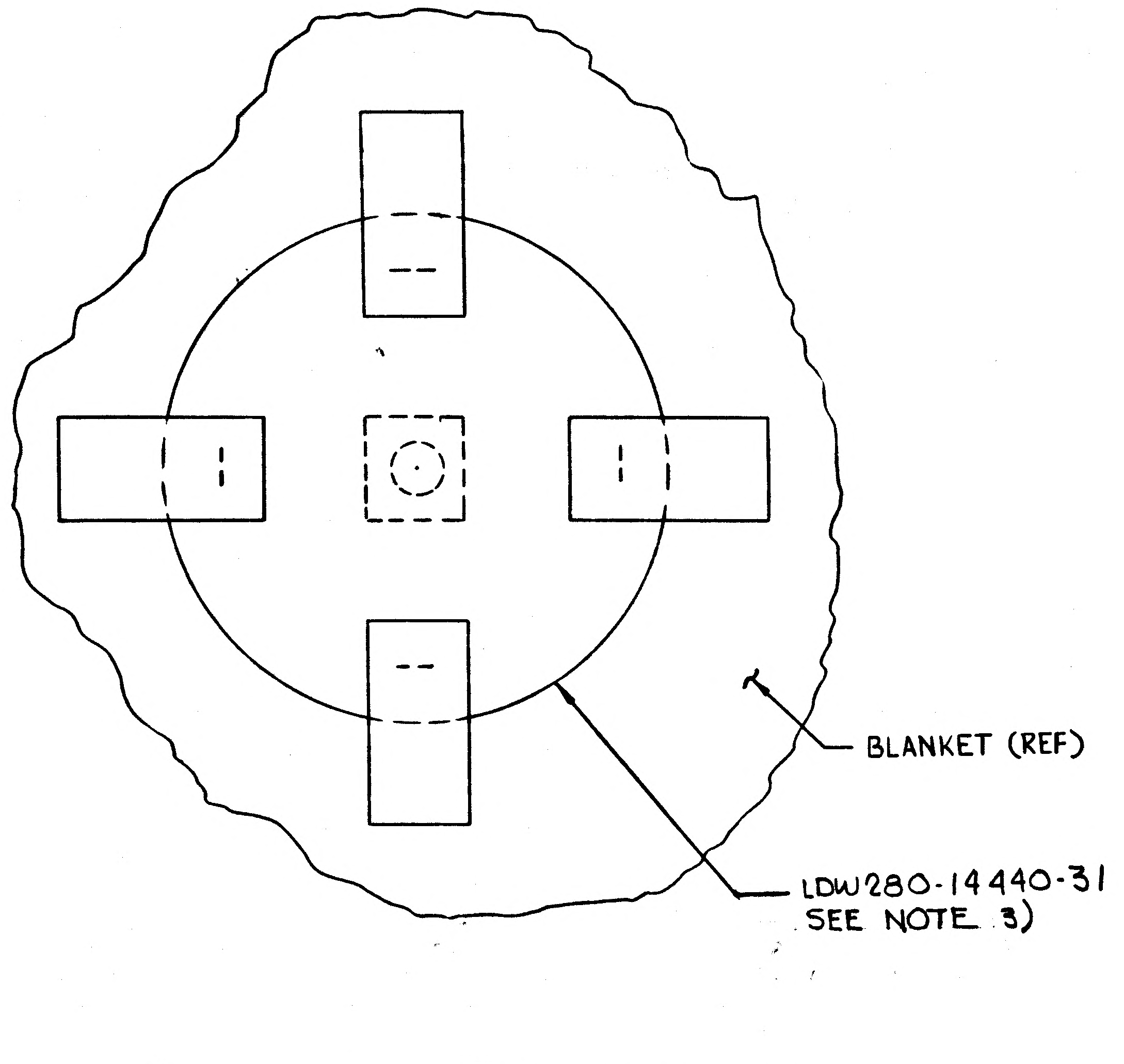
SECTION G-G (TYP 2 PLACES)
(ZONE 4B)


A4 B3
GT835E-8
-69 (REF)
A4
B3
GT835P-8
LDW280-28896 (REF)
A2
-53
UP
ENGINE BELL (REF)

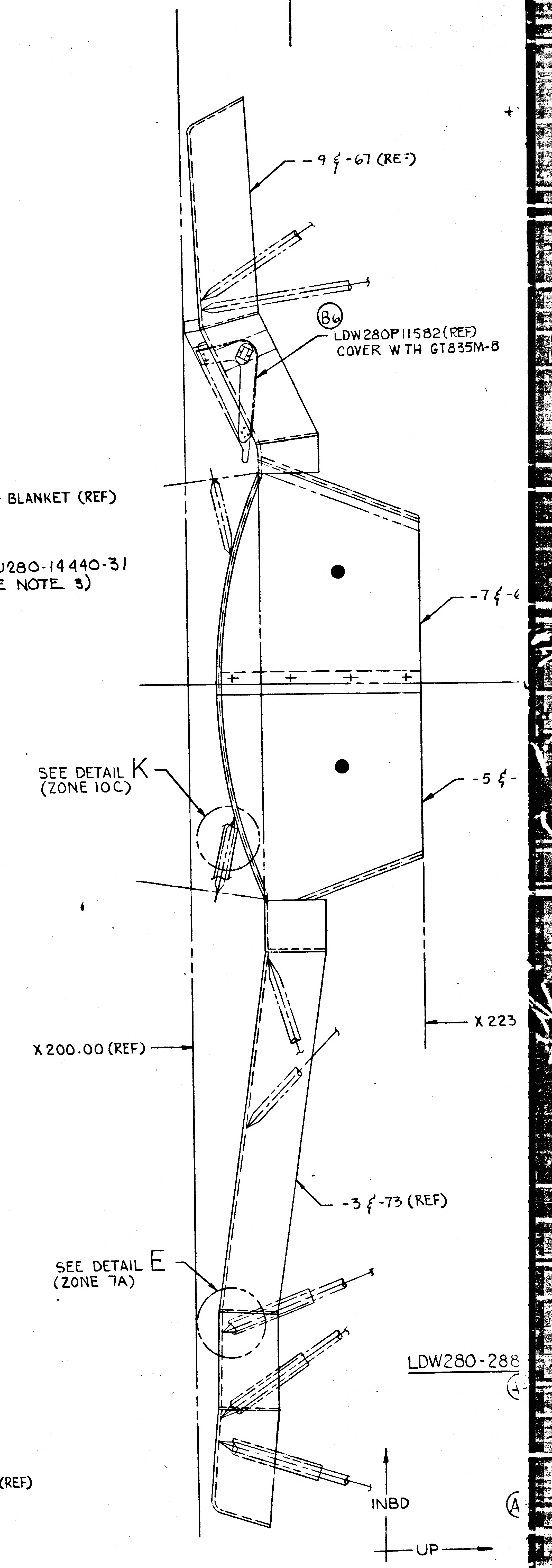
SECTION H-H
(ZONE 3C)


GT835M-8 (REF)
3/16 ± 1/16 OVERLAP
LINK (REF)
B6
GT835M-8
BLANKET (REF)
1/4 DIA HOLE IN BLANKET (SEE NOTE 18)
B6
LDW280P10871 TAPE
A4 B3
GT835P-8
LDW280-28153 (REF)
-51153 (REF)
LINK (REF)

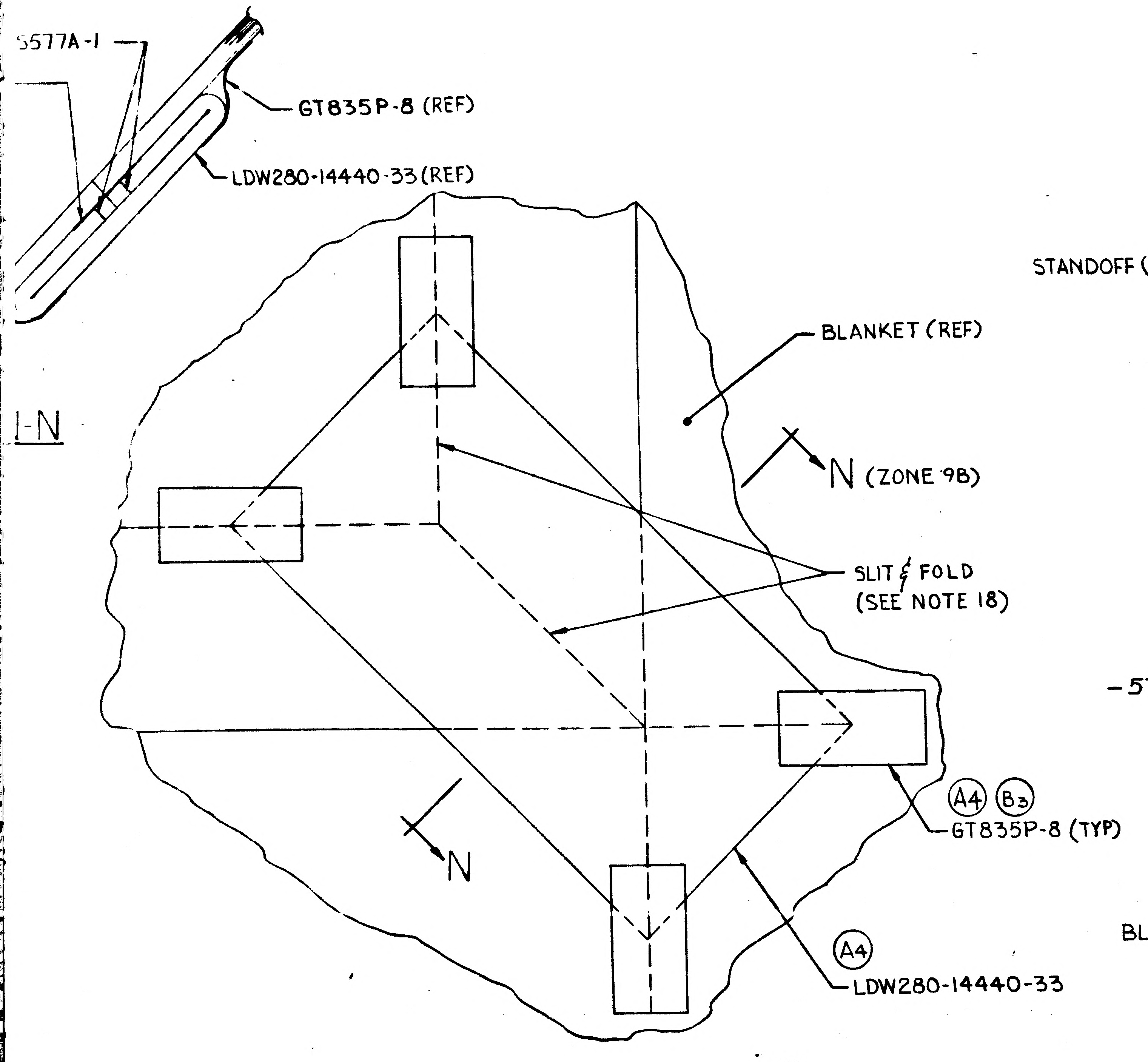
DETAIL F (TYP 5 PLACES)
(ZONE 3A)


BLANKET (REF)
LDW280-14440-31
SEE NOTE 3)

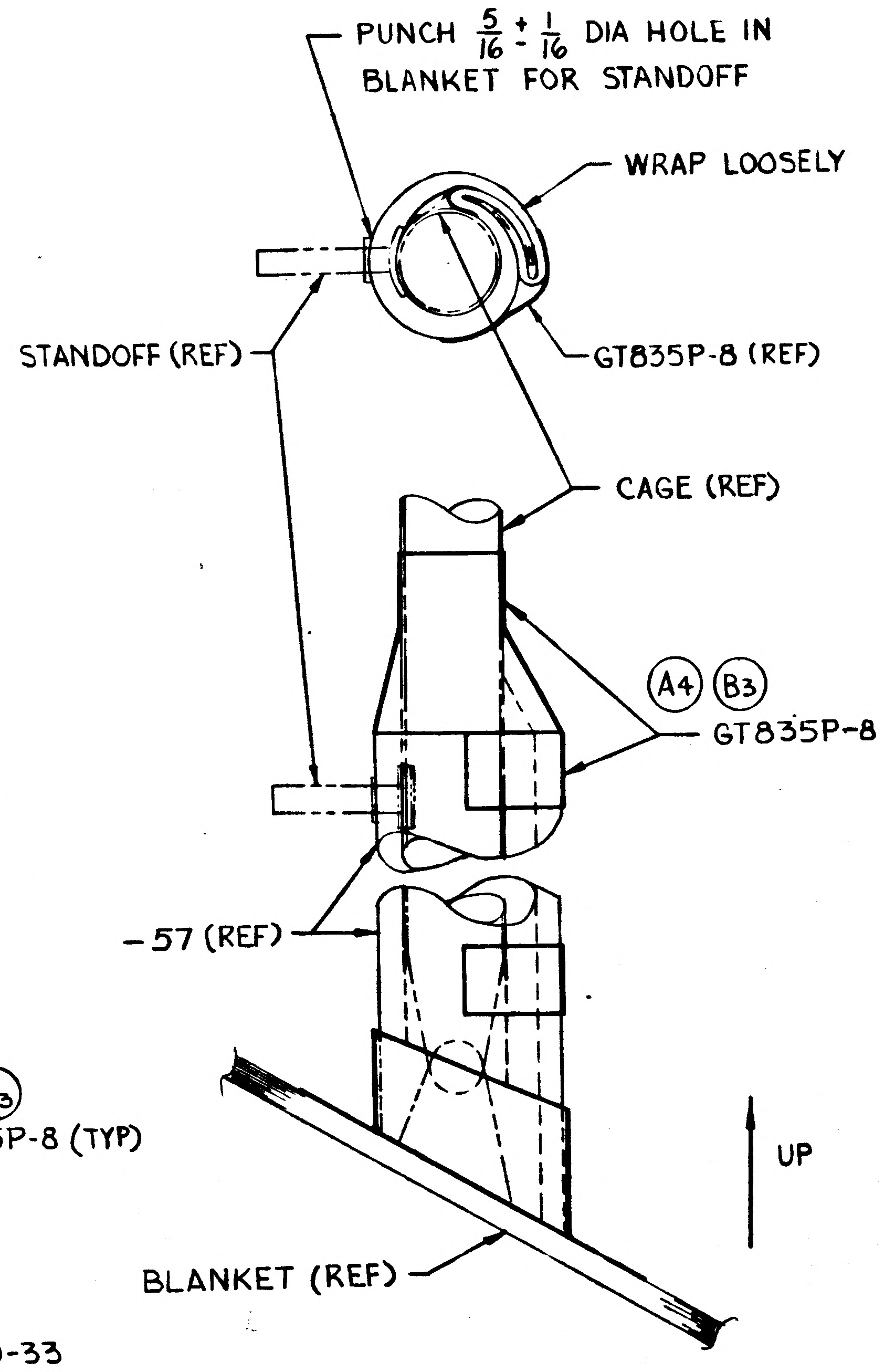
DETAIL T (TYP 16 PLACES)
(ZONE 3B)


-9 & -67 (REF)
B6
LDW280P11582 (REF)
COVER WITH GT835M-8
-7 & -6
-5 & -
SEE DETAIL K
(ZONE 10C)
X 223
X 200.00 (REF)
-3 & -73 (REF)
SEE DETAIL E
(ZONE 7A)
LDW280-288
INBD
UP
A

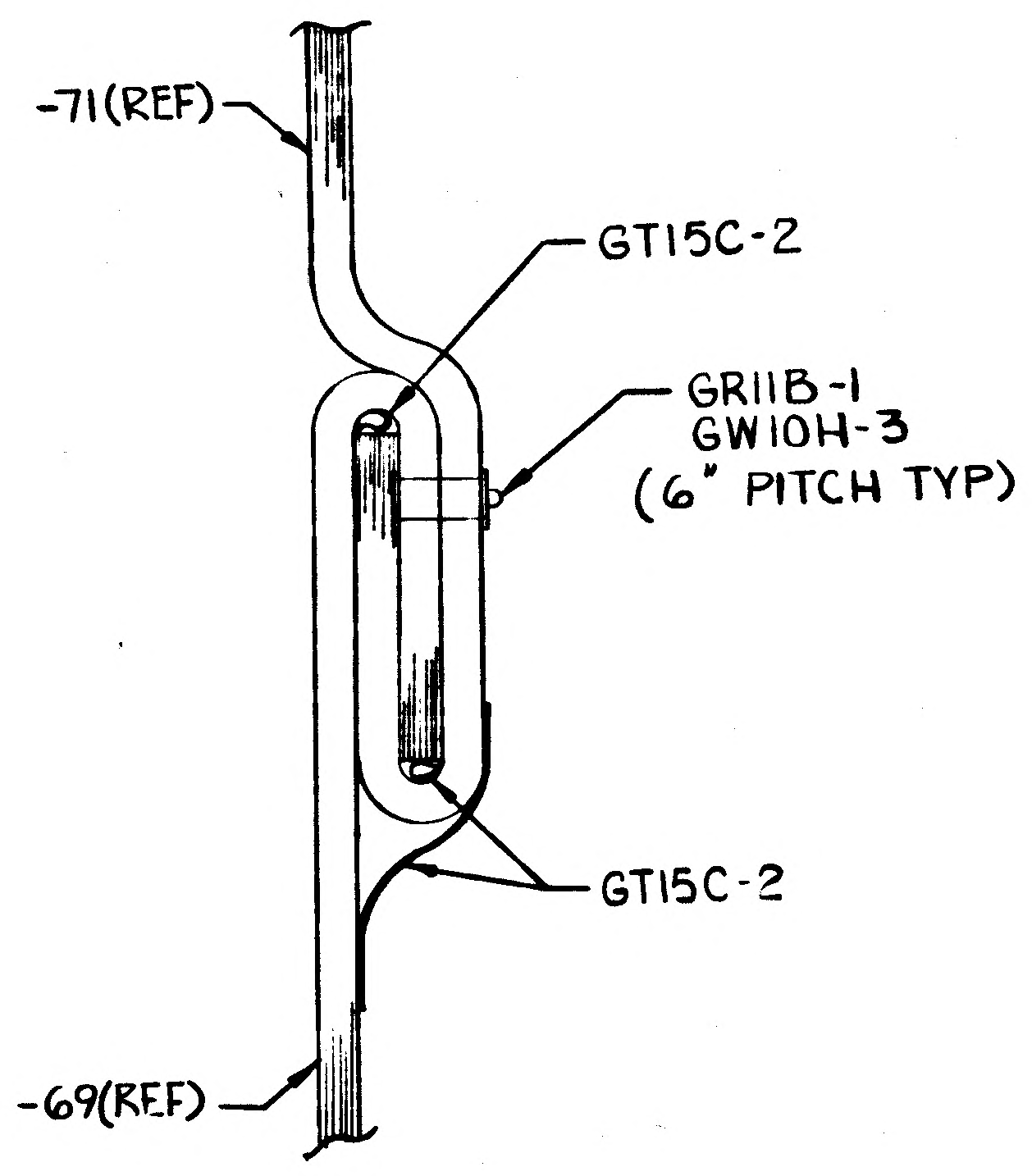
VIEW LOOKING AFT
SCALE 1/5


5577A-1
GT835P-8 (REF)
LDW280-14440-33 (REF)
I-N
BLANKET (REF)
N (ZONE 9B)
SLIT & FOLD
(SEE NOTE 18)
N
A4 B3
GT835P-8 (TYP)
A4
LDW280-14440-33

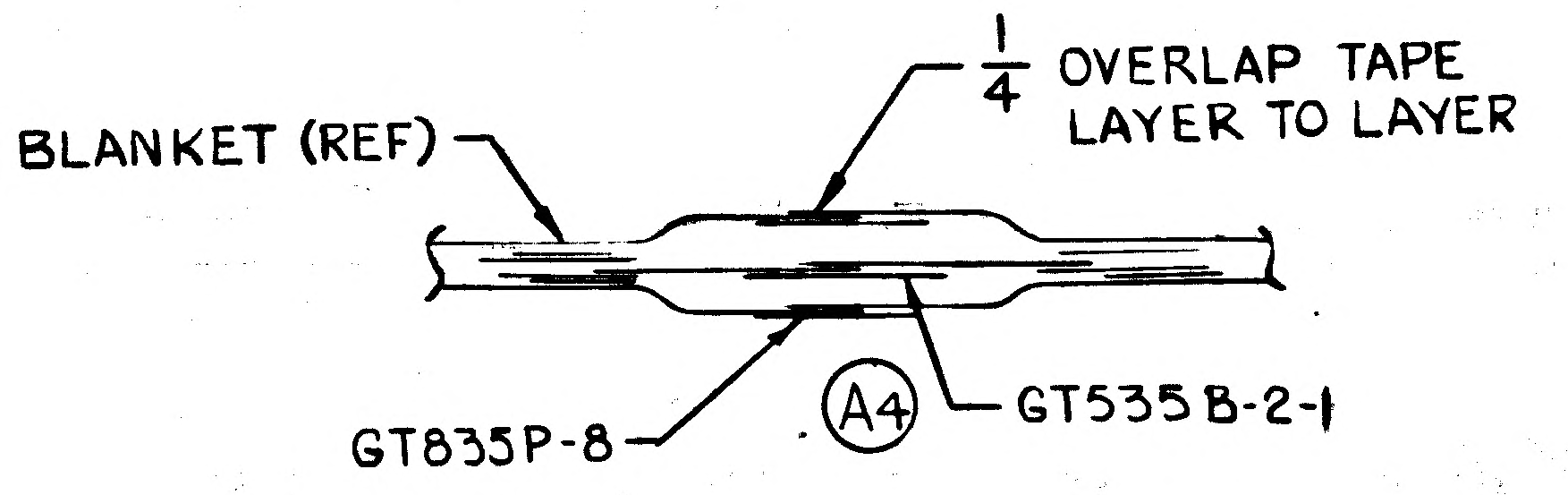
DETAIL M (B4) (TYP 6 PLACES)
(ZONE 4C)


PUNCH 5/16 ± 1/16 DIA HOLE IN BLANKET FOR STANDOFF
WRAP LOOSELY
STANDOFF (REF)
GT835P-8 (REF)
CAGE (REF)
A4 B3
GT835P-8
-57 (REF)
UP
BLANKET (REF)

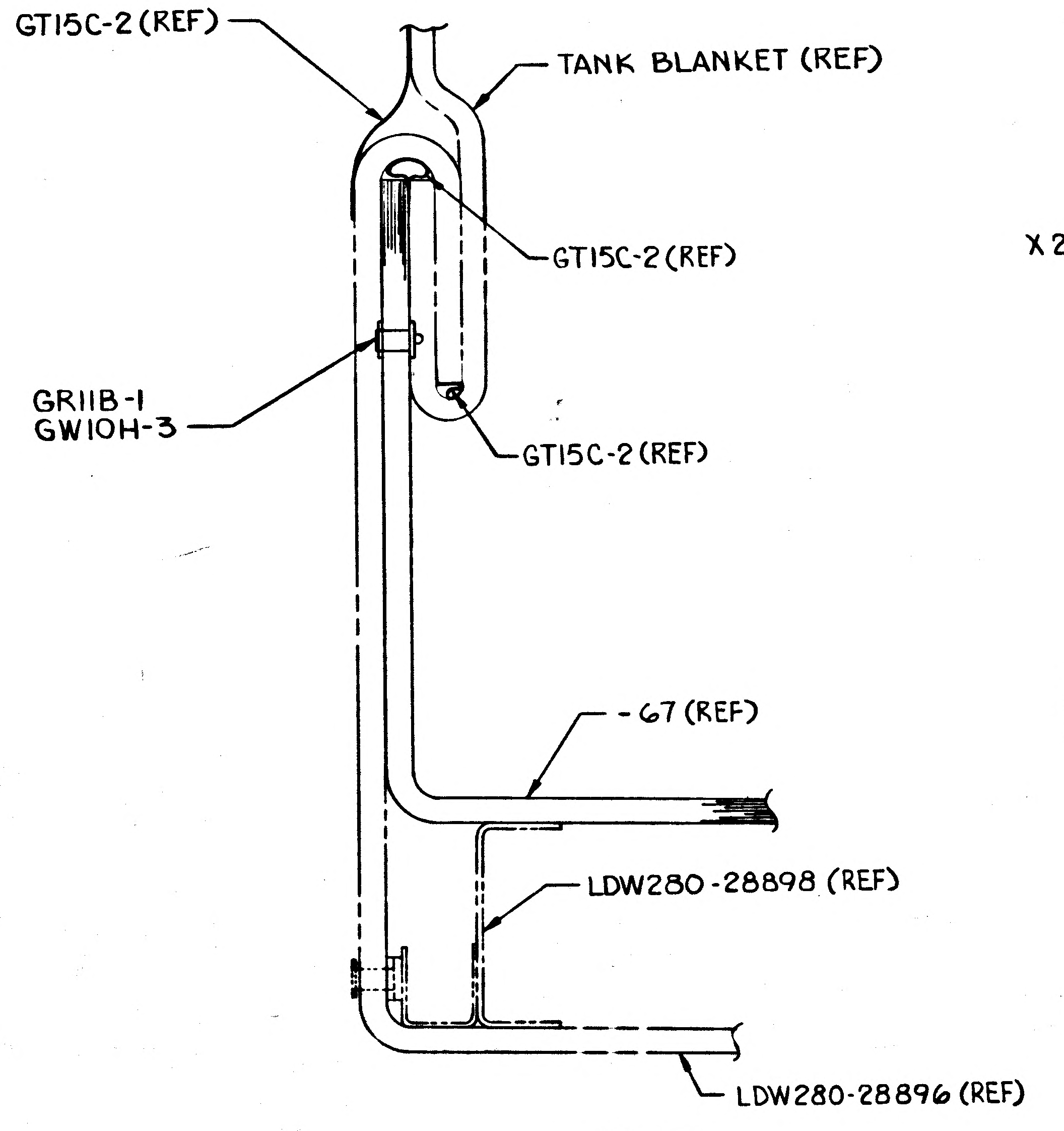
DETAIL E (TYP 25 PLACES)
(ZONE 2B)


-71 (REF)
GT15C-2
GR11B-1
GW10H-3
(6" PITCH TYP)
GT15C-2
-69 (REF)

SECTION D-D
(ZONE 3C)


1/4 OVERLAP TAPE LAYER TO LAYER
BLANKET (REF)
GT835P-8
A4
GT535B-2-1

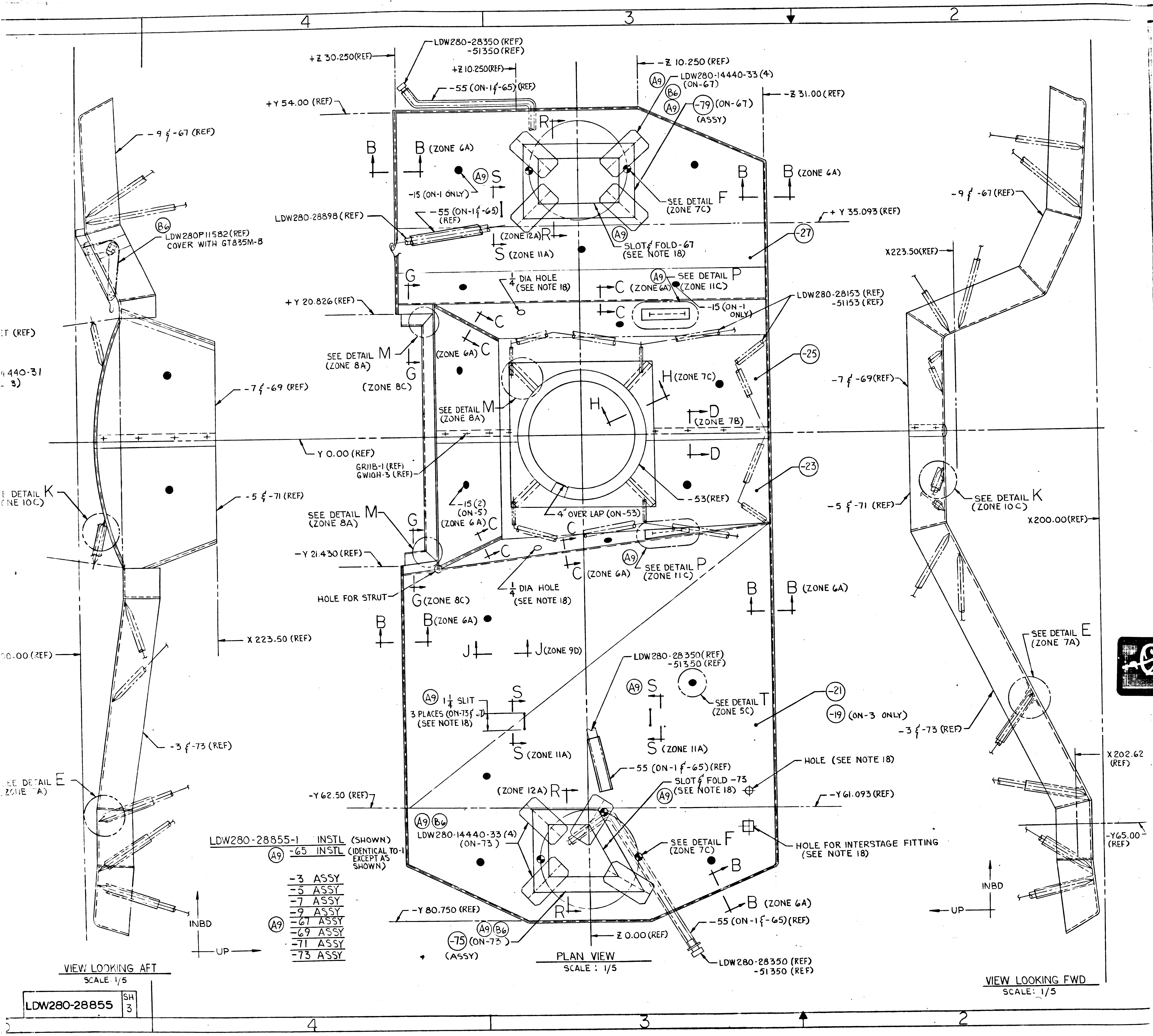
SECTION C-C
(ZONE 3B)


GT15C-2 (REF)
TANK BLANKET (REF)
GT15C-2 (REF)
GR11B-1
GW10H-3
GT15C-2 (REF)
-67 (REF)
LDW280-28898 (REF)
LDW280-28896 (REF)

SECTION B-B
(ZONE 4B)

702/03
NAS 9-1100

LDW280-28855 SH 3


4
3
2
LDW280-28350 (REF)
-51350 (REF)
+Z 30.250(REF)
+Z 10.250(REF)
-55 (ON-1 & -65)(REF)
-Z 10.250 (REF)
A9 LDW280-14440-33 (4)
(ON-67)
B6
A9 -79 (ON-67)
(ASSY)
-Z 31.00 (REF)
+Y 54.00 (REF)
B B (ZONE 6A)
B B (ZONE 6A)
A9 S
-15 (ON-1 ONLY)
-55 (ON-1 & -65)
(REF)
SEE DETAIL F
(ZONE 7C)
LDW280-28898 (REF)
(ZONE 12A) R
S (ZONE 11A)
SLOT & FOLD -67
(SEE NOTE 18)
+Y 35.093 (REF)
-27
1/4 DIA HOLE
(SEE NOTE 18)
C (ZONE 6A)
A9 SEE DETAIL P
(ZONE 11C)
-15 (ON-1 ONLY)
LDW280-28153 (REF)
-51153 (REF)
+Y 20.826 (REF)
SEE DETAIL M
(ZONE 8A)
G
(ZONE 8C)
(ZONE 6A) C
-25
H (ZONE 7C)
D
(ZONE 7B)
SEE DETAIL M
(ZONE 8A)
H
Y 0.00 (REF)
GR11B-1 (REF)
GW10H-3 (REF)
-15 (2)
(ON-5)
(ZONE 6A) C
4" OVER LAP (ON-53)
-53(REF)
-23
SEE DETAIL M
(ZONE 8A)
-Y 21.430 (REF)
HOLE FOR STRUT
G (ZONE 8C)
1/4 DIA HOLE
(SEE NOTE 18)
C (ZONE 6A)
A9 SEE DETAIL P
(ZONE 11C)
B (ZONE 6A)
B (ZONE 6A)
J J (ZONE 9D)
LDW280-28350 (REF)
-51350 (REF)
A9 S
SEE DETAIL T
(ZONE 5C)
-21
-19 (ON-3 ONLY)
A9 1 1/2 SLIT
3 PLACES (ON-73 & -D)
(SEE NOTE 18)
S (ZONE 11A)
S (ZONE 11A)
-55 (ON-1 & -65)(REF)
HOLE (SEE NOTE 18)
SLOT & FOLD -73
A9 (SEE NOTE 18)
(ZONE 12A) R
-Y 62.50 (REF)
-Y 61.093 (REF)
A9 B6
LDW280-14440-33 (4)
(ON-73)
SEE DETAIL F
(ZONE 7C)
HOLE FOR INTERSTAGE FITTING
(SEE NOTE 18)
B
B (ZONE 6A)
-Y 80.750 (REF)
A9 B6
-75 (ON-73)
(ASSY)
-55 (ON-1 & -65)(REF)
Z 0.00 (REF)
LDW280-28350 (REF)
-51350 (REF)
PLAN VIEW
SCALE: 1/5
LDW280-28855-1 INSTL (SHOWN)
A9 -65 INSTL (IDENTICAL TO -1 EXCEPT AS SHOWN)
-3 ASSY
-5 ASSY
-7 ASSY
-9 ASSY
-67 ASSY
-69 ASSY
-71 ASSY
-73 ASSY
-9 & -67 (REF)
B6
LDW280P11582 (REF)
COVER WITH GT835M-8
T (REF)
4440-31
3)
-7 & -69 (REF)
E DETAIL K
ONE 10C)
-5 & -71 (REF)
X 223.50 (REF)
0.00 (REF)
-3 & -73 (REF)
EE DETAIL E
ZONE 7A)
INBD
UP
VIEW LOOKING AFT
SCALE: 1/5
LDW280-28855 SH 3
-9 & -67 (REF)
X223.50(REF)
-7 & -69(REF)
-5 & -71 (REF)
SEE DETAIL K
(ZONE 10C)
X200.00(REF)
SEE DETAIL E
(ZONE 7A)
-3 & -73 (REF)
X 202.62
(REF)
-Y65.00
(REF)
INBD
UP
VIEW LOOKING FWD
SCALE: 1/5

NOTES:

~~1. FABRICATE BLANKETS PER LPC 280-1.~~
2. REFER TO LPC 280-3 FOR BLANKET FOLD.
3. REFER TO LPC 280-2 FOR BLANKET VENT.
~~4. STAPLES GS577A-1 MAY BE PURCHASED FROM BOSTITCH INC, GREENWITCH, R.I. (STAPLING PLIER-BOSTITCH P3 REF)~~
~~5. SUPER INSULATION SHALL BE HANDLED WITH LINT-FREE GLOVES.~~
6. INSPECTION ON END ITEMS ONLY. HOLES MAY BE PUNCHED ON ASSY.
~~7. SUPER INSULATION TO BE FABRICATED UNDER CONDITIONS THAT CONFORM TO LSP-14-1100 LEVEL "C"~~
~~8. BLANKETS TO BE FITTED ON SCALE MODEL.~~
~~9. -41 TAPE (H FILM) POLYMIDE FILM (NO AL) 1" WIDE PER GT835P-8.~~
~~10. -43 TAPE (H FILM) POLYMIDE FILM (NO AL) 1" WIDE DOUBLE BACK-MYSTIK TAPE #7366.~~
~~+ DENOTES GR11B-1 & GW10H-1.~~
~~+ DENOTES PIERCE POINT.~~
~~11. -45 TAPE (CLEAR MYLAR)(GT535B-2-1.00) (3M # 853) TO BE USED ON MYLAR SIDE OF BLANKET IN BUTT-SPLICE AREA. SEE SECTION C-C.~~
~~12. 5 LAYERS OF "H" FILM & 25 LAYERS OF MYLAR SEE NOTE 1 & SECTION Q-Q.~~
~~13. 29 LAYERS OF "H" FILM. SEE NOTE 1 & SECT RP~~
~~14. ABBREVIATION A/R STANDS FOR "AS REQUIRED.~~
15. BLANKETS TO CONSIST OF 25 LAYERS OF ALUMINIZED MYLAR AND 2 LAYERS OF ALUMINIZED POLYMIDE ("H" FILM) TO BE LAID PER LPC 280-1 AND MAY BE PURCHASED FROM THE MC CORDI CORPORATION, MAMARONECK, N.Y. (CODE IDENTIFICATION NO. 24761) SEE SECTION "J-J". (ZONE 9D)
16. BLANKETS TO CONSIST OF 27 LAYERS OF ALUMINIZED POLYMIDE ("H" FILM) TO BE LAID PER LPC 280-1 AND MAY BE PURCHASED FROM THE MC CORDI CORPORATION, MAMARONECK, N.Y. (CODE IDENTIFICATION NO 24761)
17. BLANKETS TO CONSIST OF 25 LAYERS OF ALUMINIZED MYLAR TO BE LAID PER LPC 280-1 AND MAY BE PURCHASED FROM THE MC CORDI CORPORATION, MAMARONECK, N.Y. (CODE IDENTIFICATION NO 24761).
18. FINAL SIZE (WITH FOLD & SEAM LOCATION) OF BLANKET ASSEMBLIES, HOLES & SLITS SHALL BE DETERMINED FROM APPROVED MASTER TEMPLATES. LOFTED OUTLINE (DIMENSIONAL INFORMATION) IS FOR REFERENCE PURPOSES ONLY.
19. CUTTING & PATCHING PROCEDURE PER LPC 280-6.
20. REPAIR PROCEDURE PER LPC 280-8.
21. PERMISSIBLE DEVIATIONS & REPAIR PROCEDURE PER LPC 280-20.
22. 29 LAYERS OF "H" FILM PER LPC-280-2.

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 130

35.5 SQ. FT.
9 SQ. FT.

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 142) =
1/2 SIZE SHEET AREA (1/4 OF FULL) =

PRINT TRIM LINE

THIS CHANGE WAS MADE TO CONFORM TO STD BLANK CONF PROCEDURE

~~03~~ / Q3 NAS 9-1100

SYMBOL LEGEND

● ⊕ +	SYMBOLS ARE FOR LOCATION AND QUANTITY ONLY

RECORD DATA

MODULE	EO NO	EFFECTIVITY
LM	A6	LTA-8 (18) ONLY

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-28855	B
	SCALE FULL & NOTED		SHEET 3.00	

Ⓑ

LDW280-28855

3 FR

OGILVIE PRESS, INC., BROOKLYN 17, N. Y. ULTRAVEL NO.

*

ENG 30.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.

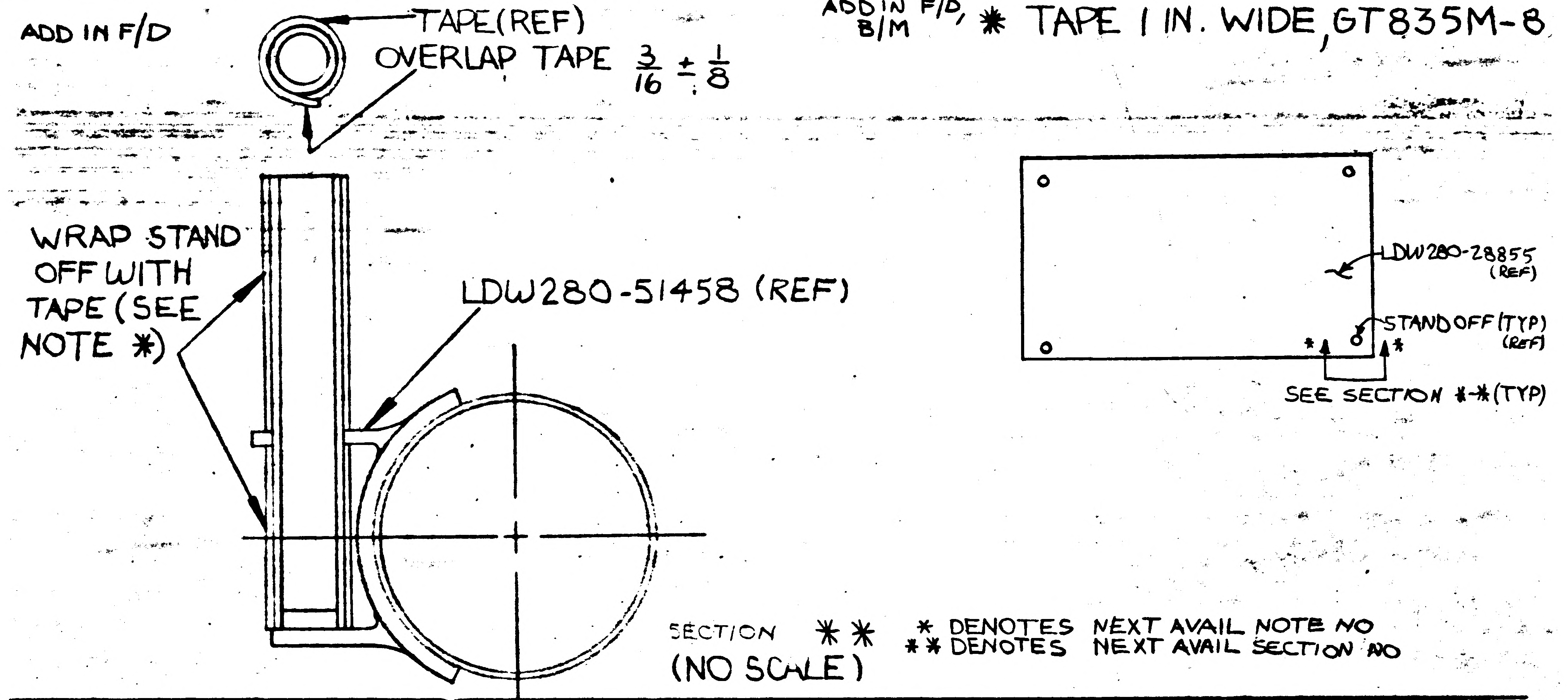
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28855		EO NO. A1	
CONTROL INFO NO. LDW280A-0548			

ADD IN F/D

ADD IN F/D, B/M * TAPE 1 IN. WIDE, GT835M-8


TAPE (REF)
OVERLAP TAPE 3/16 ± 1/8
WRAP STAND OFF WITH TAPE (SEE NOTE *)
LDW280-51458 (REF)
LDW280-28855 (REF)
STANDOFF (TYP) (REF)
SEE SECTION *-* (TYP)

SECTION ** (NO SCALE)

* DENOTES NEXT AVAIL NOTE NO
** DENOTES NEXT AVAIL SECTION NO

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		3

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
THERMAL RQMTS.	ADDED SECTION ** & NOTE * IN F/D; ADDED GT835M-8 TO B/M	FR 10/1/66

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
LM		LM-1(31)	
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: ~~REWORK~~	~~SCRAP~~	APPROVED BY			V.J.I.				RMC	
✓				DATE ✓	9/21	10-4	10/6	9/21	9/1		9-30	9/28/66
					VDI	~~SUPPORT~~	THERMO ~~RECTAB GROUP~~	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~SUBT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	THERMAL BLANKET INSTAL. A/S-M/S BOTTOM	LDW280-28855	A1

ISSUED BY G.BELEV X1441 9-20-66 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

1

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28855		EO NO. A2
CONTROL INFO NO. LDW280A-3013		

REVISE B/M AS FOLLOWS:

(ADD) LDW 280-23855-17 BOOT ASSY TO-1 INSTL. (WAS ON -5 ASSY)
(ADD) LDW 280-28855-39 BOOT ASSY TO-1 INSTL. (WAS ON -3 & -9 ASSY)
(REMOVE) LDW 280-28855-11 BLANKET ASSY FROM-1 INSTL
(REMOVE) LDW 280-28855-13 BLANKET ASSY. FROM-1 INSTL
(ADD) LDW 280-28855-53 ENGINE BELL COLLAR TO-1 INSTL.
(REMOVE) LDW 280-28855-33 BLANKET ASSY FROM-3 ASSY
(REMOVE) LDW 280-28855-35 BLANKET ASSY FROM-9 ASSY
(REMOVE LDW 280-28855-47 BLANKET ASSY FROM-1 INSTL.
(WAS ON-5, 3 & -9 RESP.)

DETAIL SPEC REQ	CL II ENGRG CHG	CL I ENGRG CHG	3

REASON FOR EO: TO UP DATE B/M TO AGREE WITH BLANKET DEVELOPED ON MANNEQUIN

DESCRIPTION OF EO: ON-1 INSTL: ADDED LDW280-28855-17 & 39 BOOT ASSY, REMOVED-11 & -13 BLANKET ASSY, ADDED LDW280-28853-53 BLANKET ASSY. ON-3 ASSY REM.-33, ON-9 ASSY REM-35 & ON-1 INSTL REM-4)

GAEC EO RELEASE: FE 11/10/6

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	
✓		NONE		

APPROVED BY									
DATE	11/9/66	11/9		11/9	11/9		11-9-66	11-9-66	
/	VDI	SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	THERMAL BLANKET INSTL. A/S MID SECTION ENGINE BAY.	LDW 280-28855	A2

ISSUED BY P KEISER x1441 11/3/66 SECTION VD1. GROUP NO. 335 PL 35

01 NAS 9-1100

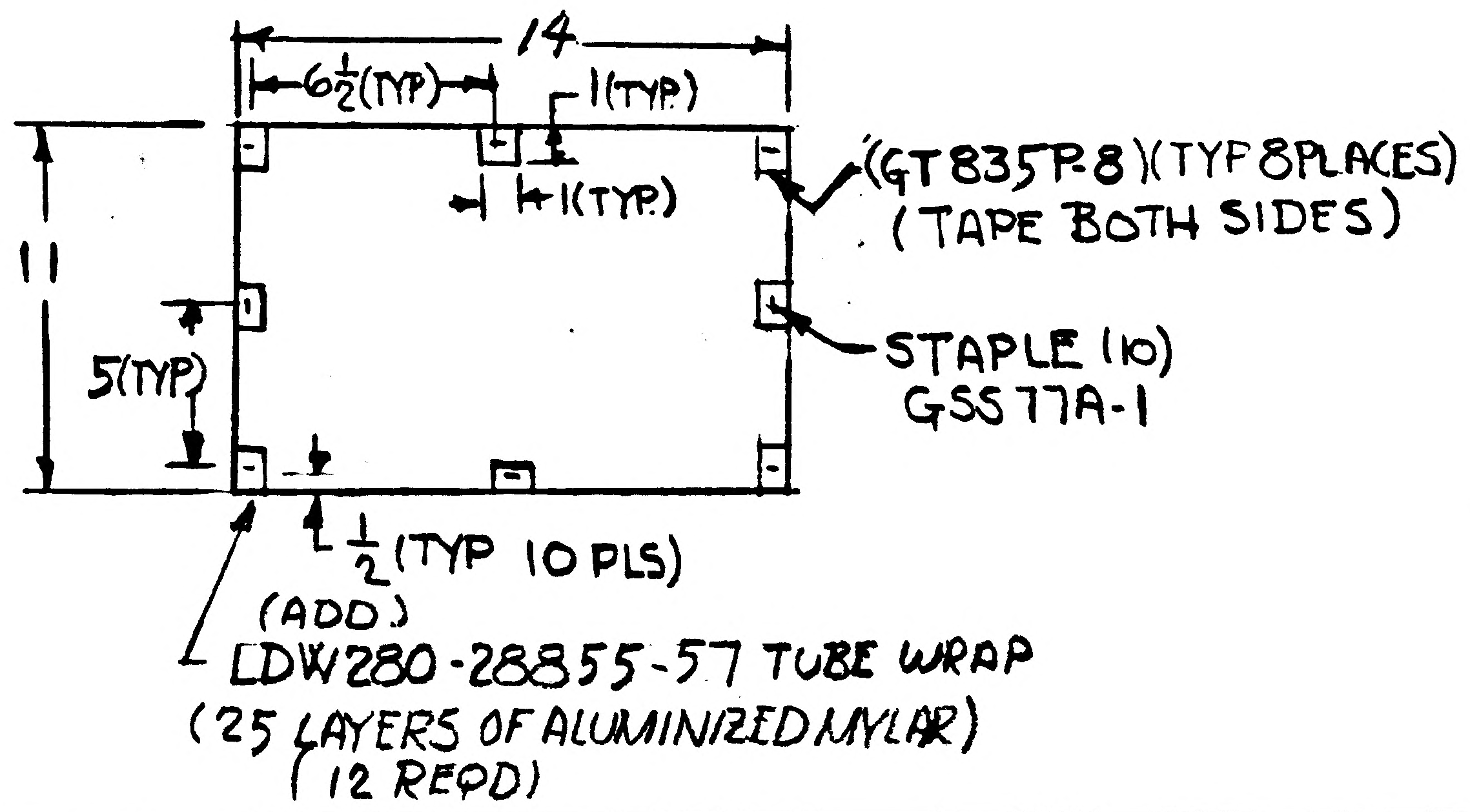
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

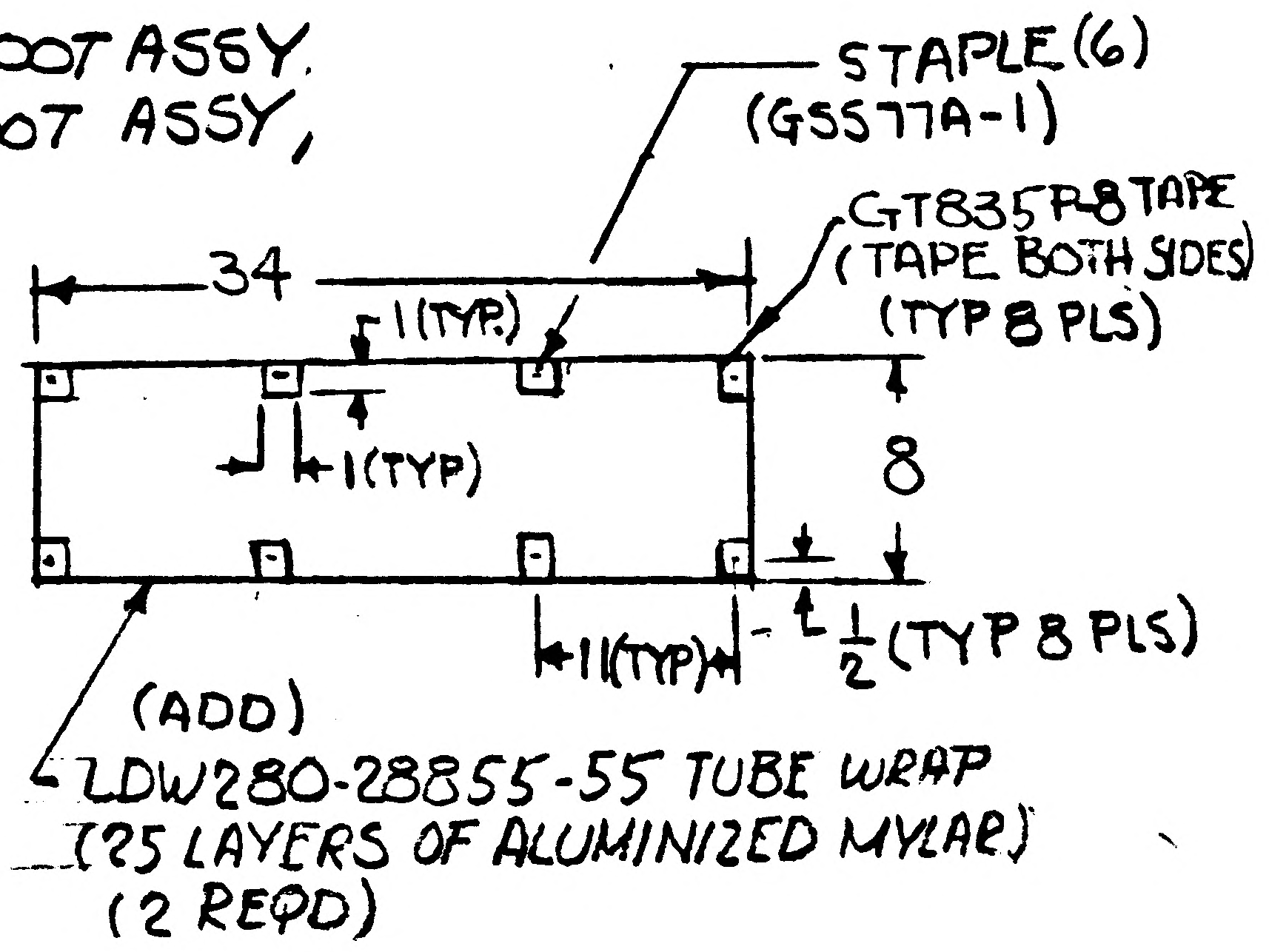
DWG NO. LDW280-28855	EO NO. A3
CONTROL INFO NO. LDW280A3621	

IN F/D & B/M ADD THE FOLLOWING:

ON LDW280-28855-7 ASSY REMOVE -17 BOOT ASSY.
ON LDW280-28855-1 INSTL ADD -17 BOOT ASSY,


14
6½(TYP)
1(TYP)
1(TYP)
11
5(TYP)
(GT835P-8)(TYP 8 PLACES)
(TAPE BOTH SIDES)
STAPLE (10)
GSS77A-1
½(TYP 10 PLS)

(ADD)
LDW280-28855-57 TUBE WRAP
(25 LAYERS OF ALUMINIZED MYLAR)
(12 REQD)


STAPLE (6)
(GSS77A-1)
GT835P-8 TAPE
(TAPE BOTH SIDES)
(TYP 8 PLS)
34
1(TYP)
1(TYP)
8
1(TYP)
½(TYP 8 PLS)

(ADD)
LDW280-28855-55 TUBE WRAP
(25 LAYERS OF ALUMINIZED MYLAR)
(2 REQD)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	3

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REVISED BLANKET TO IMPROVE THERMAL QUALITIES.	ON -7 ASSY REMOVED -17 BOOT ASSY ON -1 INSTL ADDED, 17, -55 & -57 TUBE WRAP.	FC 11/23/6

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓		DATE	11/22	11/21		11/21	11 ✓✓		11-22-66	11-22-66
REVISE DWG	RECORD EO	REWORK	SCRAP	#5	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	THERMAL BLANKET INSTL. A/S MID SECTION LOWER HEAT SHIELD	LDW280-28855	A3

ISSUED BY P. KEISER x1441 11/22/66 SECTION VDI GROUP NO. 335 PL 35

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28855 | EO NO. A4
CONTROL INFO NO. LDW280A- 4061

DESCRIPTION OF EO.

REVISED B/M AS FOLLOWS:

1. ON -1 INSTL LDW280-14440-33 (10) WAS AS REQ'D.
2. REMOVED -41 ADDED GT835P-8-1.00(A/R)-REMOVED -43 ADDED GT835E-8-1.00 (A/R)
3. REMOVED -45 ADDED GT 535B-2-1.00 (A/R)
4. ADDED LDW280-14440-31 AS FOLLOWS: (4) ON -3 & -5 ASSYS, (6) ON -7 ASSY. (2) ON -9 ASSY.

THERMAL SHIELD

3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: TO UPDATE B/M TO AGREE WITH BLANKET DEVELOPED ON MANNEQUIN

DESCRIPTION OF EO: NOTED ABOVE

GAEC C EO RELEASE: FR 12/9/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY		VDS						
DATE	12/6/66	12/6		12/6	12/6		12-6	12-6-66
#5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: THERMAL BLANKET INSTL. A/S LOWER M/S INTERNAL

DRAWING NO.: LDW280-28855

EO NO.: A4

ISSUED BY L. LUPINACI X1441 SECTION VD1 GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

* EHF-A

DWG. NO. LEO 280 | EO NO. 431
CONTROL INFO NO. LM-3-4568

DRAWING NO.	E.O. CHG.	DESCRIPTION OF CORRECTION	EFFECT.
LDW 280-14440 ✓	A9	ON INCORP. OF E.O. A7, QUANTITY REQD FOR -33 N/A LDW 280-28855, (10) WAS DELETE.	LTA-8 (18) LM-1 (31) LM-2 (32)
LDW280-11666	A2	ON INCORPORATION OF E.O. A1 -11, -12 WAS -13 -14	LM-3 (33) THRU LM-15 (45)
LDW280-10947	B7	ON INCORP. OF E.O. B2 -29-30 WAS-21-22	LTA-8 (18) LM-1 (31) LM-2 (32)
LDW 280-28496	C4	ON INCORP. OF E.O. C1 LDW280-10947-29-30 WAS LDW 280-10947-21-22	LTA-8 (18) LM-1 (31) LM-2 (32)
LDW 280-28855	A5	ON INCORP. OF E.O. A4 ON -1 INSTAL ADD LDW 280-14440-33 (10 REQD), WAS "ON -1 INSTAL. LDW 280-14440-33 (10) WAS AS REQUIRED." IN NOTE 7 LEVEL "C" WAS LEVEL "E"	LTA-8 (18) LM-1 (31) LM-2 (32)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

3

GAEC C EO RELEASE: E

REASON FOR EO: TO PROVIDE MULTIPLE DRAWING CORRECTIONS

DESCRIPTION OF EO: NOTED

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY				F.N.R.	—		RMC	
DATE	1/25				—	1-3-67	1-4-67	1/3/67
6	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWING	LEO 280	431

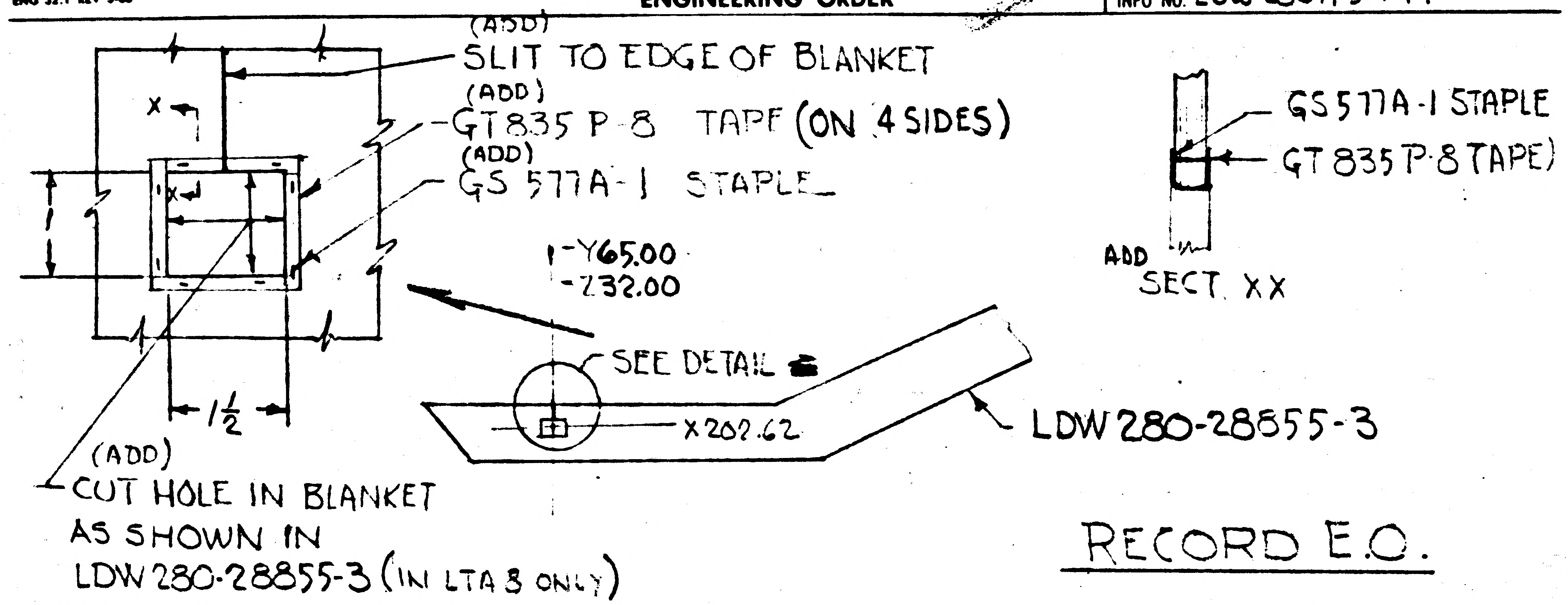
ISSUED BY LIAISON / VIC BOLLO x2151 SECTION VDI GROUP NO. 335 PL 35

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28855 | EO NO. A6
CONTROL INFO NO. LDW280A5441



(ADD)
SLIT TO EDGE OF BLANKET
(ADD)
GT835 P-8 TAPE (ON 4 SIDES)
(ADD)
GS 577A-1 STAPLE
X
X
1½
1-Y65.00
-Z32.00
SEE DETAIL
X202.62
LDW280-28855-3
(ADD)
CUT HOLE IN BLANKET
AS SHOWN IN
LDW280-28855-3 (IN LTA 8 ONLY)
GS577A-1 STAPLE
GT835 P-8 TAPE)
ADD
SECT. XX

RECORD E.O.

~~DETAIL XX~~

VIEW LOOKING FWD ~ LH. SIDE

~~XX = NEXT [illegible]~~

(5)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCR 878 1-17-67

REASON FOR EO: TO PROVIDE CLEARANCE FOR SEPARATION SIMULATOR

DESCRIPTION OF EO: ~~ADDED [illegible] HOLE IN BLANKET [illegible]~~ ~~ADDED [illegible] XX~~ ADDED E.O TO RECORD E.O. BLOCK

GAEC C EO RELEASE: ✓ LE 3/10/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (19)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GAEC~~
	✓	✓		#5 2/10/67	VDI		2/10	2/13		3-9-67	3/10/67

PRIORITY: C

DRAWING TITLE: BLANKET INSTALLATION INTERNAL ASCENT STAGE - LOWER MID SECT. INT

DRAWING NO. LDW280-28855 | EO NO. A6

ISSUED BY P. KEISER X1153 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65 B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512 *
ENGINEERING ORDER

DWG. NO. LDW280-28855
EO NO. A7
CONTROL INFO NO. LDW280A-5746

(ADD) NOTE:
* CUTTING & PATCHING PROCEDURE PER LPC280-6.
** REPAIR PROCEDURE PER LPC280-8.
*** PERMISSIBLE DEVIATIONS & REPAIR PROCEDURE PER LPC280-20.

REMOVE NOTE #5 & #7.
REMOVE SECT L-L & DETAIL "A"

*, **, *** USE NEXT AVAILABLE NO.

DETAIL SPEC REQ ✓ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☐

3

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE C
LPC'S OMITTED ON DWG	ADDED NOTE *, **, *** REMOVED NOTE #5, #7, SECT L-L & DETAIL "A"	JK 3/11/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18), LM-1(31) & -2(32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG ✓	RECORD EO	REWORK ✓	SCRAP

APPROVED BY / DATE	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
1	3/2/67			3/2/67	3/1		3/7/67	3/10/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLANKET INSTL A/S-LOWER M/S - INTERNAL	LDW280-28855	A7

ISSUED BY JOHN K. LEE SECTION VDI GROUP NO. 335 PL 35

0 1 NAS 9-1100

A

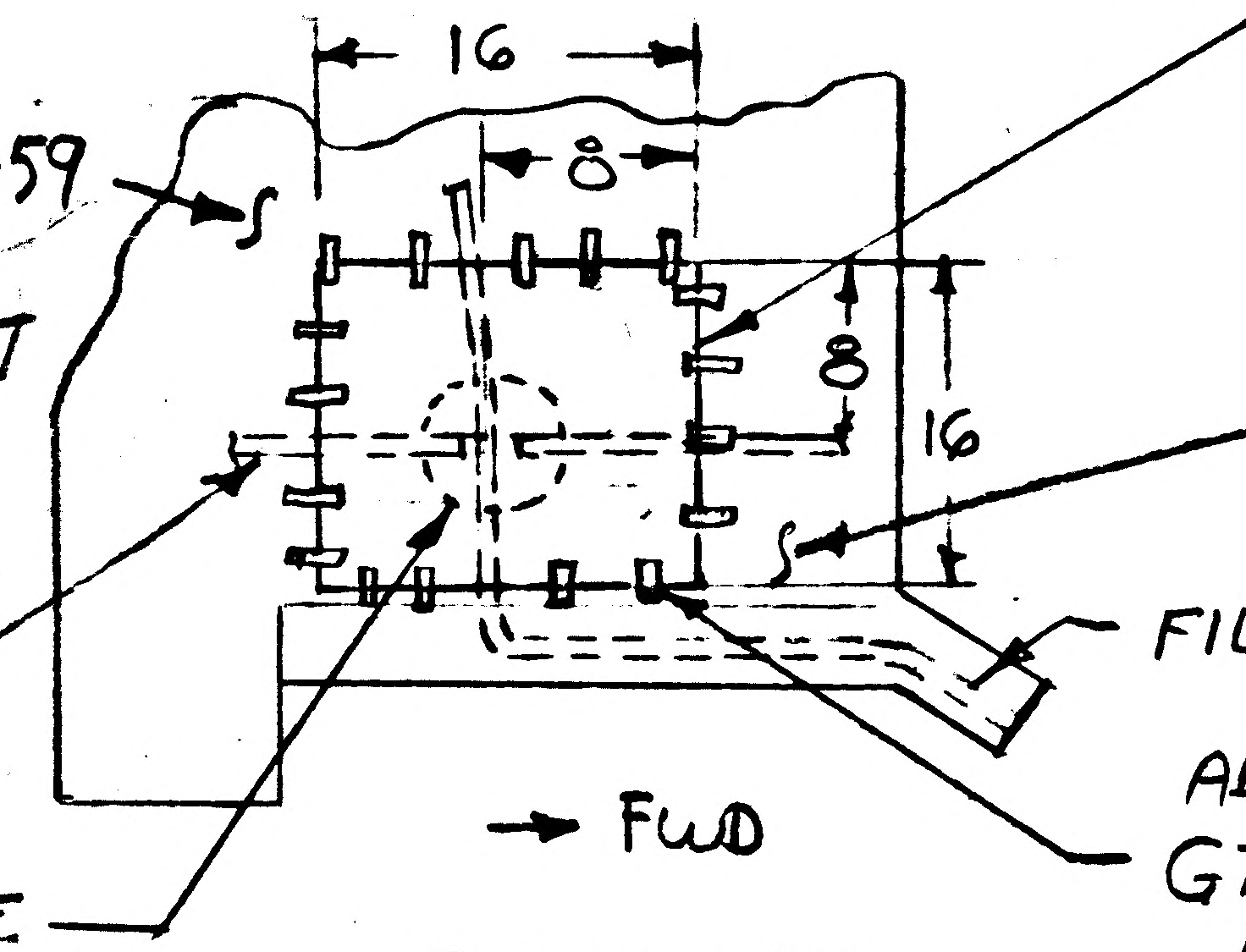
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28855	EO NO. A8
CONTROL INFO NO. LM5-13026	



(ADD)
LDW 280-28855-59
BLANKET INSTL.
(SAME AS -1 EXCEPT
AS SHOWN.)

LDW280-28162
(REF.)

ADD 6" DIA HOLE
THRU-61 BLANKET ASSY

ADD
-63 PATCH ASSY
25 LAYERS OF H FILM
MAKE PER LPC 280-1

ADD
-61 BLANKET ASSY. (SAME AS -7
EXCEPT AS SHOWN)

FILL & DRAIN LINE

ADD
GT835P8 TAPE
APPROX 4" PITCH.

PLAN VIEW
RH SIDE

-59 N/A LDW280-51150 1 REQD./MOD. I&T=E
REMOVE LM1 FROM -1 MOD. BLOCK

~~RELEASED BY LIAISON~~ 5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
TO PATCH HOLE IN BLANKET ADDED FOR FILL & DRAIN LINE	ADDED-59 BLANKET INSTL. & -61 BLANKET ASSY & -63 PATCH, REM LM-1 FROM-1 MOD BLOCK.	JS 3-27-7 31

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
✓		-1		APPROVED BY	WT			~	—	CH	RMC	
				DATE	3/18/67			~	—	3-20-67	3-27-67	3-21-67
				/	VD1							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	INTERNAL BLANKET LOWER HEAT SHIELD ASCENT STAGE MID SECT.	LDW280-28855	A8

ISSUED BY P KEISER X6609 SECTION VD.1. GROUP NO. 335 PL 5

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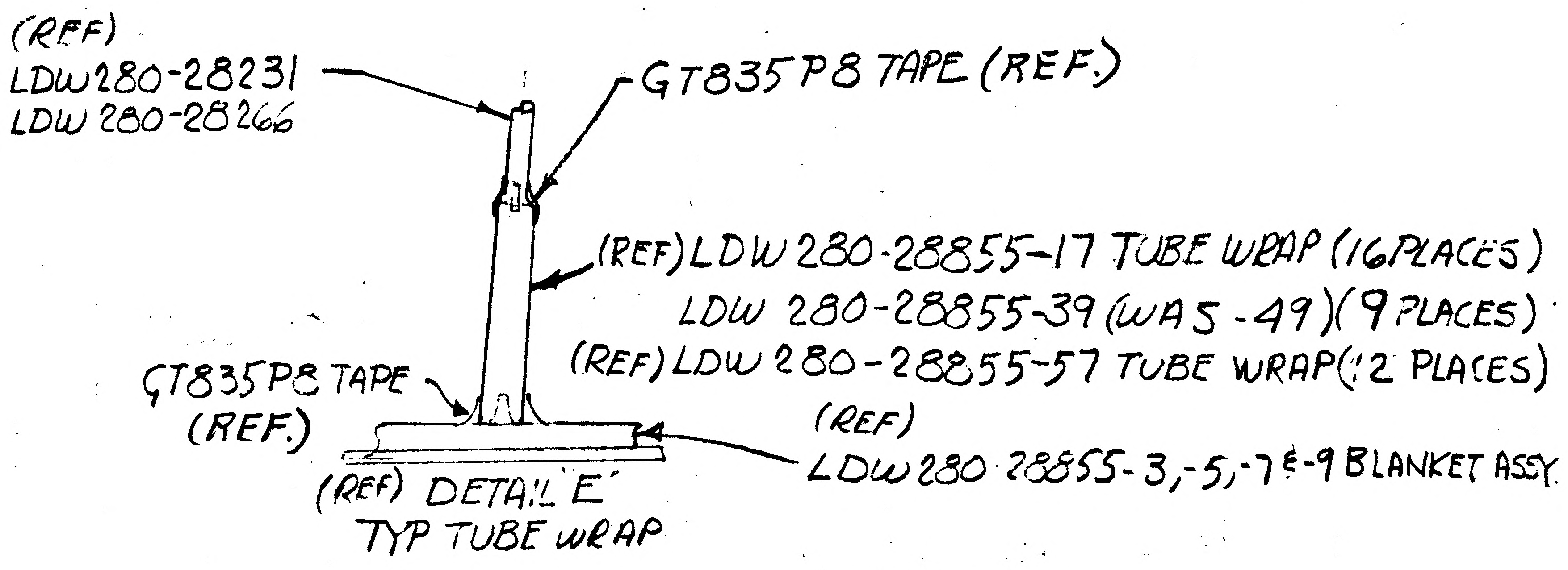
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28855
EO NO. B1
CONTROL INFO NO. LM5-13434

REVISE F/D AS FOLLOWS:



(REF)
LDW280-28231
LDW 280-28266
GT835P8 TAPE (REF.)
(REF) LDW 280-28855-17 TUBE WRAP (16 PLACES)
LDW 280-28855-39 (WAS -49) (9 PLACES)
(REF) LDW 280-28855-57 TUBE WRAP (2 PLACES)
GT835P8 TAPE
(REF.)
(REF)
LDW280-28855-3,-5,-7 & -9 BLANKET ASSY.
(REF) DETAIL 'E'
TYP TUBE WRAP

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	X	CL I ENGRG CHG	

5

REASON FOR EO: DWG. CORRECTION (TO MAKE F/D AGREE WITH B/M)

DESCRIPTION OF EO: IN F/D, IN DETAIL E, LDW280-28855-39 (WAS -49)

GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM			

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT			—		EUB	DAM	
				DATE	5/26/67			—	5/30/67	5/27/67	6-2-67	6-1-67
✓ REVISE DWG	RECORD EO	NOT REQD REWORK	SCRAP	6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E	THERMAL BLANKET INSTL. A/S MID, SECT LOWER HEAT SHIELD	LDW280-28855	B1

ISSUED BY P. KEISER 1392 2/25/67 SECTION VDI GROUP NO. 335 PL 5

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-28855
EO NO. C1
CONTROL INFO NO. LDW280A9442

DESCRIPTION OF E.O.

REVISED QTY. OF LDW280-14440-31 BLANKET VENTS ON THE FOLLOWING ASSYS: ON -3 & -67 ASSY 4 REQD. (WAS 5)
ON -5 & -69 ASSY 4 REQD (WAS 3)
ON -7 & -71 ASSY 6 REQD (WAS 3)
ON -9 & -73 ASSY 2 REQD. (WAS 5)

REF. B3 IN DESCRIP. OF CHG. ONLY "REMOVED LDW280-14440-31" IN ERROR. LDW280-14440-31 STILL APPLICABLE TO THE NOTED ASSYS.

5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: E.O. A4 INCOROPORATED QTYS. INCORRECTLY. B3 CHG. REMOVED LDW280-14440-31 IN ERROR

DESCRIPTION OF EO: AS NOTED ABOVE

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		NOT REQD	

APPROVED BY					—			
DATE	9/29/67	9/29		9/29/67	—			10-2-67
	VDI	SUPPORT THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: E
DRAWING TITLE: BLANKET INSTL. ASCENT STAGE LOWER MID SECTION INTERNAL
DRAWING NO.: LDW280-28855
EO NO.: C1

ISSUED BY P. KEISER 9/29/67 X7033 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

my

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28855
EO NO. C2
CONTROL INFO NO. LM 29-1095

IN L/M, REVISE QUANTITIES OF LDW 280-14440-31
AS FOLLOWS:

ON-3 &-73 ASSY. 4 REQ'D. WAS 5
ON-5 &-71 ASSY. 4 REQ'D. WAS 3
ON-7 &-69 ASSY. 6 REQD. WAS 3
ON-9 &-67 ASSY. 2 REQD WAS 5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

29

REASON FOR EO: TO AGREE WITH REQMTS. IN F/D & DETAIL DWG.

DESCRIPTION OF EO: IN L/M REVISED QUANTITIES OF LDW 280-14440-31. ON-3 & 73, 4 REQD. WAS 5; ON-5 &-71, 4 REQD. WAS 3; ON-7 &-69, 6 REQD. WAS 3; ON-9 &-67, 2 REQD. WAS 5

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	NOT REQ'D		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK / SCRAP: NOT REQ'D

APPROVED BY	JAP			—	—	W.F.	WPB	
DATE	10/11/67			—	—	10/11/67	10/11/67	1040
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CUST~~

PRIORITY: E 24
DRAWING TITLE: BLANKET INSTL. A.S. LWR MID-SECT INTERNAL
DRAWING NO. LDW280-28855
~~EO NO.~~ C2

ISSUED BY LIAISON W. FRANK (7930) SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO.	LDW280-28855	EO NO.	C3
CONTROL INFO NO.	LM-3-5700		

CANCEL E.O.#C1

						3
DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		

REASON FOR EO: ASSY. NOS. INCORRECT. NOT REQD DUE TO C2.

DESCRIPTION OF EO: CANCELLED E.O.#C1.

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQD.	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT REQD	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				—	BM		WRB	
DATE	10/28/67			—	10-10-67	10-11-67	10/28/67	10/12/67
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E3	BLANKET INSTL, A/S, LWR MIDSECTION INTERNAL	LDW280-28855	C3

ISSUED BY LIAISON/ALEC HARVEY (X2151) 10-10-67 SECTION V. D. I. GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28855
EO NO. C4
CONTROL INFO NO. LDW280B/070

ON -65 INST'L ADD LDW280P14391-1 & -3 (4 EA) REQ'D.

DETAIL SPEC REQ	✓	CL II ENGRG CHG		CL I ENGRG CHG

REASON FOR EO: BLANKET NEEDS VENTING. (CDR LIST)

DESCRIPTION OF EO: ON -65 INST'L ADDED LDW280P14391-1 & -3.

GAEC EO RELEASE: (5) JK 1/9/8

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQ'D	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
		NOT REQ'D		APPROVED BY	JAS			FDR	CAS		JaP	Cotti
✓				DATE	1/5/68			1/5/68	1/8/68		1/5/68	1-8-68
REVISE DWG	RECORD EO	REWORK	SCRAP	—	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E	BLANKET INST'L ASCENT STAGE-LOWER MID SECTION INTERNAL	LDW280-28855	C4

ISSUED BY F. BADE X1153 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28856 B

LM	LDW280-28850	LM [illegible]	
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO GAEC SCH NO	REQD PER MODULE OR END ITEM
PART NO LDW280-28856-77			

LM	LDW280-28850	LM (3)	
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO GAEC SCH NO	REQD PER MODULE OR END ITEM
PART NO LDW280-28856-71			

LM	LDW280-28850	[illegible]	
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO GAEC SCH NO 3 —	REQD PER MODULE OR END ITEM
PART NO LDW 280-28856-1			

SH REV STATUS FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1 00	2 00	[illegible]	3 00	3 00	4 00	5 00	6 00	7 00
REV	B	B	B	B	B	A			
SHEET				0 0 0					
REV				B					
SHEET									
REV									

LAST SECT LTR USED Y
LAST DASH NO USED -77
GRUMMAN REL INFO B
PRM NO LK [illegible]
[illegible] 4-16-[illegible]

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/2 ~ ~
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS I ENGRG CHANGE
CLASS II ENGRG CHANGE

CONTRACT NO NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE [illegible]
DRAWN BY
LAYOUT BY B. SCHUMAN
CHECKED BY
GR LDR [illegible]
[illegible]
STRUCT [illegible] 9/3
STRUCT R. HILSERMAN
[illegible] Garcia
PROJ ENGR [illegible] 9-9
REL GROUP [illegible]

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE L I NEW YORK

THERMAL BLANKET [illegible]

SIZE B
CODE IDENT NO 26512
LDW280-28856 B
SCALE NONE
SHEET 1 OF 7

CDR 9-2-66

01 NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	3.00,4.00					✓	E.O. A1	ADDED SHEET 1.10: ADDED SECT U-U & NOTE * INF/D ADDED GT835M-8 TO B/M	LM-1, LM-2 LTA-8	✓		J. GEIER 11-9-67		
	2							E.O. A2	CANCELLED BY E.O. A3		NONE				
	3	2.00. 2.01 3.00						E.O. A3	THIS EO CANCELS E.O. A2. ON LDW280-28856-4 BLANKET ASSY REMOVED -5 ASSY & ADDED -6 BLANKET ASSY TO -4 ASSY; ON-4 ASSY REM -11 BLANKET ASSY; ON-12 ASSY ADDED -4 BLANKET ASSY; ON-4 THRU-17 & -19 ASSY REM-45 PATCH & ADD LDW280-14440-31 BLANKET VENT PATCH & ADD LDW280-14440-31 TO -15, -16, -17 & -19, REM -21 PATCH ASSY ON LDW280-28856-1 INSTL ADDED LDW280-14440-33, REVISED -57 (WAS 25 LAYERS OF MYLAR 5 LAYERS OF "H" FILM. ON-1 ADD LDW280-28856-59 DOCKING RING BLANKET		✓				
	4	2.01					✓	E.O. A4	ON-1, REVISED B/M AS FOLLOWS: ON-23 ASSY LDW280P14391-1 & -3 (5EA) WAS (4EA), LDW280-14441-9 (10) WAS (8). ON-24 ASSY LDW280P14391 -1 & -3 (5EA) WAS (3EA), LDW280-14441-9 (10) WAS (6). ON-11 ASSY LDW280-14440-31 (2) WAS (1)						
	5	2.00, 2.01 2.02, 3.00					✓	E.O. A5	ADDED SHEET 2.02. REVISED B/M & FLD AS FOLLOWS: ADDED -19 DOOR ASSY, TO-3 BLANKET ASSY. (WAS ON-4 ASSY). ADDED -16 DOOR ASSY. TO-4 BLANKET ASSY. (WAS ON-3 ASSY). ADDED LDW280-14440-31 BLANKET VENT PATCH TO-23 (3) & TO-24 (3). REMOVED -51 ADDED GT835P-8-1.00 (A/R) REMOVED-53 ADDED GT835B-2-1.00 (A/R). REMOVED -55 ADDED GT835M-8-1.00 (A/R). ON-5 THRU-14 (WAS -4 THRU -17 & -19) REPLACED -45 WITH LDW280-14440-31 AS FOLLOWS: (2) ON-5, -6, -13 & -14; (1) ON-7, -8, -9, -10, -11 & -12. ADDED LDW280-14441-9 AS FOLLOWS: (4) ON-5, -6, -10, -11, -12, -13 & -14 ASSY, (2) ON-7 & -8 ASSYS, (6) ON-9 & -24 ASSYS, (8) ON-23 ASSY. ADDED -28 BLANKET TO-6 BLANKET ASSY. (MAT'L & BUILD UP IDENT TO-27 B'K'L'T). ADDED -34 BLANKET TO-12 BLANKET ASSY. (MAT'L & BUILD UP IDENT TO-33 B'K'L'T). ADDED -61 DOOR ASSY (25 LAYERS MYLAR & 5 LAYERS "H" FILM) TO-3 ASSY.				(B)		

CHG APPROVED

LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS	RELIABILITY				
B										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28856	B (B)

SCALE NONE

SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	6	1.00,2.00 2.02,3.00 1.11						E.O. A6	ADDED SHEET #1.11. ON-1 INSTL REMOVED GR11C-7 RETAINER ADD REVISE QNTY. OF GR11C-1 (207)(WAS 164)(EFF LTA 8 ONLY)(WAS EFF LTA8, LM-1 & -2) NHA LDW280-28150 CREATE -71 INSTL. IDENT TO -1 EXCEPT REPLACE GR11C-1 WITH GR11C-7 EFF LM-1 & LM-2. ADDED NOTE #14. ON-12 ASSY ADD LDW280-14440-31 (2 REQ'D) (WAS 1).	LM-1 LM-2 LTA-8	✓		J. GEIER 11-9-67		
	7	1.00,3.00					✓	E.O. A7	ADDED DETAIL V & SECT W-W IN FLD, TYP FOR LDW280-28860, LDW280-28880 & GS26C						
	8	2.01,2.02						E.O. A8	IN FLD & B/M REMOVED -49 BLANKET ASSY FROM -23 ASSY & -15 BLANKET ASSY FROM -4 ASSY ~1 REQD WAS 2. ADDED -49 BLANKET ASSY TO -71 BLANKET INSTL.						
	9	2.01,3.00						E.O. A9	IN FLD & B/M REVISE AS FOLLOWS: ADD -16 DOOR ASSY TO -3 BLANKET ASSY WAS ON-4 ASSY. ADD -15 DOOR ASSY TO -4 BLANKET ASSY (2) REQD. FOR -15 WAS (1) ON-9 ASSY, ADD (1) LDW280P14391-1 & (1) LDW280P14391-3						
	10	2.01,3.00			✓			E.O. A10	ADDED NOTE 15 TO 18. REMOVED NOTE #3 & 5. IN SECT R-R REMOVED. CALLOUT; BOND UPPER ---- ETHYLENE DICHLORIDE. ADDED GT15C-2 TAPE TO SECT TO AGREE WITH LPC280-3. ADDED GT15C-2 TO B/M						
B	1	1.00,2.01 2.02,3.00					✓	E.O. B1	REM-45 BLANKET VENT FROM DWG. ON-23 & -24 REVISED QTY OF LDW280-14441 -9 (10 REQD)(WAS 18) ADDED -77 BLANKET INSTL & -75 BLANKET ASSY. & LDW280P10871-11 TAPE, ADDED DETAIL X, SECT Y-Y, NOTE #19 & GT835E-8	LM-2		✓			
	2	1.00.3.00					✓	E.O. B2	REF E.O. B1. THIS IS A REVISION OF E.O. B1, REVISED EFF OF E.O. LTA8, LM-1 & LM-2 (WAS LM-2 (32). REVISED CALLOUT IN FLD LDW280-28856-77 BLANKET INSTL (REVISE)(SAME AS -71 EXCEPT AS SHOWN)(WAS SAME AS -1 EXCEPT AS SHN)(ADD)(EFF LM-2 (32) ONLY) NHA LDW280-51150 1 REQD/VEH FROM -71 MODEL BLOCK REMOVED LM-2 REQMTS.	LM-1 LM-2 LTA-8					
	3	1.11,3.00							REF EO A3 ADDED NOTE 13		✓			T.S. 11-13-67	

CHG APPROVED

LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS	RELIABILITY				
B										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28856	B
SCALE NONE			SHEET 1.11

ENG 77.16 3-66

01 NAS 9-1100

////	-77	-71	14	13	11	10	9	8	7	5	4	3	1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			2	2	2	3	2	1	1	2					LDW280P14391-1	E	BAY VENT	SEE DWG						
											A/R	A/R	A/R		GR11B-1		SNAP	GRUMMAN STD						
			4	4	4	4	6	2	2	4					LDW280-14441-9		PATCH ASSY	SEE DWG						
	A/R	A/R											A/R		GT835M-8-1.00		TAPE	GRUMMAN STD						
	A/R	A/R									A/R	A/R			GT535B-2-1.00		TAPE	GRUMMAN STD						
	A/R	A/R											A/R		GT835P-8-1.00		TAPE	GRUMMAN STD						
	28	28											28		LDW280-14440-33		PATCH	SEE DWG						
			A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R					GS577A-1		STAPLE	GRUMMAN STD						
													207		GR11C-1		RETAINER	GRUMMAN STD						
	207	207													GR11C-7		RETAINER	GRUMMAN STD						
			2	2	2	2	2	1	1	2					LDW280P14391-3		BAY VENT	SEE DWG						
			2	2	2	1	1	1	1	2					LDW280-14440-31		PATCH ASSY	SEE DWG						
			1												LDW280-28856-36		BLANKET TOP	SEE NOTE 1						
				1											-35		BLANKET TOP							
					1										-33		BLANKET FOWARD							
						1									-32		BLANKET AFT							
							1								-31		BLANKET AFT							
								1							-30		BLANKET SIDE							
									1						-29		BLANKET SIDE							
										1					-27		BLANKET SIDE	SEE NOTE 1						
C											1				-14		BLANKET ASSY TOP							
C												1			-13		BLANKET ASSY TOP							
C												1			-11		BLANKET ASSY FWD.							
C											1				-10		BLANKET ASSY AFT							
C												1			-9		BLANKET ASSY AFT							
C											1				-8		BLANKET ASSY SIDE							
C												1			-7		BLANKET ASSY SIDE							
C												1			-5		BLANKET ASSY SIDE							
C													1		-4		BLANKET ASSY R.H.							
C													1		-3		BLANKET ASSY L.H.							
C															LDW280-28856-1	E	BLANKET INSTL							

CL QTY PER ASSEMBLY

CLEAN[illegible] LSP [illegible]

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28856	B

Ⓑ

SCALE NONE

SHEET 2

ENG 77.2 7-65

01

NAS 9-1100

QTY PER ASSEMBLY														CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	-12	-6	-49	-45	-24	-23	-21	-19	-17	-16	-15	-4	-3											
					5	5									LDW280P14391-1	E	BAY VENT	SEE DWG						
			A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R				GS577A-1		STAPLE	GRUMMAN STD						
					5	5									LDW280P14391-3		BAY VENT	SEE DWG						
	4	4			10	10									LDW280-14441-9		PATCH ASSY	SEE DWG						
	2	2			3	3		2	2	2	2				LDW280-14440-31		PATCH ASSY	SEE DWG						
					A/R	A/R									GT835P-8-1.00		TAPE	GRUMMAN STD						
												100	107		GB10J-1		BUSHING							
												A/R	A/R		GW10H-1		WASHER							
												A/R	A/R		GT15C-2		TAPE							
												A/R	A/R		GT535B-2-1.00		TAPE	GRUMMAN STD						
			1												LDW280-28856 -57		BLANKET POCKET							
				1											LDW280-28856-47		BLANKET VENT	SEE NOTE 1						
					1										-26		BLANKET SIDE							
						1									-25		BLANKET SIDE							
							1								-43		BLANKET PATCH							
								1							-41		BLANKET DOOR							
									1						-39		BLANKET DOOR							
										1					-38		BLANKET DOOR							
											1				-37		BLANKET DOOR	SEE NOTE 1						
C												1			-12		BLANKET ASSY FWD							
C												1			-24		BLANKET ASSY SIDE							
C													1		-23		BLANKET ASSY SIDE							
C												1			-6		BLANKET ASSY SIDE							
C													1		-19		BLANKET ASSY DOOR							
C												1	1		-17		BLANKET ASSY DOOR							
C													1		-16		BLANKET ASSY DOOR							
C												2	1		LDW280-28856 - 15	E	BLANKET ASSY DOOR							

C.L = CLEANLINESS PER LSP14-001

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28856	B Ⓑ
SCALE NONE			SHEET 2.01

ENG 77.2 7-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~[illegible]~~ APPD
C	1	3.00				✓		EOC1 LCD10774	ADDED EO TO RECORD BLOCK FOR LM-1	NOTED	NO	TED	W. CONROY 4-2-68		
	2	3.00			✓			EOC2	ADDED TO F/D&B/M LDW 360-28296-11&-13	NOT REQD	NOT	REQD			
	3	2.02 3.00				✓		EOC3	ON-11 ADDED LDW360-51296-11(I) LM-1 EFF (REF LDW 360-51296 NO CHANGE DWG) ON-17 ADDED LDW360-28296-21(I) LM-2 EFF (REF EO D2 (LCD22231) AGAINST LDW360-28296	LM-1 LM-2	✓				
	4	3.00		LFM126		✓		LCD1021-33 CCA 498	ADDED -1-1 INSTL -3-1, -4-1, -5-1, -6-1, -7-1, -8-1, -9-1, -10-1, -11-1, -12-1, -13-1, -14-1, -15-1, -16-1, -17-1, -19-1, -23-1, -24-1 & -61-1 ASSY -25-1, -26-1, -27-1, -28-1, -29-1, -30-1, -31-1, -32-1, -33-1, -34-1, -35-1, -36-1, -37-1, -38-1, -39-1, -41-1, -43-1 & -59-1 DETAILS. NOTE 20 & 21 & DETAIL Z LDW280-54927-14 LDW280-11965-11 (ADDED SH 2.03 2.04 & 2.05) ADDED ON-5, -7, -8, -9, -10, -11, -134-14 ONLY TO NOTE 8, CONFIGURATION I TO NOTE 17	LTA-8					

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURE	STRUCTURE	THERMO	WEIGHTS	RELIABILITY			PROJ ENG	REL GROUP
C	6/10/68	6/10/68	6/10/68	FEB	6/10/68						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK.

SIZE	CODE IDENT NO.		
B	26512	LDW280-28856	C

SCALE NONE SHEET 1.12

ENG 77.16 3-66

01

NAS 9-1100

	-23	-13	-1	-75	-77	-71	-3	-12	-6	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
						2				LDW360-51296-11	E		THERMOCOUPLE	SEE DWG						
		1								LDW360-28296-13	E		THERMOCOUPLE	SEE DWG						
	1									LDW360-28296-11	E		THERMOCOUPLE	SEE DWG						
					1					LDW360-28296-21	E		THERMOCOUPLE	SEE DWG						
					A/R					GT835E-8	E		TAPE	GRUMMAN STD						
				A/R	A/R					LDW280P10871-11	E		TAPE	SEE DWG						
			1		1	1				LDW280-28856-59	E		DOCKING RING BLANKET	SEE NOTE 1						
					1					-75			BLANKET ASSY							
C						1				-49			BLANKET ASSY POCKET							
										-77			BLANKET INSTL							
										-71			BLANKET INSTL							
							1			-61			DOOR ASSY	SEE NOTE 1						
								1		-34			BLANKET FWD	SEE NOTE 1						
									1	LDW280-28856-28	E		BLANKET SIDE	SEE NOTE 1						

QTY PER ASSEMBLY

C.L. = CLEANLINESS PER LSP 14-0011

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28856 C
SCALE NONE
SHEET 2.02

77.2 5-64

01

NAS 9-1100

▨	QTY PER ASSEMBLY													CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
CL			-12-1	-11-1	-10-1	-9-1	-8-1	-7-1	-6-1	-5-1	-4-1	-3-1	-1-1											
													1		LDW280-28856-59-1	E	DOCKING RING BLANKET	SEE NOTE 20						
													206		GR11C-1	E	RETAINER	GRUMMAN STD						
													A/R		GT835P-8-100		TAPE							
													A/R		GT835M-8-100		TAPE							
											A/R	A/R	A/R		GR11B-1		SNAP							
											100	107			GB10J-3		BUSHING							
											A/R	A/R			GW10H-1		WASHER							
											A/R	A/R			GT15C-2		TAPE							
											A/R	A/R			GT535B-2-100		TAPE							
				A/R	A/R	A/R	A/R	A/R		A/R					GS577A-1		STAPLE	GRUMMAN STD						
													28		LDW280-14440-33		PATCH	SEE DWG						
												1			LDW280-28856-62-1		DOOR ASSY	SEE NOTE 20				NONE	NONE	
			1												-34-1		BLANKET	SEE NOTE 20						
				1											-33-1									
					1										-32-1									
						1									-31-1									
							1								-30-1									
								1							-29-1									
									1						-28-1									
										1					-27-1		BLANKET	SEE NOTE 20						
C											1				-12-1		BLANKET ASSY					NONE	NONE	
												1			-11-1									
											1				-10-1									
												1			-9-1									
											1				-8-1									
												1			-7-1									
											1				-6-1									
												1			-5-1									
													1		-4-1									
													1		-3-1		BLANKET ASSY							
C															LDW280-28856-1-1	E	BLANKET INSTL					NONE	NONE	

CL-CLEANLINESS PER LSP14-0011 LEVEL C

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28856	C
SCALE NONE			SHEET 2.03

ENG 77.2 7-65

01

NAS 9-1100

CL	-24-1	-23-1		-19-1	-17-1	-16-1	-15-1	-14-1	-13-1	-6-1	-5-1	-4-1	-3-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	A/R	A/R		A/R	A/R	A/R	A/R	A/R	A/R			A/R			GS5571A-1	E	STAPLE	GRUMMAN STD						
	A/R	A/R		A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R				GT835P-8-100	↑	TAPE	GRUMMAN STD						
	1														LDW280-28856-26-1		BLANKET	SEE NOTE 20						
		1													-25-1		↑	↑						
												1			-43-1									
				1											-41-1									
					1										-39-1									
						1									-38-1									
							1								-37-1									
								1							-36-1		↓	↓						
									1						-35-1		BLANKET	SEE NOTE 20						
C												1			-24-1		BLANKET ASSY					NONE	NONE	
↑													1		-23-1		↑					↑	↑	
													1		-19-1									
												1	1		-17-1									
													1		-16-1									
												2	1		-15-1									
↓												1			-14-1	↓	↓					↓	↓	
C													1		LDW280-28856-13-1	E	BLANKET ASSY					NONE	NONE	

QTY PER ASSEMBLY

CL-CLEANLINESS PER LPC14-0[illegible] LEVEL C

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28856	C

SCALE NONE

SHEET 2.04

ENG 77.2 7-65

01

NAS 9-1100

QTY PER ASSEMBLY -12-1	-11-1	-10-1	-9-1	-8-1	-7-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
A/R	A/R	A/R	A/R	A/R	A/R		GT835P-8		TAPE	GRUMMAN STD						
1	1	1	1	1	1		LDW280-54927-1	E	VENT ASSY	SEE DWG						
1	1	1	1	1	1		LDW280-11965-11	E	WASHER	SEE DWG						

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

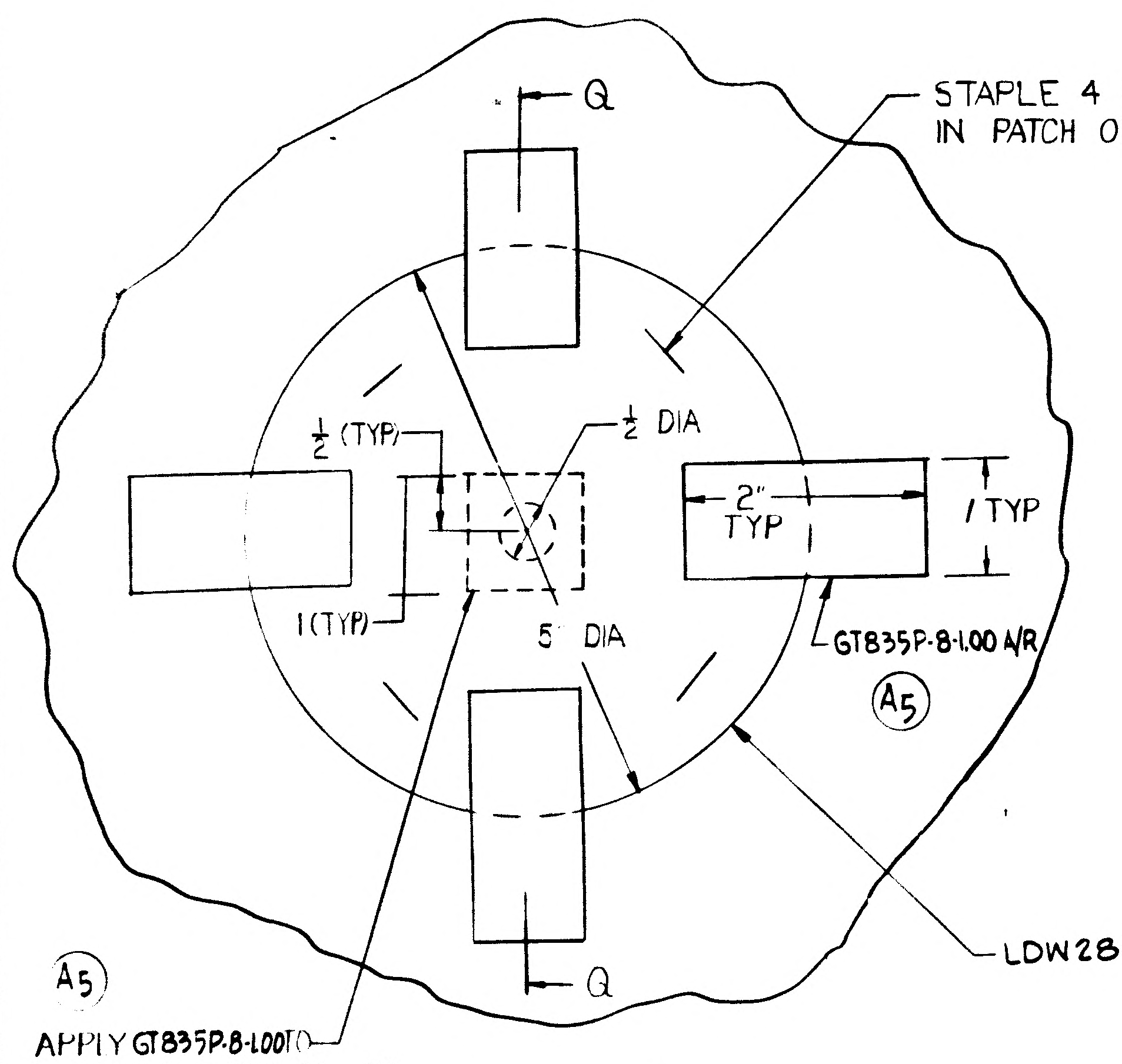
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28856
C
SCALE NONE
SHEET 2.05

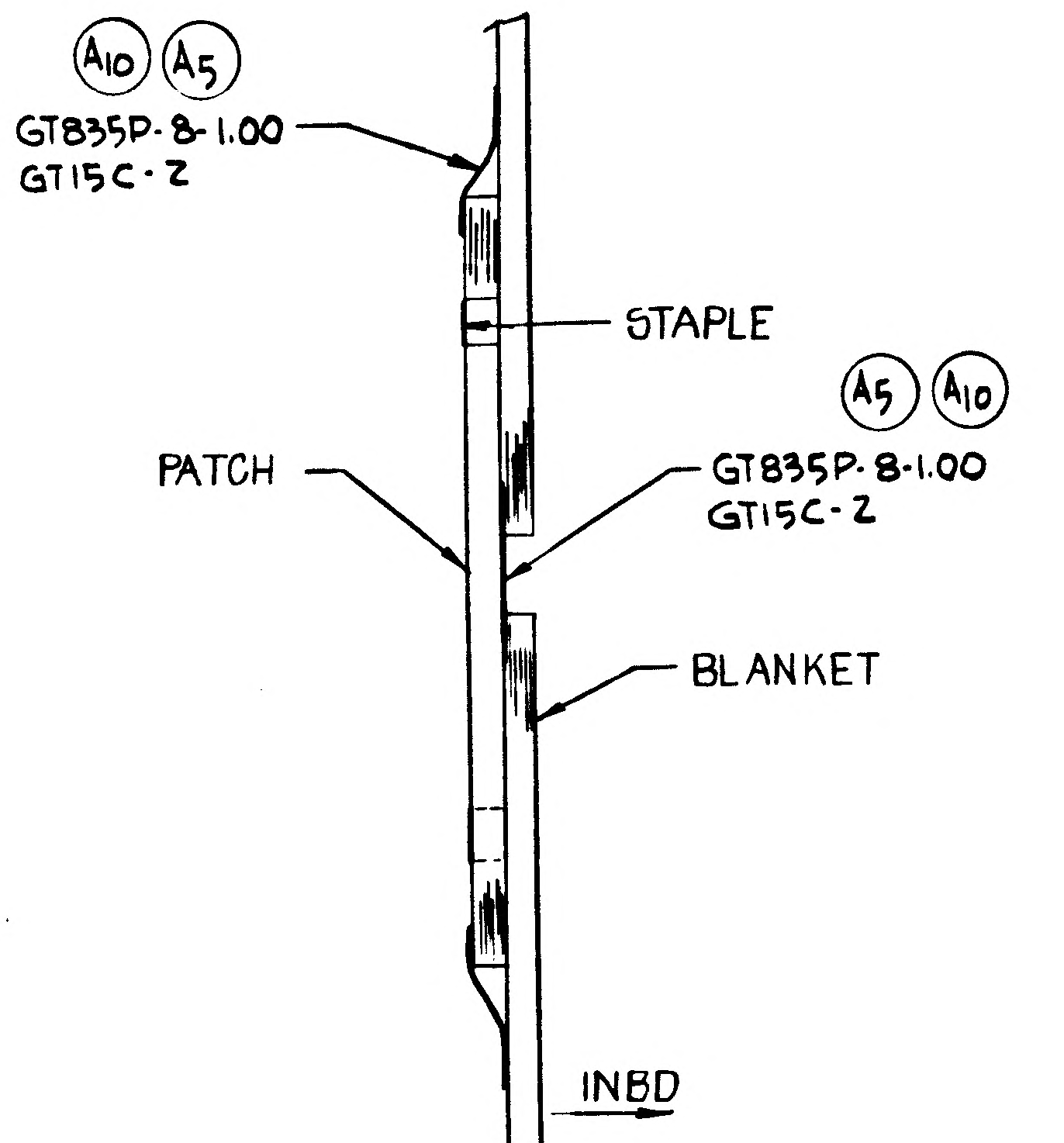
ENG 77.2 7-65

01

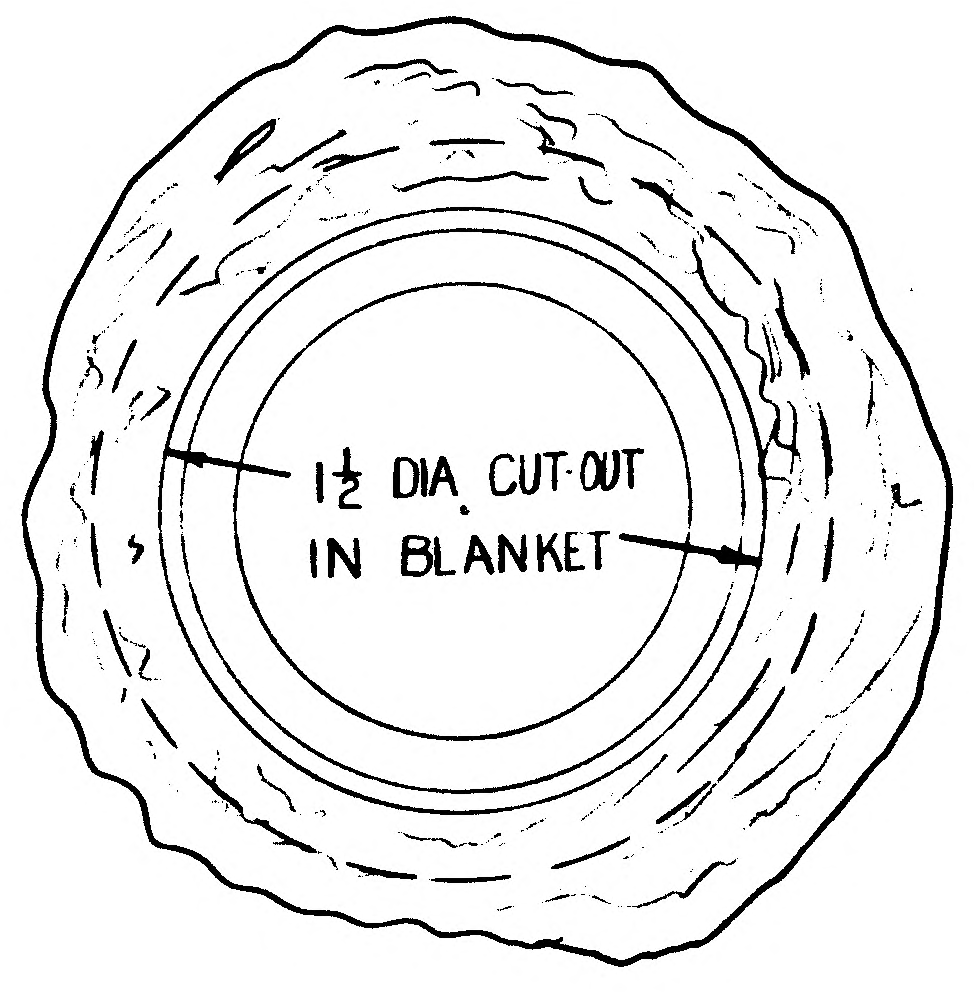
NAS 9-1100


Q
STAPLE 4 PLACES
IN PATCH ONLY
½ (TYP)
½ DIA
2" TYP
1 TYP
1 (TYP)
5 DIA
GT835P-8-1.00 A/R
A5
A5
LDW280-14440-31
Q
A5
APPLY GT835P-8-1.00 TO EXTERIOR SURFACE OF BLANKET PRIOR TO PUNCHING HOLES

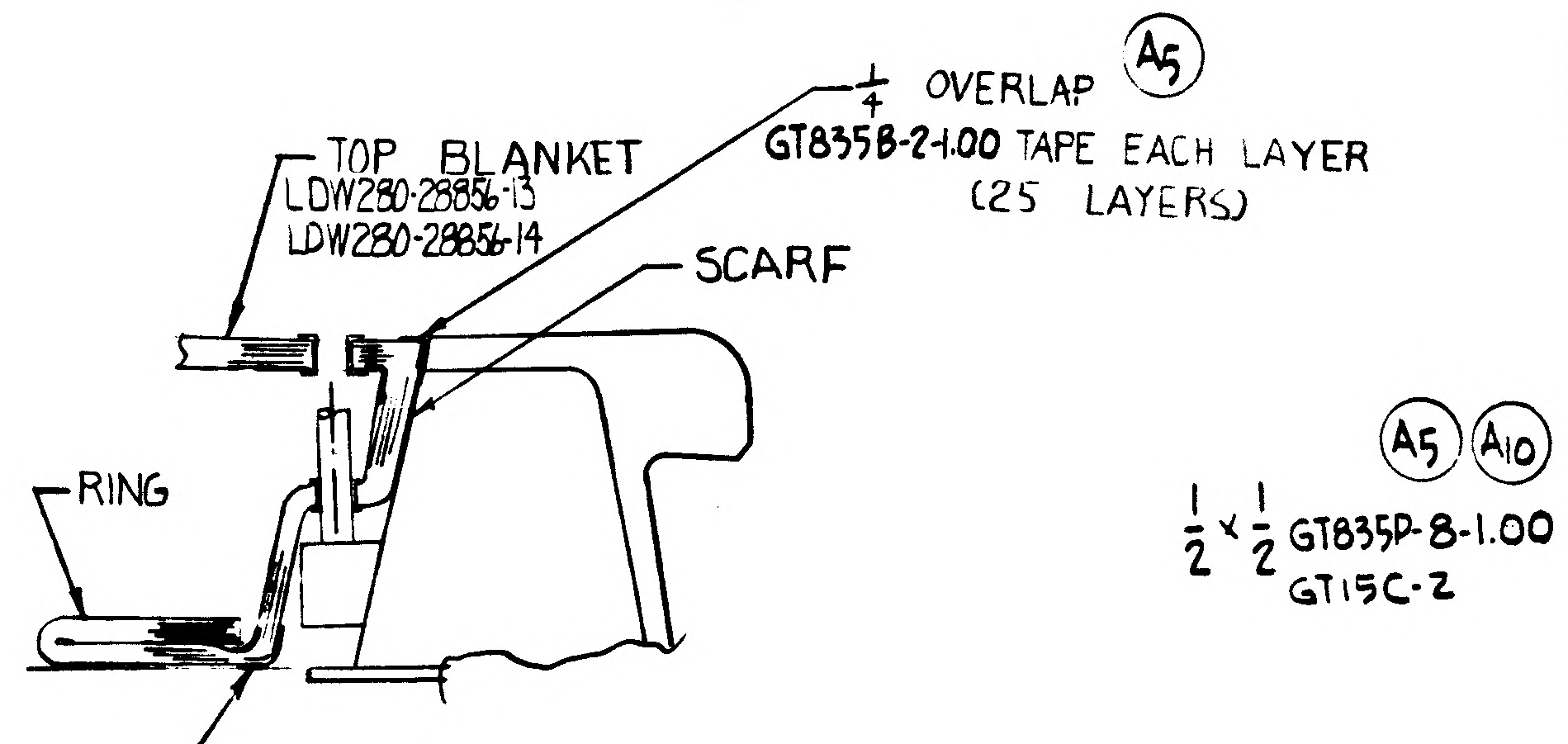
DETAIL P
TYP PATCH FOR BLANKET
VENT 29 REQ
SEE NOTE 10
(C3) CON-5,-6,-7,-8,-9,-10,-11,-12,-13,-14,-15, -16,-17,-19,-23 & -24 ONLY)


A10 A5
GT835P-8-1.00
GT15C-2
STAPLE
PATCH
A5 A10
GT835P-8-1.00
GT15C-2
BLANKET
INBD

SECT Q-Q
SEE HALF SIZE F/P FOR
DIM. LOCATIONS

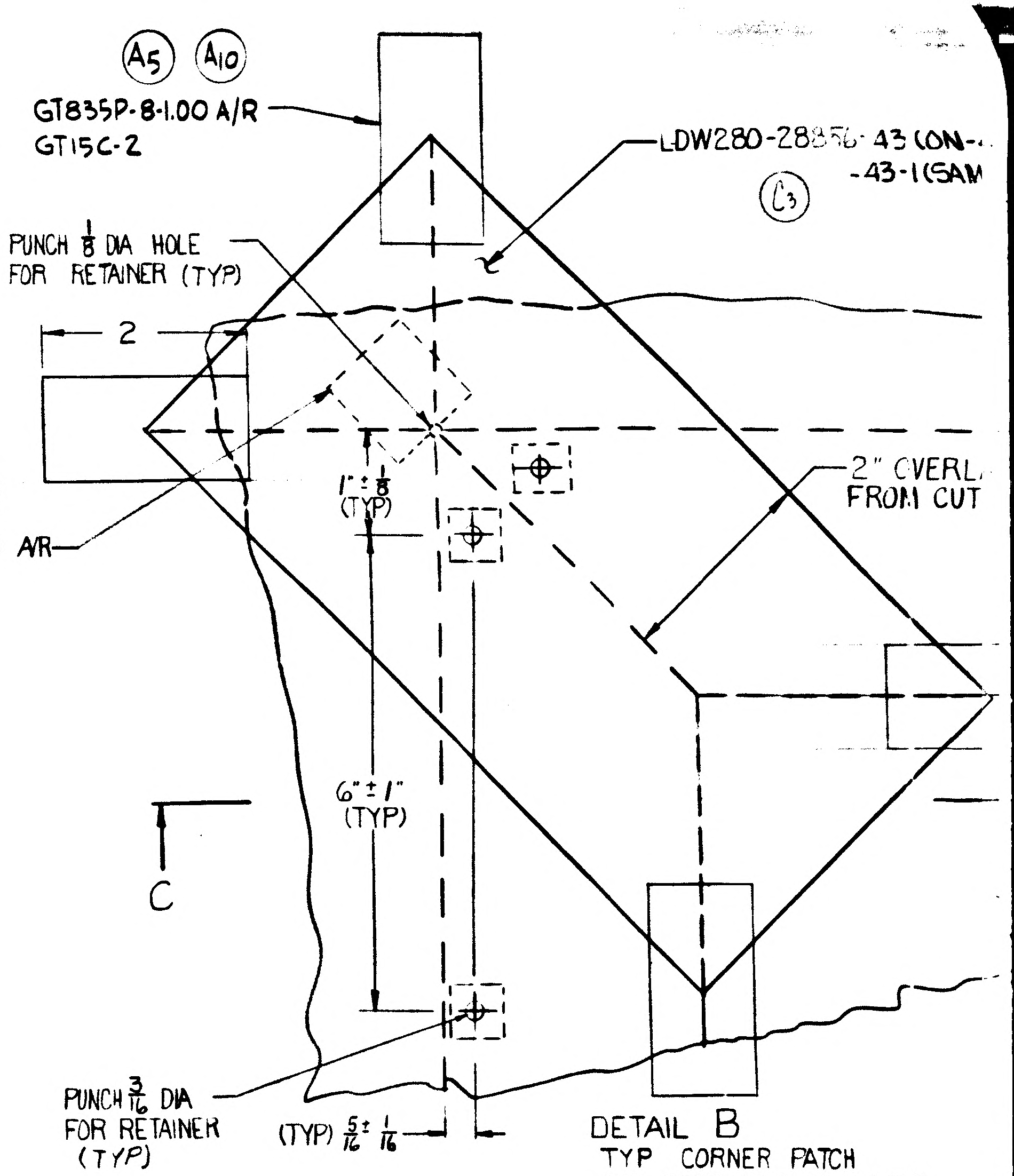

1½ DIA CUT-OUT
IN BLANKET

SECT SS

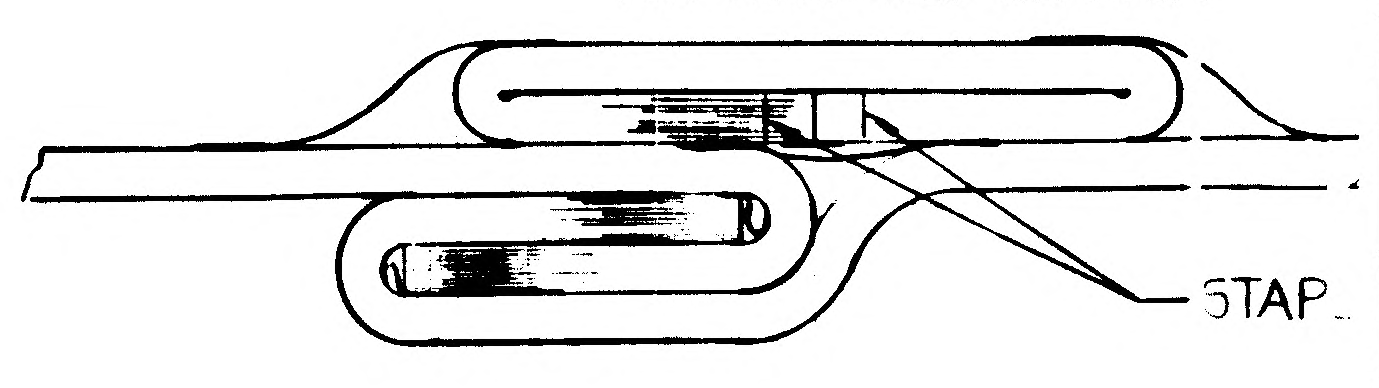

TOP BLANKET
LDW280-28856-13
LDW280-28856-14
¼ OVERLAP A5
GT835B-2-1.00 TAPE EACH LAYER
(25 LAYERS)
SCARF
RING

SECT T-T

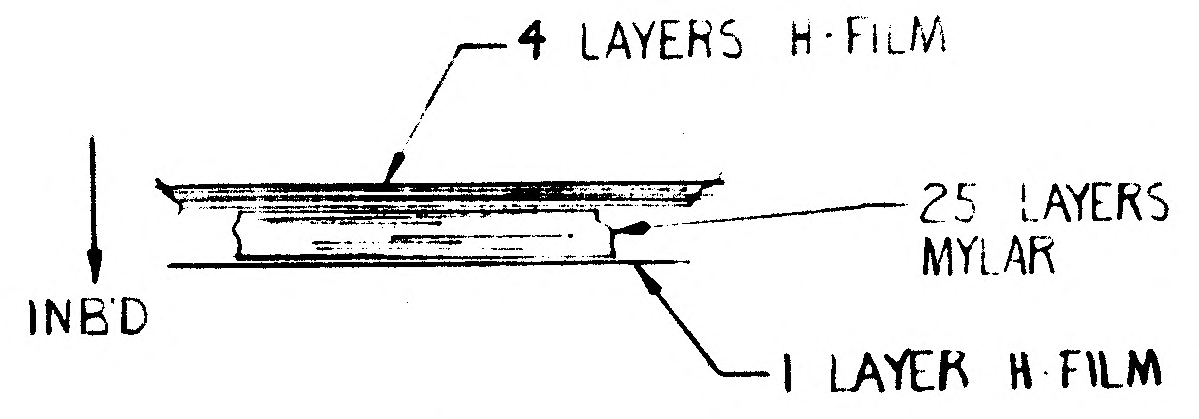
SPLICE (¼ OVERLAP & GT835B-2-1.00 A5
25 LAYERS (TAPE EACH LAYER)


A5 A10
GT835P-8-1.00 A/R
GT15C-2
LDW280-28856-43 (ON-
-43-1 (SAM
C3
PUNCH ⅛ DIA HOLE
FOR RETAINER (TYP)
2
A5 A10
½ x ½ GT835P-8-1.00 A/R
GT15C-2
1 ± ⅛ (TYP)
2" OVERL
FROM CUT
6 ± 1 (TYP)
C
PUNCH 3/16 DIA
FOR RETAINER
(TYP)
(TYP) 5/16 ± 1/16

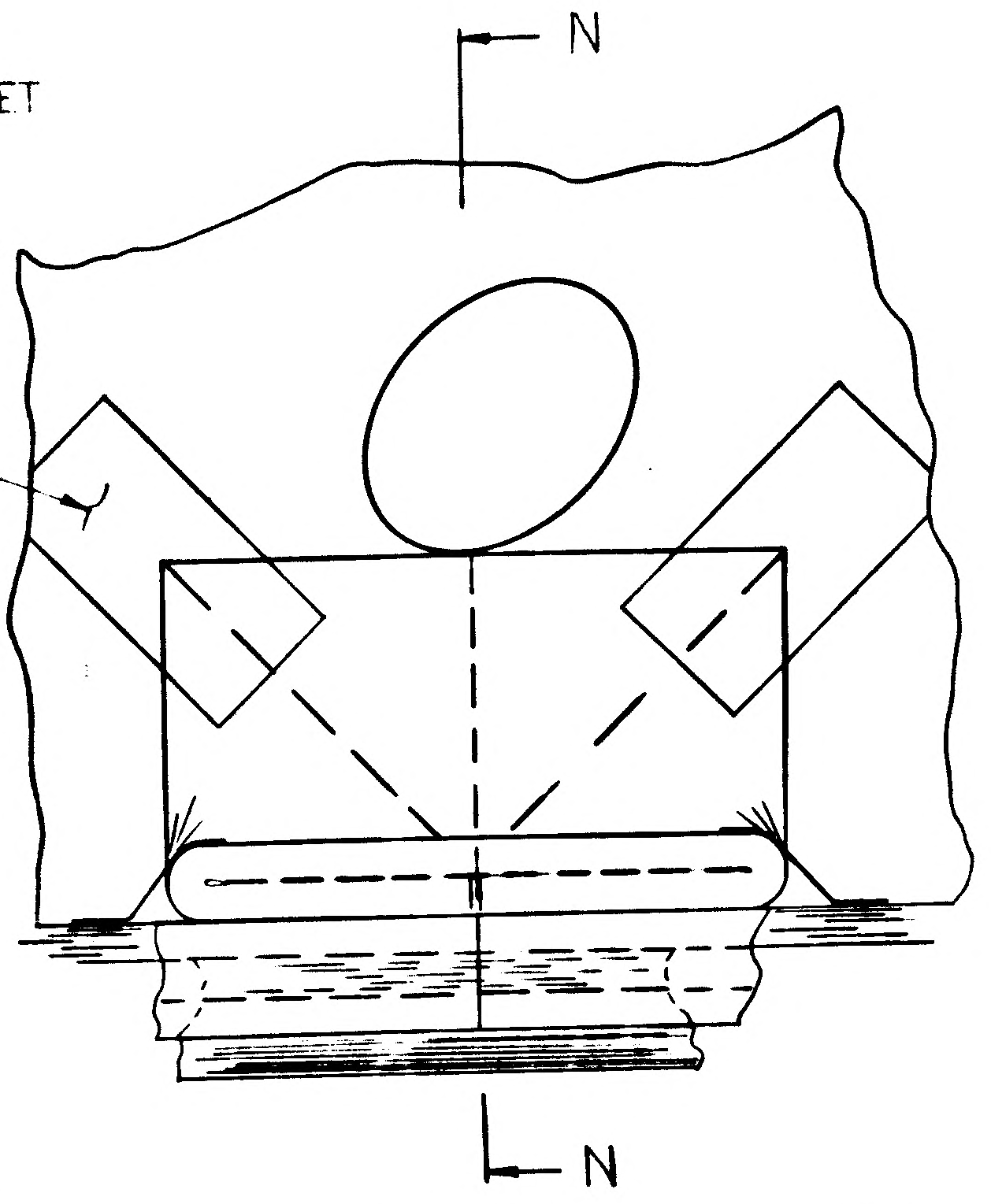
DETAIL B
TYP CORNER PATCH
FOR REMOVABLE BLANKET



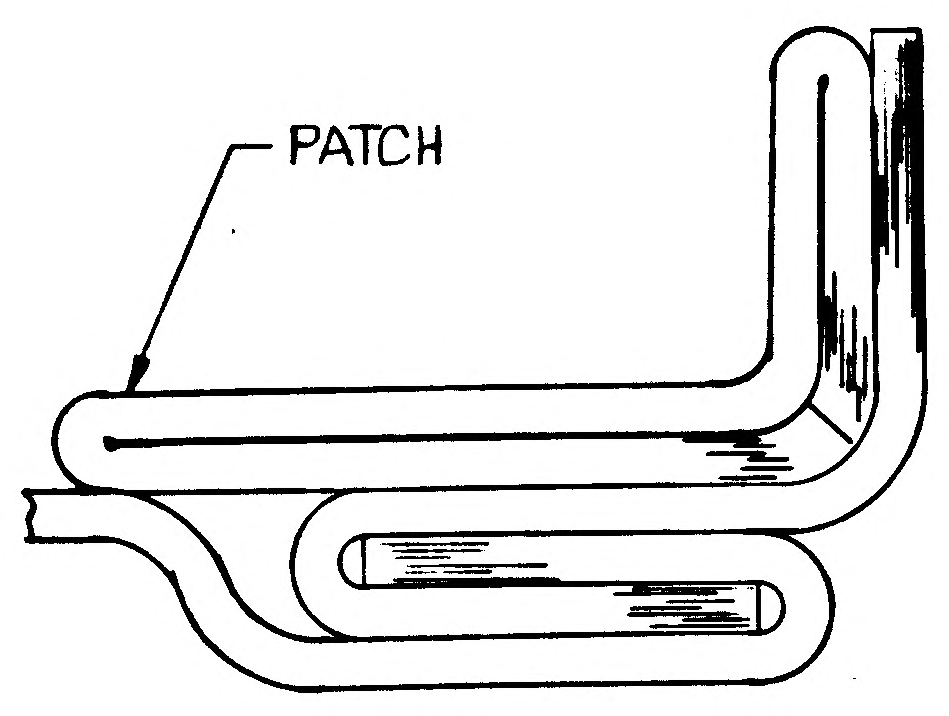
SECT C-C


A10 A5
GT835P-8-1.00 A/R
GT15C-2
4 LAYERS H-FILM
25 LAYERS
MYLAR
INBD
1 LAYER H-FILM

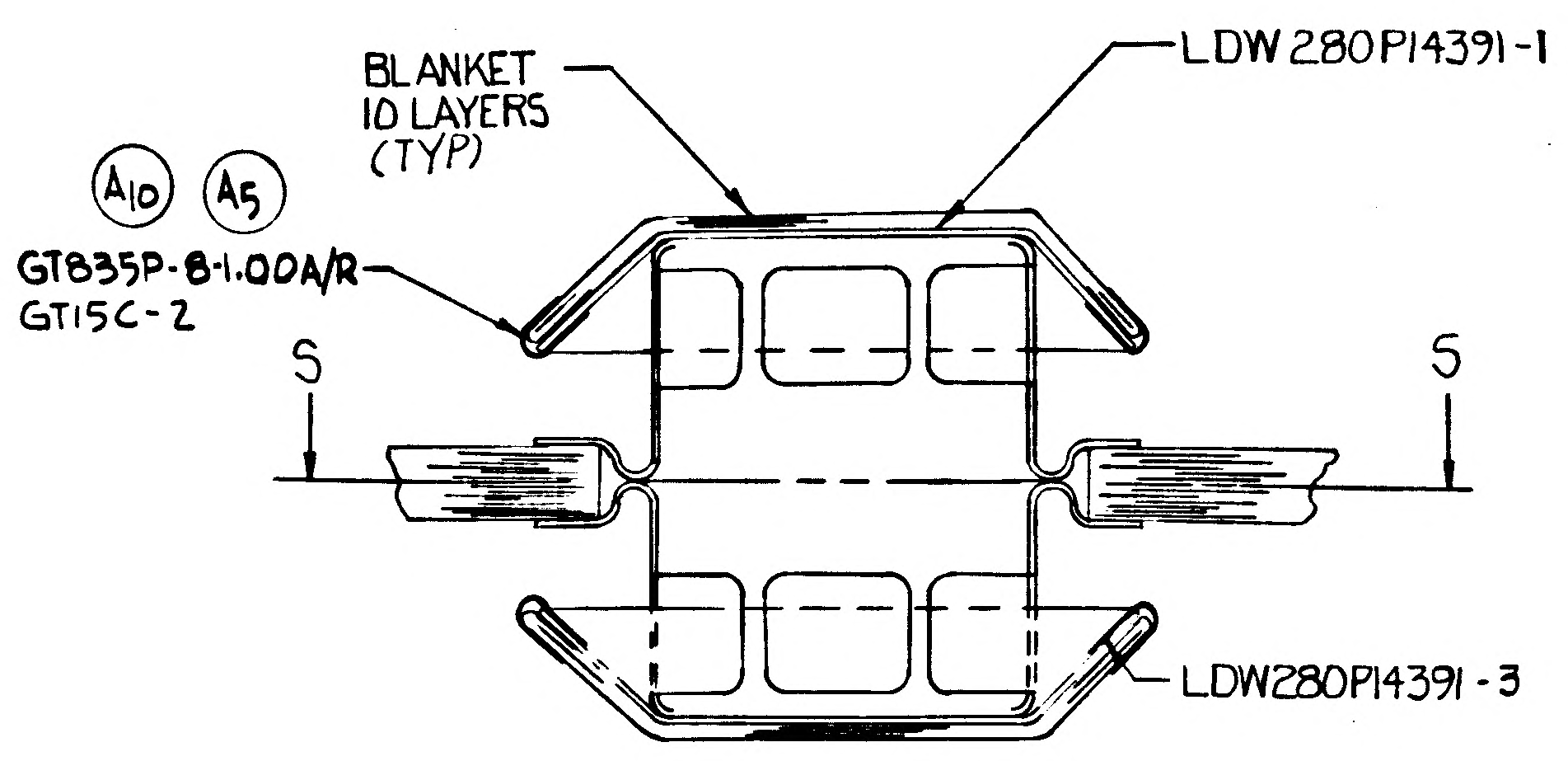
DETAIL U



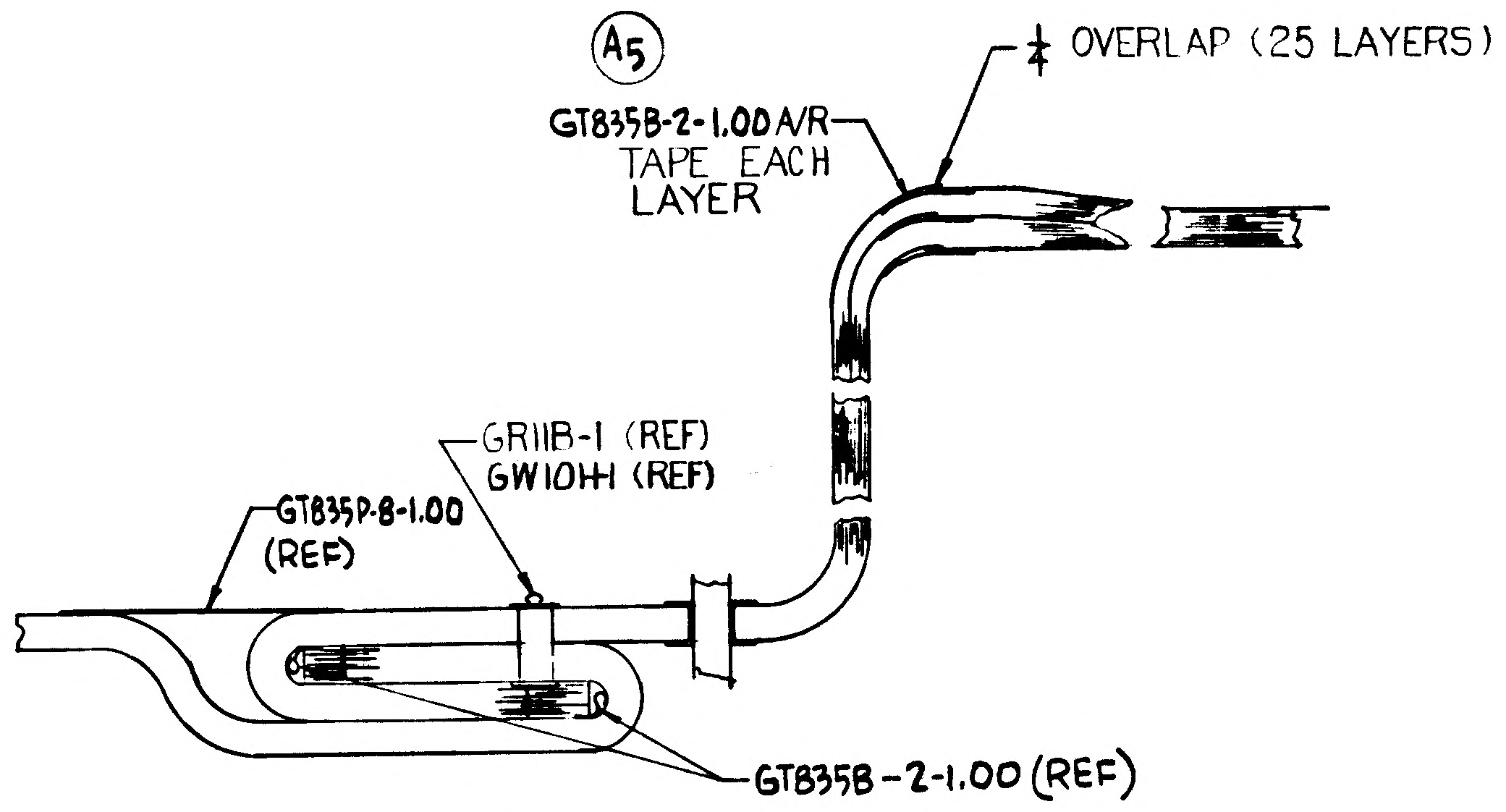
DETAIL K (TYP 9 PLACES)
ROTATED 35° C'CW.



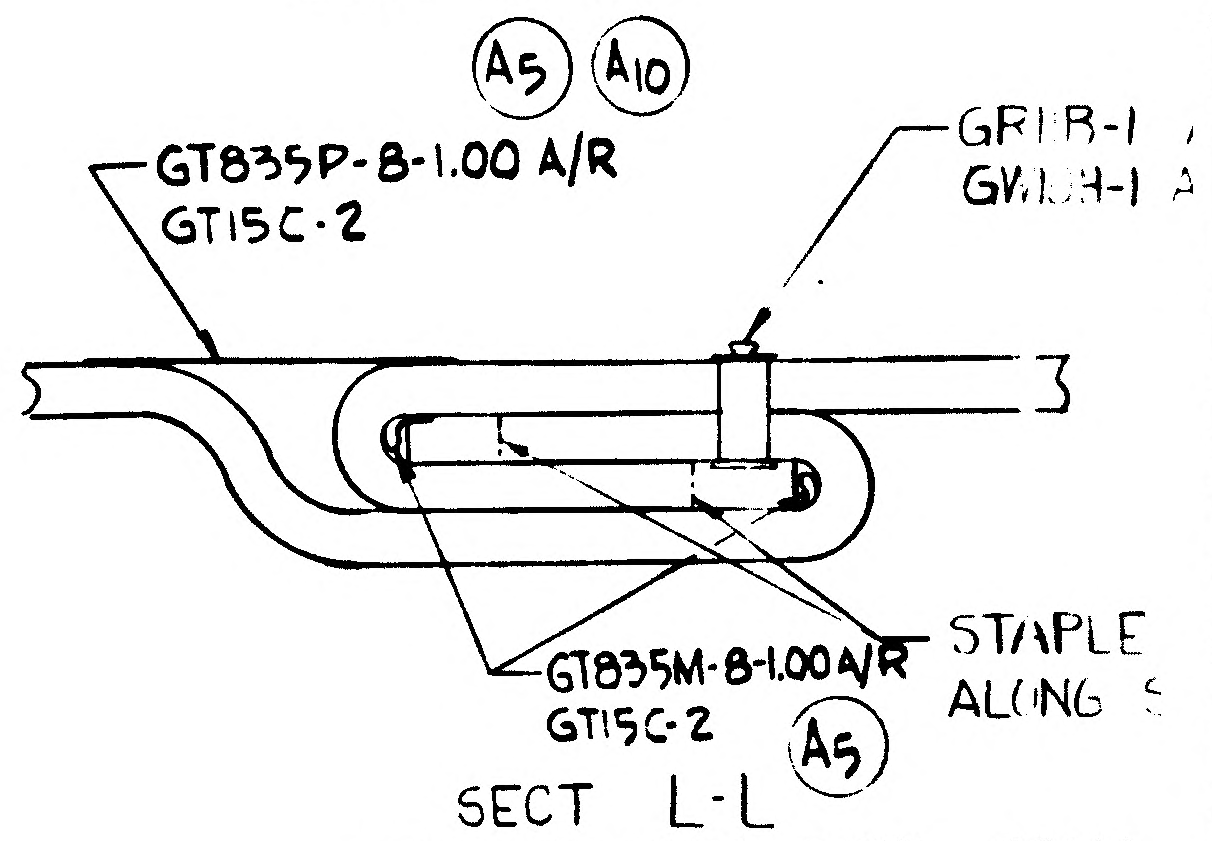
SECT N-N


BLANKET
10 LAYERS
(TYP)
LDW280P14391-1
A10 A5
GT835P-8-1.00 A/R
GT15C-2
S
S
LDW280P14391-3

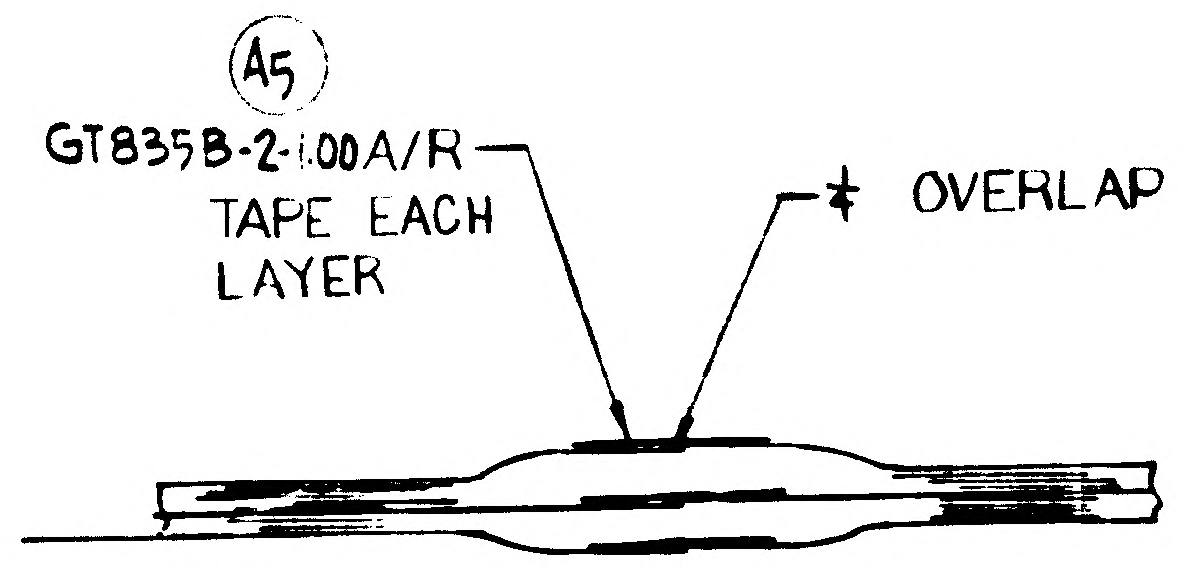
SECT R-R
SEE HALF SIZE F/P FOR
DIM. LOCATIONS.
28 PLACES (TYP)
(C3) CON-5-7-8-9-10-11-13 & 14 ONLY)
SEE NOTE 17


A5
GT835B-2-1.00 A/R
TAPE EACH
LAYER
¼ OVERLAP (25 LAYERS)
GR11B-1 (REF)
GW101-H (REF)
GT835P-8-1.00
(REF)
GT835B-2-1.00 (REF)

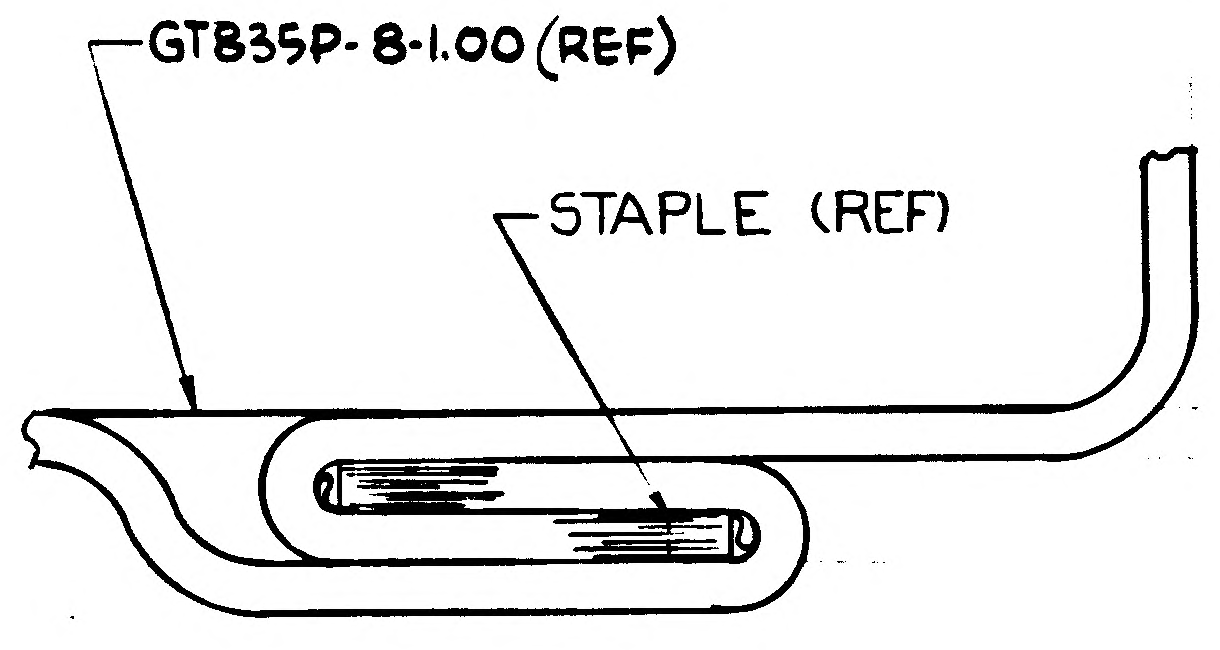
SECT E-E


A5 A10
GT835P-8-1.00 A/R
GT15C-2
GR11B-1
GW101-H
GT835M-8-1.00 A/R
GT15C-2
A5
STAPLE
ALONG S

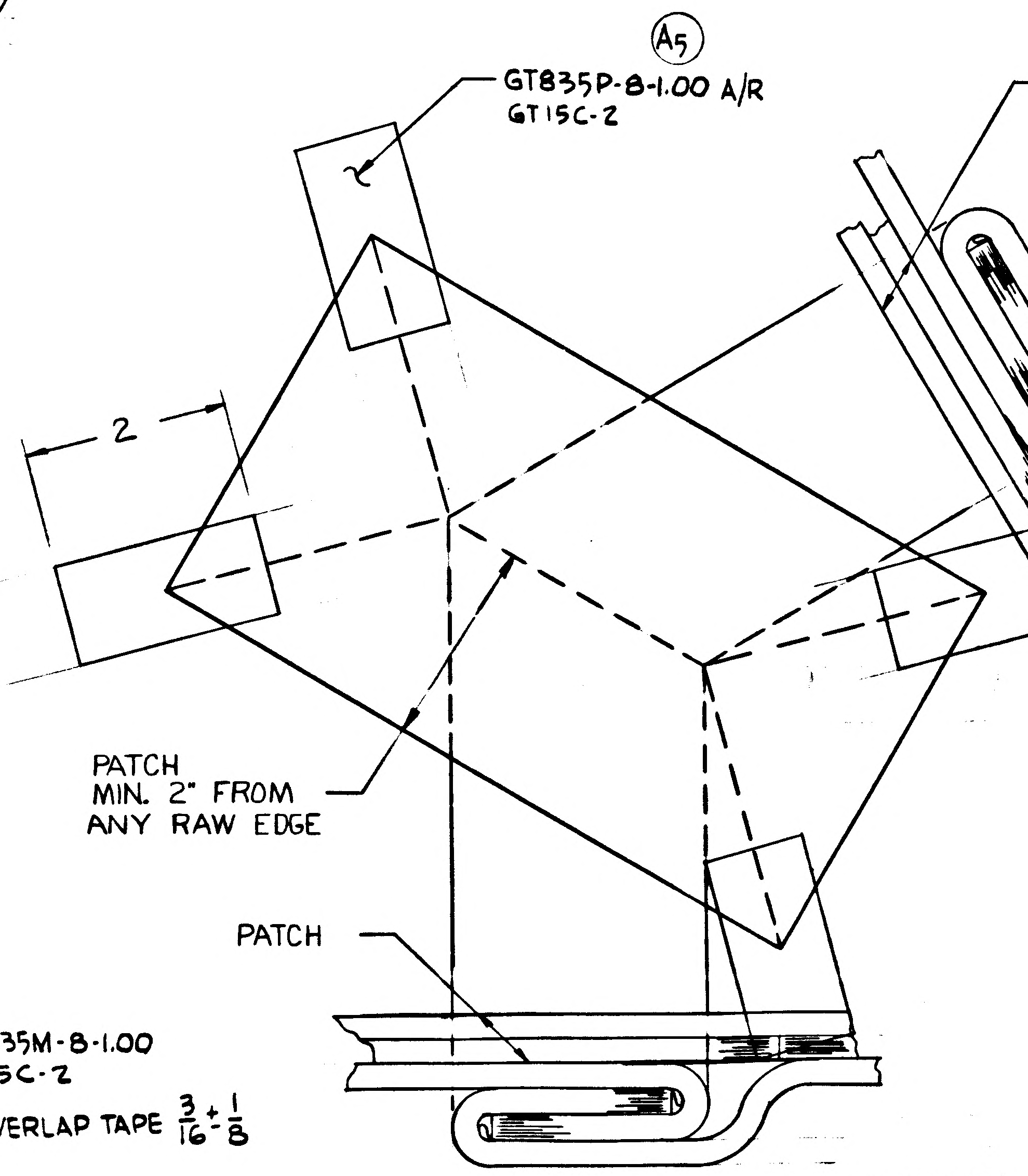
SECT L-L
TYP BLANKET INSTL SEAM
SEE NOTE 11


A5
GT835B-2-1.00 A/R
TAPE EACH
LAYER
¼ OVERLAP (25 LAYERS)

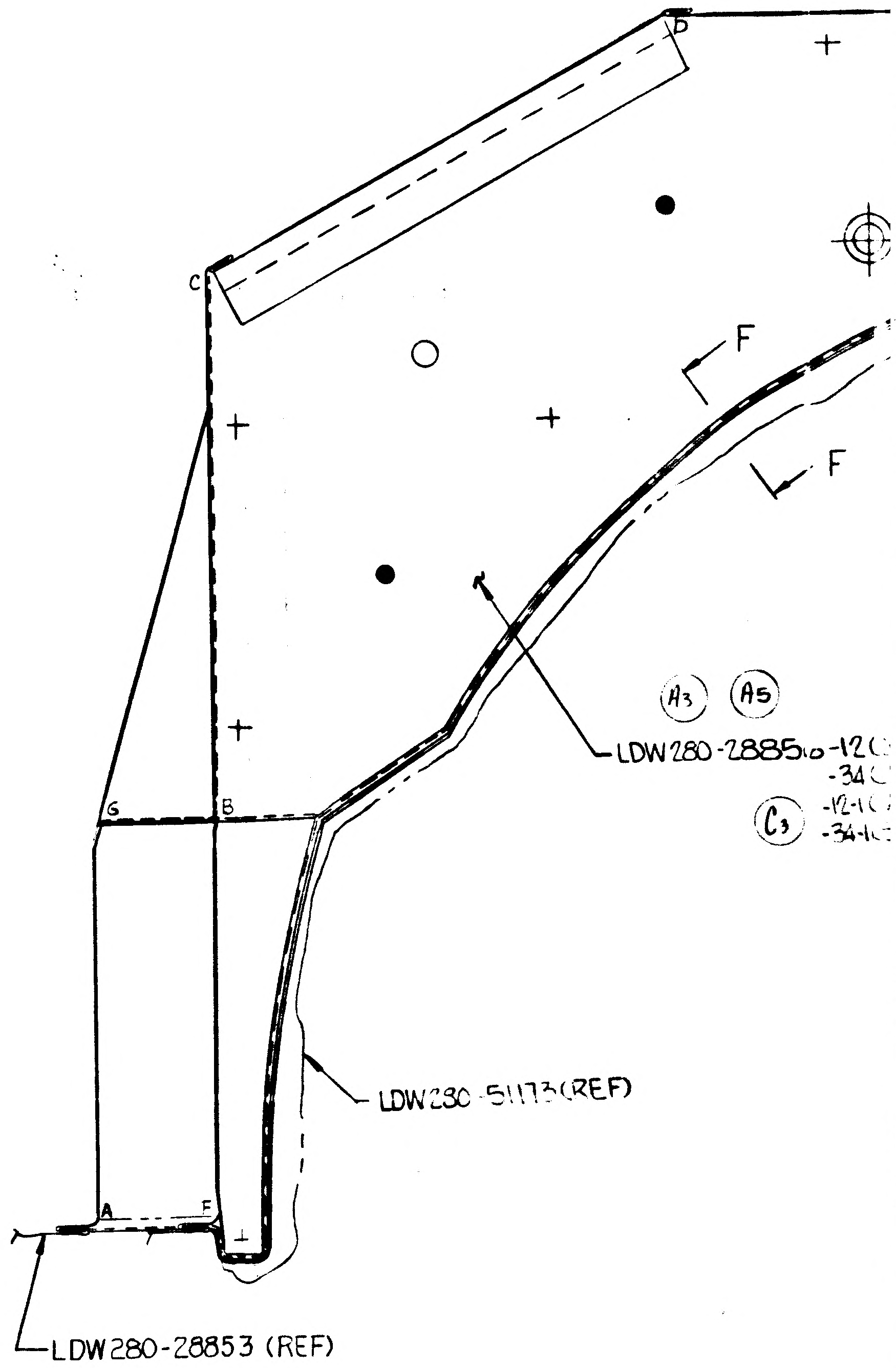
SECT H-H

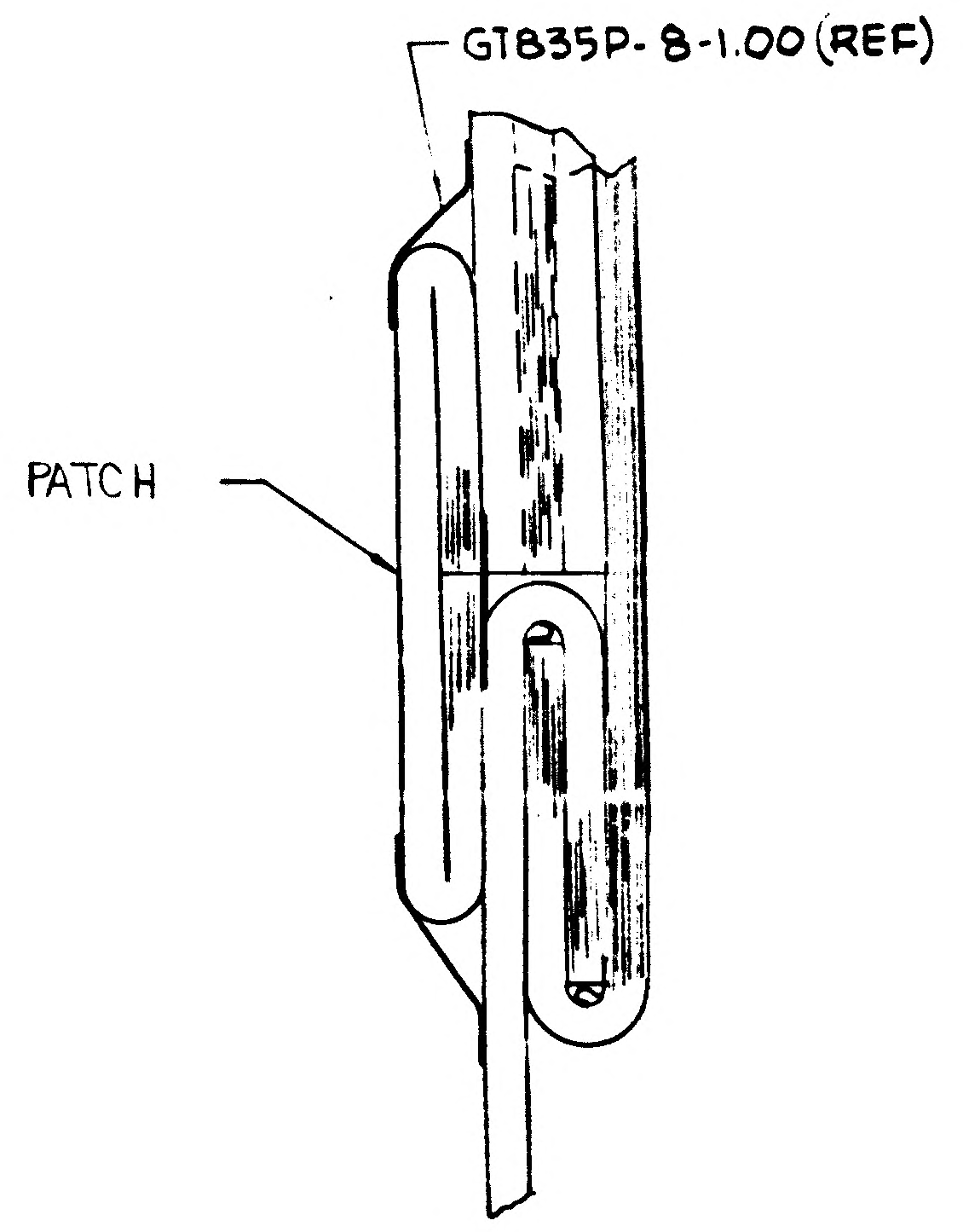

GT835P-8-1.00 (REF)
STAPLE (REF)

SECT F-F

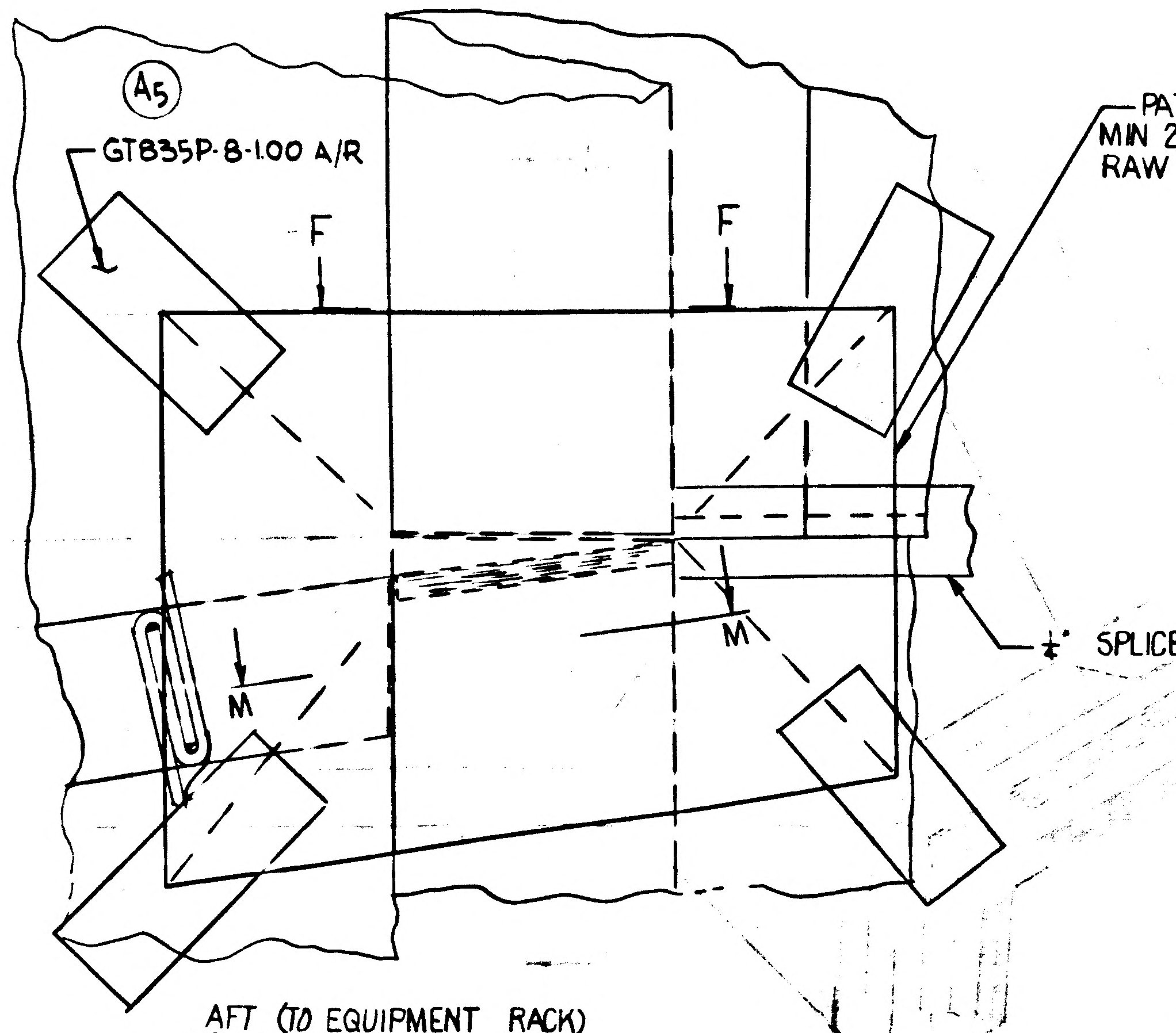

A5
GT835P-8-1.00 A/R
GT15C-2
PATCH
2
PATCH
MIN. 2" FROM
ANY RAW EDGE
PATCH

DETAIL D
(TYP) ALL CORNER SPLICES

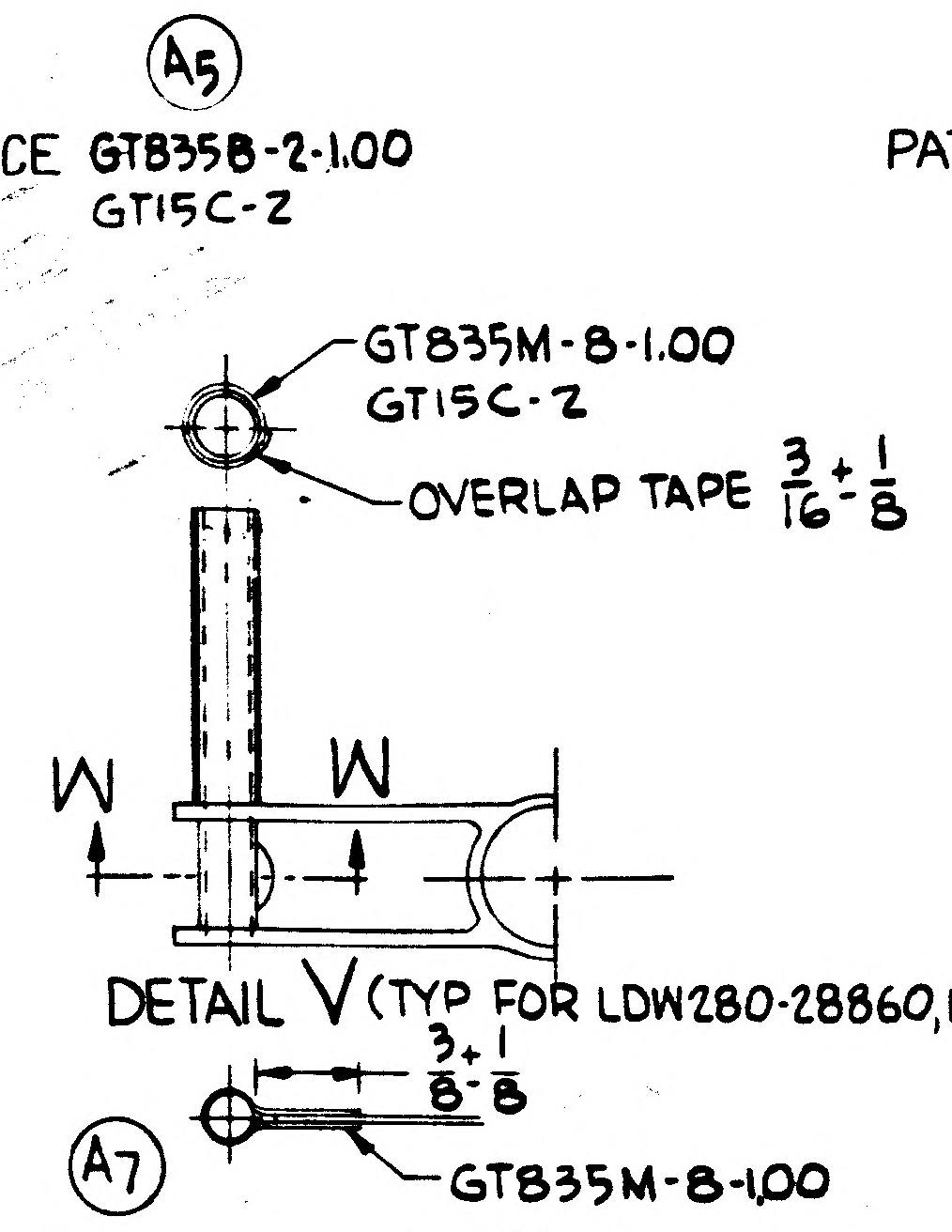

D
C
F
F
A3 A5
LDW280-28856-12
-34
-12
-34
C3
G
B
LDW280-51174 (REF)
A
E
LDW280-28853 (REF)


GT835P-8-1.00 (REF)
PATCH

SECT M-M
ROTATED 105° CW.

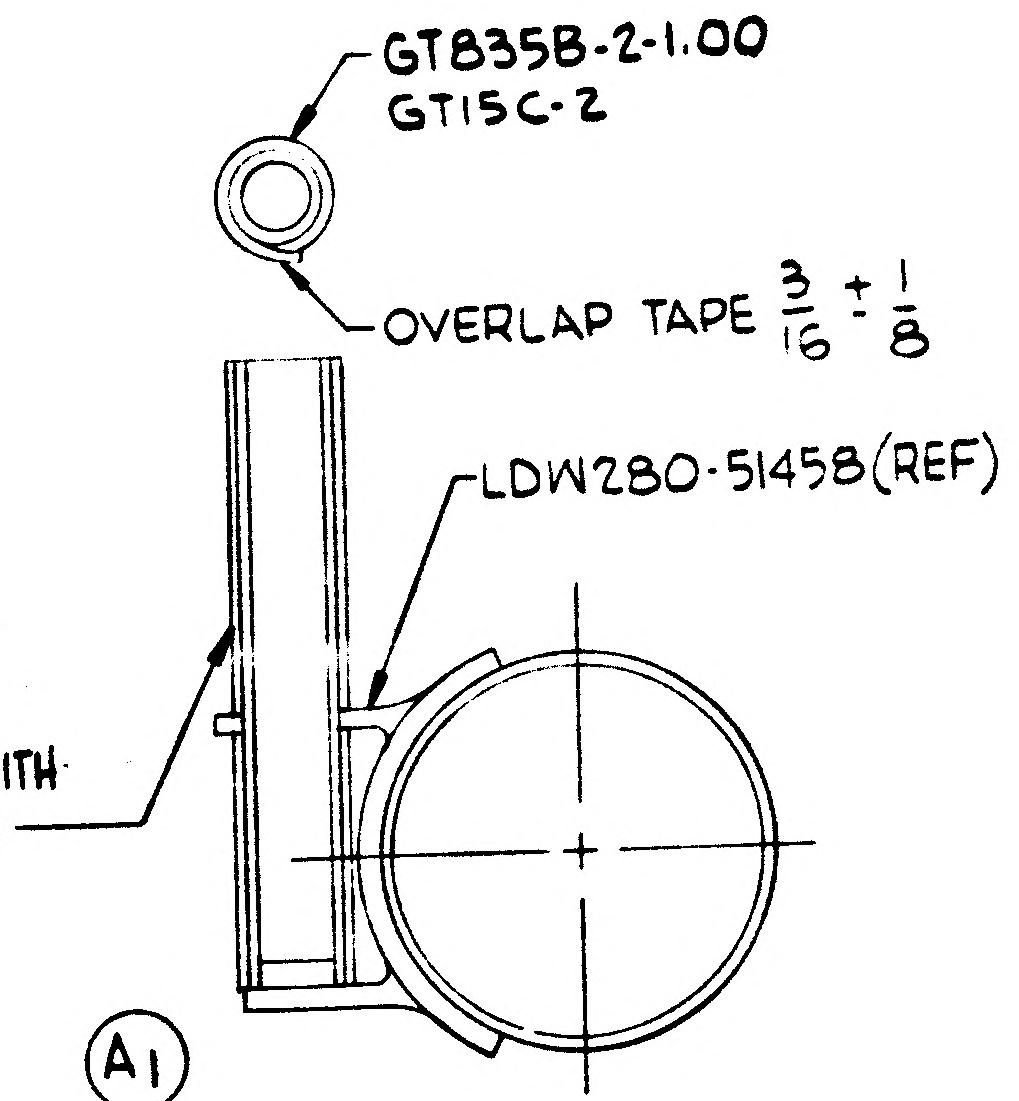

A5
GT835P-8-1.00 A/R
F
F
PATCH
MIN 2" FROM ANY
RAW EDGE
M
M
¼ SPLICE GT835B-2-1.00 A5
GT15C-2
AFT (TO EQUIPMENT RACK)

DETAIL G
VIEW LOOKING INBD
RH SIDE


GT835M-8-1.00
GT15C-2
OVERLAP TAPE 3/16 ± ⅛
W
W
3 ± 1/8
A7
GT835M-8-1.00

DETAIL V (TYP FOR LDW280-28860, LDW280-28880 & G526C)

SECTION W-W


GT835B-2-1.00
GT15C-2
OVERLAP TAPE 3/16 ± ⅛
LDW280-51458 (REF)
WRAP STANDOFF WITH
GT835M-8-1.00
A1

SECTION U-U (ON SHT 4)
(TYP STANDOFF)
SCALE: NONE

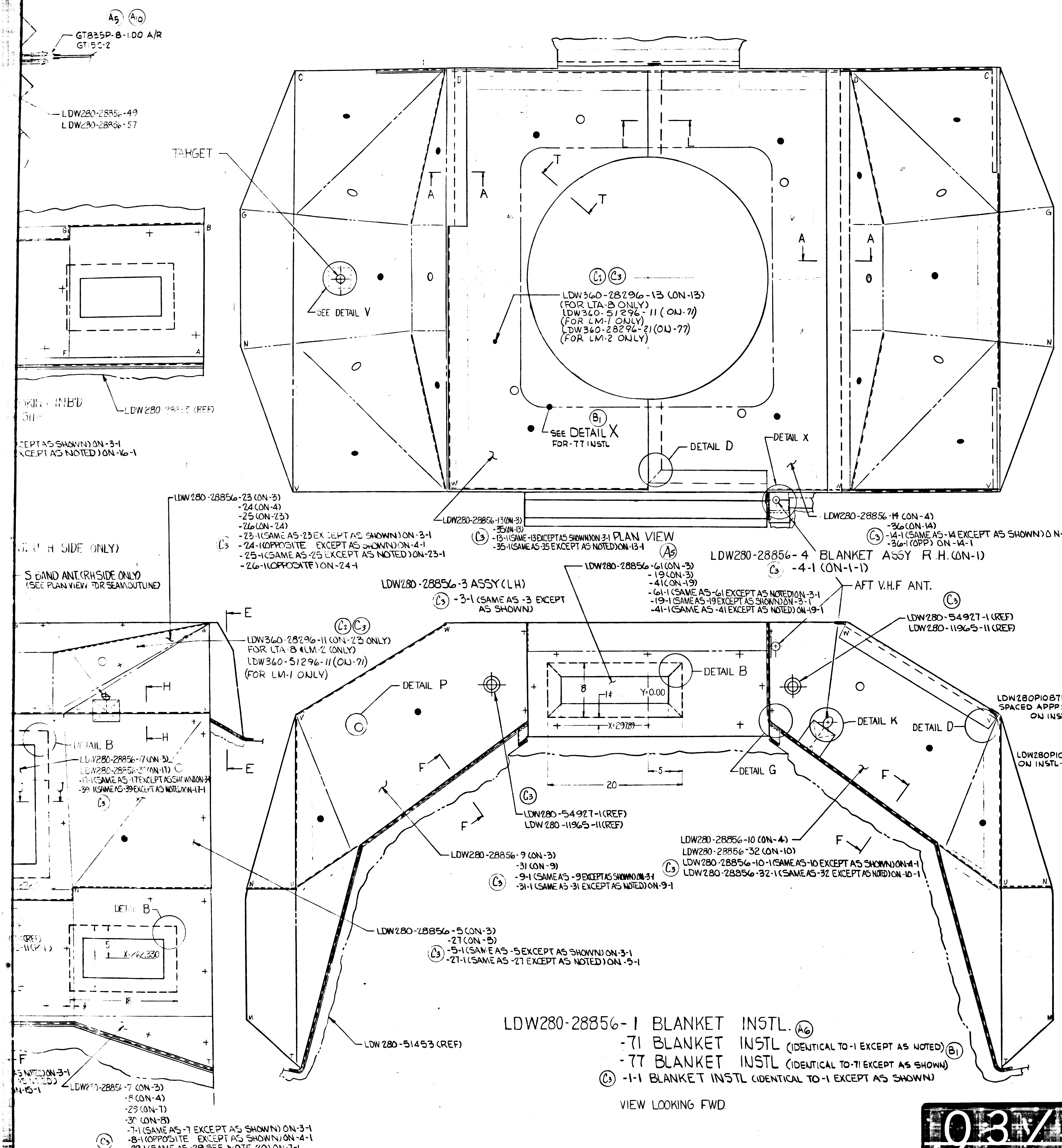
01/03

NAS 9-1100

LDW280-28856-43 (ON-4)
-43-1 (SAME AS -43 EXCEPT AS NOTED) ON-4-1
C3
2" OVERLAP FROM CUT (TYP)
C
DETAIL B
TYP CORNER PATCH FOR REMOVABLE BLANKET
STAPLE A/R
SECT C-C
A5 A10
GT835P-8-1.00 A/R
GT15C-2
GR11B-1 A/R
GW10H-1 A/R
EVERY 6" (TYP)
GT835M-8-1.00 A/R
GT15C-2
STAPLE 1/2 x 1/4 FROM EDGE & EVERY 6" ALONG SEAM GS577A-1 A/R (TYP)
SECT L-L
TYP BLANKET INSTL SEAM
SEE NOTE 11
LDW280-28856-23 (REF)
SECT W-W
A10 A5
GT835P-8-1.00 A/R
GT15C-2
LDW280-28856-49 (REF)
ON INSTL.
GR11C-1 (SEE NOTE 8)
GR11C-7
GB10J-1 A/R
GW10H-1 A/R
.374 DIA HOLE THRU BLANKET (TYP)
GR11B-1 A/R
GW10H-1 A/R
GT835M-8-1.00 A/R GT15C-2
GT835P-8-1.00 A/R
GT15C-2
STAPLE A/R
2 (TYP)
SECT A-A (ON-34-4 ONLY)
FULL SIZE
ACCESS PANEL (REMOVABLE)
GT835M-8-1.00 A/R
GT15C-2
STAPLE (REF)
SNAPS (GRIIB-1 REF)
GT835P-8-1.00 A/R
GT15C-2
SECT J-J
(TYP ALL REMOVABLE PANELS)
W
A5 A10
GT835P-8-1.00 A/R
GT15C-2
LDW280-28856-49
LDW280-28856-57
DETAIL V
DETAIL B
VIEW LOOKING INB'D
R.H. SIDE
A9
LDW280-28853 (REF)
LDW280-28856-16 (ON-3)
-38 (ON-16)
-16-1 (SAME AS -16 EXCEPT AS SHOWN) ON-3-1
-38-1 (SAME AS -38 EXCEPT AS NOTED) ON-16-1
TARGET
SEE DETAIL V
A
C1 C3
LDW360-28296-13 (ON-13)
(FOR LTA-8 ONLY)
LDW360-51296-11 (ON-71)
(FOR LM-1 ONLY)
LDW360-28296-21 (ON-77)
(FOR LM-2 ONLY)
B1
SEE DETAIL X
FOR -77 INSTL
DETAIL D
LDW280-28856-13 (ON-3)
-35 (ON-13)
-13-1 (SAME AS -13 EXCEPT AS SHOWN) ON-3-1
-35-1 (SAME AS -35 EXCEPT AS NOTED) ON-13-1
PLAN VIEW
A5
LDW280-28856-23 (ON-3)
-24 (ON-4)
-25 (ON-23)
-26 (ON-24)
-23-1 (SAME AS -23 EXCEPT AS SHOWN) ON-3-1
-24-1 (OPPOSITE EXCEPT AS SHOWN) ON-4-1
-25-1 (SAME AS -25 EXCEPT AS NOTED) ON-23-1
-26-1 (OPPOSITE) ON-24-1
LDW280-28856-3 ASSY (LH)
-3-1 (SAME AS -3 EXCEPT AS SHOWN)
LDW280-28856-61 (ON-3)
-19 (ON-3)
-41 (ON-19)
-61-1 (SAME AS -61 EX
-19-1 (SAME AS -19 EXCEP
-41-1 (SAME AS -41 EX
FWD V.H.F ANT. (L H SIDE ONLY)
SEAM SHOWN FOR L H ONLY
S BAND ANT. (RH SIDE ONLY)
(SEE PLAN VIEW FOR SEAM OUTLINE)
E
LDW360-28296-11 (ON-23 ONLY)
FOR LTA-8 & LM-2 (ONLY)
LDW360-51296-11 (ON-71)
(FOR LM-1 ONLY)
C2 C3
DETAIL P
DETAIL
Y-0.00
X-297.89
20
C3
LDW280-54927-1 (REF)
LDW280-11965-11 (REF)
C3
LDW280-54927-1 (REF)
LDW280-11965-11 (REF)
A3 A5
LDW280-28856-6 (ON-4)
-28 (ON-6)
-6-1 (SAME AS -6 EXCEPT AS SHOWN) ON-4-1
-28-1 (OPPOSITE) ON-6-1
R
DETAIL D
F
VIEW LOOKING AFT
LDW280-28856-11 (ON-3)
-33 (ON-11)
-11-1 (SAME AS -11 EXCEPT AS SHOWN) ON-3-1
-33-1 (SAME AS -33 EXCEPT AS NOTED) ON-11-1
A3 A5
LDW280-28856-12 (ON-4)
-34 (ON-12)
-12-1 (SAME AS -12 EXCEPT AS SHOWN) ON-4-1
-34-1 (SAME AS -34 EXCEPT AS NOTED) ON-12-1
GT15C-2
GT835P-8-1.00 A/R
A5 A10
SLIT
OVERLAP FOLD
OVERLAP FOLD
OVERLAP FOLD
DETAIL X
LDW280-51173 (REF)
LDW-280-28854 (REF)
LDW280-28854 (REF)
H
DETAIL B
LDW280-28856-17 (ON-3)
LDW280-28856-39 (ON-17)
-17-1 (SAME AS -17 EXCEPT AS SHOWN) ON-3-1
-39-1 (SAME AS -39 EXCEPT AS NOTED) ON-17-1
14
7
22
Z-0.00
J
X-272.00
A9
LDW280-54927-1 (REF)
LDW280-11965-11 (REF)
18
X-255.72
DETAIL B
X-262.330
10
18
LDW280-28856-15 (ON-3)
-37 (ON-15)
-15-1 (SAME AS -15 EXCEPT AS SHOWN) ON-3-1
-37-1 (SAME AS -37 EXCEPT AS NOTED) ON-15-1
LDW280-28856-7 (ON-3)
-8 (ON-4)
-29 (ON-7)
-30 (ON-8)
-7-1 (SAME AS -7 EXCEPT AS SHOWN) ON-3-1
-8-1 (OPPOSITE EXCEPT AS SHOWN) ON-4-1
-29-1 (SAME AS -29 SEE NOTE 20) ON-7-1
-30-1 (OPPOSITE SEE NOTE 20) ON-8-1
VIEW LOOKING INBD
L.H. SIDE
LDW280-28856-9 (ON-3)
-31 (ON-9)
-9-1 (SAME AS -9 EXCEPT AS SHOWN) ON-3-1
-31-1 (SAME AS -31 EXCEPT AS NOTED) ON-9-1
LDW280-28856-5 (ON-3)
-27 (ON-5)
-5-1 (SAME AS -5 EXCEPT AS SHOWN) ON-3-1
-27-1 (SAME AS -27 EXCEPT AS NOTED) ON-5-1
LDW280-51453 (REF)
LDW280-28856-1 BLANKET
-71 BLANKET
-77 BLANKET
-1-1 BLANKET INST
VIEW LOOKING FWD.

02/03

NAS 9-1100


A5 A10
GT835P-8-1.00 A/R
GT15C-2
LDW280-28856-49
LDW280-28856-57
TARGET
SEE DETAIL V
LDW280-28856 (REF)
SKIN - INB'D
ON-3-1
EPT AS SHOWN) ON-3-1
CEPT AS NOTED) ON-16-1
C1 C3
LDW360-28296-13 (ON-13)
(FOR LTA-8 ONLY)
LDW360-51296-11 (ON-71)
(FOR LM-1 ONLY)
LDW360-28296-21 (ON-77)
(FOR LM-2 ONLY)
B1
SEE DETAIL X
FOR-77 INSTL
DETAIL D
DETAIL X
A
T
LDW280-28856-23 (ON-3)
-24 (ON-4)
-25 (ON-23)
-26 (ON-24)
C3 -23-1 (SAME AS -23 EXCEPT AS SHOWN) ON-3-1
-24-1 (OPPOSITE EXCEPT AS SHOWN) ON-4-1
-25-1 (SAME AS -25 EXCEPT AS NOTED) ON-23-1
-26-1 (OPPOSITE) ON-24-1
LDW280-28856-13 (ON-3)
-35 (ON-13)
C3 -13-1 (SAME -13 EXCEPT AS SHOWN) ON-3-1
-35-1 (SAME AS -35 EXCEPT AS NOTED) ON-13-1
PLAN VIEW
A5
LDW280-28856-14 (ON-4)
-36 (ON-14)
C3 -14-1 (SAME AS -14 EXCEPT AS SHOWN) ON-4-1
-36-1 (OPP) ON-14-1
LDW280-28856-4 BLANKET ASSY R.H. (ON-1)
C3 -4-1 (ON-1-1)
H SIDE ONLY)
S BAND ANT. (RH SIDE ONLY)
(SEE PLAN VIEW FOR SEAM OUTLINE)
LDW280-28856-3 ASSY (LH)
C3 -3-1 (SAME AS -3 EXCEPT AS SHOWN)
LDW280-28856-61 (ON-3)
-19 (ON-3)
-41 (ON-19)
-61-1 (SAME AS -61 EXCEPT AS NOTED) ON-3-1
-19-1 (SAME AS -19 EXCEPT AS SHOWN) ON-3-1
-41-1 (SAME AS -41 EXCEPT AS NOTED) ON-19-1
AFT V.H.F ANT.
C3
LDW280-54927-1 (REF)
LDW280-11965-11 (REF)
E
C2 C3
LDW360-28296-11 (ON-23 ONLY)
FOR LTA-8 & LM-2 (ONLY)
LDW360-51296-11 (ON-71)
(FOR LM-1 ONLY)
H
DETAIL P
DETAIL B
8
14
Y-0.00
X-297.89
DETAIL K
DETAIL D
DETAIL G
5
20
DETAIL B
LDW280-28856-17 (ON-3)
LDW280-28856-37 (ON-17)
-17-1 (SAME AS -17 EXCEPT AS SHOWN) ON-3-1
-37-1 (SAME AS -37 EXCEPT AS NOTED) ON-17-1
C3
F
C3
LDW280-54927-1 (REF)
LDW280-11965-11 (REF)
LDW280-28856-9 (ON-3)
-31 (ON-9)
C3 -9-1 (SAME AS -9 EXCEPT AS SHOWN) ON-3-1
-31-1 (SAME AS -31 EXCEPT AS NOTED) ON-9-1
LDW280-28856-10 (ON-4)
LDW280-28856-32 (ON-10)
C3 LDW280-28856-10-1 (SAME AS -10 EXCEPT AS SHOWN) ON-4-1
LDW280-28856-32-1 (SAME AS -32 EXCEPT AS NOTED) ON-10-1
DETAIL B
X-262.330
18
LDW280-28856-5 (ON-3)
-27 (ON-5)
C3 -5-1 (SAME AS -5 EXCEPT AS SHOWN) ON-3-1
-27-1 (SAME AS -27 EXCEPT AS NOTED) ON-5-1
LDW280-51453 (REF)
LDW280-28856-7 (ON-3)
-8 (ON-4)
-29 (ON-7)
-30 (ON-8)
C3 -7-1 (SAME AS -7 EXCEPT AS SHOWN) ON-3-1
-8-1 (OPPOSITE EXCEPT AS SHOWN) ON-4-1
-29-1 (SAME AS -29 SEE NOTE 20) ON-7-1
-30-1 (OPPOSITE SEE NOTE 20) ON-8-1

LDW280-28856-1 BLANKET INSTL. (A6)

-71 BLANKET INSTL (IDENTICAL TO -1 EXCEPT AS NOTED) (B1)

-77 BLANKET INSTL (IDENTICAL TO -71 EXCEPT AS SHOWN)

(C3) -1-1 BLANKET INSTL (IDENTICAL TO -1 EXCEPT AS SHOWN)

VIEW LOOKING FWD

NOTES:

1. MAKE BLANKET PER LPC 280-1, 25 LAYERS MYLAR & 6 LAYERS H FILM, SEE DETAIL U.
2. STAPLES G5577A-1 MAY BE PURCHASED FROM BOSTITCH INC. GREENWICH, RHODE ISLAND. (STAPLING PLIER BOSTITCH P3 REF.)
3. SUPER INSULATION SHALL BE HANDLED WITH LINT FREE GLOVES.
4. INSPECTION ON END ITEMS ONLY. HOLES MAY BE PUNCHED ON ASSEMBLY.
5. SUPER INSULATION TO BE FABRICATED UNDER CONDITIONS THAT CONFORM TO LSP-14-0011, LEVEL "E".
6. BLANKETS TO BE PRE-FITTED ON SCALE MODEL.
7. ALL PARTS ARE I & T EXEMPT.
8. ● DENOTES "BAY" VENT ON-5,-7,-8,-9,-10,-11,-13 & -14 ONLY

   ○ DENOTES BLANKET VENT. ON-5,-7,-8,-9,-10,-11,-13 & -14 ONLY

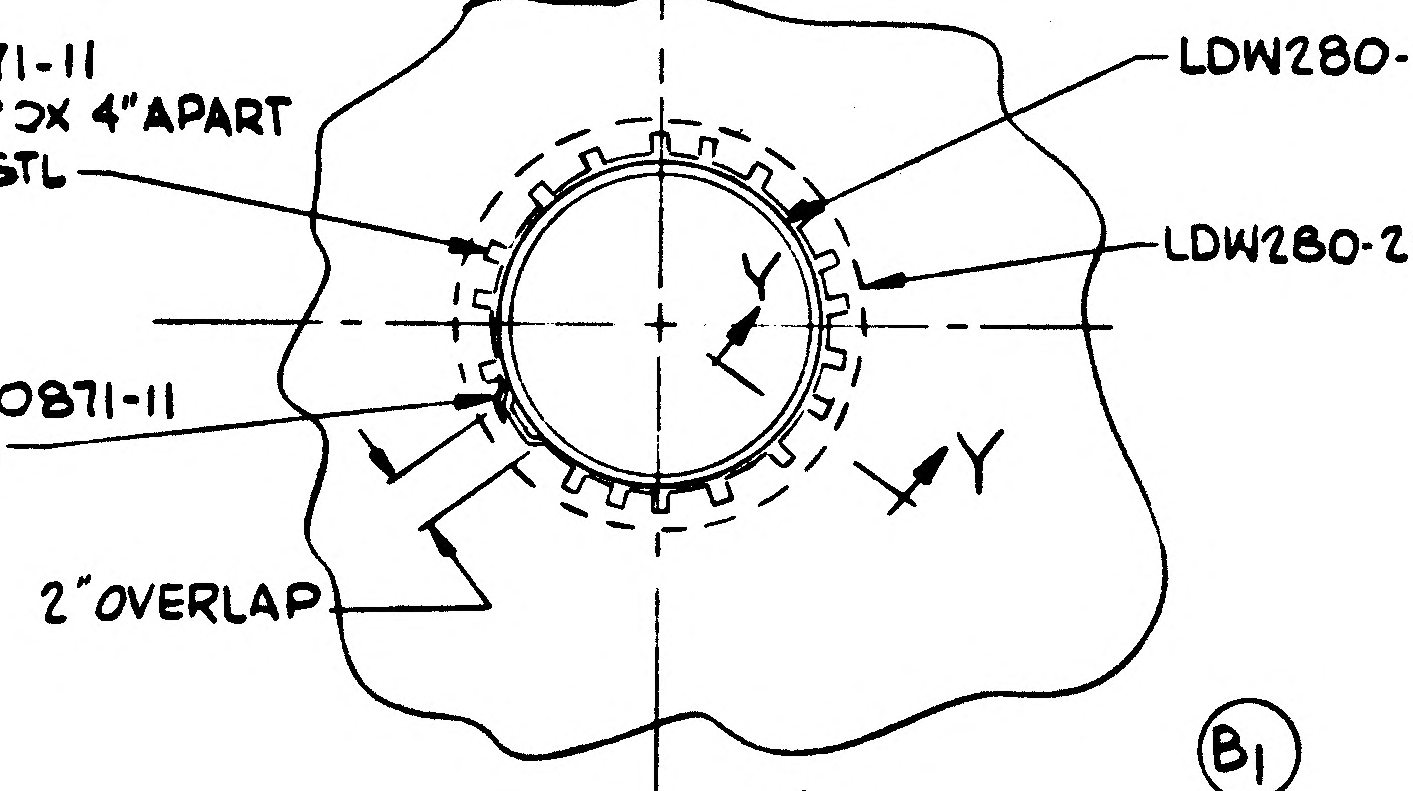
   ✛ DENOTES GR11C-1 ON-5,-7,-8,-9,-10,-11,-13 & -14 ONLY

   ✛ DENOTES GR11C-7 ON-5,-7,-8,-9,-10,-11,-13 & -14 ONLY

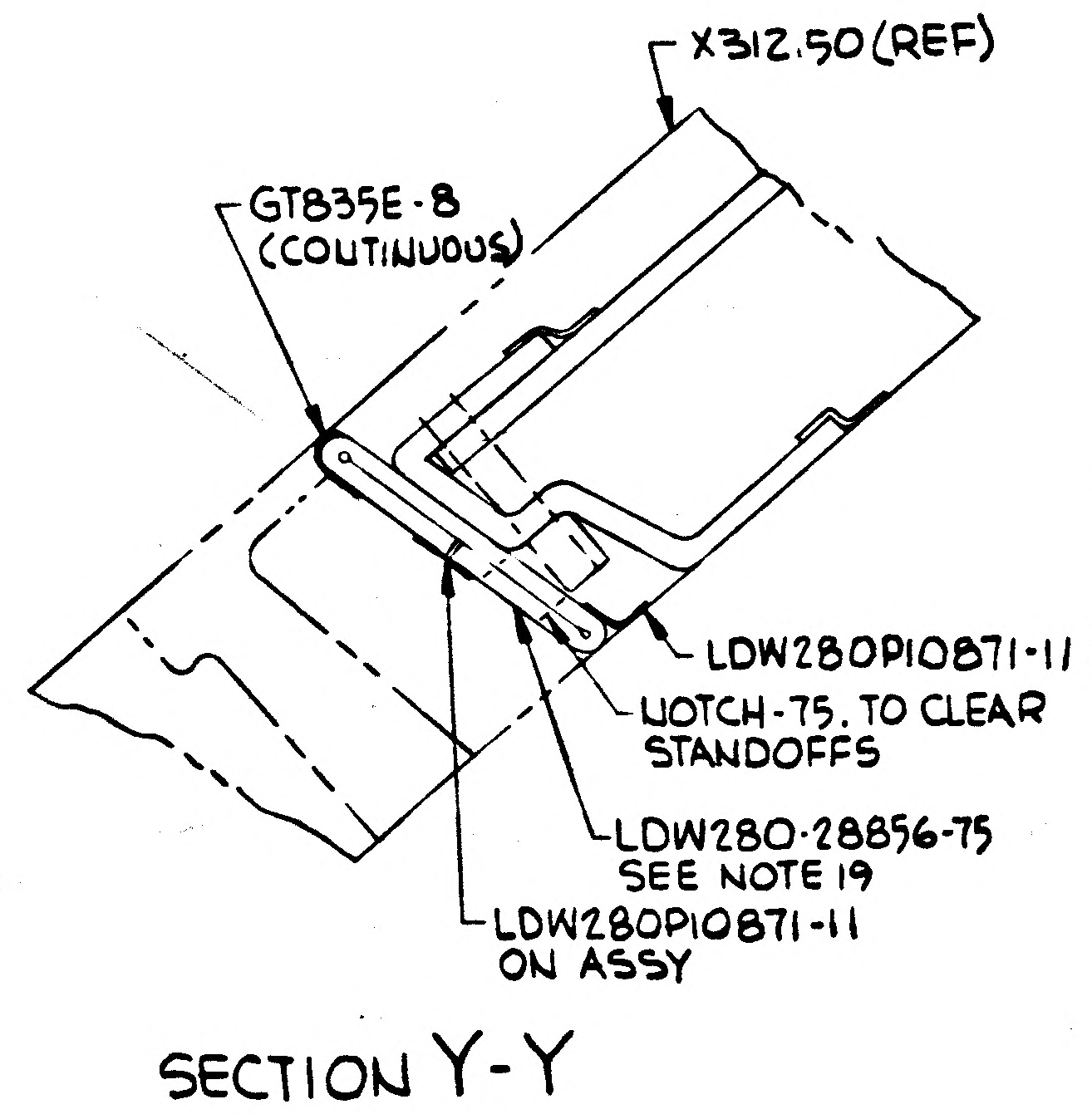
   ✦ DENOTES (1) GR11B-1 & (1) NAS1515H06L ON-5,-7,-8,-9,-10,-11,-13 & -14 ONLY
9. INSTALL PER LDW360-51296-11 EFF. LEM 1
   LDW360-28296-11 EFF. LTA 8 & LEM 2
10. MAKE BLANKET PATCH VENT PER LPC 280-2 SEE DETAIL P.
11. MAKE BLANKET FOLD PER LPC 280-3, SEE SECT. L-L
12. THIS DWG. IS TO BE REDRAWN. ON PRODUCTION FORMAT.
13. MAKE BLANKET PER LPC 280-1 25 LAYERS MYLAR
14. FINAL SIZE (WITH FOLD & SEAM LOCATION) OF BLANKET ASSEMBLIES SHALL BE DETERMINED FROM APPROVED MASTER TEMPLATE AND OR FULL SIZE MOCK UP.
15. CUTTING & PATCHING PROCEDURE PER LPC 280-6.
16. REPAIR PROCEDURE PER LPC 280-8.
17. BAY VENT INSTL PROCEDURE PER LPC 280-9 CONFIGURATION I
18. PERMISSIBLE DEVIATIONS & REPAIR PROCEDURE PER LPC 280-20.
19. LDW280-28856-75 ASSY. MAKE FROM 12 LAYERS OF PREWRINKLED ALUMINIZED POLYIMIDE WITH THE NEGATIVE SIDE OUTB'D SANDWICHED INSIDE A LAYER OF LDW280P10869-11 TEMP. CONTROL ALUMINIZED POLYIMIDE (NEG. SIDE OUT) BLANKET SIZE WILL BE DETERMINED FROM MANNEQUIN.
20. BLANKETS TO CONSIST OF THE FOLLOWING (OUT SIDE TO INSIDE SEE DETAIL Z)
    15 LAYERS OF .0005 ALUMINIZED POLYMIDE FILM
    10 LAYERS OF .000125 ALUMINIZED MYLAR
    1 LAYER OF .0005 ALUMINIZED POLYMIDE FILM
    LAYED UP PER LPC280-14 LPC280-3 (MAY BE PURCHASED FROM McCORD CORP MAMARONECK, N.Y. CODE IDENT 24761)

NOTES (CONTINUED)

21. ALL BLANKET VENT AND BAY VENT HOLES ARE TO BE LOCATED PER ENGINEERING APPROVED MASTER TEMPLATE. BLANKET VENT HOLES ARE TO BE CONSTRUCTED PER LPC 280-2 CONFIGURATION II. BAY VENT HOLES ARE TO BE CONSTRUCTED PER LPC 280-9 CONFIGURATION II
22. TAPE ENTIRE EDGE OF BLANKET USING GT835P-8 TYP ALL BLANKETS.


LDW280P10871-11
SPACED APPROX 4" APART
ON INSTL
LDW280-28856-75
LDW280-28856-59
LDW280P10871-11
ON INSTL
2" OVERLAP
Y
Y
B1

DETAIL X (FOR -77 INSTL)
SCALE: NONE


X312.50 (REF)
GT835E-8
(CONTINUOUS)
LDW280P10871-11 "X"
NOTCH .75 TO CLEAR STANDOFFS
LDW280-28856-75
SEE NOTE 19
LDW280P10871-11
ON ASSY

SECTION Y-Y
SCALE: NONE

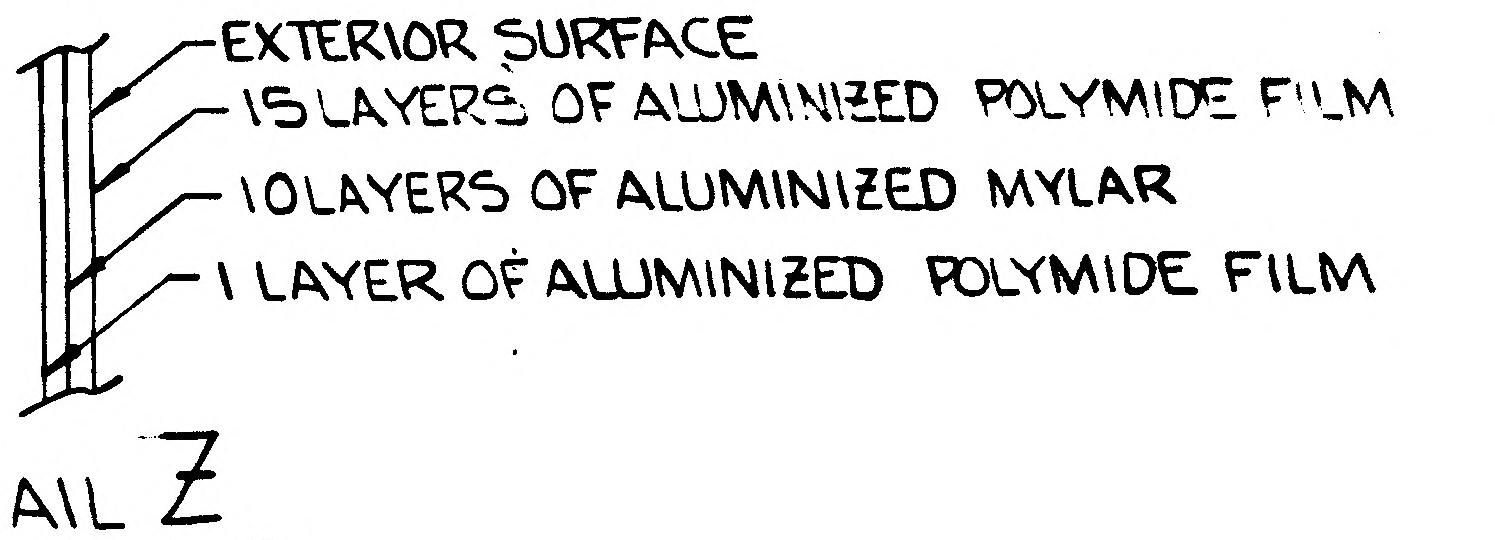
MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± ~~1/32~~ ±1/4	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

RECORD DATA		
MODEL	EO	EFFECTIVITY
LM	EO C1	LM-1


EXTERIOR SURFACE
15 LAYERS OF ALUMINIZED POLYMIDE FILM
10 LAYERS OF ALUMINIZED MYLAR
1 LAYER OF ALUMINIZED POLYMIDE FILM

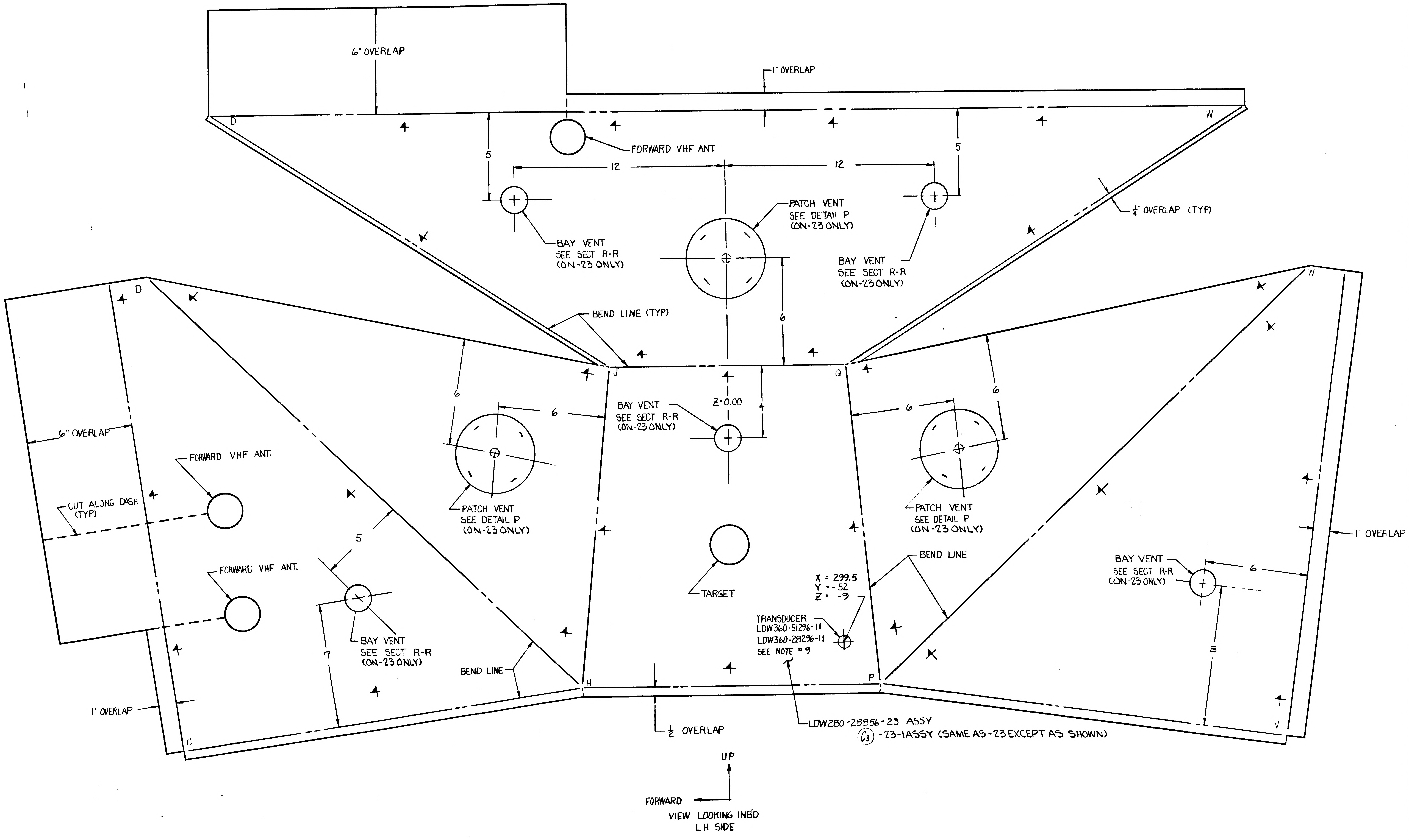
DETAIL Z
SCALE: NONE

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-28856	C
MODEL OR END ITEM	SCALE 1/5 & NOTED		SHEET 3.00	

(C1)

LDW280-28856 C

03/03 NAS 9-1100

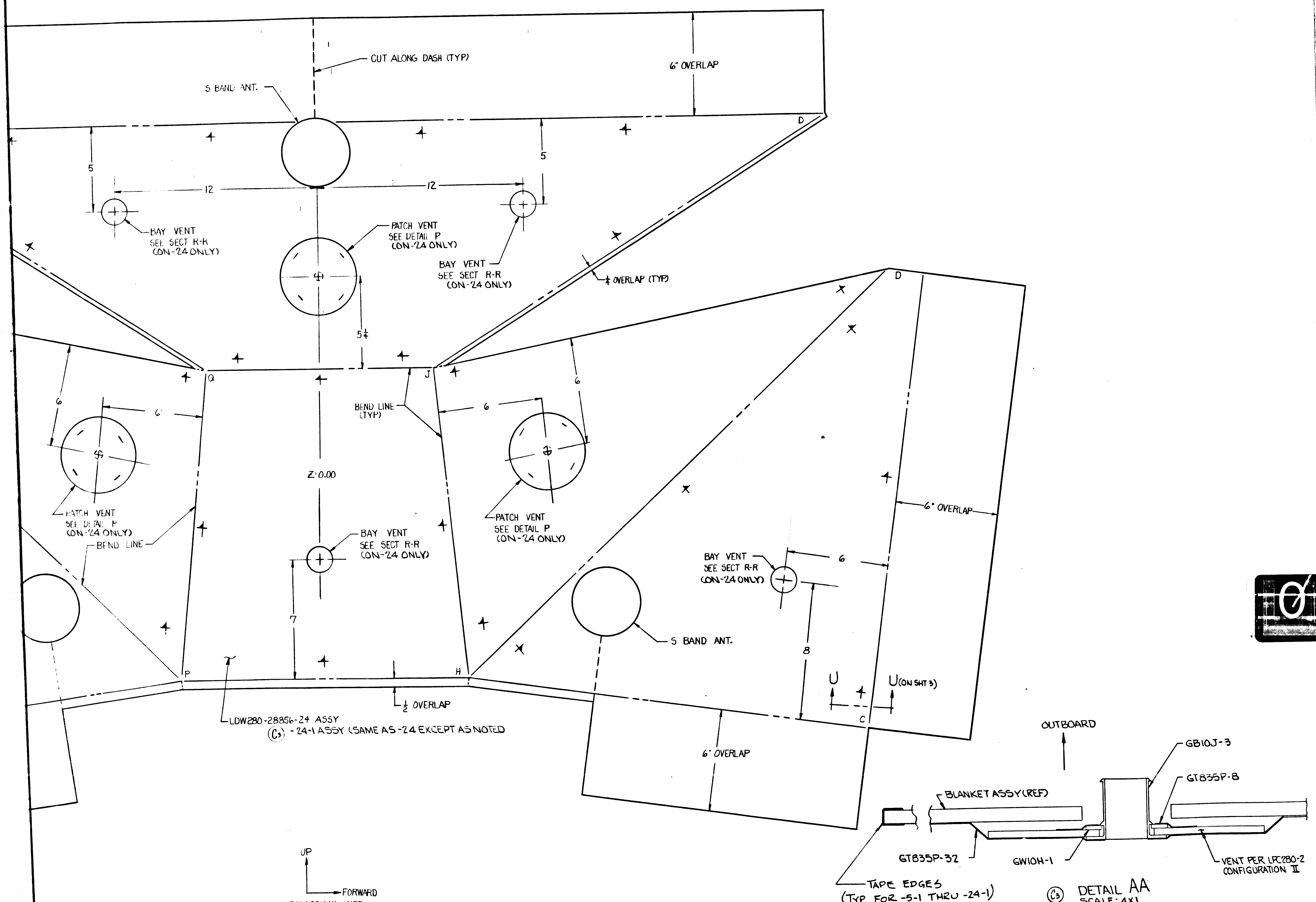

6" OVERLAP
1" OVERLAP
D
W
FORWARD VHF ANT.
5
12
12
5
PATCH VENT
SEE DETAIL P
(ON-23 ONLY)
½" OVERLAP (TYP)
BAY VENT
SEE SECT R-R
(ON-23 ONLY)
BAY VENT
SEE SECT R-R
(ON-23 ONLY)
6
BEND LINE (TYP)
D
N
J
Q
6
6
Z=0.00
4
BAY VENT
SEE SECT R-R
(ON-23 ONLY)
6
6
6" OVERLAP
FORWARD VHF ANT.
CUT ALONG DASH
(TYP)
PATCH VENT
SEE DETAIL P
(ON-23 ONLY)
PATCH VENT
SEE DETAIL P
(ON-23 ONLY)
1" OVERLAP
5
FORWARD VHF ANT.
TARGET
BEND LINE
BAY VENT
SEE SECT R-R
(ON-23 ONLY)
6
X = 299.5
Y = -52
Z = -9
TRANSDUCER
LDW360-51296-11
LDW360-28296-11
SEE NOTE #9
BAY VENT
SEE SECT R-R
(ON-23 ONLY)
7
8
BEND LINE
H
P
1" OVERLAP
C
V
½ OVERLAP
LDW280-28856-23 ASSY
(C3) -23-1ASSY (SAME AS -23 EXCEPT AS SHOWN)
UP
FORWARD
VIEW LOOKING INB'D
LH SIDE

01/03 NAS 9-1100

3/3

CUT ALONG DASH (TYP)
6" OVERLAP
S BAND ANT.
W
D
BEND LINE
5
12
12
5
BAY VENT
SEE SECT R-R
(ON-24 ONLY)
PATCH VENT
SEE DETAIL P
(ON-24 ONLY)
BAY VENT
SEE SECT R-R
(ON-24 ONLY)
¼ OVERLAP (TYP)
5¼
(TYP)
W
V
8
6
1" OVERLAP
W
Q
J
D
6
6"
6
6
BEND LINE
(TYP)
Z=0.00
PATCH VENT
SEE DETAIL P
(ON-24 ONLY)
BEND LINE
PATCH VENT
SEE DETAIL P
(ON-24 ONLY)
6" OVERLAP
6
BAY VENT
SEE SECT R-R
(ON-24 ONLY)
BAY VENT
SEE SECT R-R
(ON-24 ONLY)
BAY VENT
SEE SECT R-R
(ON-24 ONLY)
6
6" OVERL
S BAND ANT.
S BAND ANT.
7
8
8
P
H
V
C
U
U (ON SHT 3)
½ OVERLAP
LDW280-28856-24 ASSY
(C3) -24-1 ASSY (SAME AS -24 EXCEPT AS NOTED
6" OVERLAP
6" OVERLAP
ESLA
GT835P-32
TAPE EDGES
(TYP FOR -5-1 THRU -
SEE NOTE 22
UP
FORWARD
VIEW LOOKING INBD
RH SIDE

02/03 NAS 9-1100


CUT ALONG DASH (TYP)
6" OVERLAP
S BAND ANT.
D
5
5
12
12
BAY VENT
SEE SECT R-R
(ON-24 ONLY)
PATCH VENT
SEE DETAIL P
(ON-24 ONLY)
BAY VENT
SEE SECT R-R
(ON-24 ONLY)
½ OVERLAP (TYP)
5¼
Q
J
D
6
6
6
6
BEND LINE
(TYP)
Z 0.00
PATCH VENT
SEE DETAIL P
(ON-24 ONLY)
BEND LINE
PATCH VENT
SEE DETAIL P
(ON-24 ONLY)
BAY VENT
SEE SECT R-R
(ON-24 ONLY)
6" OVERLAP
BAY VENT
SEE SECT R-R
(ON-24 ONLY)
6
7
8
S BAND ANT.
P
H
½ OVERLAP
U
U (ON SHT 3)
C
LDW280-28856-24 ASSY
(C3) -24-1 ASSY (SAME AS -24 EXCEPT AS NOTED
6" OVERLAP
OUTBOARD
GB10J-3
GT835P-8
BLANKET ASSY (REF)
GT835P-32
GW10H-1
VENT PER LPC280-2
CONFIGURATION II
TAPE EDGES
(TYP FOR -5-1 THRU -24-1)
SEE NOTE 22
UP
FORWARD

VIEW LOOKING INBD
RH SIDE

(C3) DETAIL AA
SCALE: 4X1
TYP FOR ALL STANDOFF LOCATIONS (SEE NOTE 21)
ON -3-1 & -4-1 ONLY

03/03 NAS 9-1100

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± ~~1/32~~ ± 1/4	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

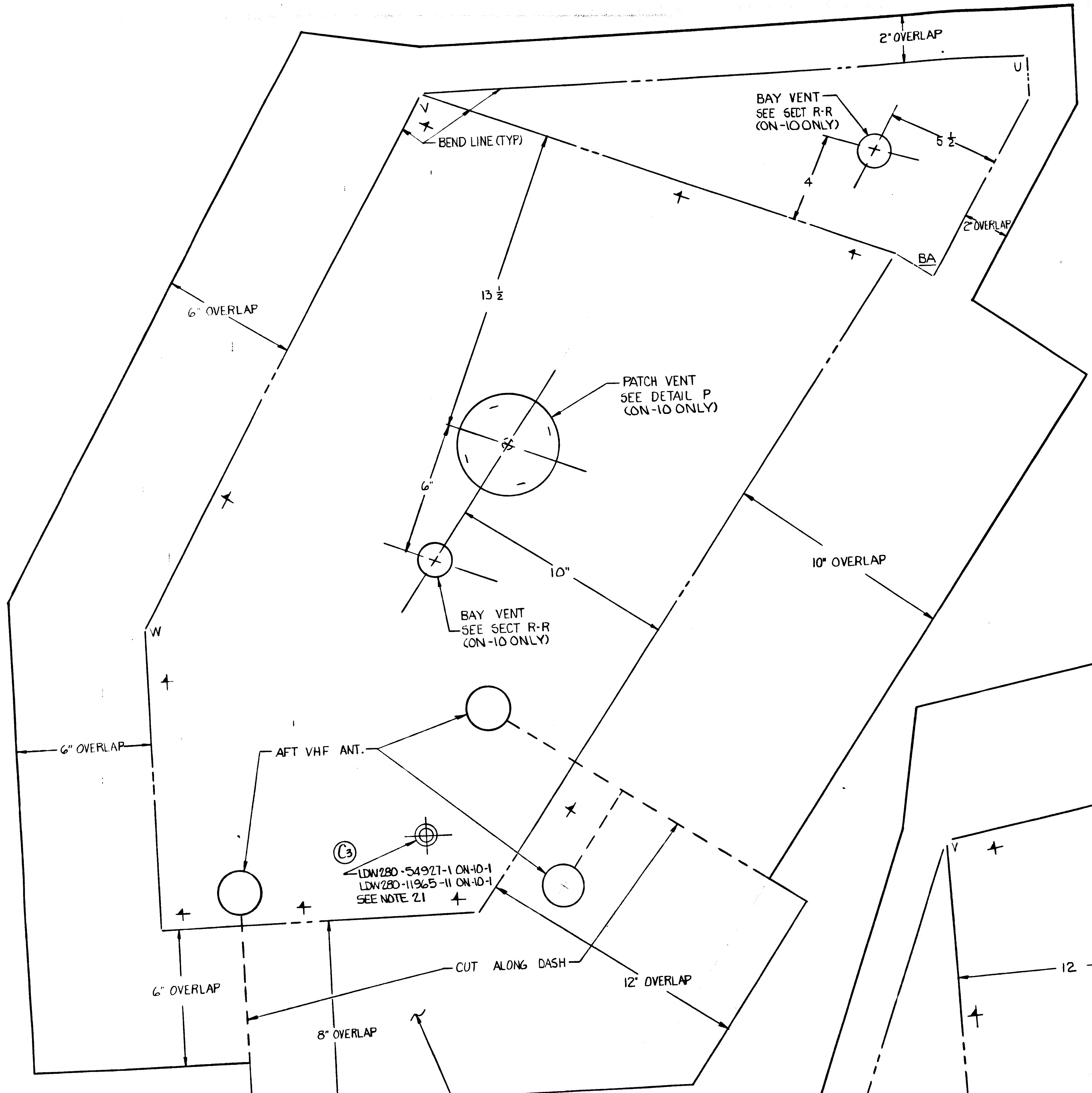
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X /20)- SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

LDW280-28856 C

LDW280-28856 C

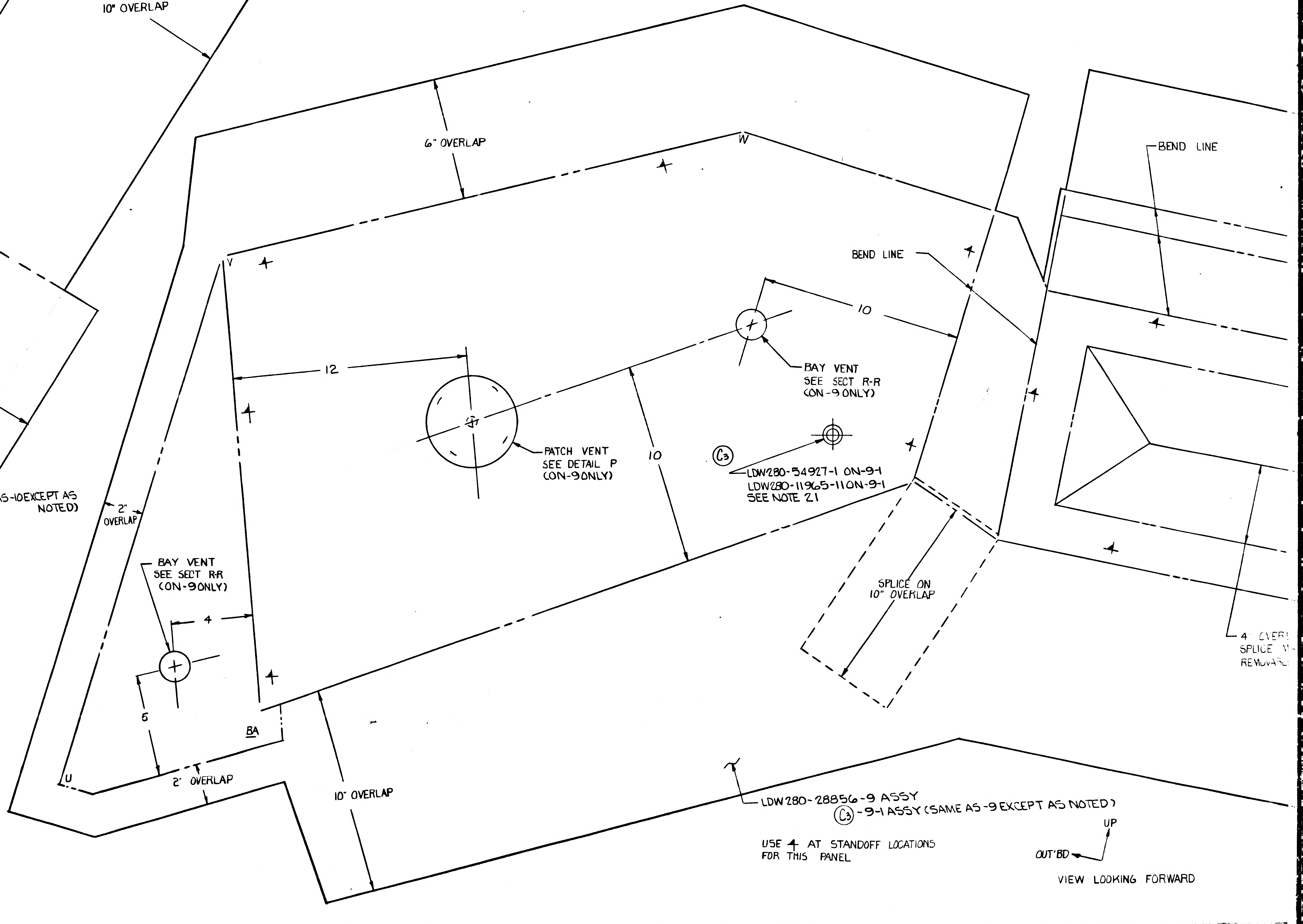
	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-28856	C
MODEL OR END ITEM	SCALE HALF		SHEET 7.00	


2" OVERLAP
U
V
BEND LINE (TYP)
BAY VENT
SEE SECT R-R
(ON-10 ONLY)
5 1/2
4
2" OVERLAP
BA
6" OVERLAP
13 1/2
PATCH VENT
SEE DETAIL P
(ON-10 ONLY)
6"
10"
10" OVERLAP
BAY VENT
SEE SECT R-R
(ON-10 ONLY)
W
6" OVERLAP
AFT VHF ANT.
C3
LDW280-54927-1 ON-10-1
LDW280-11965-11 ON-10-1
SEE NOTE 21
6" OVERLAP
CUT ALONG DASH
12" OVERLAP
8" OVERLAP
OUT'BD
UP

VIEW LOOKING FWD

LDW280-28856-10 ASSY
(C3) -10-1 ASSY (SAME AS -10 EXCEPT AS NOTED)

USE ✦ AT STANDOFF LOCATIONS FOR THIS PANEL


6" OVERLAP
W
BEND LINE
BEND LINE
V
10
BAY VENT
SEE SECT R-R
(ON-9 ONLY)
12
PATCH VENT
SEE DETAIL P
(ON-9 ONLY)
10
C3
LDW280-54927-1 ON-9-1
LDW280-11965-11 ON-9-1
SEE NOTE 21
2"
OVERLAP
BAY VENT
SEE SECT R-R
(ON-9 ONLY)
4
5
BA
U
2" OVERLAP
10" OVERLAP
SPLICE ON
10" OVERLAP
4 EVER
SPLICE
REMOVA
OUT'BD
UP

LDW280-28856-9 ASSY
(C3) -9-1 ASSY (SAME AS -9 EXCEPT AS NOTED)

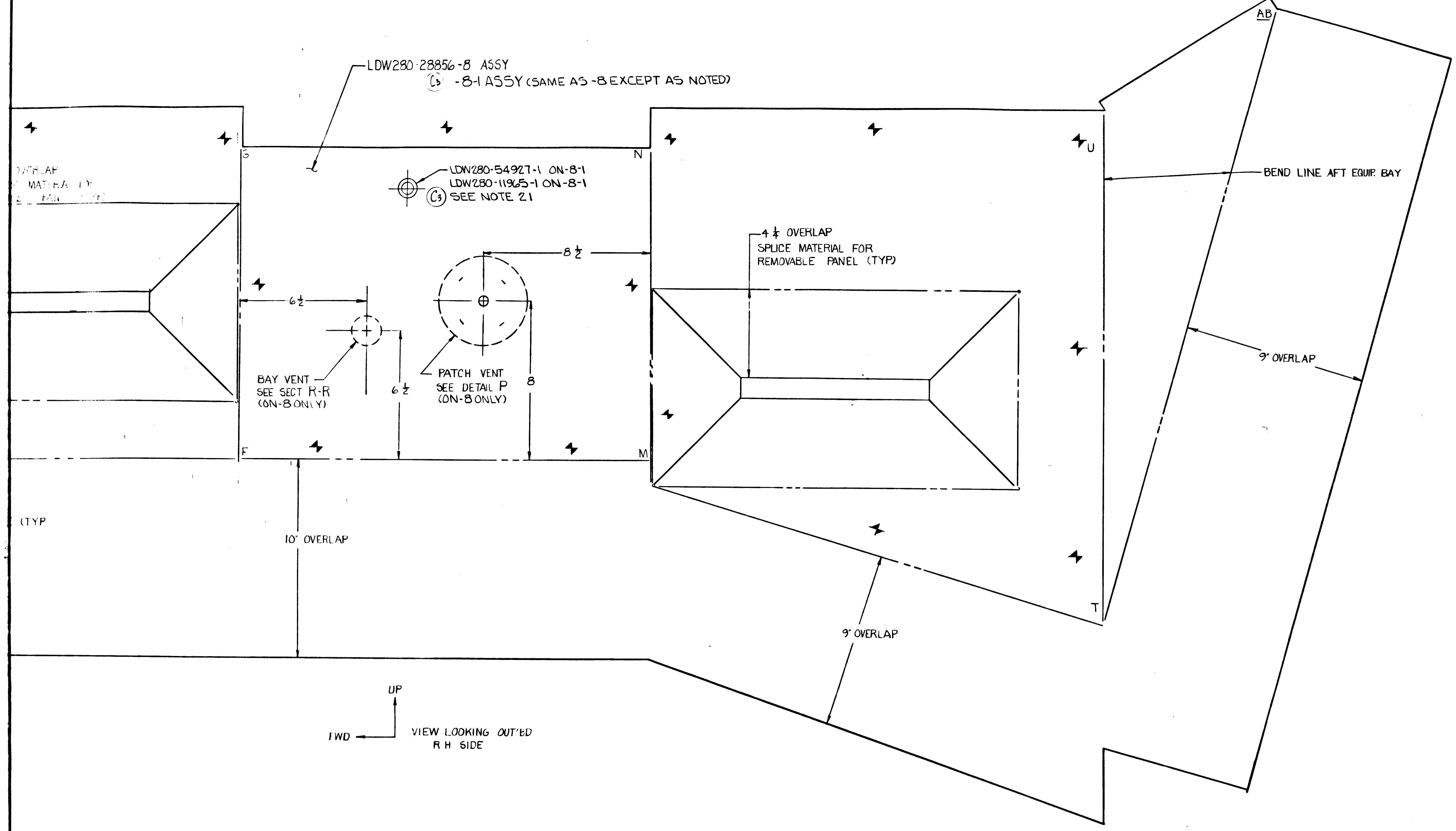
USE ✦ AT STANDOFF LOCATIONS FOR THIS PANEL

VIEW LOOKING FORWARD

01/03 NAS 9-1100

LDW280-28856-8 ASSY
(C3) -8-1 ASSY (SAME AS -8 EXCEPT AS NOTED)
BEND LINE FORWARD COMPT
B
4¼ OVERLAP
SPLICE MATERIAL FOR
REMOVABLE PANEL (TYP)
G
N
LDW280-54927-1 ON-8-1
LDW280-11965-1 ON-8-1
(C3) SEE NOTE 21
8½
6½
10½" OVERLAP
BAY VENT
SEE SECT R-R
(ON-8 ONLY)
6½
PATCH VENT
SEE DETAIL P
(ON-8 ONLY)
8
A
F
M
BEND LINE (TYP
10" OVERLAP
UP
FWD
VIEW LOOKING OUT'BD
R H SIDE
BEND LINE
6" OVERLAP
10½
⅜
1¼
5¼
BOILER VENT
BEND LINE
6" OVERLAP
4" OVERLAP
SPLICE MATERIAL FOR
REMOVABLE PANEL
10" OVERLAP
AS-9 EXCEPT AS NOTED)
UP
OUT'BD
VIEW LOOKING FORWARD

02/03 NAS 9-1100


LDW280-28856-8 ASSY
C3 -8-1 ASSY (SAME AS -8 EXCEPT AS NOTED)
LDW280-54927-1 ON-8-1
LDW280-11965-1 ON-8-1
C3 SEE NOTE 21
OVERLAP
G
N
F
M
U
T
AB
6 1/2
8 1/2
6 1/2
8
BAY VENT
SEE SECT R-R
(ON-8 ONLY)
PATCH VENT
SEE DETAIL P
(ON-8 ONLY)
4 1/4 OVERLAP
SPLICE MATERIAL FOR
REMOVABLE PANEL (TYP)
BEND LINE AFT EQUIP. BAY
9" OVERLAP
9" OVERLAP
10" OVERLAP
(TYP
UP
FWD
VIEW LOOKING OUT'BD
R H SIDE

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED ±1/4 TOLERANCE ON FLANGES IS ± ~~1/32~~	/
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 120

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X) = SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = SQ. FT.

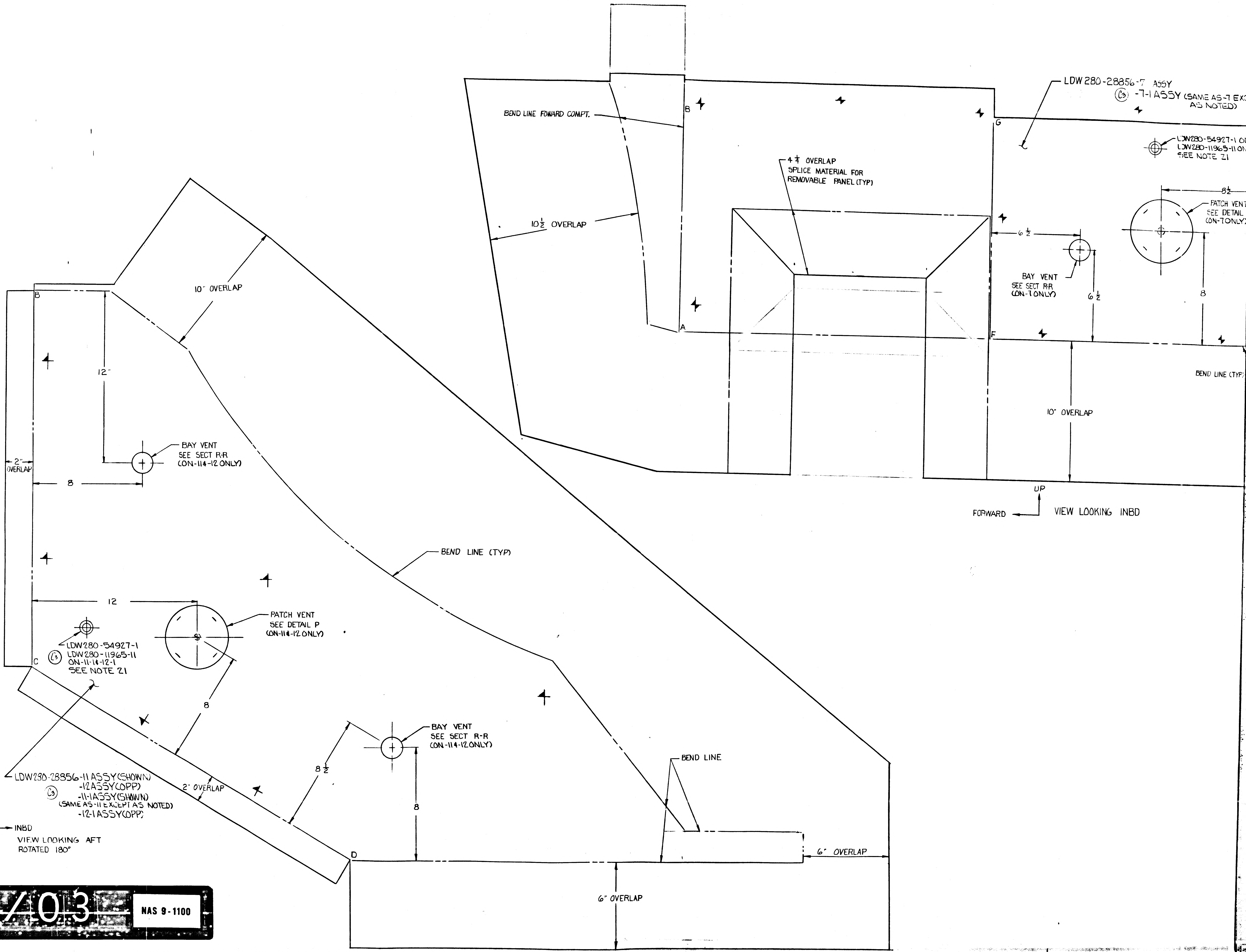
PRINT TRIM LINE

LDW280-28856 C

LDW280-28856 C

03703 NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-28856	C
MODEL OR END ITEM	SCALE HALF		SHEET 5[illegible]	

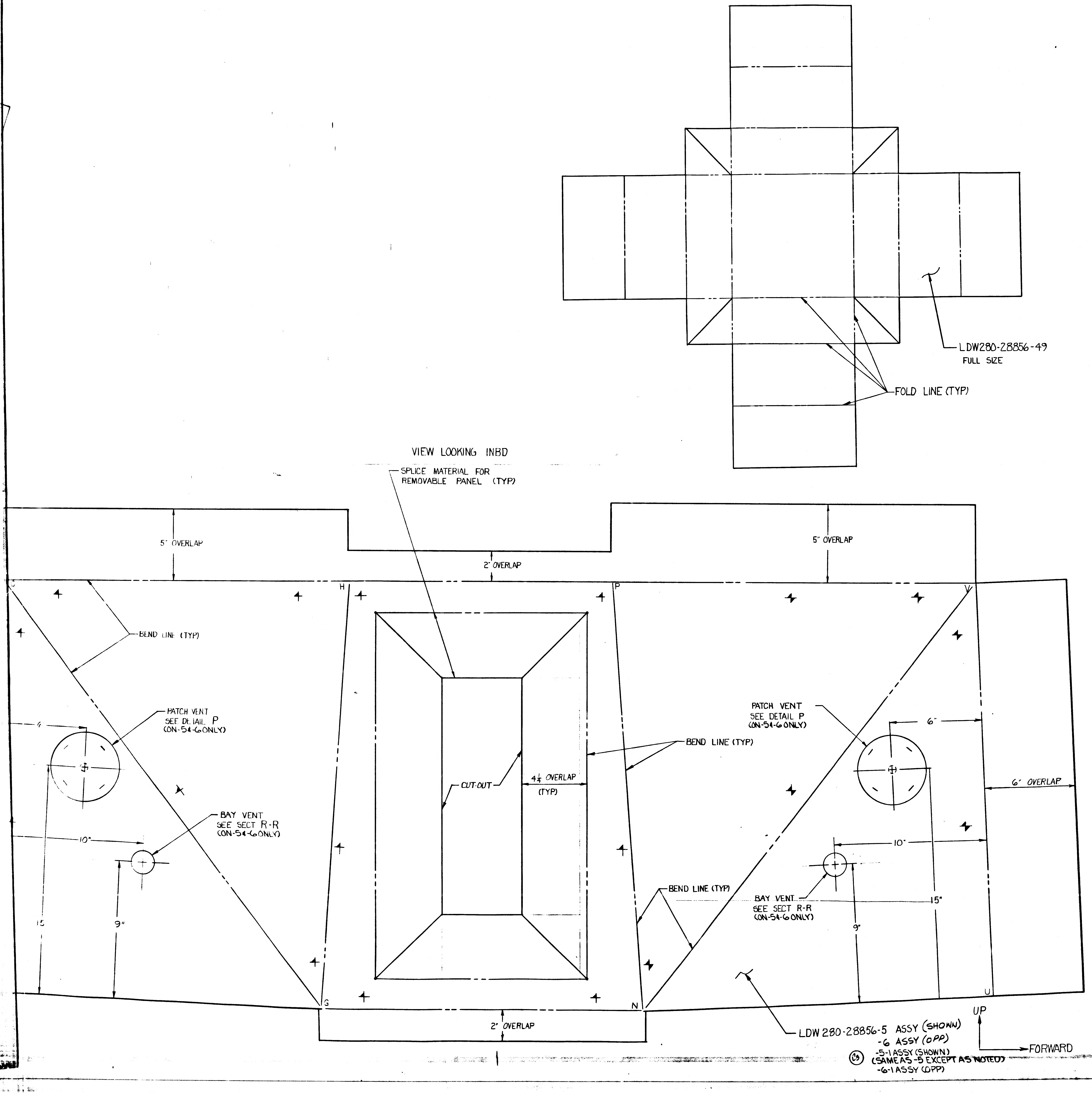


BEND LINE FOWARD COMPT.
B
A
10½ OVERLAP
4¾ OVERLAP
SPLICE MATERIAL FOR
REMOVABLE PANEL (TYP)
LDW 280-28856-7 ASSY
Ⓒ3 -7-1 ASSY (SAME AS-7 EX
AS NOTED)
G
F
LDW280-54927-1 O
LDW280-11965-11 O
SEE NOTE 21
8½
PATCH VEN
SEE DETAIL
(ON-7 ONLY)
6½
BAY VENT
SEE SECT R-R
(ON-7 ONLY)
6½
8
BEND LINE (TYP)
10" OVERLAP
UP
FORWARD
VIEW LOOKING INBD
B
10" OVERLAP
12"
BAY VENT
SEE SECT R-R
(ON-11&-12 ONLY)
2"
OVERLAP
8
BEND LINE (TYP)
12
PATCH VENT
SEE DETAIL P
(ON-11&-12 ONLY)
LDW280-54927-1
Ⓒ3 LDW280-11965-11
ON-11-1&-12-1
SEE NOTE 21
C
8
BAY VENT
SEE SECT R-R
(ON-11&-12 ONLY)
8½
8
BEND LINE
LDW280-28856-11 ASSY (SHOWN)
-12 ASSY (OPP)
Ⓒ3 -11-1 ASSY (SHOWN)
(SAME AS-11 EXCEPT AS NOTED)
-12-1 ASSY (OPP)
2" OVERLAP
DOWN
INBD
VIEW LOOKING AFT
ROTATED 180°
D
6" OVERLAP
6" OVERLAP

01/03 NAS 9-1100

LDW280-28356-7 ASSY
-7-1 ASSY (SAME AS -7 EXCEPT AS NOTED)
LDW280-54927-1 ON-7-1
LDW280-11965-11 ON-7-1
SEE NOTE 21
PATCH VENT
SEE DETAIL P
(ON-7ONLY)
8½
8
6½
BA
N
U
M
T
BEND LINE AFT EQUIP BAY
4¼ OVERLAP
SPLICE MATERIAL FOR REMOVABLE PANEL (TYP)
9" OVERLAP
BEND LINE (TYP)
OVERLAP
9" OVERLAP
VIEW LOOKING INBD
VIEW LOOKING INBD
SPLICE MATERIAL FOR REMOVABLE PANEL (TYP)
5" OVERLAP
2" OVERLAP
C
H
P
BEND LINE (TYP)
PATCH VENT
SEE DETAIL P
(ON-54-6ONLY)
6"
6" OVERLAP
CUT-OUT
4¼ OVERLAP
(TYP)
BAY VENT
SEE SECT R-R
(ON-54-6ONLY)
10"
15"
9"
B
G
V
2" OVERLAP

02/03 NAS 9-1100


LDW280-28856-49
FULL SIZE
FOLD LINE (TYP)
VIEW LOOKING INBD
SPLICE MATERIAL FOR
REMOVABLE PANEL (TYP)
5" OVERLAP
2" OVERLAP
5" OVERLAP
H
P
V
BEND LINE (TYP)
PATCH VENT
SEE DETAIL P
(ON-5 & -6 ONLY)
6"
BAY VENT
SEE SECT R-R
(ON-5 & -6 ONLY)
10"
15
9"
CUT-OUT
4 1/4 OVERLAP
(TYP)
BEND LINE (TYP)
PATCH VENT
SEE DETAIL P
(ON-5 & -6 ONLY)
6"
6" OVERLAP
10"
BAY VENT
SEE SECT R-R
(ON-5 & -6 ONLY)
BEND LINE (TYP)
15"
9"
G
N
U
2" OVERLAP
LDW 280-28856-5 ASSY (SHOWN)
-6 ASSY (OPP)
C3
-5-1 ASSY (SHOWN)
(SAME AS -5 EXCEPT AS NOTED)
-6-1 ASSY (OPP)
UP
FORWARD

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED ± 1/4 TOLERANCE ON FLANGES IS ± ~~1/32~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 120

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 130)= 32.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 8.1 SQ. FT.

PRINT TRIM LINE

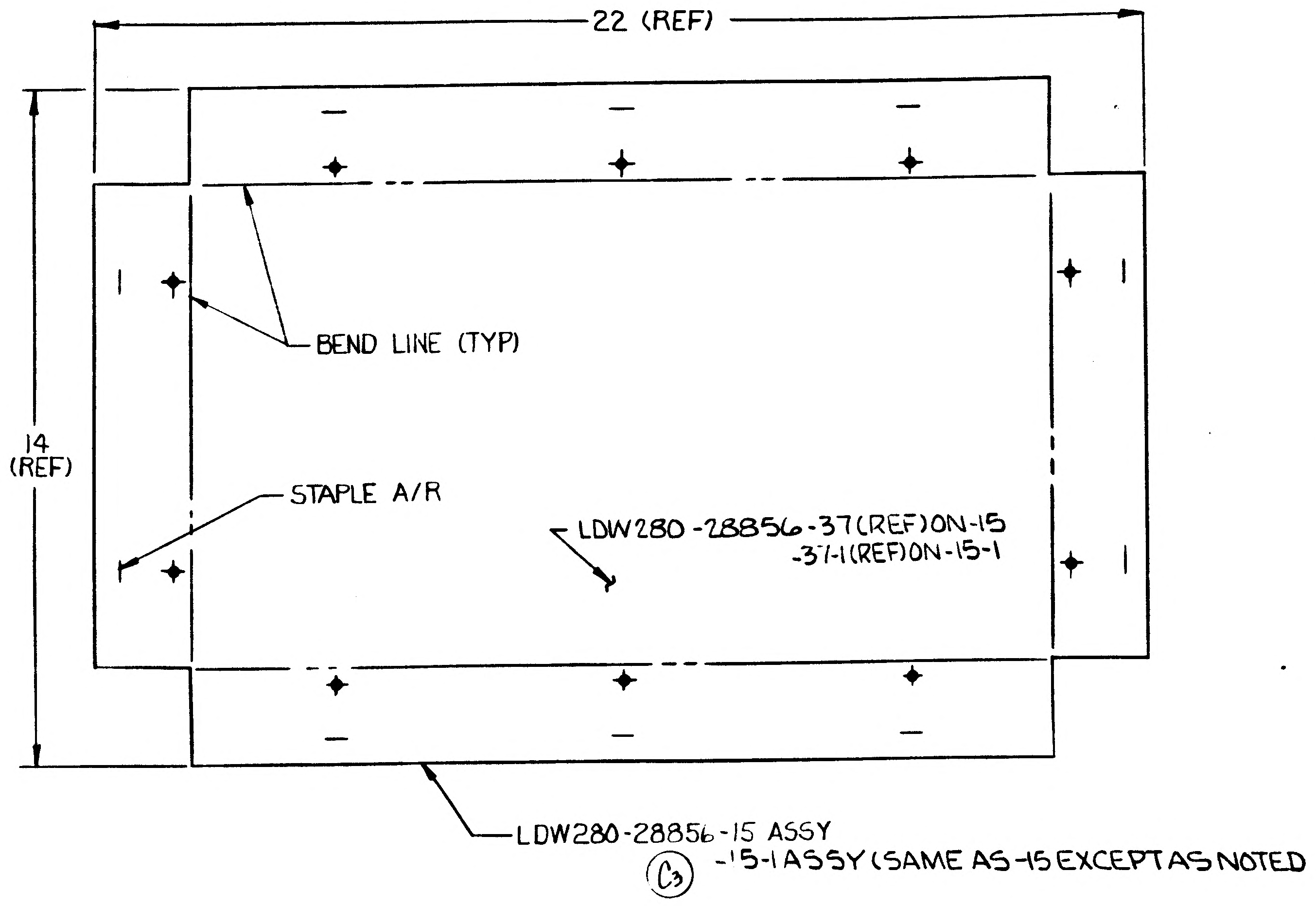
LDW280-28856 C

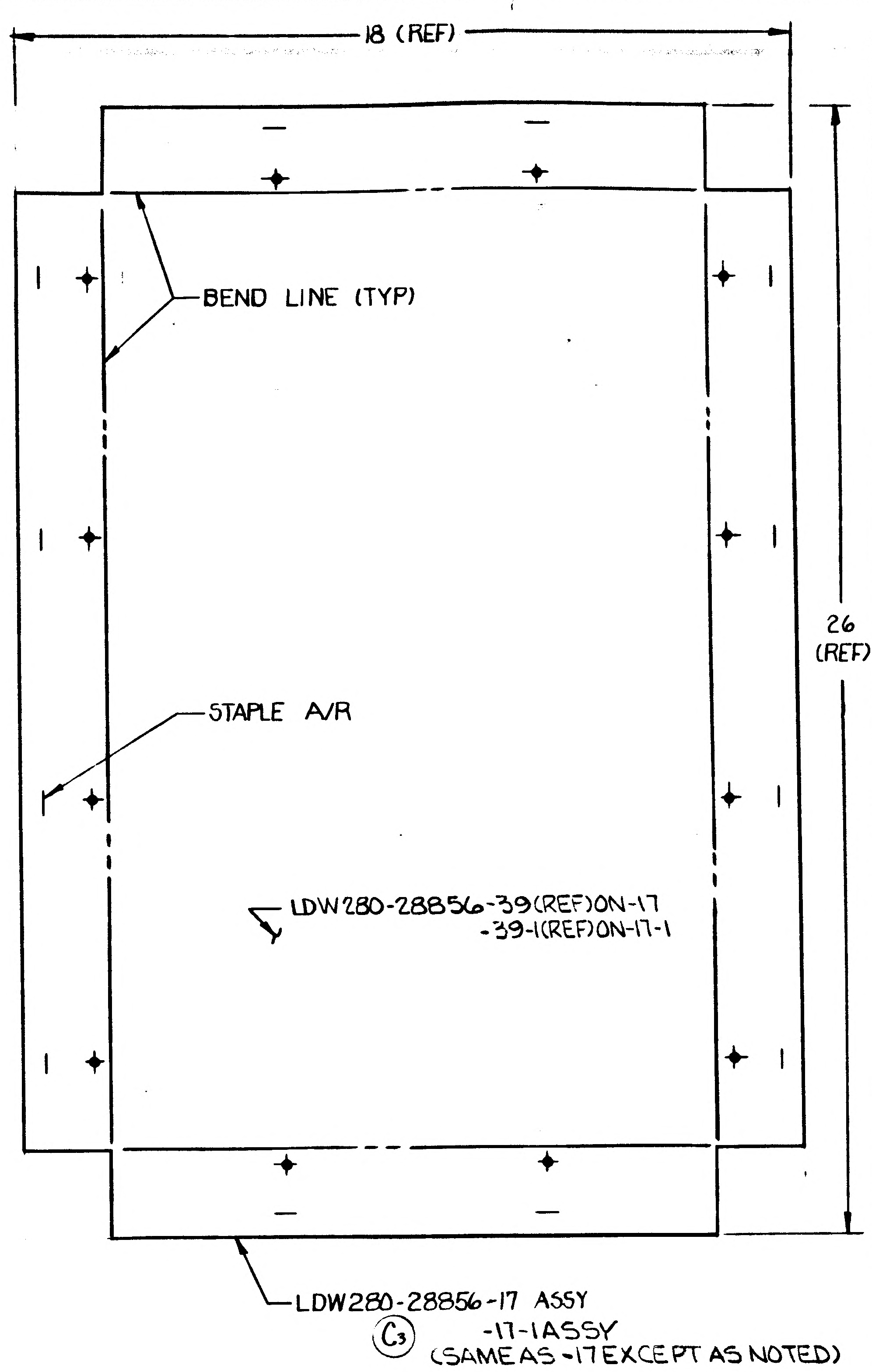
LDW280-28856 C

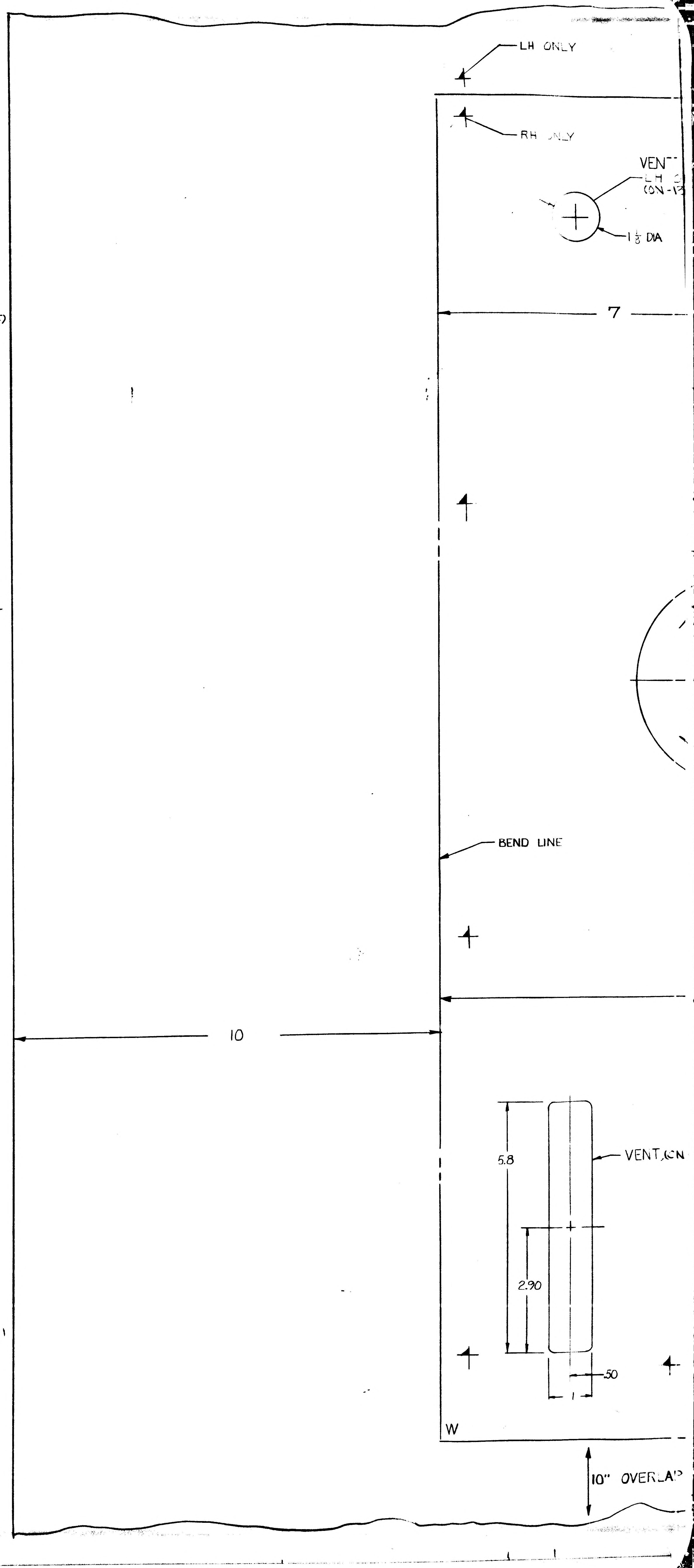
03/03

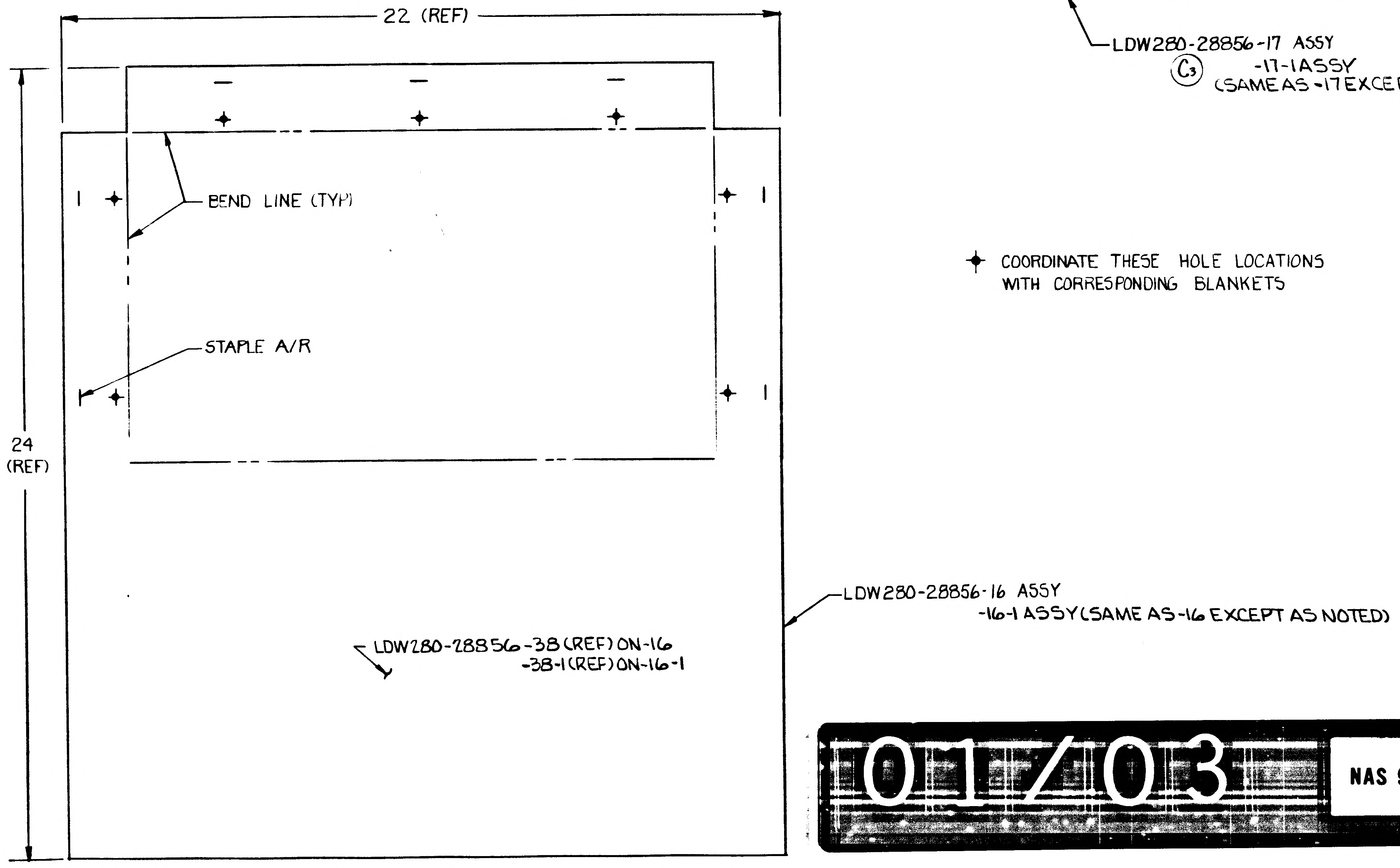
NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK				
SIZE J	CODE IDENT NO. 26512	LDW280-28856	C	
MODEL OR END ITEM LEM	SCALE HALF		SHEET 6.00	


22 (REF)
14 (REF)
BEND LINE (TYP)
STAPLE A/R
LDW280-28856-37(REF)ON-15
-37-1(REF)ON-15-1
LDW280-28856-15 ASSY
C3 -15-1 ASSY (SAME AS -15 EXCEPT AS NOTED)

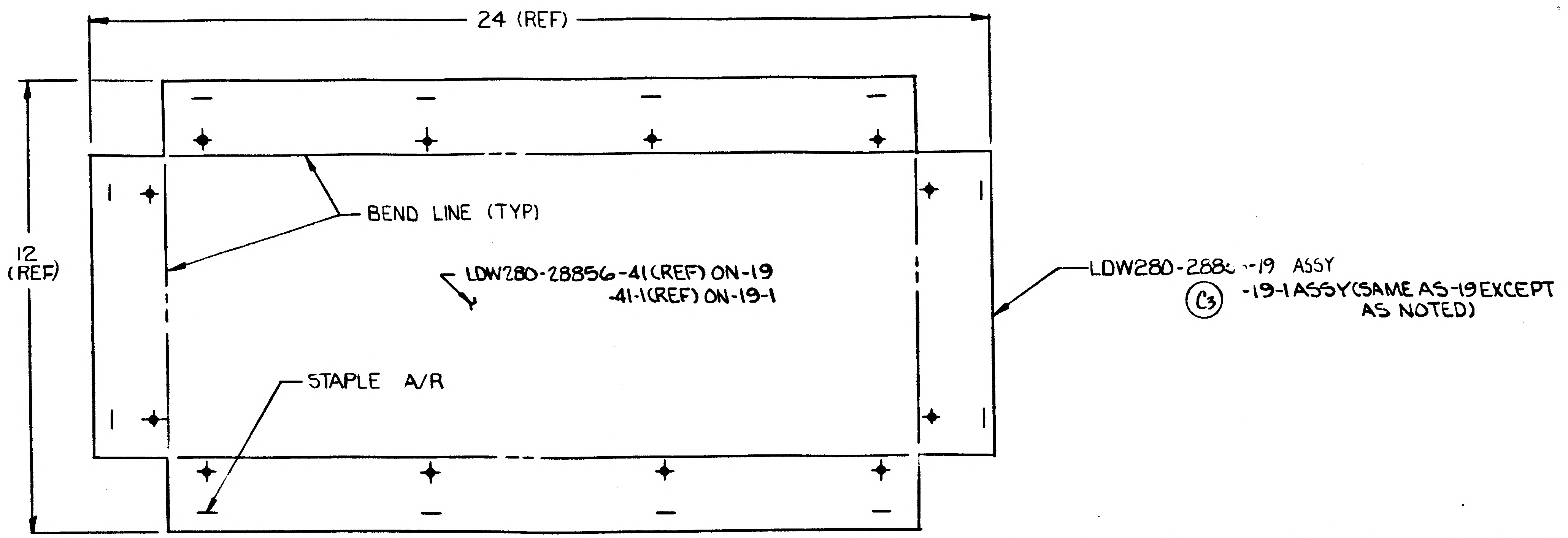

18 (REF)
BEND LINE (TYP)
26 (REF)
STAPLE A/R
LDW280-28856-39(REF)ON-17
-39-1(REF)ON-17-1
LDW280-28856-17 ASSY
C3 -17-1 ASSY
(SAME AS -17 EXCEPT AS NOTED)


LH ONLY
RH ONLY
VENT
LH
ON-1
1 1/8 DIA
7
BEND LINE
10
5.8
2.90
VENT, ON
.50
W
10" OVERLAP


22 (REF)
BEND LINE (TYP)
STAPLE A/R
24 (REF)
LDW280-28856-16 ASSY
-16-1 ASSY (SAME AS -16 EXCEPT AS NOTED)
LDW280-28856-38(REF)ON-16
-38-1(REF)ON-16-1

✦ COORDINATE THESE HOLE LOCATIONS WITH CORRESPONDING BLANKETS

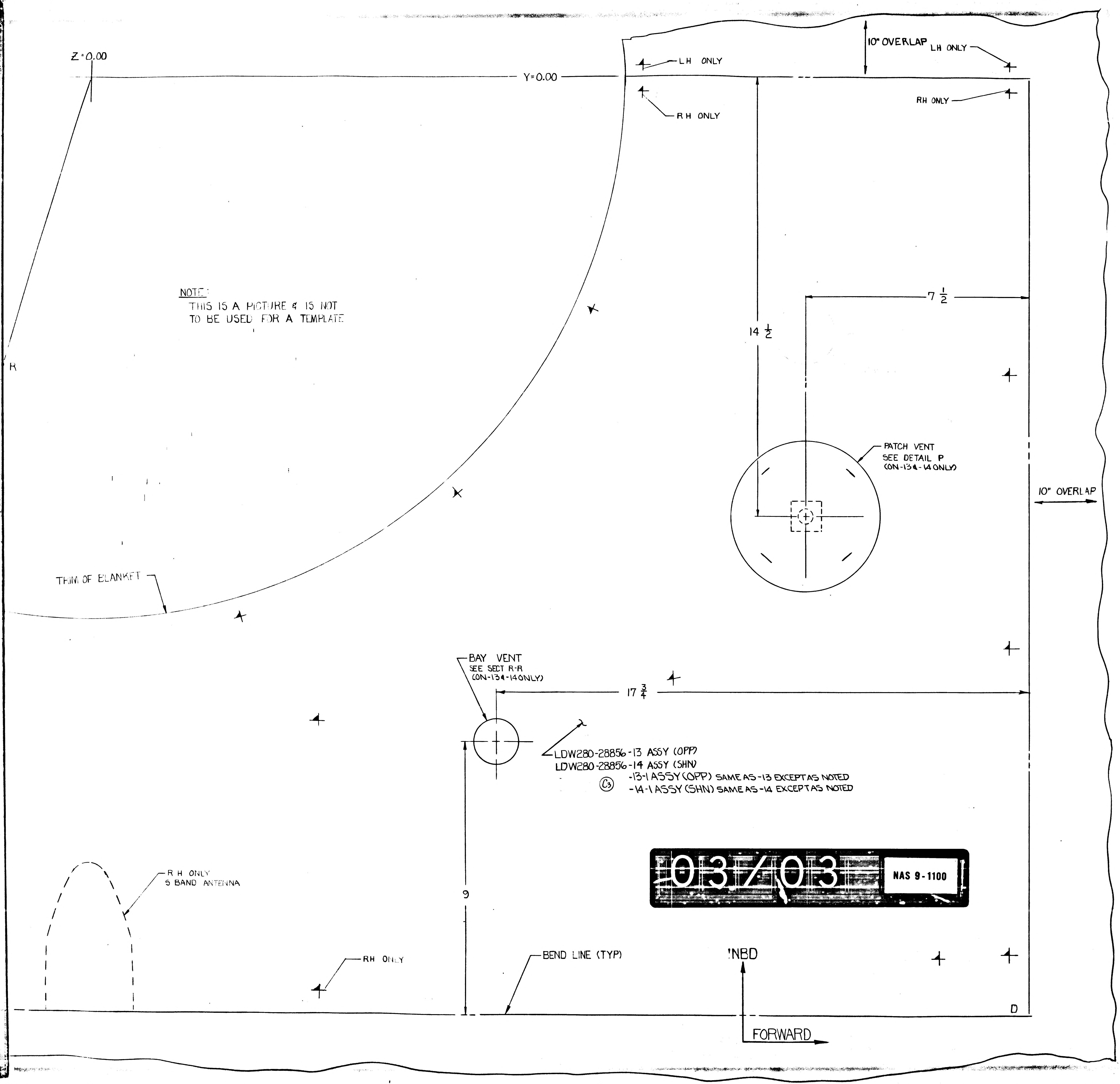
01/03 NAS 9-1100


24 (REF)
12 (REF)
BEND LINE (TYP)
LDW280-28856-41(REF) ON-19
-41-1(REF) ON-19-1
STAPLE A/R
LDW280-2885-19 ASSY
C3 -19-1 ASSY (SAME AS -19 EXCEPT AS NOTED)

LH ONLY
10" OVERLAP
LH ONLY
RH ONLY
RH ONLY
VENT
LH ONLY
(ON-13 ONLY)
1 1/8 DIA
7
13 1/2
PATCH VENT
SEE DETAIL P (REF)
(ON-134-14 ONLY)
BEND LINE
18
BAY VENT
SEE SECT R-R (REF)
(ON-134-14 ONLY)
5.8
2.90
VENT,(ON-13-14 & -13-1 ONLY)
.50
1
W
10" OVERLAP
9
X=312.5
Y=-26
Z=-9
TRANSDUCER
LDW 360-51296-11
LDW360-28296-11
-13 ONLY (SEE NOTE #9)
Z=0.00
Y=0.00
18" R
TRIM OF BLANKET
R H ONLY
S BAND ANTENNA
RH ONLY
BEND LINE (TYP)
BAY VENT
SEE SECT R-R
(ON-134-14 ONLY)
17
9
LDW28)-28856-1
LDW28)-28856-1

NOTE:
THIS IS A PICTURE & IS NOT TO BE USED FOR A TEMPLATE

02/03 NAS 9-1100


Z=0.00
Y=0.00
10" OVERLAP
LH ONLY
LH ONLY
RH ONLY
RH ONLY
NOTE:
THIS IS A PICTURE & IS NOT
TO BE USED FOR A TEMPLATE
R
14 1/2
7 1/2
PATCH VENT
SEE DETAIL P
(ON-13 & -14 ONLY)
10" OVERLAP
TRIM OF BLANKET
BAY VENT
SEE SECT R-R
(ON-13 & -14 ONLY)
17 3/4
LDW280-28856-13 ASSY (OPP)
LDW280-28856-14 ASSY (SHN)
C3
-13-1 ASSY (OPP) SAME AS -13 EXCEPT AS NOTED
-14-1 ASSY (SHN) SAME AS -14 EXCEPT AS NOTED
9
RH ONLY
S BAND ANTENNA
RH ONLY
BEND LINE (TYP)
INBD
FORWARD
D

03/03 NAS 9-1100

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± ~~1/32~~ ± 1/4	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 120

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X) = SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = SQ. FT.

PRINT TRIM LINE

LDW280-28856C

LDW280-28856C

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK
LEM
MODEL OR END ITEM
SIZE J
CODE IDENT NO. 26512
LDW280-28856
C
SCALE FULL
SHEET 7.00

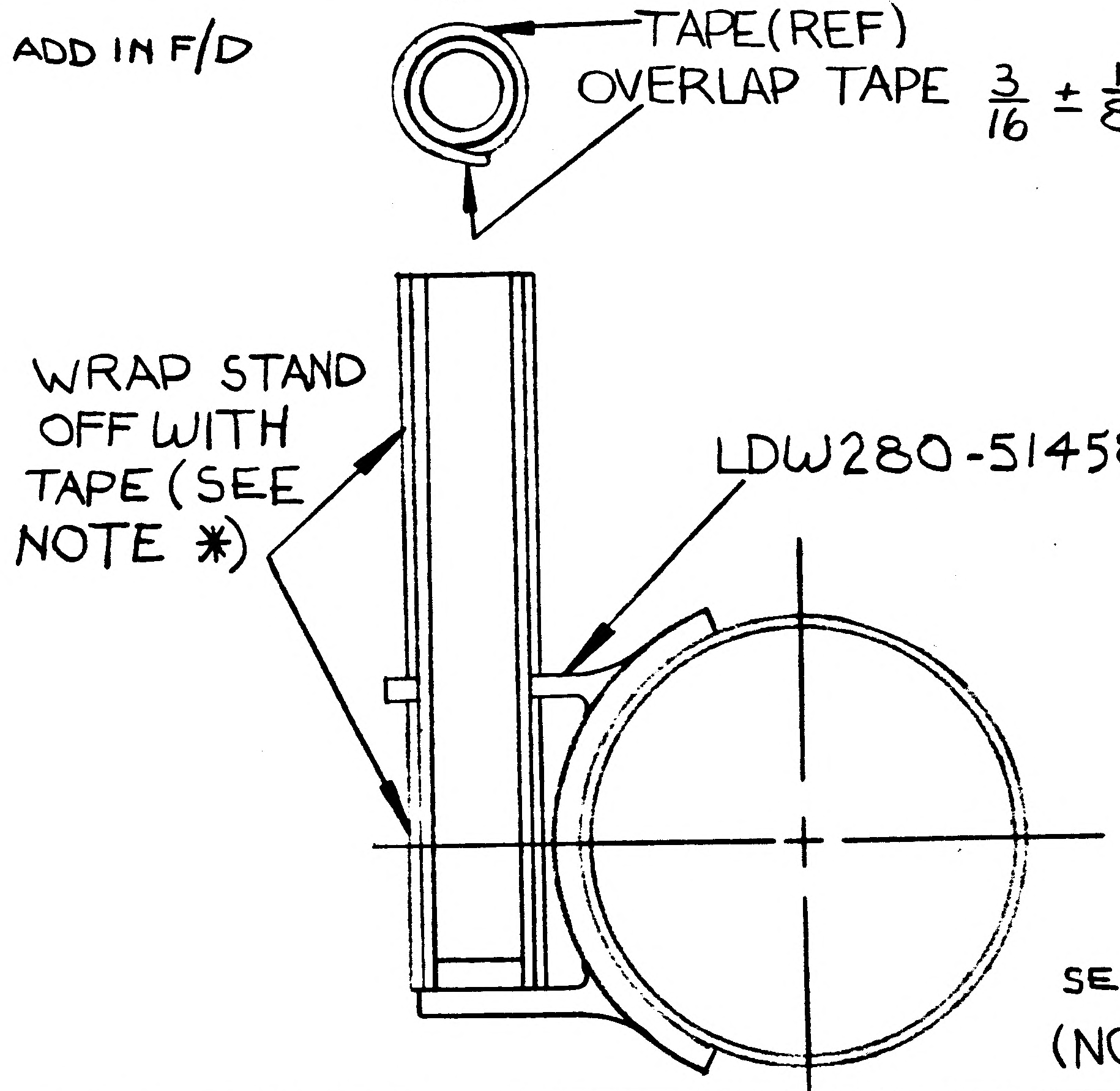
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28856	EO NO. A1
CONTROL INFO NO. LDW280A-0550	

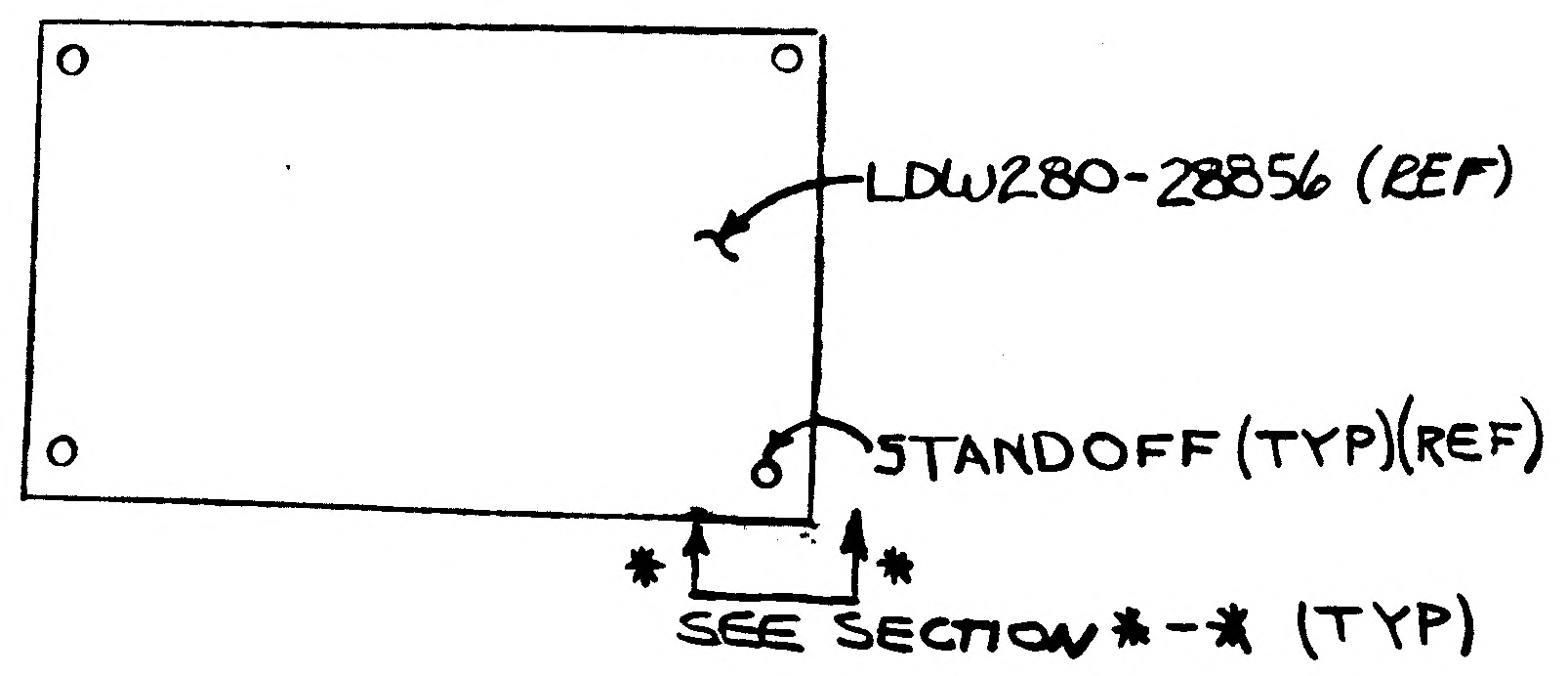
ADD IN F/D

ADD IN F/D, B/M * TAPE 1 IN. WIDE, GT835M-8



TAPE(REF)
OVERLAP TAPE $\frac{3}{16} \pm \frac{1}{8}$
WRAP STAND OFF WITH TAPE (SEE NOTE *)
LDW280-51458 (REF)

SECTION **
(NO SCALE)



LDW280-28856 (REF)
STANDOFF (TYP)(REF)
*
*
SEE SECTION *-* (TYP)

* DENOTES NEXT AVAIL NOTE NO
** DENOTES NEXT AVAIL SECTION NO

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		3

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
THERMAL RQMTS.	ADDED SECTION ** & NOTE * IN F/D; ADDED GT835M-8 TO B/M	FR 10/1/6

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
LM		LM-1(31)	
LM		LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	VDI	~~SUPPORT~~	THERMO ~~RELIAB. GROUP~~	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
			VJD				RMC	
DATE	9/21	10-5	10/6	9/21	9/21		9-30	9/28/66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	THERMAL BLANKET INSTAL, A/S-M/S L & R HAND UPPER	LDW280-28856	A1

ISSUED BY G.BELEV X1441 9-20-66 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28856
EO NO. A2
CONTROL INFO NO. LDW 280A-3014

REVISE B/M AS FOLLOWS:

(ON-1 INSTL REVISE) LDW280-28856-5 BLANKET ASSY (1 REQD)(WAS 2)
(ON-1 INSTL ADD) LDW 280-28856-6 BLANKET ASSY. (1 REQD.)
(REVISE) ON LDW 280-28856-9 (3) LDW280P1439-1 & -3 BAY VENTS (WAS 2 REQD)
(ON-1 INSTL ADD) LDW 280-28856-12 BLANKET ASSY (OPP TO -11)
(ON-1 INSTL.ADD) LDW 280-28856-59 DOCKING RING BLANKET ASSY.
(ADD) LDW 280-28856-45 PATCH TO -15, 16, 17, & -19 DOOR ASSY
(REVISE) LDW 280-28856-21 12 LAYERS "H" FILM (WAS 25 LAYERS OF MYLAR. & 5 LAYERS OF "H" FILM)
(REVISE) LDW 280-28856-21 (100 REQD) (WAS AS REQD'.)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

3

REASON FOR EO: TO UPDATE B/M TO AGREE WITH BLANKET DEVELOPED ON MANNEQUIN.

DESCRIPTION OF EO: ON-1 INST.: LDW280-28856-5 BLANKET ASSY (1 REQD)(WAS 2)(ADD LDW280-28856-6, -12, -59 BLANKET ASSY. ADD LDW 280-28856-45 PATCH ASSY TO -15-16, 17, -19 DOOR ASSY. REVISED -21 PATCH ASSY (WAS 25 LAYERS OF MYLAR & 5 LAYERS OF "H" FILM, LDW 280-28856-21 100 REQD. (WAS AS REQD)

GAEC EO RELEASE: FR 11/10/6

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
LM		LM-1 (31)	
LM		(LM-2 (32)	

DRAWING CHANGE REQD: ✓ REVISE DWG
DISPOSITION OF PARTS: NONE (RECORD EO / REWORK / SCRAP)

APPROVED BY		V.J.J.						
DATE	11/9/66	11/9		11/9	11/9		11-9-66	11-9-66
/	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: THERMAL BLANKET INSTL A/S MID SECTION UPPER.
DRAWING NO.: LDW280-28856
EO NO.: A2

ISSUED BY P. KEISER X1441 11/3/66 SECTION VDJ GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28856	EO NO. A3
CONTROL INFO NO. LDW280A3548	

REVISE B/M AS FOLLOWS: THIS E.O. CANCELLS E.O. A2.

1. ON LDW280-28856-4 BLANKET ASSY. REMOVE LDW280-28856-5 BLANKET ASSY.
2. ADD LDW280-28856-6 BLANKET ASSY TO LDW280-28856-4 BLANKET ASSY.
3. ON LDW280-28856-4 BLANKET ASSY. REMOVE LDW280-28856-11 BLANKET ASSY.
4. ADD LDW280-28856-12 BLANKET ASSY. TO LDW280-28856-4 BLANKET ASSY.

5 ON LDW280-28856-15,-16,-17 & -19 DOOR ASSY ADD (1) LDW280-14440-31 BLANKET VENT PATCH
ON LDW280-28856-4 THRU-17 & -19 REPLACE -45 BLANKET ASSY VENT WITH LDW280-14440-31 BLANKET VENT PATCHES
6 REMOVE LDW 280-28856-21 PATCH ASSY
7. ON LDW 280-28856-1 INSTL ADD LDW 280-14440-33 PATCH 28 REQR/INSTL.
8 ON LDW 280-28856-57 BLANKET MAKE OUT OF 25 LAYERS OF MYLAR (WAS 25 LAYERS MYLER 5 LAYERS OF "H" FILM)
9. ON-1 INSTL ADD LDW 280-28856-59 DOCKING RING BLANKET. MADE OF (25 LAYERS OF MYLAR 5 LAYERS OF "H" FILM)

CONTINUED { BLANKET VENT PATCH & ADD LDW280-14440-31 TO -15,-16,-17, & -19, REM -21 PATCH ASSY ON LDW280-28856-1 INSTL ADDED LDW280-14440-33, REVISED -57 (WAS 25 LAYERS OF MYLAR 5 LAYERS OF "H" FILM. ON-1 ADD LDW28856-59 DOCKING RING BLANKET.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO UPDATE B/M TO AGREE WITH BLANKET DEVELOPED ON MANNEQUIN.

DESCRIPTION OF EO: THIS EO CACELLS EO A2. ON LDW280-28856-4 BLANKET ASSY REMOVED -5 ASSY & ADDED -6 BLANKET ASSY TO -4 ASSY; ON -4 ASSY REM. -11 BLANKET ASSY; ON -12 ASSY ADDED 4 BLANKET ASSY. ON -4 THRU -17 & -19 ASSY REM -45 PATCH & ADD LDW280-14440-31

GAEC EO RELEASE ③ FE 11/23/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY								RMC	
DATE	11/18/66	11/17		11/18				11-18-66	
#5	VDI	SUPPORT THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG		PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	THERMAL BLANKET INSTL. A/S MID SECT. UPPER.	LDW280-28856	A3

ISSUED BY P. KEISER X 1441 11/22/66 SECTION V.D.I GROUP NO. 335 PL 35

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28856		EO NO. A4
CONTROL INFO NO. LDW 280A-4084		

DESCRIPTION OF E.O.

-1

REVISED B/M AS FOLLOWS:

1. ON -23 ASSY LDW280P 14391-1 & -3 (5 EA) WAS (4 EA), LDW280-14441-9 (10) WAS (8)
2. ON -24 ASSY LDW280P 14391-1 & -3 (5EA) WAS (3 EA), LDW280-14441-9 (10) WAS (6)
3. ON -11 ASSY LDW280-14440-31 (2) WAS (1)

3

THERMAL SHIELD
12-6

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC EO RELEASE
TO UPDATE B/M TO AGREE WITH BLKT DEVELOPED ON MANNEQUIN	NOTED ABOVE	FR 12/7/6

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY								
DATE	12/6/66	12/6		12/6	12/6		12-6	12-6-66
#5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	THERMAL BLANKET INST'L. A/S ~ M/S UPPER	LDW280-28856	A4

ISSUED BY L. LUPINACI X1441 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-28856 | EO NO. A5
CONTROL INFO NO. LDW280A-3901

DESCRIPTION OF E.O.

REVISED B/M & F/D AS FOLLOWS:

1. ADDED -19 DOOR ASSY. TO -3 BLANKET ASSY. (WAS ON -4 ASSY.)
2. ADDED -16 DOOR ASSY. TO -4 BLANKET ASSY. (WAS ON -3 ASSY.)
3. ADDED LDW280-14440-31 BLANKET VENT PATCH TO -23 (3) & TO -24 (3)
4. REMOVED -51 ADDED GT 835P-8-1.00 (A/R) ~ REMOVED -53 ADDED GT 835B-2-1.00 (A/R)
5. REMOVED -55 ADDED GT 835M-8-1.00 (A/R)
6. ON -5 THRU -14 (WAS -4 THRU -17 & 19) REPLACED -45 WITH LDW280-14440-31 AS FOLLOWS: (2) ON -5, -6, -13 & -14; (1) ON -7, -8, -9, -10, -11 & -12.
7. ADDED LDW280-14441-9 AS FOLLOWS: (4) ON -5, -6, -10, -11, -12, -13 & -14 ASSYS, (2) ON -7 & -8 ASSYS, (6) ON -9 & -24 ASSYS, (8) ON -23 ASSY.
8. ADDED -28 BLANKET TO -6 BLANKET ASSY. (MAT'L & BUILDUP IDENTICAL TO -27 B'K'LT)
9. ADDED -34 BLANKET TO -12 BLANKET ASSY. (MAT'L & BUILD UP IDENTICAL TO -33 B'K'LT)
10. ADDED -61 DOOR ASSY. (25 LAYERS MYLAR & 5 LAYERS "H" FILM) TO -3 ASSY.

THERMAL SHIELD
3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: TO UPDATE B/M TO AGREE WITH BLANKET DEVELOPED ON MANNEQUIN

DESCRIPTION OF EO: NOTED ABOVE

GAEC C EO RELEASE: FR 12/8/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY									
DATE	12/6/66	12/6/66		12/6	12/6		12-7-66	12/7/66
#5	VDI	~~[illegible]~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY: C
DRAWING TITLE: THERMAL BLANKET INSTL. A/S MID SECTION UPPER
DRAWING NO. LDW280-28856
EO NO. A5

ISSUED BY L. LUPINACI X1441 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-28856
EO NO. A6
CONTROL INFO NO. LDW230A-4329

DESCRIPTION OF EO.
ON-1 INSTL REMOVE GR11C-7 RETAINER
ADD REVISE. QNTY. OF GR11C-1 (207) (WAS 164) (EFF LTA 8 ONLY.)
(WAS EFF. LTA8 LM1 & 2) N/A LDW 280-28150

CREATE -71 INSTL. IDENTICAL TO -1 EXCEPT REPLACE GR11C-1 WITH GR11C-7
EFF LM1 & LM2

IN F/D ADD NOTE **
FINAL SIZE (WITH FOLD & SEAM LOCATION) OF BLANKET ASSEMBLIES SHALL BE DETERMINED FROM APPROVED MASTER TEMPLATE AND OR FULL SIZE MOCK UP

ON -12 ASSY ADD LDW 280-14440-31 (2 REQ'D.) (WAS 1)

THERMAL SHIELD.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ 3

REASON FOR EO: TO FINALIZE BLANKET DESIGN.

DESCRIPTION OF EO: NOTED ABOVE

GAEC EO RELEASE: C FR 12/14/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA8 (18)		
LM	LM1 (31)		
LM	LM2 (32)		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY									
DATE	12/13/66	12/13			12/13.	12/13		12/13	12-13-66
#5	VDI	~~SUPPORT~~	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: THERMAL BLANKET INSTL A/S MID SECTION UPPER
DRAWING NO. LDW 280-28856
EO NO. A6

ISSUED BY P. KEISER. X 1991 SECTION VD1 GROUP NO. 335 PL 35

01

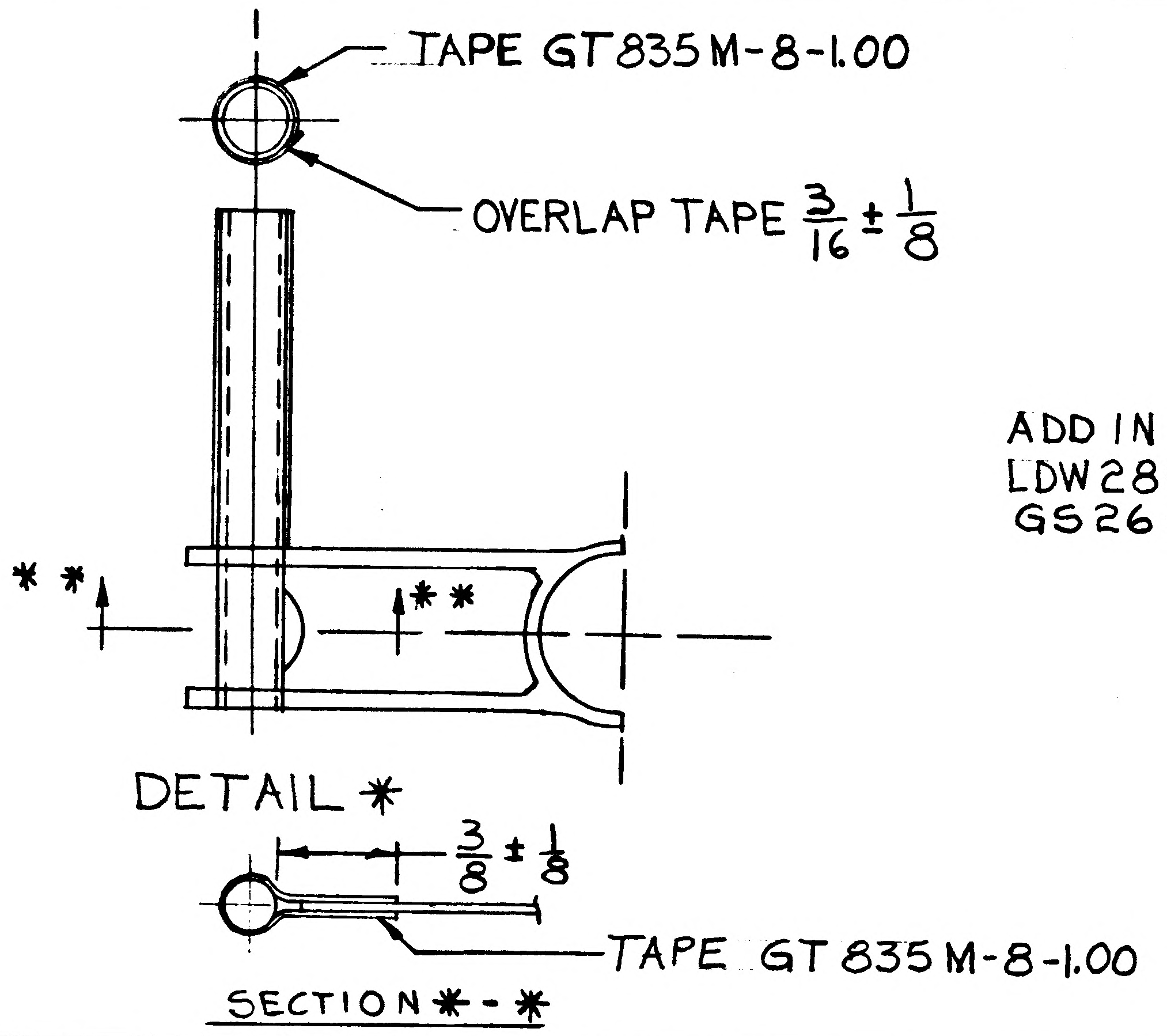
NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28856		EO NO. A7
CONTROL INFO NO. LDW280A-4803		



ADD IN F/D DETAIL * TYP FOR
LDW280-28860, LDW280-28880 &
GS26C

MANUF. INFO ONLY
THIS WORK BEING ACCOMPLISHED
ON VERBAL INFO. FROM
THERMO. DEPT.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	3

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
THERMAL REQUIREMENTS	ADDED DETAIL * IN F/D, TYP FOR LDW280-28860, LDW280-28880 & GS26C.	VE 1-12-7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
☑		☑		APPROVED BY								
				DATE	1/11/67	1/12/67		1/11	1/11		1-11-67	1-11-67
REVISE DWG	RECORD EO	REWORK	SCRAP	#5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	THERMAL BLANKET INSTL. A/S ~ M/S ~ UPPER	LDW280-28856	A7

ISSUED BY L. Lupinaci X1441 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

B
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28856 | EO NO. A8
CONTROL INFO NO. LM 5-11621

REVISE B/M AS FOLLOWS:

REMOVE -49 BLANKET ASSY FROM -23 ASSY.
ADD -49 BLANKET ASSY. TO -71 BLANKET INSTL.
REMOVE -15 BLANKET ASSY FROM -4 ASSY 1 REQD (WAS 2)

RELEASED BY LIAISON

5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: UPDATE DWG REQMTS.

DESCRIPTION OF EO: IN F/D & B/M REMOVED -49 BLANKET ASSY FROM -23 ASSY & -15 BLANKET ASSY FROM -4 ASSY - 1 REQ'D WAS 2. ADDED -49 BLANKET ASSY TO -71 BLANKET INSTL.

GAEC C EO RELEASE: K

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (19)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	W.T. ALW					CH	RMc	
DATE	1/16/67				1-16-67	1/16/67	1-20-67	1/1/67
6	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	THERMAL BLANKET INSTL~A/S M/S L&R HAND UPPER	LDW280-28856	A8

ISSUED BY P KEISER 1491 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-28856
EO NO. A9
CONTROL INFO NO. LM5 - 11717

DESCRIPTION OF EO

IN F/D & BM REVISE AS FOLLOWS:

ADD -16 DOOR ASSY TO -3 BLANKET ASSY WAS ON -4 ASSY

ADD -15 DOOR ASSY TO -4 BLANKET ASSY (2) REQD. FOR -15 WAS (1)

ON -9 ASSY, ADD (1) LDW280P14391-1 & (1) LDW280P14391-3

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		3

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE C
UPDATE DWG REQMTS	NOTED ABOVE	FR

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-3 (18)	
		LM-1 (31)	
		LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	WT			~	HHZ			
DATE	1/25/67			~ 1-25-67			1/31/67	1/31/67
/	VDI	SUPPORT	RELIAB. GROUP	~~GROUP LEADER~~	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	[illegible]

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	THERMAL BLANKET INSTL A/S ~ M/S ~ L & R HAND UPPER	LDW280-28856	A9

ISSUED BY L.R./P. KEISER X-1441 1-25-67 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

ENG 22.1 REV 3-66 3

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28856		EO NO. A10
CONTROL INFO NO. LDW280A-5747		

(ADD) NOTE:
△1 CUTTING & PATCHING PROCEDURE PER LPC280-6.
△2 REPAIR PROCEDURE PER LPC280-8.
△3 BAY VENT INSTL PROCEDURE PER LPC280-9.
△4 PERMISSIBLE DEVIATIONS & REPAIR PROCEDURE PER LPC280-20.

REMOVE NOTE #3 & #5.
IN SECT R-R REMOVE CALLOUT; BOND UPPER ----- ETHYLENE DICHLORIDE.

ADD GT15C-2 TAPE TO SECTIONS TO AGREE WITH LPC280-3.
ADD GT15C-2 TO B/M.

△1 TO △4 USE NEXT AVAILABLE NO.

DETAIL SPEC REQ	✓	CL II ENGRG CHG		CL I ENGRG CHG		3

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE C
LPC'S OMITTED ON DWG	ADDED NOTE △1 TO △4. REMOVED NOTE #3 & #5 IN SECT R-R REMOVED CALLOUT; BOND UPPER --- ETHYLENE DICHLORIDE. ADDED GT15C-2 TAPE TO SECTIONS TO AGREE WITH LPC280-3. ADDED GT15C-2 TO B/M.	VK 3/10/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO	GAEC UNIT NO	SUB CONTR UNIT NO
LM		LTA-8 (18), LM-1 (31) & -2 (32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE	~~SUPPORT~~ THERMO	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓		✓		3/2/67 1	VDI		3/2/67	3/5		3/7/67	3/10/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	BLANKET INSTL A/S-M/S-EXTERIOR LWR	LDW280-28856	A10

ISSUED BY JOHN K. LEE SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

A

ENG 32.2 REV 3-65

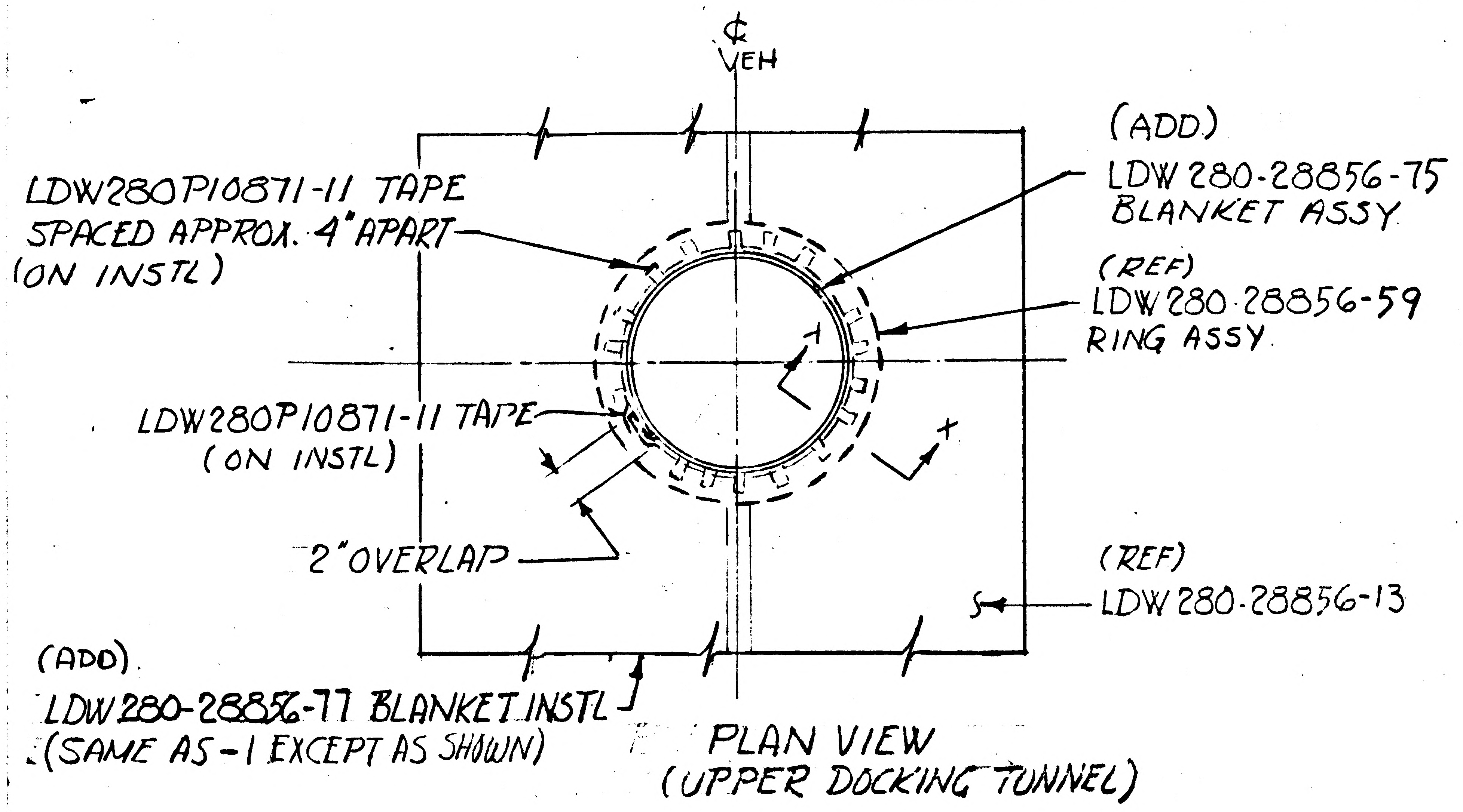
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28856	EO NO. B1
CONTROL INFO NO. LM5-13111	

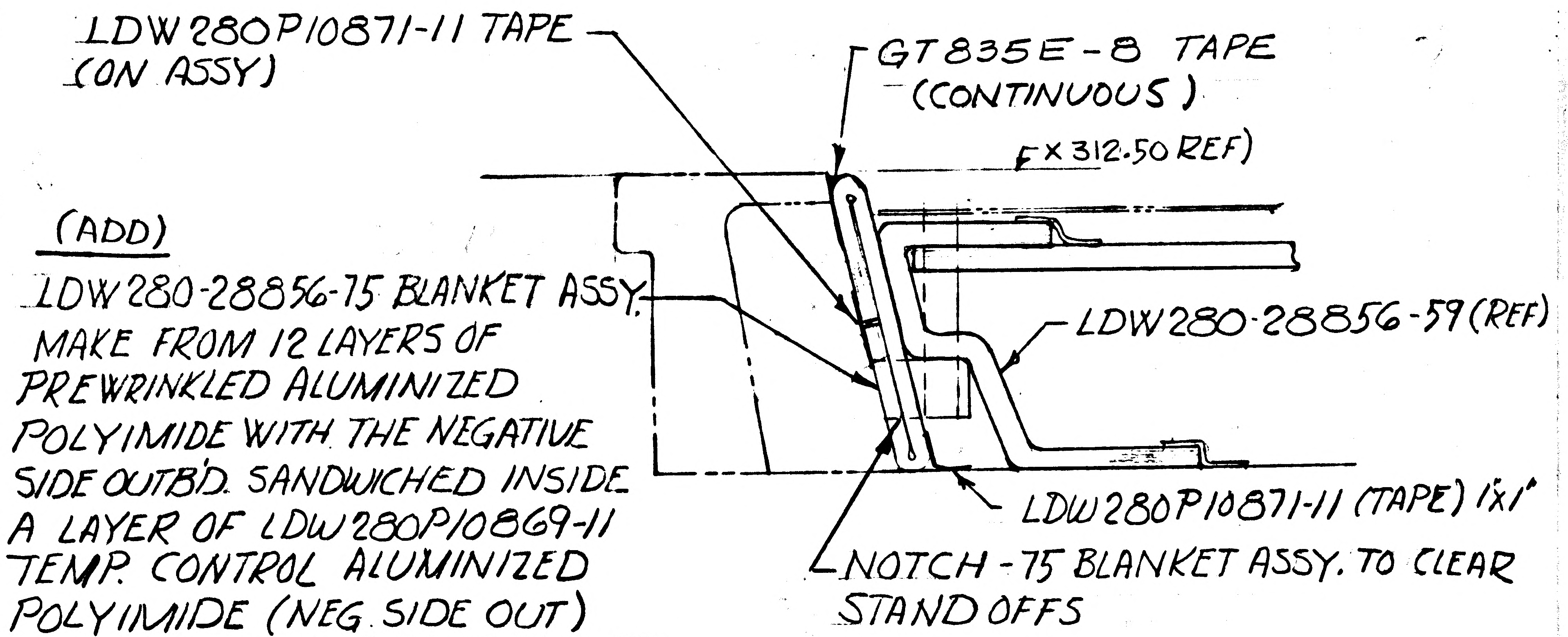
REVISE F/D & B/M AS FOLLOWS:

REMOVE -45 BLANKET VENT FROM DRAWING
ON-23 & -24 ASSY. REVISE QTY. OF LDW280-14441-9 (10 REQD.)(WAS 18)

RELEASED BY LIAISON


℄ VEH
(ADD)
LDW 280-28856-75 BLANKET ASSY
(REF)
LDW 280-28856-59 RING ASSY
LDW280P10871-11 TAPE SPACED APPROX. 4" APART (ON INSTL)
LDW280P10871-11 TAPE (ON INSTL)
2" OVERLAP
X
(REF)
LDW 280-28856-13
(ADD)
LDW 280-28856-77 BLANKET INSTL
(SAME AS -1 EXCEPT AS SHOWN)

PLAN VIEW
(UPPER DOCKING TUNNEL)


LDW280P10871-11 TAPE (ON ASSY)
GT835E-8 TAPE (CONTINUOUS)
F x 312.50 REF)
LDW280-28856-59 (REF)
LDW280P10871-11 (TAPE) 1"x1"
NOTCH -75 BLANKET ASSY. TO CLEAR STAND OFFS

(ADD)
LDW 280-28856-75 BLANKET ASSY.
MAKE FROM 12 LAYERS OF PREWRINKLED ALUMINIZED POLYIMIDE WITH THE NEGATIVE SIDE OUTBD. SANDWICHED INSIDE A LAYER OF LDW280P10869-11 TEMP. CONTROL ALUMINIZED POLYIMIDE (NEG. SIDE OUT) BLANKET SIZE WILL BE DETERMINED FROM MANNEQUIN.

SECT X-X (ADD)

XX = NEXT AVAILABLE SECT LETTER

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO INSULATE THE UPPER DOCKING RING	REM. -45 BLANKET VENT FROM DRAWING, ON-23 & -24 REVISED QTY. OF LDW 280-14441-9 (10 REQD)(WAS 18) ADDED -77 BLANKET INSTL. & -75 BLANKET ASSY. & LDW 280P10871-11 TAPE, ADDED SECT X X, GT835E-8	C JK —

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
LM		LM-2 (32)		✓			✓

APPROVED BY	WT	VDJ		~	MJM	CH	RMC	[illegible]
DATE	4/6/67	4/7		~	4/7/67	4-7-67	4.13.67	4/18/67
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~SEIT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	THERMAL BLANKET INSTALLATION ASCENT STAGE UPPER MID SECTION	LDW280-28856	B1

ISSUED BY P. KEISER X 4709 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

ENG 32.1 REV 3-65

80

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28856
EO NO. B2
CONTROL INFO NO. LM5-13207

THIS IS A REVISION OF E.O. B1

REVISED EFF OF E.O. LTA8, LM1 & LM2 (WAS LM-2 (32)
REVISED CALLOUT IN F/D LDW280-28856-77 BLANKET INSTL.
(REVISE) (SAME AS -71 EXCEPT AS SHOWN) (WAS SAME AS -1 EXCEPT AS SHN)
(ADD) (EFF: LM-2 (32) ONLY)
NEXT ASSY LDW280-51150 1 REQD/VEH

FROM -71 M/B REMOVED LM 2 REQMTS.
I & T = E

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☒ CL I ENGRG CHG ☐

5

REASON FOR EO: TO CORRECT M/B REQUIREMENTS

DESCRIPTION OF EO: REF E.O. B1 NOTED ABOVE

GAEC EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

				RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	WT	VJS			~	JFJ	CH	DAM (EW)
DATE	4/19/67	4/19			~	4-20-67	4-19-67	4-28-67
	1	VDI	~~SUPPORT~~ THERMAL					

4/26/67

PRIORITY: C
DRAWING TITLE: THERMAL BLANKET INSTL. ASCENT STAGE UPPER MID SECTION.
DRAWING NO.: LDW280-28856
EO NO.: B2

ISSUED BY P. KEISER 14709 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280 28856
EO NO. C2
CONTROL INFO NO. LDW280B1132

ADD TO F/D & B/M

LDW360-28296 -11 EFF LTA8 (18) LM-2 (32), (2) REQD
-13 EFF LTA8 (18)

DETAIL SPEC REQ	✓	CL II ENGRG CHG		CL I ENGRG CHG	

(5)

REASON FOR EO: TO CORRECT NHA OF LDW360-28296 (COR LIST)

DESCRIPTION OF EO: ADDED TO F/D & B/M LDW 360-28296-11, -13

GAEC EO RELEASE: JK 1/13/68

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQ'D	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQD

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY							JAP	
DATE	1/8/68			1/5/68	1/9/68		1/8/68	1-13-68

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E	THERMAL BLANKET INST'L. A/S, M/S, LH & RH UPPER	LDW280-28856	C2

ISSUED BY F. BADE X7033 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. [illegible]
EO NO. C3
CONTROL REF. NO. [illegible] 1664

ON-71 INST'L, IN FD & 9[illegible] (LM-1):
ADD LDW360-51296-11 (2)
ON-77 INST'L, IN FD & 9[illegible] (LM-2):
ADD LDW360-23296-21 (1)

REASON FOR EO: TO CORRECT INST ASSEMBLY REQUIREMENTS.

DESCRIPTION OF EO: ON-71 ADDED LDW360-51296-11 ; LM-1 EFF (REF LDW360-51 296 [illegible] CHANGE DWG) — ON-77 ADDED LDW360-23296-21 ; LM-2 EFF (REF EO [illegible] 2223 [illegible] LDW360-23296)

MODEL: LM
EFFECTIVITY: NOTED ABOVE

DRAWING TITLE: THERMAL BLANKET INST'L - [illegible]
DRAWING NO. LDW360-23296
EO NO. C3

ISSUED BY: [illegible] 7033
SECTION: [illegible]
GROUP NO. [illegible]

01

NAS 9-1100

MANUFACTURING OPERATIONS

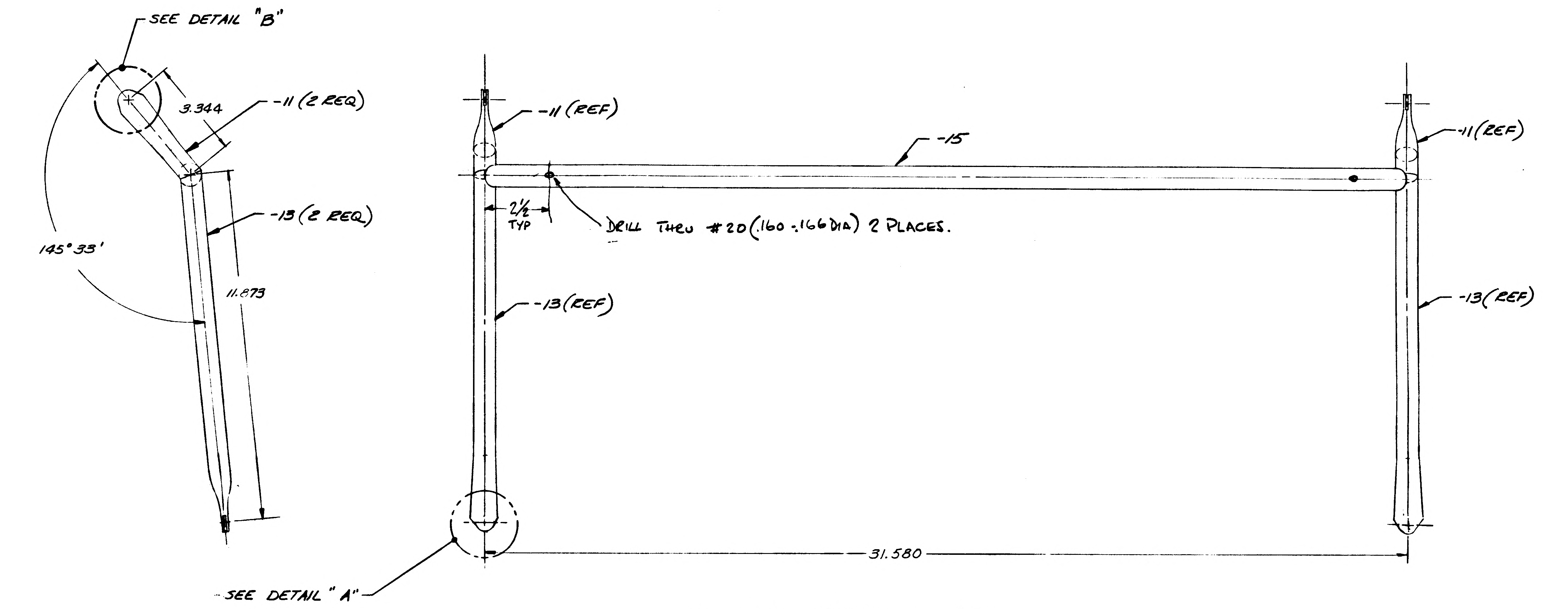
NOTES CHECKED ✓ APPLY TO THIS DWG.

- ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES EXCEPT AS NOTED.
- REMOVE ALL BURRS. BREAK ALL EDGES .015-.031 EXCEPT AS NOTED.
- 125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10 EXCEPT AS NOTED.
- 200 √ FOR ALL DRILLED HOLES UNLESS OTHERWISE SPECIFIED.
- HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.
- PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.
- FILLET AND INSIDE CORNER RADII TOLERANCES
  - .016R TO .062R ± .010
  - .063R TO .250R ± .015
  - OVER .250R ± .030
- DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS BEYOND PERMISSIBLE.
- EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.
- DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.
- MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.
- DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING
- INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS
- SYMBOL f DENOTES SURFACE TO BE MACHINED
- UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

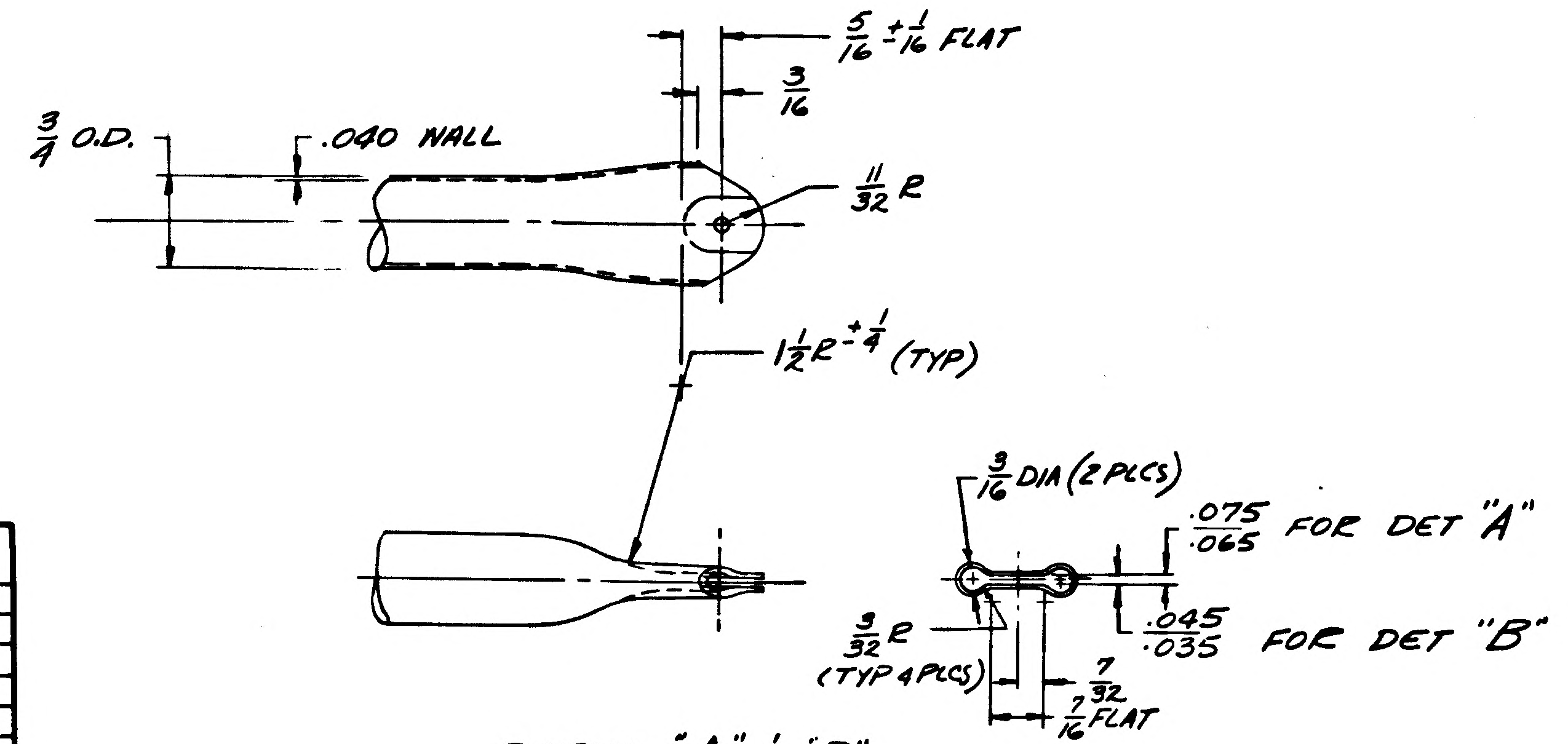
NOTES:

1. ANNEALED AREA ADJACENT TO WELDS PERMISSIBLE.
2. WELDING STANDARD NO. 3 PER SPEC. LSP-14-6201. DYE PENETRANT CHECK ONLY. NO RADIOGRAPHIC INSPECTION REQD.
3. FILLET WELD TO BE 1/8 TYP AT ALL WELDED JOINTS.
4. NO TOOLING HOLES PERMITTED IN PARTS.
5. PROCESS SYMBOL ~ T62-HEAT TREAT ~ MIL-H-6088
6. ~~FLATTEN TUBE END PER DWG IN ANNEALED CONDITION.~~
7. ~~MATERIAL SHALL MEET MIL-A-8920 FOR CHEMICAL COMPOSITION AND WWT 700C FOR TOLERANCE AND TENSILE TESTING ONLY.~~
8. ~~MATERIAL 2219-T62 AL ALLOY DRAWN TUBE CHEMICAL COMPOSITION PER MIL-A-8920 WITH PROPERTIES AS FOLLOWS:~~
   ~~LONGITUDINAL Ftu 54,000 PSI MIN~~
   ~~LONGITUDINAL Fty 36,000 PSI MIN~~
   ~~ELONGATION 6% MIN.~~

REVISIONS														
REVISION LETTER	ITEM NO.	ZONE	AUTHORITY FOR REVISION: GRUMMAN INFO ONLY / DCRF OR ECP	CLASS II	CLASS I	DET SPEC REQ	ENGRG ORDER	DESCRIPTION	REVISED BY AND DATE	EFFECTIVE ON MODULE NUMBER	DISPOSITION OF EXIST PARTS: RE-WORK	SCRAP	ENGRG APPD	GOVT APPD



LDW 280-28857-1 ASSY.



DETAIL "A" & "B"
TYP 4 PLACES EXCEPT AS NOTED
SCALE: FULL

TO BE REDRAWN ON PRODUCTION FORMAT

NO.	FINISHES	GRUMMAN STD SPEC	MILITARY SPEC NO.
2	CADMIUM PLATE	G. S. S.	
10	ZINC CHROMATE PRIMER	G. S. S.	
15	TINTED PRIMER: 1 COAT	G. S. S.	
76	ALODINE	G. S. S.	
88	ANODIZE	G. S. S.	

SYM	PROCESSES	GRUMMAN STD SPEC	MILITARY SPEC NO.
	AL HEAT TREAT		MIL-H-6088
	MAGNAFLUX		MIL-I-6868
	PENETRANT INSPECTION (ZYGLO)		MIL-I-6866
	THREADING		MIL-S-7742
	STEEL HEAT TREAT PSI ROCKWELL C TO C		

QTY REQ'D PER ASSY			PART OR IDENTIFYING NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE (EA)	PROCESS SYMBOL	FINISH NO.	UNIT WT	ZONE
		1	LDW280-28857-15	E		TUBE		LSM-14-2009	2219-	3/4 OD x .040 WALL		76		
		2	LDW280-28857-13	E		TUBE		LSM-14-2009	2219	3/4 OD x .040 WALL	HT-T62	76		
		2	LDW280-28857-11	E		TUBE		LSM-14-2009	2219	3/4 OD x .040 WALL	HT-T62	76		
			LDW280-28857-1	E		WELD ASSY					NONE	76		
		-1												

LINE ITEM 1 3

MODEL	NEXT ASSY	MODULE NO.	REQ'D PER MODULE
	28381		
LEM	LDW280-28154	LEM-2 (32)	
LEM	LDW280-28154	LEM-1 (31)	
LEM	LDW280-28154	LTA-8 (18)	

PART NO. LDW280 28857 GRUMMAN SCH INFO 30-

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .010 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

GRUMMAN REL INFO
PRIM. NO. LE601
215 MP-8-4-6

DRAWN BY R GOERTZ
CHECKED BY
LAYOUT BY R GOERTZ
GE LEADER
VEH DES.
STRUCT
STRUCT H. WOFFMAN
THERMO
RELIABILITY
WEIGHTS
PROJECT
REL

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L.I., N.Y.

STRUT ASSY
-Z31 ~ A/S-M/S THERMAL SHIELD

CONTRACT NO. NAS9-1100 DOCUMENTATION TYPE II
CODE IDENT NO. 26512 SIZE F LDW280-28857
SCALE 1/2 & NOTED SHEET 1 OF 1

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28857		EO NO. A1	
CONTROL INFO NO. LDW280A-0534			

REVISE N/A FOR -1

LDW280-28381
(WAS)
LDW280-28154

3

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO CORRECT N/A	IN N/A FOR -1 LDW280-28381 (WAS) LDW280-28154	9.23

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-8 (18)		
LM	LM 1 (31)		
LM	LM -2 (32)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			

APPROVED BY								
DATE ✓	9/21	10-4		9/21	9/22		9-23-66	9/22/66
	VD1	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO
C	STRUT ASSY -231~A/S~M/S~THERMAL SHIELD	LDW280-28857	A1

ISSUED BY GORTLER SECTION VDI X1441 GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

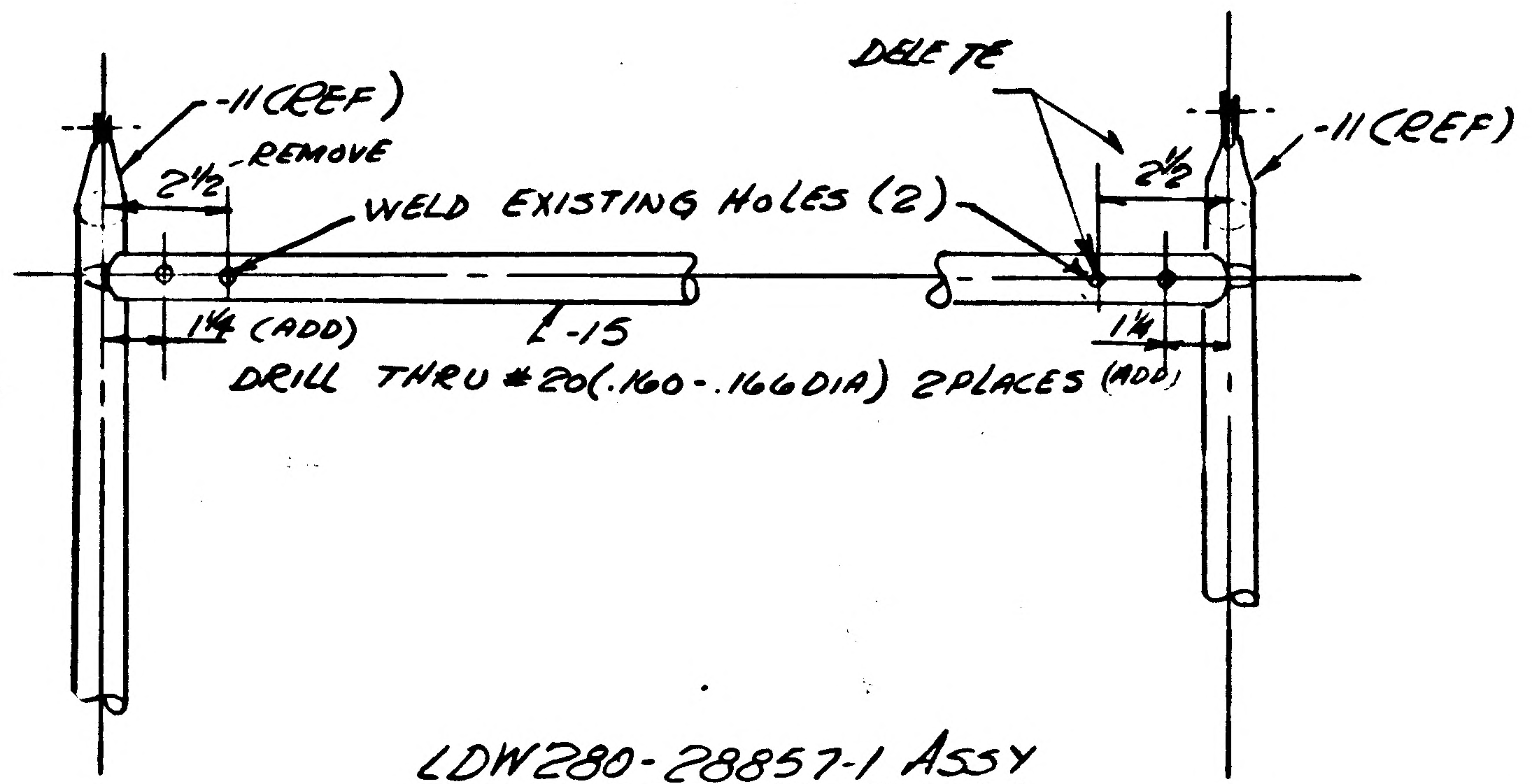
ENGINEERING ORDER

DWG. NO LDW280-28857

EO NO. A2

CONTROL INFO NO. LDW280A-3196

ON -1 ASSY



-11 (REF)
2½ - REMOVE
WELD EXISTING HOLES (2)
DELETE
2½
-11 (REF)
1¼ (ADD)
-15
1¼
DRILL THRU #20 (.160-.166 DIA) 2 PLACES (ADD)

LDW280-28857-1 ASSY

3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: ENG. ERROR, MISLOCATED HOLE

DESCRIPTION OF EO: IN F/D ON -1 ASSY
RELOCATED 2 #20 HOLES 1¼ (WAS 2½)

GAEC EO RELEASE: 11/9

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31)	
		LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY									
DATE	11/9/66	11/9		11/9	11/9		11-9-66	11-9-66
#1	VDI	THERMAL SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: STRUT ASSY - 231 ~ A/S - M/S ~ THERMAL SHIELD

DRAWING NO. LDW280-28857

EO NO. A2

ISSUED BY R. DURANTE 11-9-66 X 1441 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

LDW280-28858

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28155	LEM-2(32)	1
LEM	LDW280-28155	LEM-1(31)	1
PART NO. LDW280-28858-3		GAEC SCH NO. 30-	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28155	LTA-8(18)	1
PART NO. LDW280-28858-1		GAEC SCH NO. 30-	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

5

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -13

GRUMMAN REL INFO

PRIM NO. LE001 215 MP-8-26-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY E. SICK 7-25-66
RELIABILITY
LAYOUT BY G. HALL 8-3-66
CHECKED BY APATOLI 7-29-66
GRLEADER 8/4
VEHDESINT 8/2
STRUCTURE 8/2
STRUCTURE 8/25
WEIGHTS L. Garcia 9/1/66
PROJ ENGR 8-26
REL GROUP Bolt 9-6-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRUT ASSY
ASCENT STAGE - MID SECTION
TANK FRAME-LH

SIZE B
CODE IDENT NO. 26512
LDW280-28858
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 8-26-66.

01

NAS 9-1100

QTY PER ASSEMBLY																	
			-7	-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					16	12		NAS1132-V1	E	BOLT	STD PART						
					16	12		MS21043-08		NUT	STD PART						
					32	24		AN960-D8L		WASHER	STD PART						
			1					LDW280-11475-15		CHANNEL	SEE DWG						
				1				LDW280-11475-11		CHANNEL	SEE DWG						
			1					LDW280-28858-13		TUBE	AL ALLOY TUBE	LSM-14-2009	2219	¾OD×040×8¼	T62	76	
				1				-11		TUBE	AL ALLOY TUBE	LSM-14-2009	2219	¾OD×040×8½	T62	76	
					2			-7		STRUT ASSY	(WELDED)				AW	NONE	
						2		-5		STRUT ASSY	(WELDED)				AW	NONE	
								-3		STRUT ASSY					NONE	NONE	
								LDW280-28858-1	E	STRUT ASSY					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						AW	FUSHION WELDING AL ALY	MIL-W-8604
						76	ALODINE	LSP-14-9010
						T62	AL HEAT TREAT	MIL-H-6088

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28858

SCALE NONE

SHEET 2.00

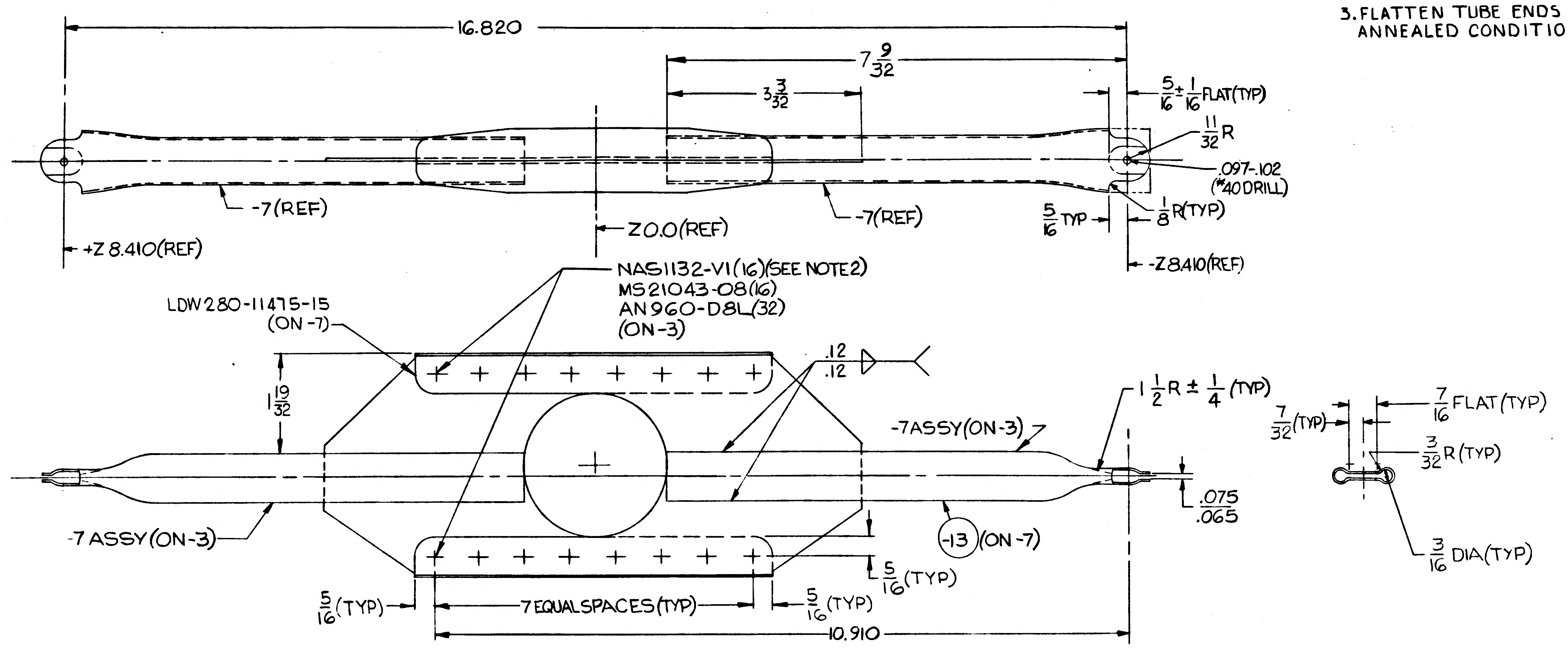
ENG 77.2 7-65

01

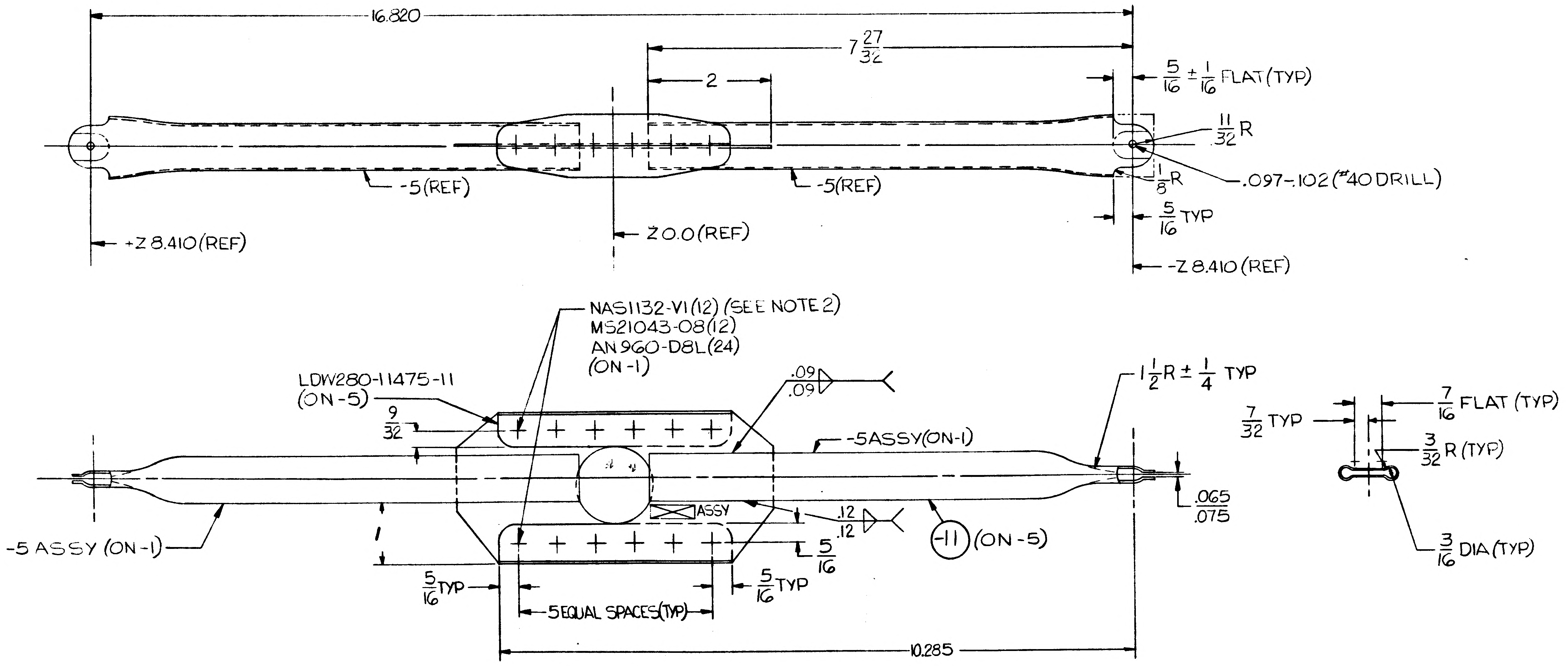
NAS 9-1100

NOTES
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. FINAL HOLE SIZE FOR NAS1132-V1 TO BE (.1640-.1665)
3. FLATTEN TUBE ENDS PER DRAWING IN ANNEALED CONDITION

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	/
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	


16.820
7 9/32
3 3/32
5/16 ± 1/16 FLAT(TYP)
11/32 R
.097-.102 (#40 DRILL)
1/8 R(TYP)
5/16 TYP
-7(REF)
-7(REF)
Z0.0(REF)
+Z 8.410(REF)
-Z 8.410(REF)
NAS1132-V1(16)(SEE NOTE 2)
MS21043-08(16)
AN960-D8L(32)
(ON-3)
LDW280-11475-15 (ON-7)
1 19/32
.12
.12
1 1/2 R ± 1/4 (TYP)
-7ASSY(ON-3)
.075
.065
-7 ASSY(ON-3)
13 (ON-7)
5/16 (TYP)
5/16 (TYP)
7 EQUAL SPACES(TYP)
5/16 (TYP)
10.910
7/32 (TYP)
7/16 FLAT(TYP)
3/32 R(TYP)
3/16 DIA(TYP)

LDW230-28858-3 ASSY
-7 ASSY (WELDED)


16.820
7 27/32
2
5/16 ± 1/16 FLAT(TYP)
11/32 R
1/8 R
.097-.102 (#40 DRILL)
5/16 TYP
-5(REF)
-5(REF)
Z0.0(REF)
+Z 8.410(REF)
-Z 8.410 (REF)
NAS1132-V1(12) (SEE NOTE 2)
MS21043-08(12)
AN960-D8L(24)
(ON-1)
LDW280-11475-11 (ON-5)
9/32
.09
.09
1 1/2 R ± 1/4 TYP
-5ASSY(ON-1)
ASSY
.12
.12
.065
.075
-5 ASSY (ON-1)
11 (ON-5)
5/16
5/16 TYP
5 EQUAL SPACES(TYP)
5/16 TYP
10.285
7/32 TYP
7/16 FLAT (TYP)
3/32 R (TYP)
3/16 DIA (TYP)

LDW280-28858-1 ASSY
-5 ASSY (WELDED)

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK		
SIZE F	CODE IDENT NO. 26512	LDW280-28858
MODEL OR END ITEM LEM	SCALE FULL	SHEET [illegible]

LDW280-28858

LDW280-28858

01 NAS 9-1100

ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW 280-28858

EO NO. A1

CONTROL INFO NO. LM 5-9613

REMOVE FINISH 76 FROM -11 & -13

ADD FINISH 76 TO -5 & -7

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	5

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
PARTS ARE WELDED ON -5 & -7	REMOVED FINISH 76 FROM -11 & -13 ADDED FINISH 76 TO -5 & -7	FR

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (31)	
		LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP

APPROVED BY	Jaf	YJ		N	—	CH	RMC	J Gerold
DATE	11/15/66	11/16		N/1F	—	11-2-66	11-3-66	11/2/66
1	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CUST~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STAUT ASSY, A/S-MID. SEC. -TANK FRAME-LH	LDW280-28858	A1

ISSUED BY LIAISON - HEDGES SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER -EMF-A

ENG 32.1 REV 3-65

DWG. NO. LDW280-28858	EO NO. A2
CONTROL INFO NO. LDW280A3441	

ON LDW280-28858-3, IN MOD. BLK., ADD N/A & VEHICLE REQMTS:

LM-3(33) THRU LM-15(45) ~ N/A LDW280-53155 ~ 1 REQD.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

3

REASON FOR EO: TO EXTEND VEHICLE EFFECTIVITY THRU LM-15.

DESCRIPTION OF EO: IN MOD. BLK: ADDED N/A & VEH. EFFECT. TO -3 ON LM-3 THRU LM-15.

GAEC EO RELEASE: FR 12/15/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	
		THRU	
LM		LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP NOT REQ'D

APPROVED BY			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
						BP		RMC	
DATE	11/23				11/23	11/29		12-8-66	12/8/66
#6	JDI								

PRIORITY: C

DRAWING TITLE: STRUT ASSEMBLY A/S - M/S - TANK FRAME - L.H.

DRAWING NO. LDW280-28858

EO NO. A2

ISSUED BY H. RYAN / P. HENTON X1392/1441 SECTION VEH. DESIGN & INTEG GROUP NO. 335 PL 35

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280A
EO NO. 525
CONTROL INFO NO. LDW280A 5974

ENG 32.2 REV 3-65

FOR THE FOLLOWING PARTS, ADD EFF ON PA-1 (W5) MODEL LM :

PART NO.	*	E.O. No.	N/A LTM280-26878	N/A LTM280-26879	REQD/MOD	NOMENCLATURE
LDW280M 10611 -3		A3	✓		1	FTG
M 10611 -4				✓		
M 10882 -1		A3	✓			
M 10882 -2				✓		
M 11143 -3		A5	✓			
M 11143 -4				✓		
M 11210 -13		B5	✓			FTG
P 11272 -11			✓			CHNL
-13		A3	✓			
-15				✓		
P 11272 -17				✓	1	CHNL
-11269 -13		A4	✓		1	TUBE
-11726 -11		B1	✓		4	SPACER
-28844 -3		A3	✓		1	SPLICE ASSY
-28858 -3		A3	✓		1	STRUT ASSY
-53878 -1				✓	1	TUBE ASSY
LDW280 -53878 -3		A3	✓		1	TUBE ASSY
LDW 280 - 10665 -13				✓	2	STRAP
-15				✓	4	
-21			✓		2	
-23			✓		4	
-25		D1	✓		2	
-35				✓	1	
-37				✓	1	
-39			✓		4	
-41				✓	1	
LDW 280 -10665 - 43				✓	1	STRAP

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD19-1124

REASON FOR EO: TO ADD EFF REQMNTS

DESCRIPTION OF EO: ADD PA-1 (W5) TO *

GAEC EO RELEASE C 3: JK 3/27/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		PA-1 (W5)	

DRAWING CHANGE REQD	DISPOSITION OF PARTS	APPROVED BY				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
REVISE DWG ✓ / RECORD EO	NOT REQD (REWORK / SCRAP)	DATE	3/16/67	SUPPORT	RELIAB. GROUP	FDR 3/17/67	3/17		RWC 3-21-67	AC 3-22-67
		5	VDI							

PRIORITY: C

DRAWING TITLE: NOTED ABOVE

DRAWING NO.: LEO 280

EO NO. 525

ISSUED BY A. Richer / F. DeRespinis X1392 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

NOTES:

1. PARTS I & T EXEMPT
2. BOND IN ACCORDANCE WITH LSP-14-22500 USING EPON 934 CURE RANGE I
3. PLUG WITH EPON 934

TABLE II

ASSY	TUBE	L	B (REF)	SUPPORT
-71	LDW280P14378-13	1.6	0.345	LDW280P11473 - 69

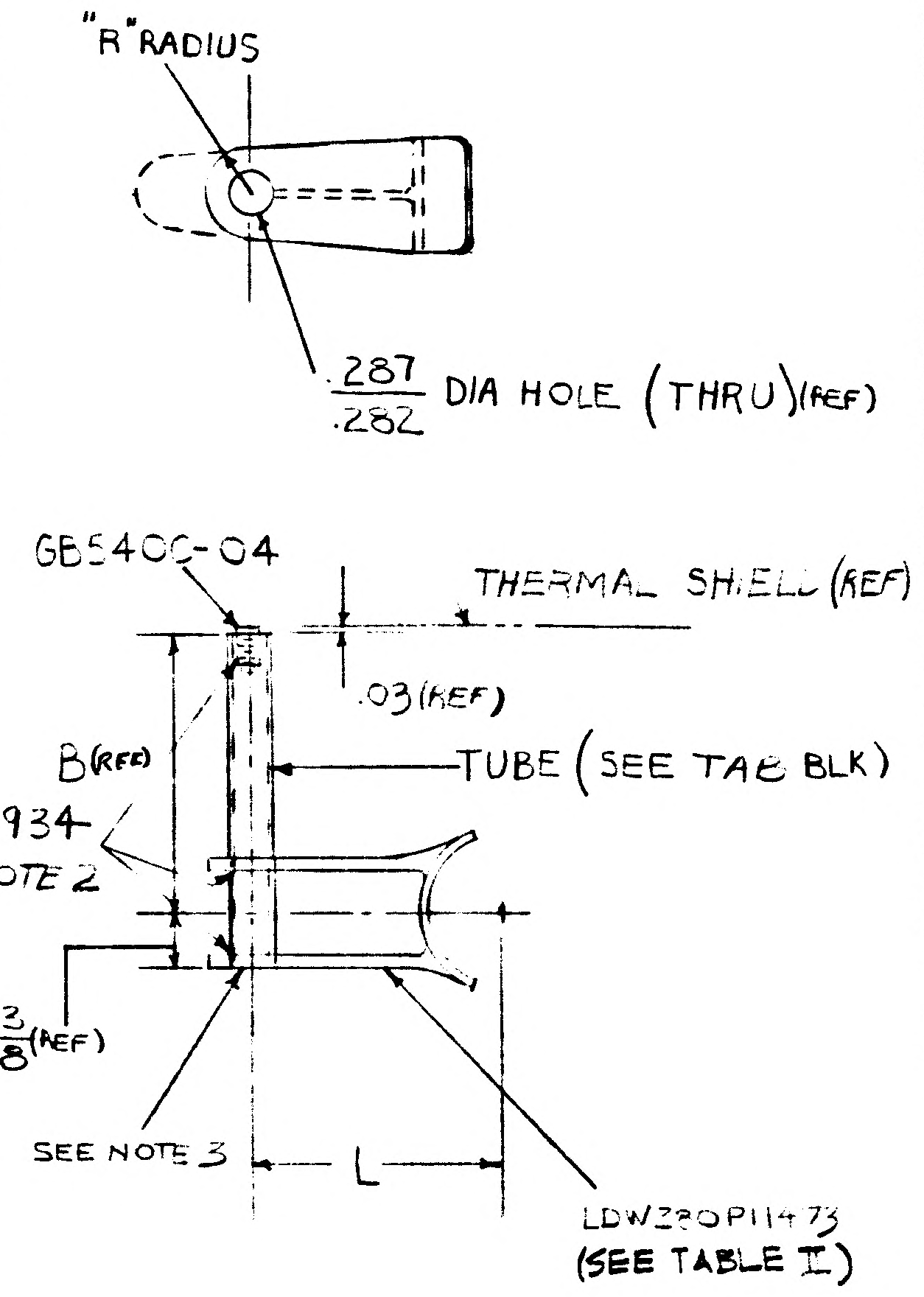
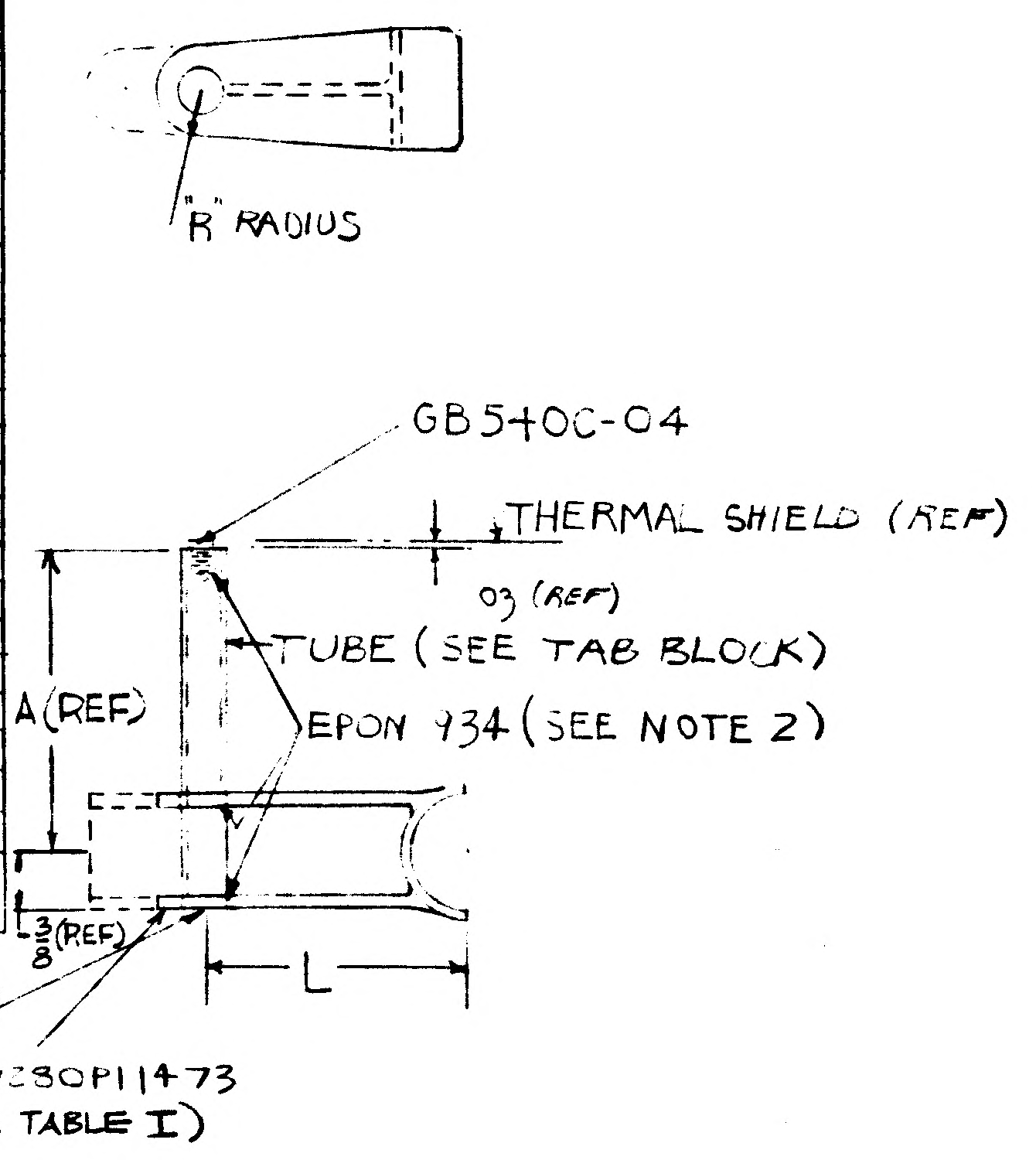

"R" RADIUS
.287/.282 DIA HOLE (THRU)(REF)
GB540C-04
THERMAL SHIELD (REF)
.03 (REF)
B (REF)
TUBE (SEE TAB BLK)
EPON 934 SEE NOTE 2
3/8 (REF)
SEE NOTE 3
L
LDW280P11473 (SEE TABLE II)

TABLE I

ASSY	TUBE	L (REF)	A (REF)	SUPPORT
-1	LDW280P14378-13	1.52	0.345	LDW280P11473 - 21
-3	-19	1.340	1.14	-23
-5	-21	1.50	1.22	-25
-7	-21	1.125	1.22	-27
-9	-21	1.875	1.22	-29
-11	-21	1.39	1.22	-31
-13	-23	1.37	1.28	-33
-15	-23	0.88	1.31	-35
-17	-57	1.25	1.32	-37
-19	-57	0.95	1.33	39
-21	-27	1.68	1.45	-41
-23	-31	1.875	1.52	-43
-25	-31	1.49	1.54	-45
-27	-55	1.10	1.60	47
-29	-33	0.84	1.63	-49
-31	-35	0.90	1.64	51
-33	-65	1.00	2.07	-53
-35	-39	1.52	1.86	-55
-37	-23	1.83	1.25	57
-39	-21	[illegible]	[illegible]	-53
-41	-21	1.18	[illegible]	59
-43	-17	1.06	1.11	-61
-45	-29	0.98	1.41	63
-47	-31	1.25	1.56	-37
-49	-21	1.594	1.22	-65
-51	-21	2.12	1.22	-67


"R" RADIUS
GB540C-04
THERMAL SHIELD (REF)
.03 (REF)
TUBE (SEE TAB BLOCK)
EPON 934 (SEE NOTE 2)
A (REF)
3/8 (REF)
SEE NOTE 3
L
LDW280P11473 (SEE TABLE I)

TO BE REDRAWN ON PRODUCTION FORMAT

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28164	LEM-2(32)	4
LEM	LDW280-28164	LEM-1(31)	4
LEM	LDW280-28164	LTA-8(18)	4
PART NO. LDW280-28860 -5, -7, -9, -71			
LEM	LDW280-51457	LEM-2(32)	[illegible]
LEM	LDW280-51457	LEM-1(31)	5
LEM	LDW280-28457	LTA-8(18)	5
PART NO. LDW280-28860 -11			
LEM	LDW280-28863	LEM-2(32)	1
LEM	LDW280-28863	LEM-1(31)	1
LEM	LDW280-28863	LTA-8(18)	1
PART NO. LDW280-28860 -3, -13, -17, -19, -27, -33, -37, -39, -41, -43, -45, -49			
LEM	LDW280-28164	LEM-2(32)	2
LEM	LDW280-28164	LEM-1(31)	2
LEM	LDW280-28164	LTA-8(18)	2
PART NO. LDW280-28860 -47, -23, -1			
LEM	LDW280-28864	LEM-2(32)	1
LEM	LDW280-28864	LEM-1(31)	1
LEM	LDW280-28864	LTA-8(18)	1
PART NO LDW280-28860-15, -21, -25, -29, -31, -35, -51		30-	

3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH	SHEET / REV
LAST SECT LTR USED	
LAST DASH NO. USED	
GRUMMAN REL INFO	PRIM NO. 215 / 45(001) MP-8-15-6
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES	±1/32 ±.020 ±1/2°
ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	
CONTRACT NO.	NAS 9-1100
LINE ITEM	1
DOCUMENTATION TYPE	II
DRAWN BY	BELEV
LAYOUT BY	BELEV
CHECKED BY	
GE LEADER	8/15
VDI	
STRUCT	8/15
STRESS	8/16
THERMO	V.J. Darma 10/25
WEIGHTS	8-24
PROJ ENGR	R. M. Carbee 8/18
REL GROUP	7/21/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

TAB OFF ASSY
N/S-M/S - THERMAL SHIELD

SIZE	CODE IDENT NO	
B	26512	LDW280-28860
SCALE FULL NONE	SHEET 1 OF 1	

ENG 77.1 12-65

C.D.R. 8-12-66

01 NAS 9-1100

ENG 32.2 REV 3-65 *

GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28860
EO NO. A1
CONTROL INFO NO. LDW280A-0293

REVISE F/D M/B, B/M AS FOLLOWS (FOR LTA-8, LEM-1,-2)

ASSY	TUBE	L REF	A	BASE
-53	LDW280P14378-21	2.063	1.20	LDW280P11473-73
-55	-21	2.00	1.21	-75
-57	-33	1.09	1.63	-77
-59	-33	1.29	1.64	-79
-61	-55	0.85	1.61	-81
-65	-17	2.19	1.09	-83
-67	-15	2.16	1.00	-85
-69	-49	2.15	0.90	-87
-75	-11	2.12	0.74	-89
-77	-71	0.60	1.838	-91
-79	-43	1.12	2.148	-93
-81	-35	0.90	1.692	-95
-83	-31	1.16	1.546	-97
-85	-17	3.04	1.07	-99
-87	-13	2.92	0.83	-101
-89	-47	2.80	0.61	-103
-91	-21	2.275	1.22	-105
-93	-21	2.075	1.22	-107
-95	-21	2.063	1.22	-109

REMOVE FROM F/D, B/M, M/B THE FOLLOWING

-23, -27, -29, -31, -33   -49, -63, -73

REVISE M/B AS FOLLOWS
(WAS)

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO	RQD PER MODULE OR END ITEM
PART NO. LDW280-28860-15, -21, -25, -29, -31, -35, -51			
	LDW280-28863	LEM-2(32)	1
	LDW280-28863	LEM-1(31)	1
LEM	LDW280-28863	LTA-8(18)	1
PART NO. LDW280-28860-3-13-17-19-27-33-39, -37, -41, 43, 45, -49			
	LDW280-51457	LEM-2(32)	5
	LDW280-51457	LEM-1(31)	5
LEM	LDW280-28457	LTA-8(18)	5
PART NO. LDW280-28860-11			
	LDW280-28164	LEM-2(32)	4
	LDW280-28164	LEM-1(31)	4
LEM	LDW280-28164	LTA-8(18)	4
PART NO. LDW280-28860-5, -7, -9, -71			
	LDW280-28164	LEM-2(32)	2
	LDW280-28164	LEM-1(31)	2
LEM	LDW280-28164	LTA-8(18)	2
PART NO. LDW280-28860-1, -23, -47			
	LDW280-28864	LEM-2(32)	1
	LDW280-28864	LEM-1(31)	1
LEM	LDW280-28864	LTA-8(18)	1

NOW

MODEL OR END ITEM	NEXT ASSY	MODULE OR END ITEM	RQD PER MODULE OR END ITEM
PART NO. LDW280-28860-15, -21, -25, -35, -57, -59, -61, -65, -67, -69, -75			
	LDW280-28863	LEM-2(32)	1
	LDW280-28863	LEM-1(31)	1
LEM	LDW280-28863	LTA-8(18)	1
LDW280-28860-3, -13, -17, -19, -39, -41, -43, -45, -65, -67, -69, -75, -77 PART NO. -79, -81, -83, -91, -93, -37, -51			
	LDW280-51457	LEM-2(32)	4
	LDW280-51457	LEM-1(31)	4
LEM	LDW280-28457	LTA-8(18)	4
PART NO. LDW280-28860-11			
	LDW280-28164	LEM-2(32)	4
	LDW280-28164	LEM-1(31)	4
LEM	LDW280-28164	LTA-8(18)	4
PART NO. LDW280-28860-5, 7, 9, 71			
	LDW280-28164	LEM-2(32)	2
	LDW280-28164	LEM-1(31)	2
LEM	LDW280-28164	LTA-8(18)	2
PART NO LDW280-28860-1, -11, -47, -51, -53, -55, -85, -87, -89			
	LDW280-28864	LEM-2(32)	1
	LDW280-28864	LEM-1(31)	1
LEM	LDW280-28864	LTA-8(18)	1

3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: ADD MIDSECTION RQMTS. TO DRAWING

DESCRIPTION OF EO: ADDED -53 THRU -61, -65 THRU -69, -75 THRU -95
REMOVED -23-27-29-31-33 49, -63, -73
FOR-11 4 REQD PER MODULE WAS 5 FOR LTA 8, LEM-1 & 2.

Ⓡ GAEC EO RELEASE: 10/4

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LEM-2(32)	
LEM		LEM-1(31)	
LEM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	9/13			9/20	9/20		9-30-66	9/30/66
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: STANDOFF ASSY A/S-M/S THERMAL BLANKET & SHIELD

DRAWING NO. LDW280-28860

EO NO. A1

ISSUED BY BELEV X 1441 SECTION VDI GROUP NO. 335 PL 35

01

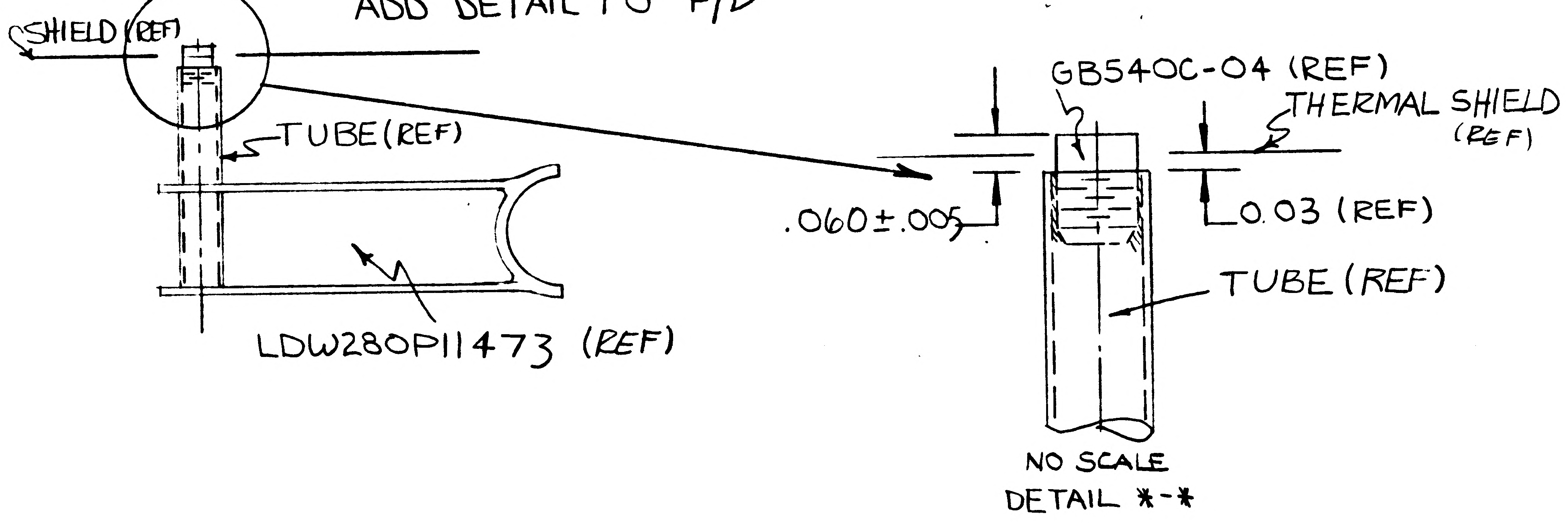
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28860		EO NO. A2
CONTROL INFO NO. LDW280A-0970		

ADD DETAIL TO F/D


SHIELD (REF)
TUBE (REF)
LDW280P11473 (REF)
GB540C-04 (REF)
THERMAL SHIELD (REF)
.060±.005
0.03 (REF)
TUBE (REF)
NO SCALE
DETAIL *-*

- DENOTES NEXT AVAIL. DETAIL LETTER

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	3

REASON FOR EO	DESCRIPTION OF EO	(R) GAEC C EO RELEASE
TO FACILITATE INSTALL. OF INSERT	ADDED DETAIL *-* TO F/D	10-8

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)-2(32)	
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓		NOT	REQ		10/4			10/4	10/4		RMc 10-8	10/7/66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STD OFF ASSY A/S-M/S THERMAL SHIELD	LDW280-28860	A2

ISSUED BY G. BELEV X1441 10-4-66 SECTION VEH. DESIGN GROUP NO. 335 PL 35

01
NAS 9-1100

ENG 32.1 REV 3-65 *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28860 | EO NO. A3
CONTROL INFO NO. LDW280A-1059

THIS IS A REVISION OF ED A-1

EFF LTA-8
LM-1,-2

IN F/D FOR
-75 ASSY : LDW280P11473-67 BASE (WAS -89)
-81 ASSY : LDW280P11473-51 BASE (WAS -95)
-95 ASSY : LDW280P11473-73 BASE (WAS -109)

IN M/B ADD
-95, N/A LDW280-28863, 3 RQD.

3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: A ELIMINATE IDENTICAL PARTS
ADD ADDITIONAL RQMTS

DESCRIPTION OF EO: REF: E.O. A1.
ON-75 LDW280P11473-67 (WAS -89), ON-81 LDW280P11473-51 (WAS -85) & ON-95 LDW280P11473-73 (WAS-109)
IN M/B ADDED N/A LDW280-28863 FOR LTA-8, LM-1 & LM-2

GAEC EO RELEASE: 10/19

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)-2(32)	
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY								
DATE	10/7	10/18/66		10/7	10/14		10-14	10/18/66
	VD1	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: STANDOFF ASSY A/S-M/S THERMAL SHIELD
DRAWING NO.: LDW280-28860
EO NO.: A3

ISSUED BY BELEV X1441 10-6-66 SECTION VD1 GROUP NO. 335 PL 35

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

ENG 32.1 REV 3-65

DWG. NO. LDW280-28860	EO NO. A4
CONTROL INFO NO. LDW 280A-2778	

REMOVE LM-1(31) & LM-2(32) EFF FROM LDW280-28860.
(ALL DASH NUMBERS.)(*)

* PARTS MAY BE REIDENTIFIED AS
GS26C WHERE APPLICABLE.

3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	® GAEC C EO RELEASE
PARTS REPLACED BY "Q" STANDARDS	REMOVED LM-1(31) & LM-2(32) EFF FROM ALL DASH NOS.	UE 10/31

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-1(31)	
LM		LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			*

APPROVED BY	JAP	WT					RMC (HR)	
✓ DATE	10/29/66	10/31		10/28	10/31		10-28-66	10-31-66
5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	A/S STANDOFF INSTALLATION MID-SECTION - THERMAL SHIELD	LDW280-28860	A4

ISSUED BY FRANK CHRISTINA x7033 FC 10/25/66 SECTION VEH DESIGN & INT GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28860	EO NO. A5
CONTROL INFO NO. LDW280A-2834	

IN M/B

FOR -11 ASS'Y N/A LDW280-28164
6 REQ'D (WAS) 2 REQ'D.

REMOVE -11 REQUIREMENTS FROM N/A LDW280-28457
LTA-8 (18), (5) REQ'D/VEH

3

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: TO UPDATE DW'G REQUIREMENT

DESCRIPTION OF EO: IN M/B ADDED 4 -11 ASS'Y N/A LDW280-28164. REMOVED -11 REQMN'T FROM N/A LDW280-28457, LTA-8(18) (5) REQ'D/VEH

GAEC EO RELEASE: 10/31

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD	DISPOSITION OF PARTS								
REVISE DWG ✓	RECORD EO	REWORK	SCRAP ✓	APPROVED BY					
				DATE 10/29/66	10/31		10/29	10/31	10-28-66 / 10-31-66
				5	VDI	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP / LIAISON ENGRG / PROJ ENGRG / GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STAND OFF ASS'Y - A/S - THERMA SHIELD	LDW280-28860	A5

ISSUED BY C. A. PAEZ x1392 10/29/66 SECTION V.D.I. GROUP NO. 335 PL 35

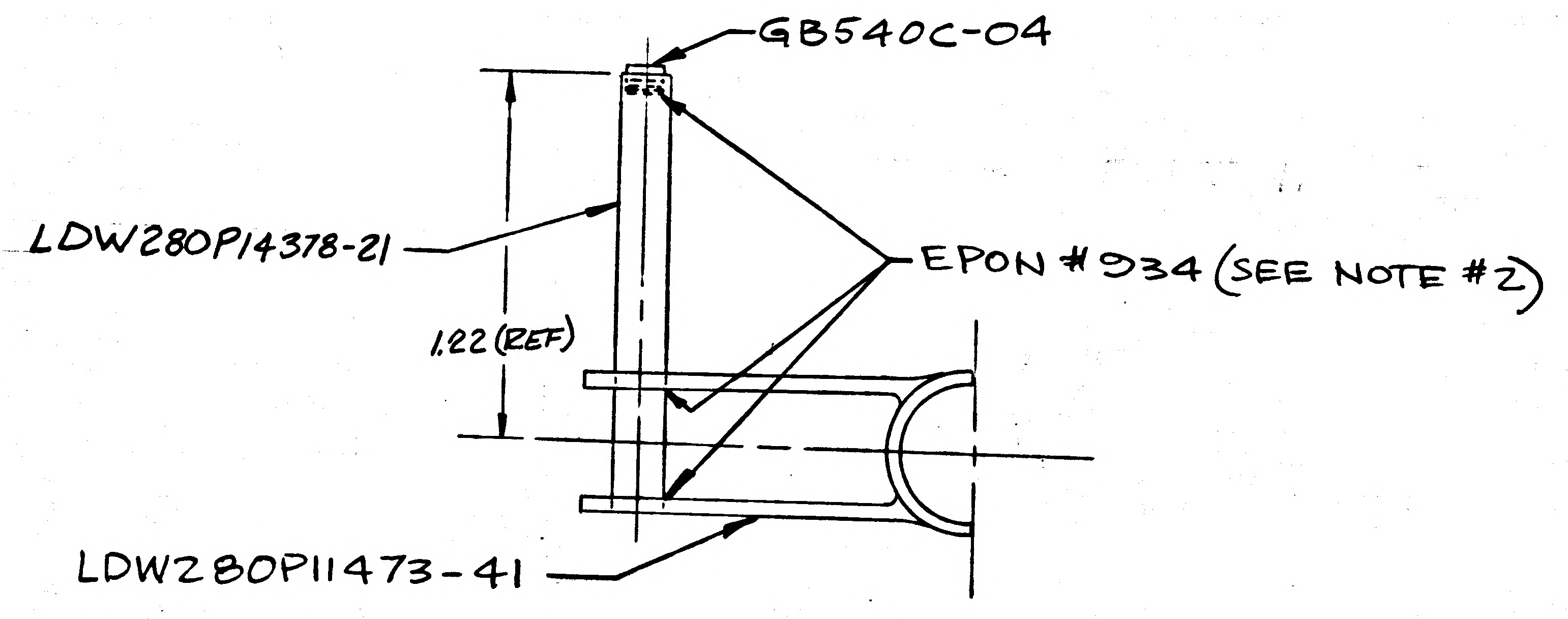
01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28860
EO NO. A6
CONTROL INFO NO. LDW 280A 2936



ADD- -97 ASSY
(4 REQ'D) N/A LDW 280-28457 (TO TABLE #I)

3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐

REASON FOR EO: PROVIDE SUPPORT FOR THERMAL SHIELD

DESCRIPTION OF EO: ADDED -97 ASSY (4 REQ'D) N/A LDW280-28457

Ⓡ GAEC ✓ EO RELEASE: 11/2

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (10)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY								
DATE	11/2	11/2		11/2	11/2		11-2-66	11/2/66
#1	VDI	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: A/S STANDOFF ASSY MID-SECTION THERMAL SHIELD

DRAWING NO.: LDW280-28860

EO NO.: A6

ISSUED BY FRANK CHRISTINA x7033 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

LDW280-28861 A

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

LFM 126	LDW280-28150	LTA-8(18)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28861-1-1		GAEC SCH NO.	

LEM	LDW280-28150	LTA-8-(18)	1
MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28861-1		GAEC SCH NO. 30-	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00						
REV	A	A	A	A						
SHEET										
REV										
SHEET										
REV										

LAST SECT LTR USED	D	GRUMMAN REL^C INFO 1A	
LAST DASH NO. USED	-1-1	PRIM NO. 215	JK(001) MP-16A-6/14/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100 LINE ITEM #1 DOCUMENTATION TYPE II

DRAWN BY	H. DEUTSCH 9/1/66	RELIABILITY	
LAYOUT BY	J. KOSLOSKY	THERMO	V. J. Jacomo 10/20
CHECKED BY	9-2-66		
GR. LEADER	9/2		
VEH DES INT	9/2		
STRUCTURE	9/2	PROJ ENGR	R.M Carbee 9-3
STRUCTURE	Alderman 9/2	REL GROUP	J Zaglane 10/21/66
WEIGHTS	9/2		

Ⓡ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTALLATION
ASCENT STAGE - MID SECTION
TOP THERMAL

SIZE B	CODE IDENT NO. 26512	LDW280-28861	A
SCALE NONE		SHEET 1.00 OF 3	

ENG 77.1 12-65

Rev A CDR 6/19/68

CDR 9-2-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
A	1	1.10, 3.00 2.00	5E 2H 3D					EOA1	IN FLD REMOVED · DETAIL C, SECT B-B & NOTE #2 ADDED DRILL 7/16 HOLE (42) IN FLD & BM · REMOVED · GR500D2-2(18) LDW280-14344-7(42) & LDW280P11481-15(42) ADDED · LDW280-14344-13(42) WAS -7(42) ADDED SH 1.10	LTA-8	✓		BURTON 5-14-68		
	2	3.00	6D				✓	EOA2	ADDED 1/32 CONSTANT DIMENSION	LTA-8	✓				
	3	2.00, 3.00	5H				✓	EOA3	IN B/M & F/D ON-1 LDW280-28843-1 WAS LDW280-11425-13	LTA-8	✓				
	4	2.00, 3.00	2H				✓	EOA4 LCR330-477	ON-1 ADDED LDW280-11425-23 TO B/M & F/D AN960-D6L (8), MS21042L-06(4) & GB511J-06-1(4)	LTA-8	✓				
	5	3.00			✓			LEO280-497	ADDED NOTE 3	LTA-8					
	6	2.00 3.00	3D				✓	EOA6	FOR-1 ADDED SEE NOTE 4 & NOTE 4 ADDED GT835J-16	LTA-8	✓				
	7	3.00					✓	LEO-280-593	ADDED NOTE 5	LTA-8	✓				
	8	1.00, 2.00 3.00		LFM126		✓		LCD1021-33 CCA 498	ADDED -1-1 & ADDED NOTE 6	LTA-8	NOT	REQ'D			

LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	THERMO
A	6/4/68	6/?/68	6/7/68			6-6-68

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28861	A
SCALE NONE			SHEET 1.10

ENG 77.3 5-65

01

NAS 9-1100

						A/R		GT835J-16	E	TAPE	GRUMMAN STD						
						4		MS21042L-06	E	NUT	STD PART						
						8		AN960-D6L	E	WASHER	STD PART						
						4		GB511J-06-1		BOLT	GRUMMAN STD						
					1			LDW280-11423-11-1		PANEL	SEE DWG						
					1			LDW280-28843-1-1		PANEL ASSY	SEE DWG						
					1			LDW280-11425-15-1		PANEL	SEE DWG						
					1			LDW280-11425-11-1		PANEL	SEE DWG						
					1			LDW280-11424-15-1		PANEL	SEE DWG						
						42		LDW280-14344-13		SCREW ASSY	SEE DWG						
						1		LDW280-28843-1		PANEL							
						1		LDW280-11425-15		PANEL							
					1	1		LDW280-11425-23									
						1		LDW280-11425-11									
					1			LDW280-11424-13-1									
						1		LDW280-11424-15									
						1		LDW280-11424-13									
						1		LDW280-11424-11									
					1			LDW280-11424-11-1									
						1		LDW280-11423-13									
						1		LDW280-11423-11									
					1			LDW280-11423-13-1									
						1		LDW280-11422-13									
						1		LDW280-11422-11		PANEL	SEE DWG						
					1			LDW280-11422-13-1		PANEL	SEE DWG						
					1			LDW280-11422-11-1		PANEL	SEE DWG						
								LDW280-28861-1-1		SHIELD INSTL	SEE NOTE 6				NONE	NONE	
					1			LDW280-28861-1	E	SHIELD INSTL					NONE	NONE	
					-1-1	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
QTY PER ASSEMBLY																	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

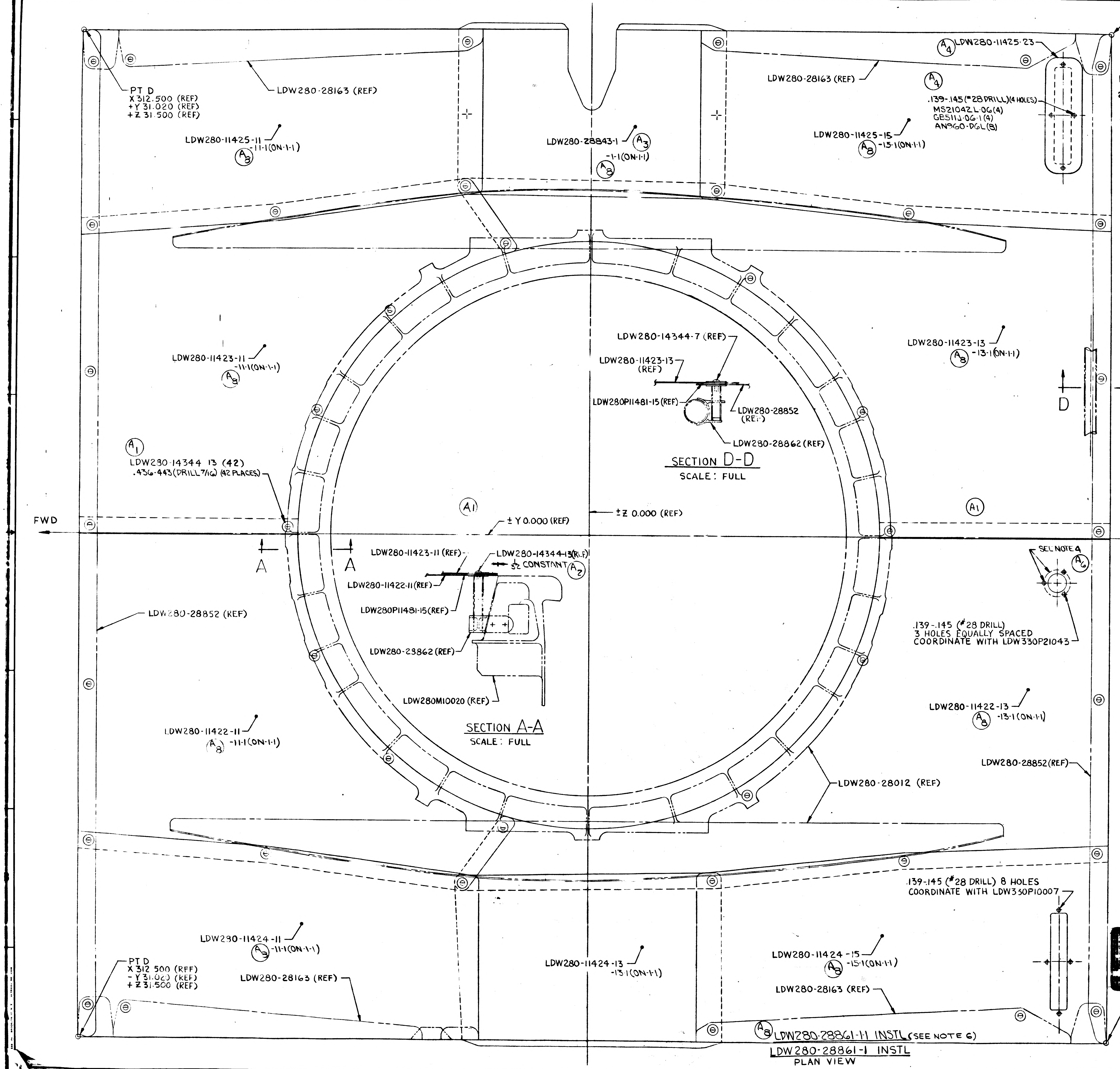
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28861
A
SCALE NONE
SHEET 2.0

ENG 77.2 7-65

01

NAS 9-1100


PT W
X312.500 (REF)
+Y31.020 (REF)
-Z32.250 (REF)
PT D
X 312.500 (REF)
+Y 31.020 (REF)
+Z 31.500 (REF)
LDW280-28163 (REF)
LDW280-11425-11
-11-1 (ON-1-1)
LDW280-28843-1
-1-1 (ON-1-1)
LDW280-11425-15
-15-1 (ON-1-1)
LDW280-11425-23
.139-.145 (#28 DRILL) (4 HOLES)
MS21042L-06(4)
GB511J-06-1(4)
AN960-D6L(8)
LDW280-11423-11
-11-1 (ON-1-1)
LDW280-11423-13
-13-1 (ON-1-1)
LDW280-14344-7 (REF)
LDW280-11423-13 (REF)
LDW280P11481-15 (REF)
LDW280-28852 (REF)
LDW280-28862 (REF)
SECTION D-D
SCALE: FULL
D
D
A1
LDW280-14344-13 (42)
.436-.443 (DRILL 7/16) (42 PLACES)
A1
A1
FWD
± Y 0.000 (REF)
± Z 0.000 (REF)
A
A
LDW280-11423-11 (REF)
LDW280-14344-13 (REF)
1/32 CONSTANT
A2
LDW280-11422-11 (REF)
LDW280P11481-15 (REF)
LDW280-28862 (REF)
LDW280M10020 (REF)
SECTION A-A
SCALE: FULL
SEE NOTE 4
A6
.139-.145 (#28 DRILL)
3 HOLES EQUALLY SPACED
COORDINATE WITH LDW330P21043
LDW280-28852 (REF)
LDW280-11422-11
-11-1 (ON-1-1)
LDW280-11422-13
-13-1 (ON-1-1)
LDW280-28852 (REF)
LDW280-28012 (REF)
.139-.145 (#28 DRILL) 8 HOLES
COORDINATE WITH LDW330P10007
LDW280-11424-11
-11-1 (ON-1-1)
LDW280-11424-13
-13-1 (ON-1-1)
LDW280-11424-15
-15-1 (ON-1-1)
PT D
X 312.500 (REF)
-Y 31.020 (REF)
+Z 31.500 (REF)
LDW280-28163 (REF)
LDW280-28163 (REF)
A3
A4
A8

LDW280-28861-1-1 INSTL (SEE NOTE 6)

LDW280-28861-1 INSTL

PLAN VIEW

NOTES:

1. INSTL. FASTENERS PER LSP-14-15302
2. ~~BOND IN ACCORDANCE WITH LSP-14-22500 USING EPON 934, CURE RANGE I.~~
3. MATERIAL, FINISHES, HANDLING AND PERMISSIBLE DEVIATIONS PER LPC-280-16.
4. COVER HOLE CLUSTER WITH AL. FOIL TAPE GT835J-16.
5. DURING -1 INSTL (OR ASSY OF THERMAL SHIELD SUB-ASSY'S OR DETAILS FOR LTA-8 ONLY), PARTS MAY BE TRIMMED OR SHIMMED AS NOTED TO INSURE PROPER FIT TO MATING PART OR ADJACENT STRUCTURE.
   - a. MAX. PERMISSIBLE TRIM TO BE 1/16 PROVIDING A MIN FASTENER EDGE DISTANCE IS HELD AFTER TRIMMING (1½ FASTENER DIA)
   - b. MAX PERMISSIBLE TO BE .063 THICK, AND IF TAPPERED, NOT TO EXCEED 5 INCHES IN LENGTH SHIM STOCK TO BE 2024-T3 AL ALLOY QQ-A-250/4 FINISH 76, WIDTH AS REQD.

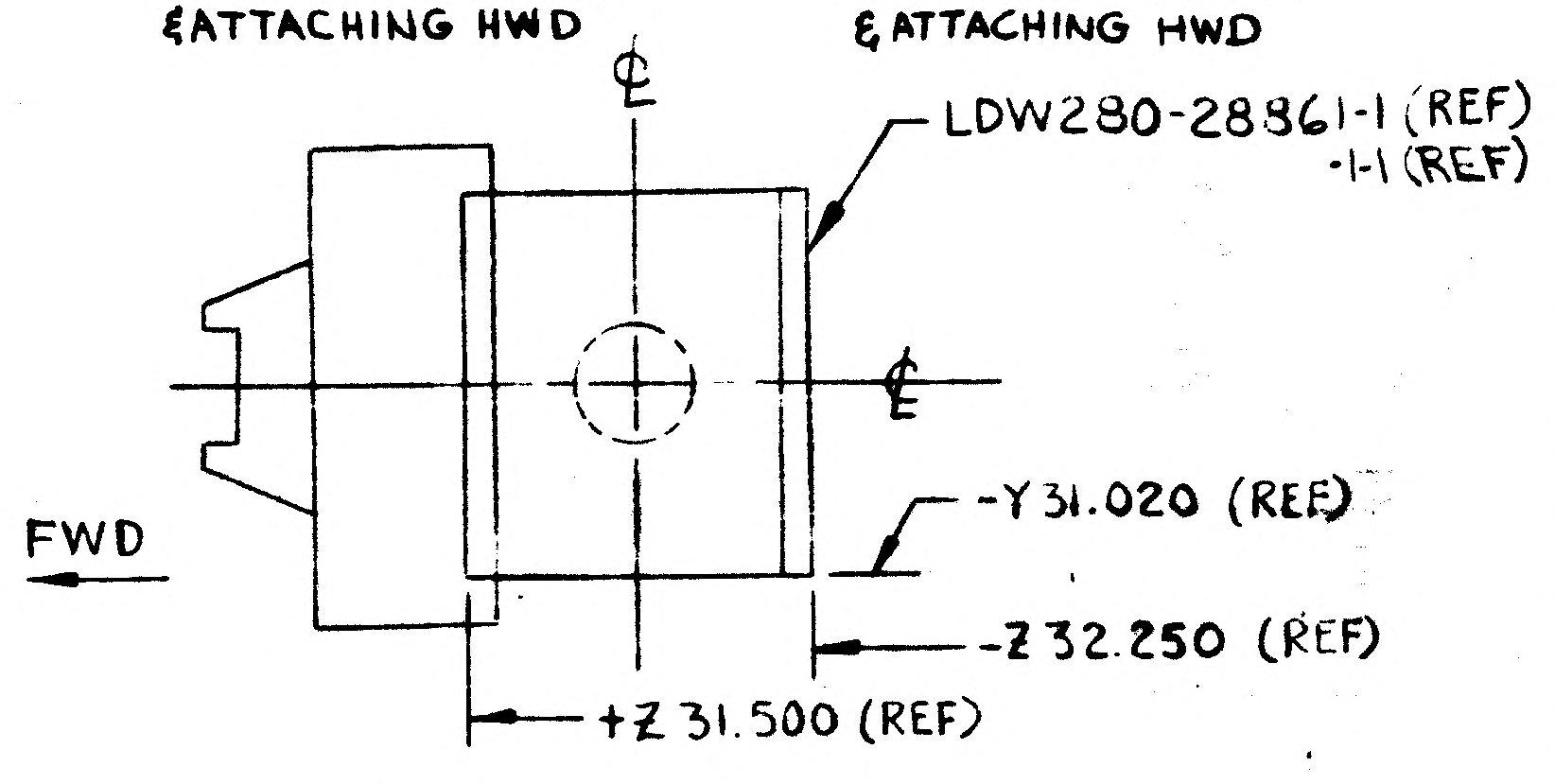
   A. WHERE NECESSARY, ON THERMAL SHIELD SUB-STRUCTURE IT IS PERMISSIBLE TO FLUSH RIVETS TO INSURE PROPER FIT OF MATING PARTS, PROVIDING MATERIAL TO BE CSK IS THICK ENOUGH TO PREVENT "FEATHER EDGED" HOLES (NAS1097 OR MS20426 RIVETS MAY BE USED)

   B. WHERE NECESSARY DUE TO REDESIGN AND REWORK, THE NEXT LARGER SIZE FASTENER MAY BE USED IN LIEU OF EXISTING FASTENER PROVIDING A MINIMUM EDGE OF 1½ FASTENER DIA IS MAINTAINED ALSO EXTRANEOUS HOLES MAY BE PLUGGED AS REQD (NAS1097 OR MS20470 RIVETS PERMISSIBLE) AS LONG AS A MINIMUM SPACING OF 3 DIAMETERS EXISTS BETWEEN PLUG AND NEAREST FASTENER. (A 1 INCH SQUARE OF GT835M8 TAPE MAY BE USED FOR HOLES UP TO 7/16 IN DIA IN THERMAL SKINS)

   C. WHERE NECESSARY, THE FOLLOWING NUT PLATES MAY BE REPLACEMENTS FOR ONE ANOTHER WITHIN THE GROUPS NOTED BELOW, PROVIDING THERE IS NO CHANGE IN DIAMETER OF SCREW.
   GROUP A: NAS680, NAS682, NAS684, NAS686, NAS687, NAS696, NAS697, NAS698, NAS1067 & NAS1068
   GROUP B: NAS681, NAS683, & NAS685

   IF THE INTERCHANGEABLE ANCHOR NUTS ARE USED, THERMAL SKINS OR SUB-STRUCTURE MAY DIMPLED OR CSK AS REQD (SEE NOTE 5A ABOVE)
6. -1-1 SHALL BE MADE FROM -1 BY REWORKING AS FOLLOWS

REMOVE & SCRAP	ADD
LDW280-11422-11	LDW280-11422-11-1
11422-13	11422-13-1
11423-11	11423-11-1
11423-13	11423-13-1
11424-11	11424-11-1
11424-13	11424-13-1
11424-15	11424-15-1
11425-11	11425-11-1
11425-15 &-23	11425-15-1 &-23
LDW280-28843-1	28843-1-1
& ATTACHING HWD	& ATTACHING HWD


LDW280-28861-1 (REF)
-1-1 (REF)
FWD
-Y31.020 (REF)
-Z32.250 (REF)
+Z 31.500 (REF)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES

125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 FOR ALL DRILLED HOLES

REMOVE ALL BURRS. BREAK ALL EDGES .015-.031

INSPECTION INFORMATION MINIMUM PERMISSIBLE [redacted] EDGE DISTANCE [redacted] IS 1½ FASTENER DIA FROM FASTENER ℄ ✓

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED

TOLERANCE ON LOFTED DELINEATIONS IS

FOR ENGINEERING REF ONLY

01

NAS 9-1100

PT W
X 312.500 (REF)
-Y 31.020 (REF)
-Z 32.250 (REF)

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LEM	SIZE E	CODE IDENT NO. 26512	LDW280-28861	A
MODEL OR END ITEM	SCALE HALF & NOTED		SHEET 3.0	

LDW280-28861A

ENG 32.1 REV 3-65 *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

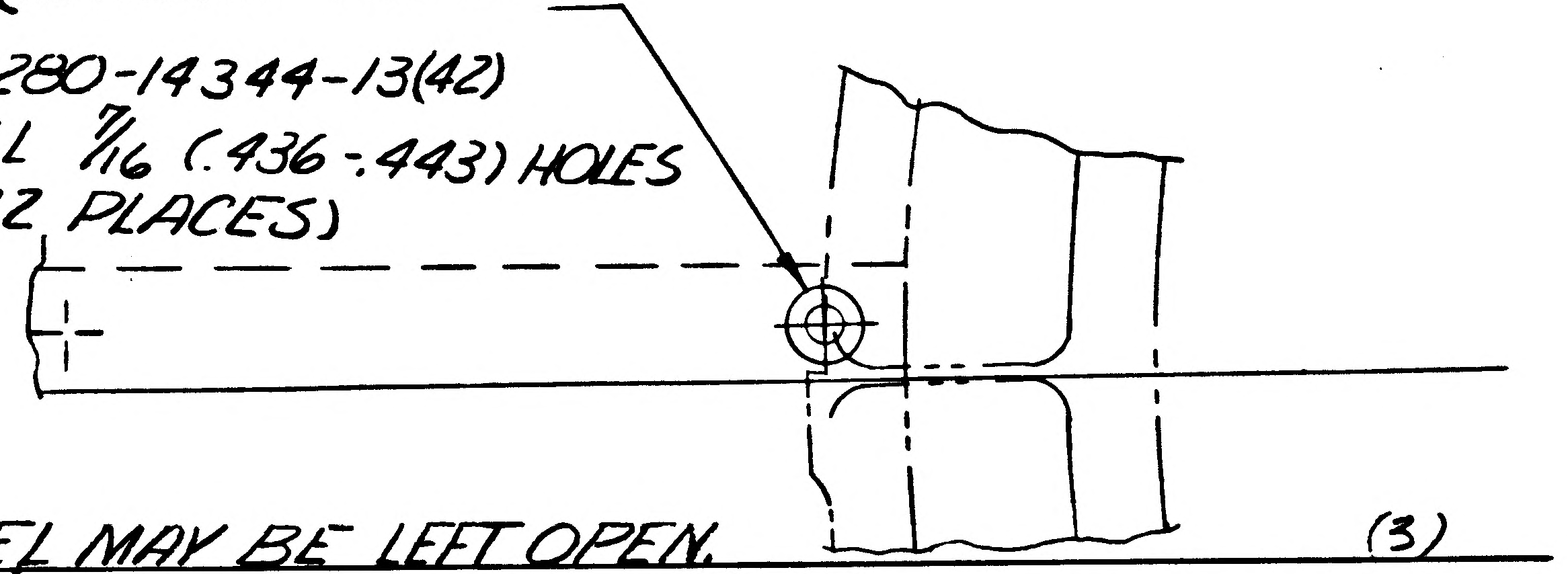
DWG NO. LDW280-28861		EO NO.	A1
CONTROL INFO NO. LDW 280A-2137			

IN FLD - REMOVE-DETAIL C, SECT. B-B & NOTE #2
IN FLD & BM - REMOVE LDW280-14344-7(42) LDW280P11481-15(42), GR500D2-2(18)
ADD LDW280-14344-13(42) WAS -7(42)

IN FLD -

WAS { LDW280-14344-7(42)
LDW280P-11481-15(42)

ADD { LDW280-14344-13(42)
DRILL 7/16 (.436-.443) HOLES
(42 PLACES)



NOTE: RVT. HOLES IN LOWER PANEL MAY BE LEFT OPEN. (3)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
REMOVE PARTS NO LONGER REQD. DUE TO DIMPLING	IN FLD - REMOVED - DETAIL C, SECT B-B & NOTE #2 - ADDED - DRILL 7/16 HOLE(42) IN FLD & BM - REMOVED - GR500D2-2(18) LDW280-14344-7(42) & LDW280 P11481-15(42). ADDED - LDW280-14344-13(42) WAS -7(42)	Ⓡ VE 10/28

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA 8(18)		

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		✓		APPROVED BY		V.J.J.		NEWTON 10/27			PMC	
				DATE	10/27/66	10/27/66			10/27		10/27/66	10/27/66
REVISE DWG	RECORD EO	REWORK	SCRAP	5 ✓	VDI	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTALLATION A/S~M/S~TOP THERMAL	LDW280-28861	A1

ISSUED BY H. FORSCH X 1153 SECTION VDI GROUP NO. 335 PL 35

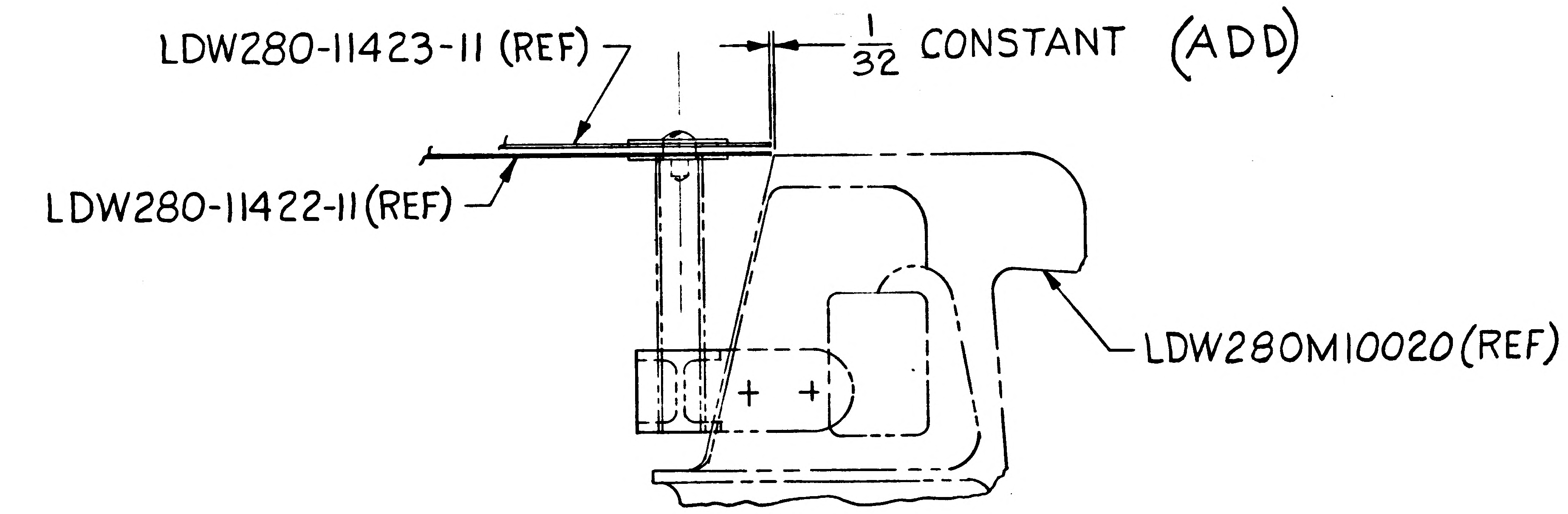
01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28861 EO NO. AV
CONTROL INFO NO. LDW280A-3210

IN F/D ON -1



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	3

REASON FOR EO: TO LIMIT HEAT TRANSFER BETWEEN SKIN & MAIN STRUCTURE

DESCRIPTION OF EO: ADDED 1/32 CONSTANT DIMENSION

GAEC C EO RELEASE: FR 11/23/6

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY								RMC(E)	
DATE	11/10/66	11/11/66		11/10	11/11			11-18-66	11-22-66
#5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO	EO NO.
C	SHIELD INSTALLATION A/S, M/S TOP THERMAL	LDW280-28861	AV

ISSUED BY J. KOSLOSKY x 1441 SECTION V.D.I. GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28861
EO NO. A3
CONTROL INFO NO. LDW280A-3388

IN F/D & B/M, ON -1 INSTL.
LDW280-28843 -1
WAS
LDW280-11425-13

3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: CORRECTED B/M TO MATCH N/A OF PART.

DESCRIPTION OF EO: IN B/M & F/D ON -1 LDW280-28843-1 WAS LDW280-11425-13

GAEC C EO RELEASE: LE 11/30

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: REWORK ✓ SCRAP ☐

				RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	JAP	V. JD						RMC(E)	
DATE	11/19/66	11/22			11/16	11/22		11-23-66	11-30
	#6	VDI	~~SUPPORT~~ THERM						

PRIORITY: C

DRAWING TITLE: SHIELD INSTL A/S M/S TOP THERMAL

DRAWING NO. LDW280-28861

EO NO. A3

ISSUED BY M. SHAPIRO X1153   SECTION UD1   GROUP NO. 335   PL 35

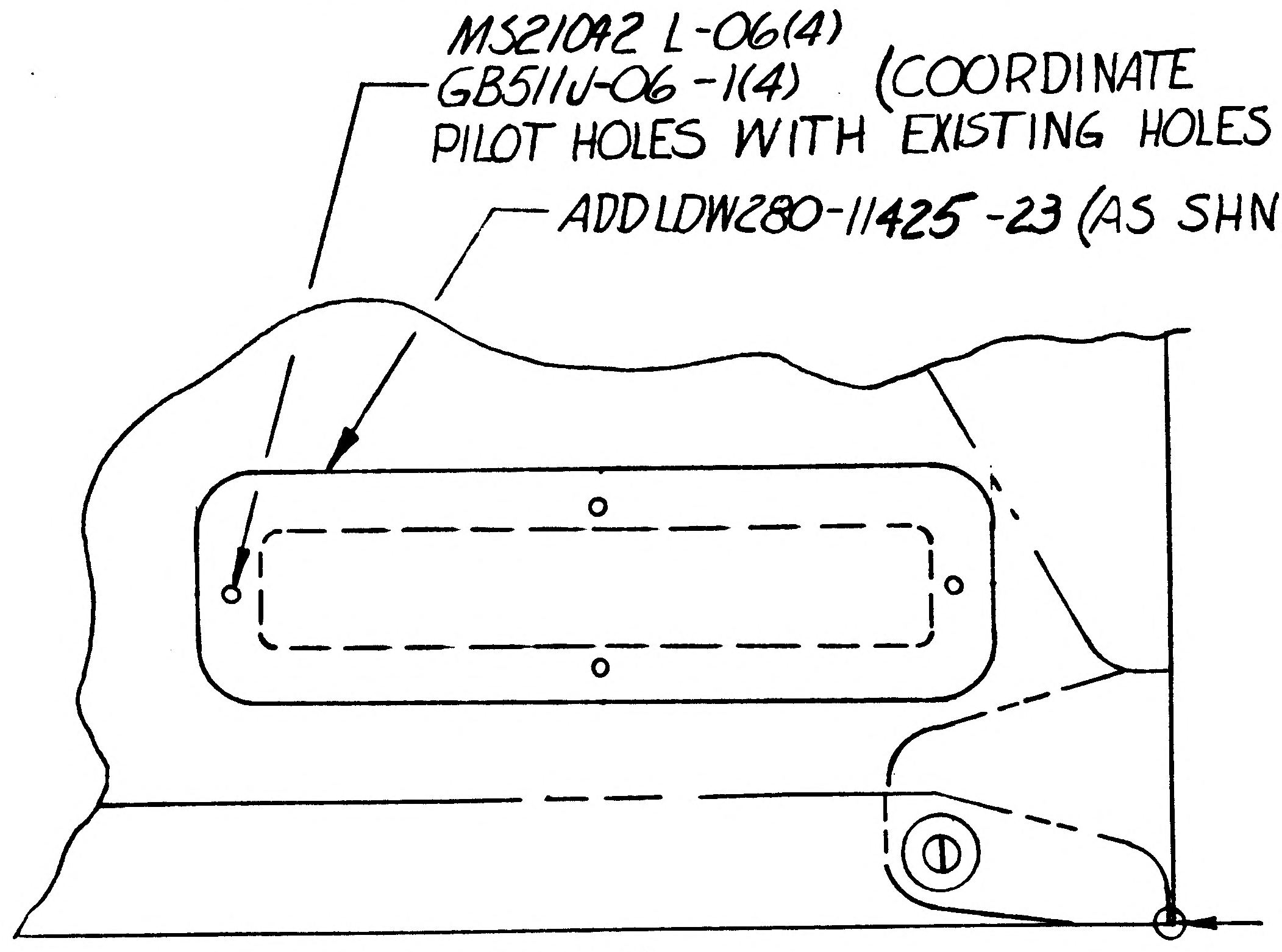
01   NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28861
EO NO. A4
CONTROL INFO NO. LDW280-A-4258

ON -1 ADD-AN 960-D6L(8) UNDER NUT & BOLT
MS21042 L-06(4)
GB511J-06-1(4) (COORDINATE
PILOT HOLES WITH EXISTING HOLES IN SKIN) DRILL #28 (.139-.145) HOLES (4)
ADD LDW280-11425-23 (AS SHN.)



PT. W X 312.500 (REF)
+Y 31.020 (REF) -Z 32.250 (REF)

R.H. SIDE (REF)

IN B/M & F/D
ADD LDW280-11425-23 (1 REQD)
AN960-D6L(8), MS21042 L-06(4)
GB511J-06-1 (4) ON -1

(3)
THERMO SHIELD

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCR 330-477

REASON FOR EO: DELETION OF WATER BOILER

DESCRIPTION OF EO: ON -1 ADDED LDW280-11425-23 TO B/M & F/D AN960-D6L(8), MS21042L-06(4) & GB511J-06-1(4)

GAEC EO RELEASE: ① 12/12

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY				HENTON				HJW	JRY
DATE	12/10/66	12/12		12/10/66				12-2-66	12/11/66
#5	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY: C
DRAWING TITLE: SHIELD INSTALLATION - ASCENT STAGE MID SECTION - THERMAL
DRAWING NO.: LDW280-28861
EO NO.: A4

ISSUED BY H FORSCH X 1153 SECTION V. D. I. GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.2 REV 3-65

B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280 | EO NO. 497
CONTROL INFO NO. LDW 280A-5768

(ADD) NOTE, "*. MATERIAL, FINISHES, HANDLING AND PERMISSIBLE DEVIATIONS PER LPC-280-16", TO THE FOLLOWING DRAWINGS:

DRAWING NUMBER	TITLE	EFFECTIVITY	CHANGE NUMBER
LDW280-11444	SEE DWG.	LTA-8(18)	A9
LDW280-28160			A8
LDW280-28161			B1
LDW280-28163			A5
LDW280-28851			A7
LDW280-28852			A5
LDW280-28861		LTA-8(18)	A5
LDW280-11524		LM-1(31), LM-2(32)	A6
LDW280-51160			A7
LDW280-51161			A8
LDW280-51163			A3
LDW280-51851			A5
LDW280-51852			A6
LDW280-51861		LM-1(31), LM-2(32)	A7
LDW280-11422		LTA-8(18), LM-1(31), LM-2(32)	A2
LDW280-11423			A2
LDW280-11424			A4
LDW280-11425			B1
LDW280-11426			B5
LDW280-11427			B5
LDW280-11428			B5
LDW280-11429			B7
LDW280-11430			A6
LDW280-11431			B3
LDW280-11432	SEE DWG.	LTA-8(18), LM-1(31), LM-2(32)	B3

NOTE:
* = USE NEXT AVAILABLE №.

DETAIL SPEC REQ	✓	CL II ENGRG CHG		CL I ENGRG CHG	

3

REASON FOR EO	DESCRIPTION OF EO
LPC'S OMITTED ON DWG.	ADDED NOTE *

GAEC EO RELEASE: C — JK 3/8/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD: REVISE DWG	✓	RECORD EO		APPROVED BY	JaP			F.Dol 28			Dam
DISPOSITION OF PARTS: REWORK	✓	SCRAP		DATE	3/2/67			3/2/67	3/3/67		3/6/67
				1	VDI		RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO-280
EO NO.: 497

ISSUED BY W. PAILK SECTION VEH. DES. INT. GROUP NO. 335 PI 35

01

NAS 9-1100

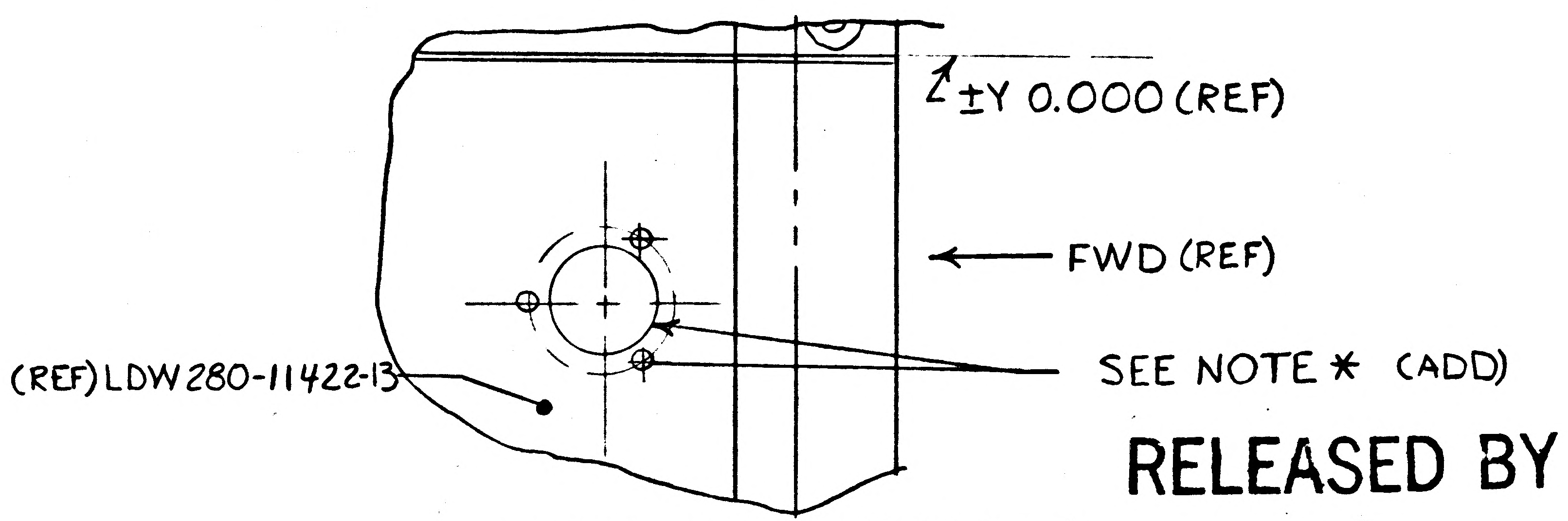
B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28861 | EO NO. A6
CONTROL INFO NO. LM5-12681

ON-1 ADD SEE NOTE * (ZONE D3 AS SHOWN)
F/D+B/M ADD NOTE * COVER HOLE CLUSTER WITH AL.FOIL TAPE GT 835J-16



RELEASED BY LIAISON

-1 INSTL PLAN VIEW (REF)
ZONE D3

* NEXT AVAIL NO.

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	5

REASON FOR EO: DUCT GOING THRU. HOLE NOT USED ON LTA-8.

DESCRIPTION OF EO: FOR-1 ADDED "SEE NOTE *" & NOTE * ADDED GT835J-16.

GAEC EO RELEASE: JK —

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ · RECORD EO
DISPOSITION OF PARTS: REWORK ✓ · SCRAP

APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
						RMC (E)	
DATE				3/28/67	3-28	4-3-67	3-29-67
1							

PRIORITY: C
DRAWING TITLE: SHIELD INSTL A/S. M/S. TOP THERMAL
DRAWING NO.: LDW280-28861
EO NO.: A6

ISSUED BY LIAISON J. GRASSIANO X6216 SECTION VDI GROUP NO. 280 PL 35

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280 | EO NO. 593
CONTR. INFO NO. LM5-13352

TO THE DWGS LISTED BELOW, ADD NOTE * AS SHOWN
(* = NEXT AVAILABLE NOTE NUMBER)

DWG NO.	▲ INSTL	EFF.	CHG. NO.	TITLE
LDW280-28153	-1	LTA-8(18)	C6	SEE DWG
28154	-1	↕	B5	↕
28160	-1		A9	
28161	-1		B2	
28163	-1 & -2		A6	
28851	-5		A9	
28852	-1		A7	
28861	-1		A7	
28096	-3 & -4		D6	
28174	-3		C5	
28175	-3		C6	
28176	-3		D1	
28875	-3		B7	
28178	-3 & -4		J7	
28392	-1 & -2		A10	
28241	-3 & -4		D2	
28242	-1 & -2		C1	
28243	-3 & -4		C7	
28244	-3 & -4		B2	
28279	-3		D10	
28347	-1 & -2		D7	
28882	-1		B6	
28499	-3 & -4		B1	
28179	-3 & -4		A4	
28495	-1 & -2		B3	
LDW280-28453	-3	LTA-8(18)	B7	SEE DWG

* DURING ▲ INSTL (OR ASSY OF THERMAL SHIELD SUB-ASSY'S OR DETAILS FOR LTA-8 ONLY), PARTS MAY BE TRIMMED OR SHIMMED AS NOTED TO INSURE PROPER FIT TO MATING PART OR ADJACENT STRUCTURE:

a. MAX. PERMISSIBLE TRIM TO BE 1/16, PROVIDING A MIN. FASTENER EDGE DISTANCE IS HELD AFTER TRIMMING (1 1/2 FASTENER DIA).

b. MAX PERMISSIBLE SHIM TO BE .063 THICK, AND IF TAPERED, NOT TO EXCEED 5 INCHES IN LENGTH. SHIM STOCK TO BE 2024-T3 AL ALLOY QQ-A-250/4 FINISH 76, WIDTH AS REQD.

* A. WHERE NECESSARY, ON THERMAL SHIELD SUB-STRUCTURE IT IS PERMISSIBLE TO FLUSH RIVETS TO INSURE PROPER FIT OF MATING PARTS, PROVIDING MATERIAL TO BE CSK IS THICK ENOUGH TO PREVENT "FEATHER EDGED" HOLES. (NAS1097 OR MS20426 RIVETS MAY BE USED.)

* B. WHERE NECESSARY, DUE TO REDESIGN AND REWORK, THE NEXT LARGER SIZE FASTENER MAY BE USED IN LIEU OF EXISTING FASTENER, PROVIDING A MINIMUM EDGE DISTANCE OF 1 1/2 FASTENER DIA IS MAINTAINED. ALSO, EXTRANEOUS HOLES MAY BE PLUGGED AS REQD (NAS1097 OR MS20470 RIVETS PERMISSIBLE) AS LONG AS A MINIMUM SPACING OF 3 DIAMETERS EXISTS BETWEEN PLUG AND NEAREST FASTENER. (A 1 INCH SQUARE OF GT835MB TAPE MAY BE USED FOR HOLES UP TO 7/16 IN DIA IN THERMAL SKINS.)

* C. WHERE NECESSARY, THE FOLLOWING NUT PLATES MAY BE REPLACEMENTS FOR ONE ANOTHER WITHIN THE GROUPS NOTED BELOW, PROVIDING THERE IS NO CHANGE IN DIAMETER OF SCREW:

GROUP A: NAS680, NAS682, NAS684, NAS686, NAS687, NAS696, NAS697, NAS698, NAS1067 & NAS1068

GROUP B: NAS681, NAS683 & NAS685

IF THE INTERCHANGEABLE ANCHOR NUTS ARE USED, THERMAL SKINS OR SUB-STRUCTURE MAY BE DIMPLED OR CSK AS REQD. (SEE NOTE * A. ABOVE.)

RELEASED BY LIAISON

RELEASED BY LIAISON

DETAIL SPEC REQ ☐	CL II ENGRG CHG ✓	CL I ENGRG CHG ☐			GAEC EO RELEASE C
REASON FOR EO: TO INSURE PROPER FIT WITH MATING PARTS	DESCRIPTION OF EO: ADDED NOTE *				18 05 025
MODEL: LM	PROCURING ACTIVITY NO.:	GAEC UNIT NO: LTA-8(18)	SUB CONTR UNIT NO.:		
DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐	DISPOSITION OF PARTS: REWORK ✓ SCRAP ☐	APPROVED BY: ALW	DATE: 5/11	1 VD1	
SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP 5-11-67	LIAISON ENGRG 5-11-67	PROJ ENGRG DAM 5-16-67
PRIORITY: C	DRAWING TITLE: NOTED	DRAWING NO: LEO 280	EO NO. 593		

ISSUED BY ART WILSON X6510 SECTION VD1 GROUP NO. 335 PL 5

01

NAS 9-1100

LDW280-28862

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO. LDW280-28862-1		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51150	LEM-2(32)	1
LEM	LDW280-51150	LEM-1(31)	1
LEM	LDW280-28150	LTA-8(18)	1
PART NO. LDW280-28862-1		GAEC SCH NO. 30-	

3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	F	GRUMMAN REL INFO		
LAST DASH NO. USED	-1	PRIM NO.	LE(001)	
		215	MP-9-	12-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.

TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES ± 1/32 ±.020 ± 1/2° 9.3.66

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100

LINE ITEM #1

DOCUMENTATION TYPE II

DRAWN BY	M.GIERAK 9/2/66	RELIABILITY	
LAYOUT BY	J. KOSLOSKY		10/20
CHECKED BY			
GR.LEADER	A.S.P. HENTON 9/3/66		
VEH.DES.INT	9/6		
STRUCTURE	9/7	PROJ ENGR	9-13
STRUCTURE	Herman 9/8	REL GROUP	10/21/66
WEIGHTS	L. Garcia 9/16/66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STANDOFF INSTALLATION
ASCENT STAGE - MID-SECTION
TOP THERMAL SHIELD

SIZE	CODE IDENT NO.	
B	26512	LDW280-28862
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

-DR 9/2/66

01

NAS 9-1100

QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AS REQ'D		SEE NOTE 1	E	ADHESIVE							
		MS24070AD3		RIVET	STD. PART						6B
3		LDW280P11521-1		STRAP	SEE DWG						3B
14		LDW280-51458-55		STANDOFF ASSY							4A
3		LDW280-288805									5A
1		-4									4D
1		-3									4A
1		-2									6D
1		LDW280-28880-1									6A
6		LDW280-28399-7									4B
6		LDW280-28399-5									4C
8		LDW280-283993		STANDOFF ASSY	SEE DWG						4B
									NONE	NONE	5A
		LDW280-288621	E	STANDOFF INSTL							

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28862

SCALE NONE

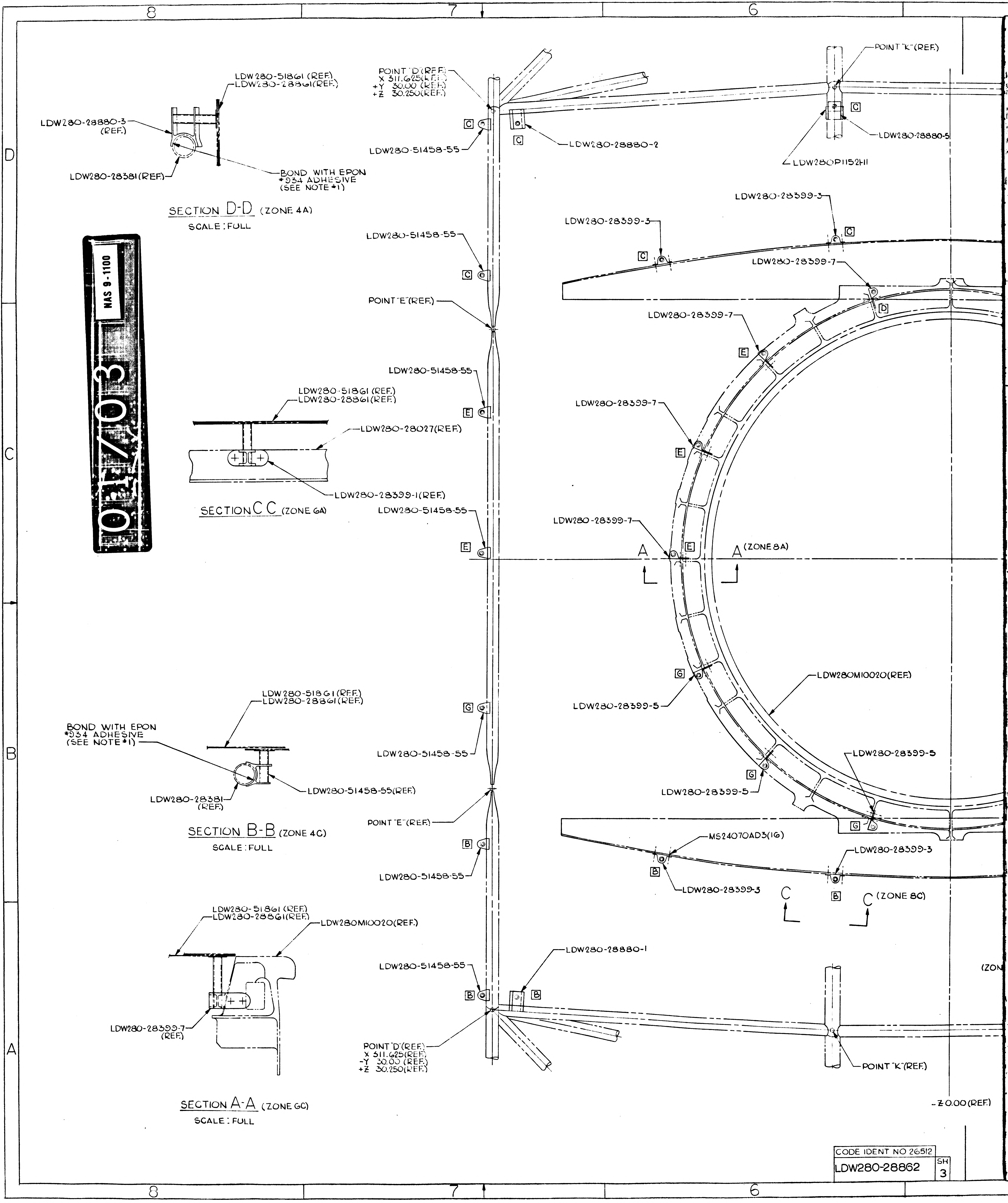
SHEET 2.00

ENG 77.2 7-65

01 NAS 9-1100

3/3

01/03 NAS 9-1100

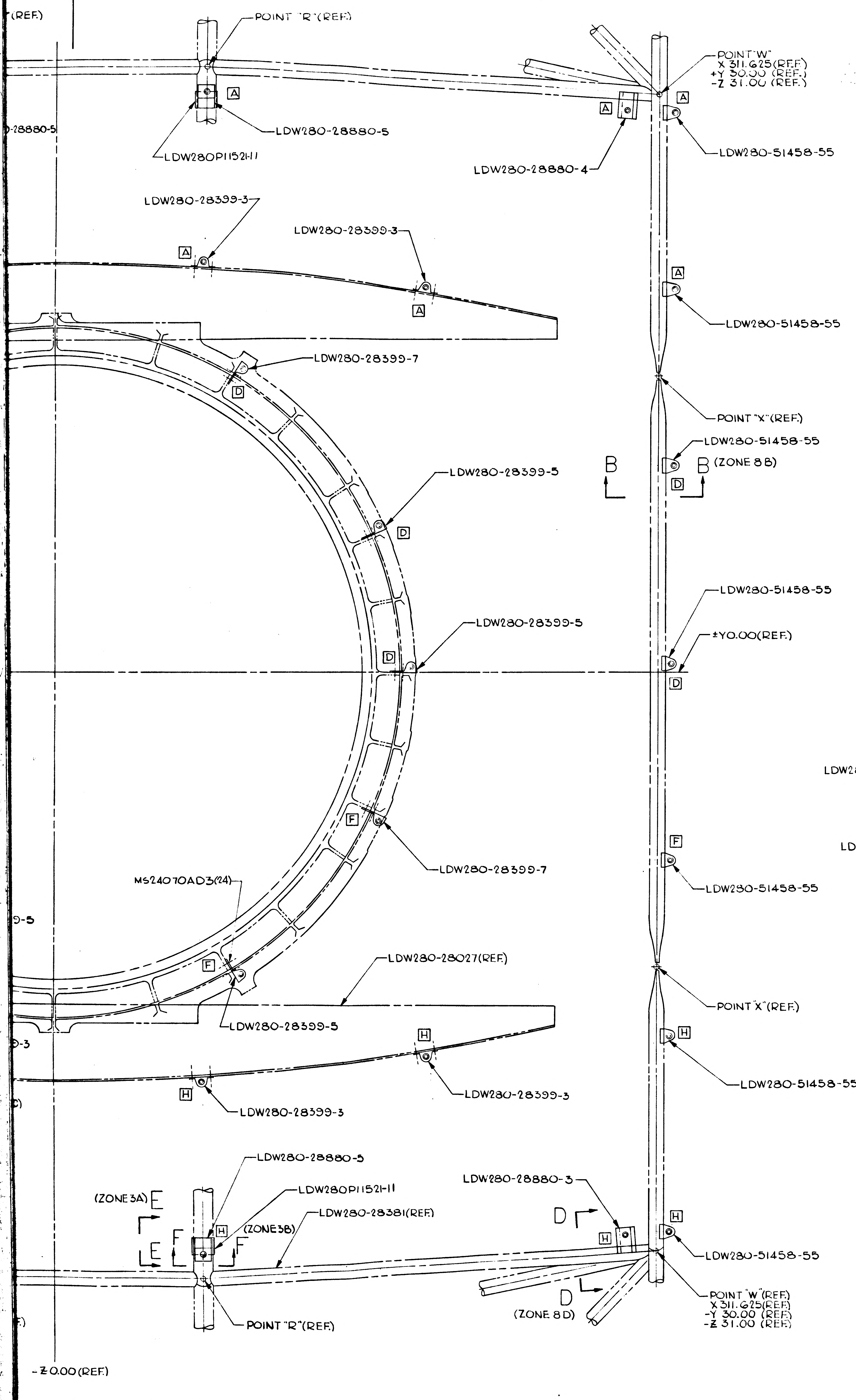


8
7
6
D
C
B
A
LDW280-51861 (REF.)
LDW280-28861(REF.)
LDW280-28880-3 (REF.)
LDW280-28381(REF.)
BOND WITH EPON *934 ADHESIVE (SEE NOTE *1)
SECTION D-D (ZONE 4A)
SCALE: FULL
LDW280-51861 (REF.)
LDW280-28861(REF.)
LDW280-28027(REF.)
LDW280-28399-1(REF.)
SECTION C C (ZONE 6A)
LDW280-51861 (REF.)
LDW280-28861(REF.)
BOND WITH EPON *934 ADHESIVE (SEE NOTE *1)
LDW280-28381 (REF.)
LDW280-51458-55(REF.)
SECTION B-B (ZONE 4C)
SCALE: FULL
LDW280-51861 (REF.)
LDW280-28861(REF.)
LDW280M10020(REF.)
LDW280-28399-7 (REF.)
SECTION A-A (ZONE 6C)
SCALE: FULL
POINT "D"(REF.) X 311.625(REF.) +Y 30.00 (REF.) +Z 30.250(REF.)
LDW280-51458-55
LDW280-28880-2
POINT "K"(REF.)
LDW280-28880-5
LDW280P1152H1
LDW280-51458-55
LDW280-28399-3
LDW280-28399-3
LDW280-28399-7
POINT "E"(REF.)
LDW280-28399-7
LDW280-51458-55
LDW280-28399-7
LDW280-51458-55
LDW280-28399-7
A
A (ZONE 8A)
LDW280M10020(REF.)
LDW280-28399-5
LDW280-51458-55
LDW280-28399-5
LDW280-28399-5
POINT "E"(REF.)
MS24070AD3(16)
LDW280-28399-3
LDW280-51458-55
LDW280-28399-3
C
C (ZONE 8C)
LDW280-51458-55
LDW280-28880-1
POINT "D"(REF.) X 311.625(REF.) -Y 30.00 (REF.) +Z 30.250(REF.)
POINT "K"(REF.)
-Z 0.00(REF.)
(ZON
B
C
D
E
G

CODE IDENT NO 26512	
LDW280-28862	SH 3

SYMBOL LEGEND FOR STANDOFF LOCATION

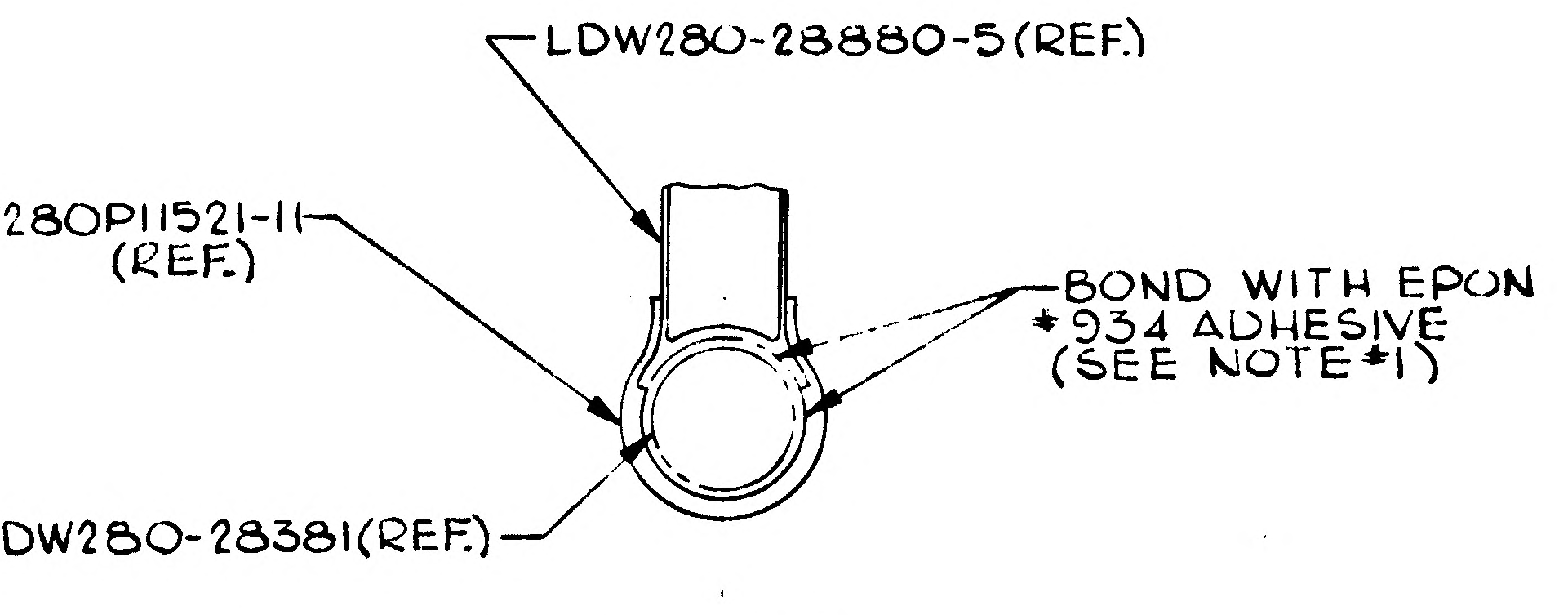
SYMBOL	COORDINATE WITH DRAWING NO.
A	LDW280-11425-15 & -21
B	LDW280-11424-11 & -17
C	LDW280-11425-11 & -17
D	LDW280-11423-13 & -17
E	LDW280-11423-11 & -15
F	LDW280-11422-13 & -17
G	LDW280-11422-11 & -15
H	LDW280-11424-15 & -21



POINT "R" (REF.)
LDW280-28880-5
LDW280P11521-11
LDW280-28399-3
LDW280-28399-3
LDW280-28880-4
POINT "W"
X 311.625 (REF.)
+Y 30.00 (REF.)
-Z 31.00 (REF.)
LDW280-51458-55
LDW280-51458-55
LDW280-28399-7
POINT "X" (REF.)
LDW280-51458-55
B
B (ZONE 8B)
LDW280-28399-5
LDW280-51458-55
LDW280-28399-5
±Y0.00 (REF.)
LDW280-28399-7
LDW280-51458-55
MS24070AD3(24)
LDW280-28027 (REF.)
POINT "X" (REF.)
LDW280-28399-5
LDW280-51458-55
LDW280-28399-3
LDW280-28399-3
LDW280-28880-5
LDW280P11521-11
LDW280-28381 (REF.)
(ZONE 3A) E
E F
(ZONE 3B)
F
LDW280-28880-3
D
D
(ZONE 8D)
LDW280-51458-55
POINT "W" (REF.)
X 311.625 (REF.)
-Y 30.00 (REF.)
-Z 31.00 (REF.)
POINT "R" (REF.)
-Z 0.00 (REF.)
A
D
F
H
-28880-5
(REF.)

LDW280-28862-1 INSTL

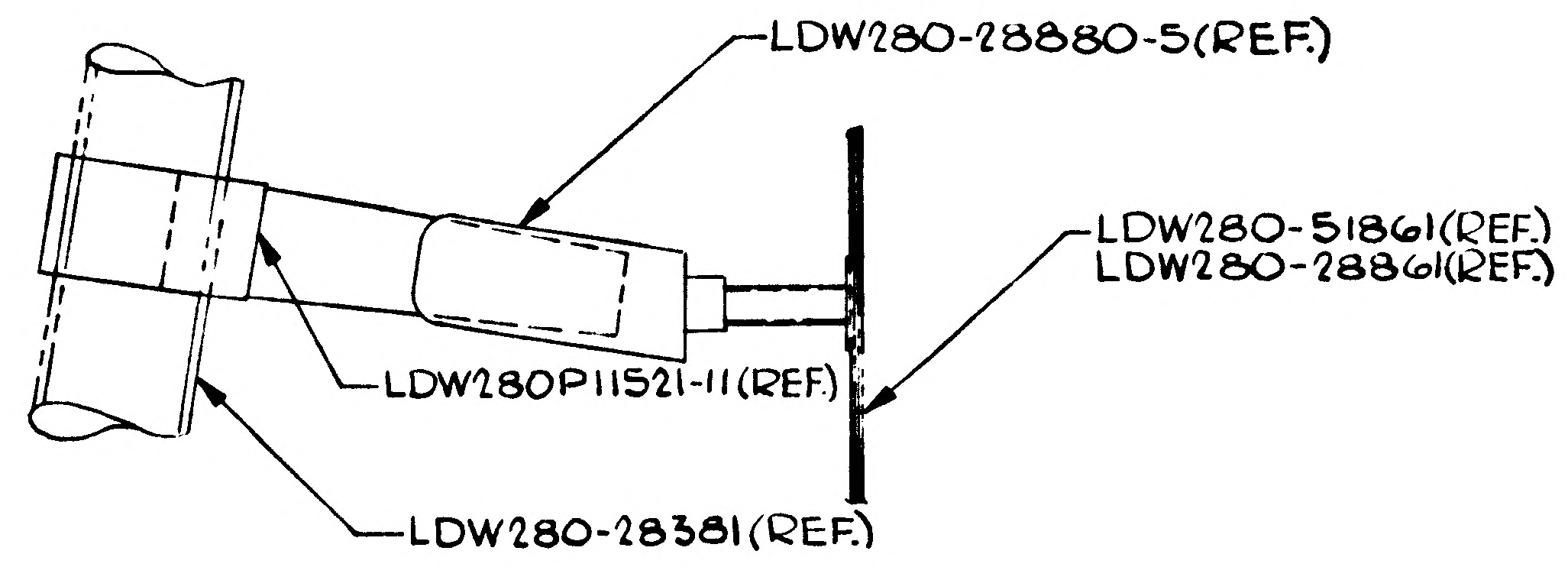
PLAN VIEW



LDW280-28880-5 (REF.)
LDW280P11521-11 (REF.)
BOND WITH EPON
*934 ADHESIVE
(SEE NOTE *1)
LDW280-28381 (REF.)

SECTION F F (ZONE 5A)

SCALE: FULL



LDW280-28880-5 (REF.)
LDW280-51861 (REF.)
LDW280-28861 (REF.)
LDW280P11521-11 (REF.)
LDW280-28381 (REF.)

SECTION E-E (ZONE 5A)

SCALE: FULL

02/03

NAS 9-1100

CODE IDENT NO. 26512	SH
LDW280-28862	3

SYMBOL LEGEND FOR STANDOFF LOCATION

SYMBOL	COORDINATE WITH DRAWING NO.
A	LDW280-11425-15 & -21
B	LDW280-11424-11 & -17
C	LDW280-11425-11 & -17
D	LDW280-11423-13 & -17
E	LDW280-11423-11 & -15
F	LDW280-11422-13 & -17
G	LDW280-11422-11 & -15
H	LDW280-11424-15 & -21

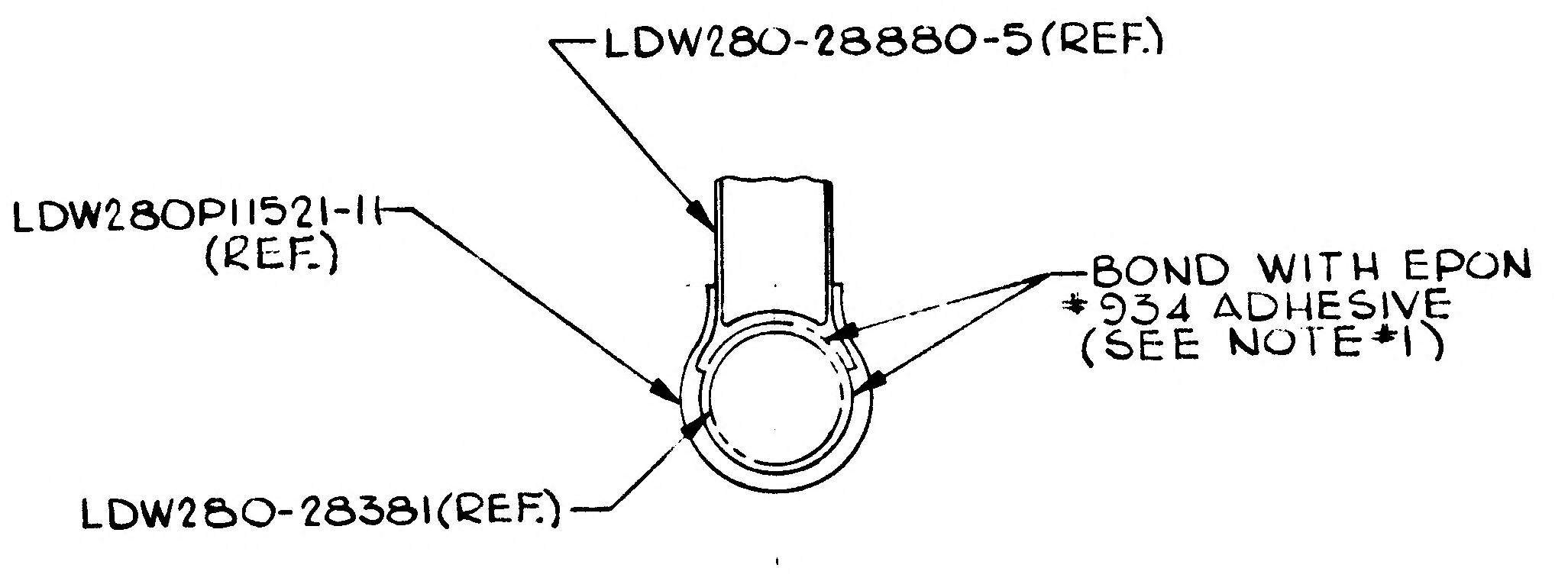
NOTES:
1- BOND ALL STANDOFFS TO STRUCTURE IN ACCORDANCE WITH LSP14-22500 USING EPON #934 CURE RANGE I
2- INSTL. FASTENERS PER LSP-14-15302.

03/03 NAS 9-1100

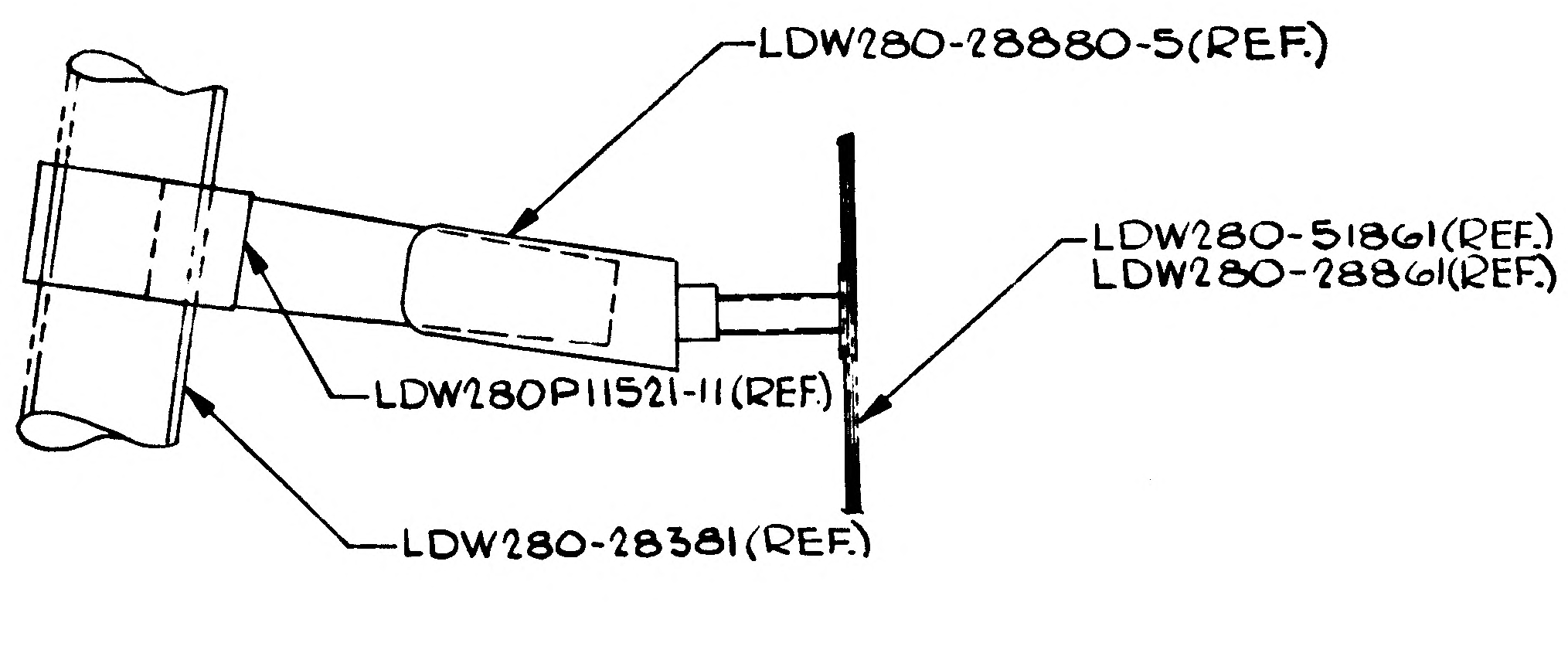
MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE EDGE DISTANCE IS 1 1/2 FASTENER DIA. FROM FASTENER ℄	√
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 40 X 80

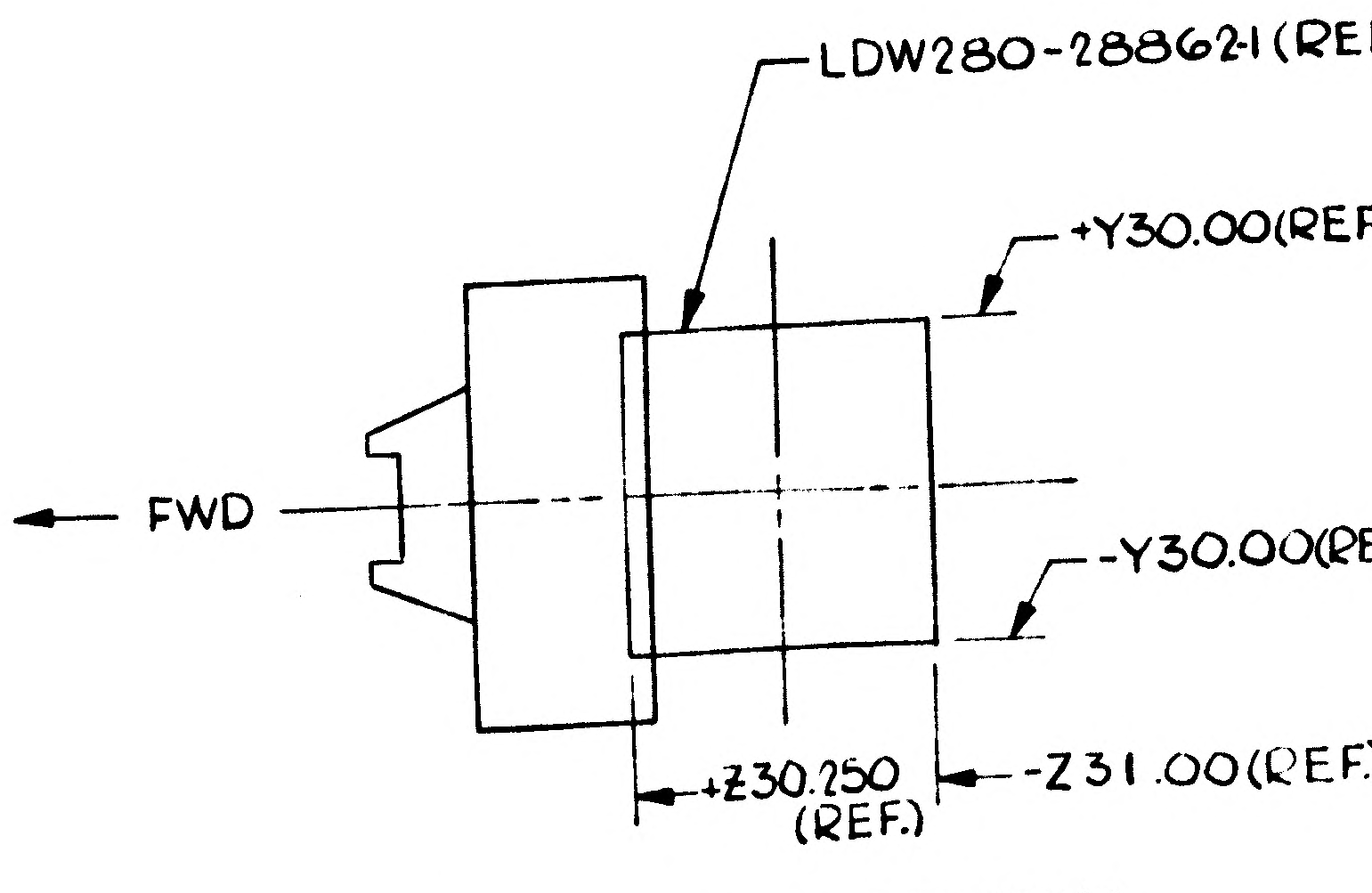
PRINTING INFO ONLY
FULL SIZE SHEET AREA (42 X 82) SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) SQ. FT.
PRINT TRIM LINE


LDW280-28880-5(REF.)
LDW280P11521-11 (REF.)
BOND WITH EPON #934 ADHESIVE (SEE NOTE #1)
LDW280-28381(REF.)

SECTION F F (ZONE 5A)
SCALE: FULL


LDW280-28880-5(REF.)
LDW280-51861(REF.)
LDW280-28861(REF.)
LDW280P11521-11(REF.)
LDW280-28381(REF.)

SECTION E-E (ZONE 5A)
SCALE: FULL


LDW280-288621 (REF.)
+Y30.00(REF.)
-Y30.00(REF.)
FWD
+Z30.250 (REF.)
-Z31.00(REF.)

FOR ENGINEERING REF. ONLY
NO SCALE

CODE IDENT NO. 26512	SH
LDW280-28862	3

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LEM	K	26512	LDW280-28862
SCALE HALF	NOTED		SHEET 3.00

LDW280-28862

LDW280-28862

1

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28862	EO NO. A1
CONTROL INFO NO. LDW 280A-2096	

1.) IN B/M FOR -1 INSTL. REMOVE LM-1(31) & LM-2(32) EFF.
2.) TO B/M & F/D:
ADD -3 INSTL IDENT TO -1 EXCEPT AS NOTED. (1 REQ'D/VEH)

IS: FOR -3 INSTL~LM-1&-2 QS26A-1-14 (14) N/A LDW280-51150	WAS: FOR -1 INSTL~LM-1&-2 LDW 280-51458-55 (14) N/A LDW 280-51150

-3 INSTL MAY BE MADE BY REWORKING -1 INSTL.

3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC EO RELEASE C
REPLACED BY "G" STD.	ON -1 INSTL REMOVED LM-1(31) & LM-2(32) EFF. ADDED -3 INSTL.	10/14

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
LM		LM-2(32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP

APPROVED BY									
DATE	10/14	10-16		10/14	10/14		10-14-66	10/14/66	
10/11/66	VDI	~~SUPPORT~~ Thermo	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTALLATION A/S MID-SECTION - TOP THERMAL SHIELD	LDW280-28862	A1

ISSUED BY FRANK CHRISTINA x7033 SECTION VDI GROUP NO. 335 PL 35

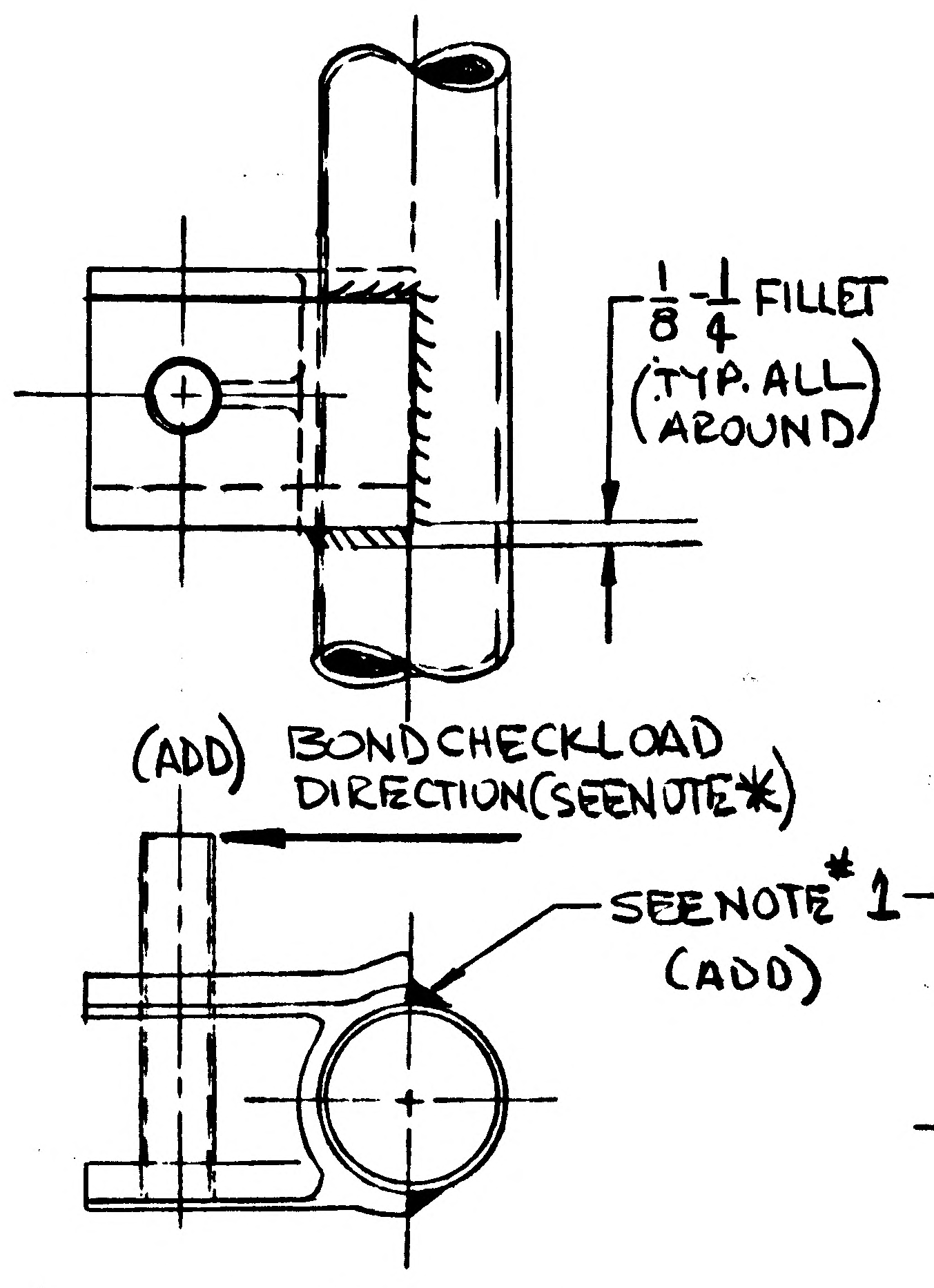
01 NAS 9-1100

ENG 22.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

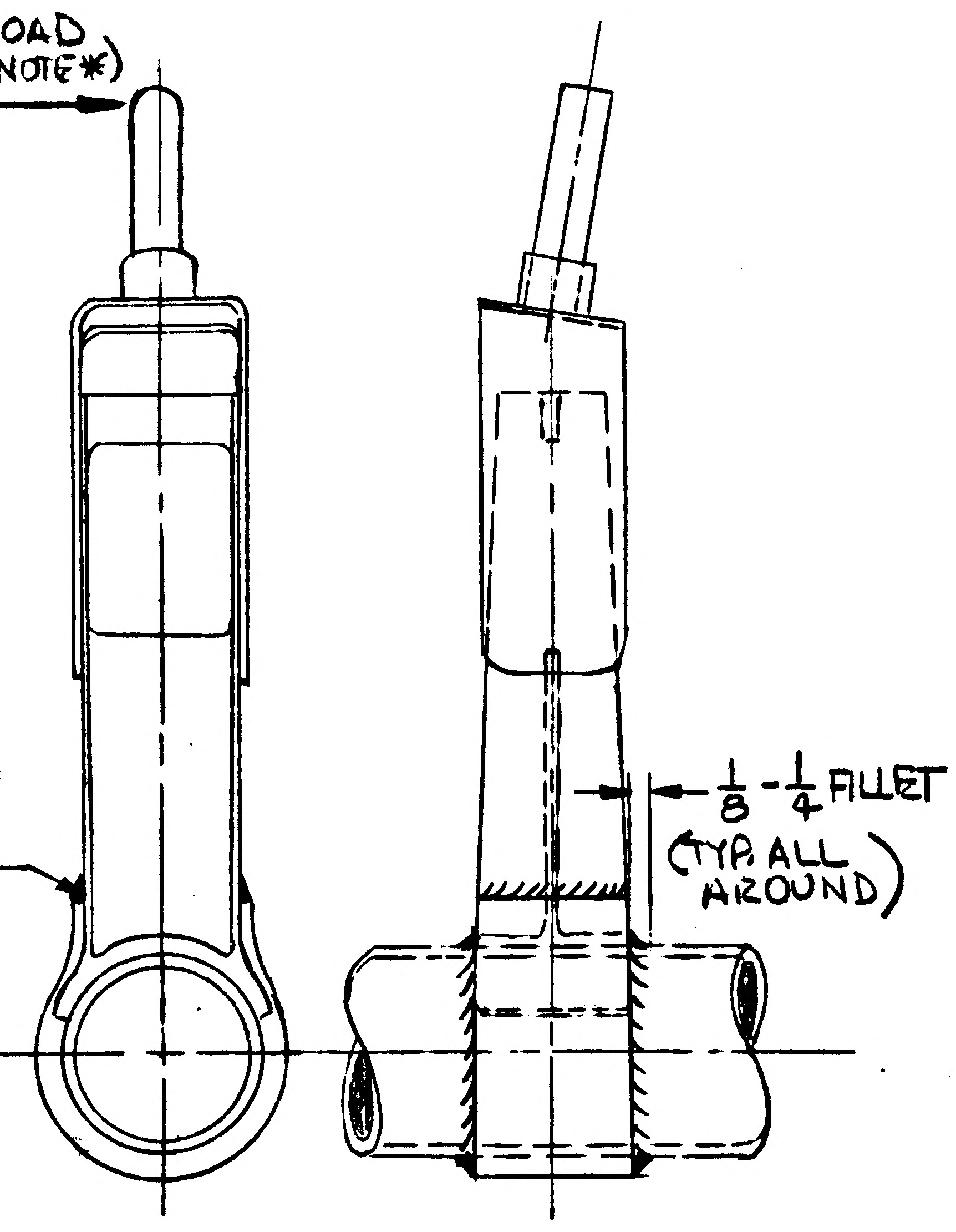
DWG. NO. LDW280-28862	EO NO. A2
CONTROL INFO NO. LDW280A-2800	

IN F/D ADD NOTE * & BONDING DETAIL, ADD "BOND CHECK" CALLOUT AS SHOWN BELOW:



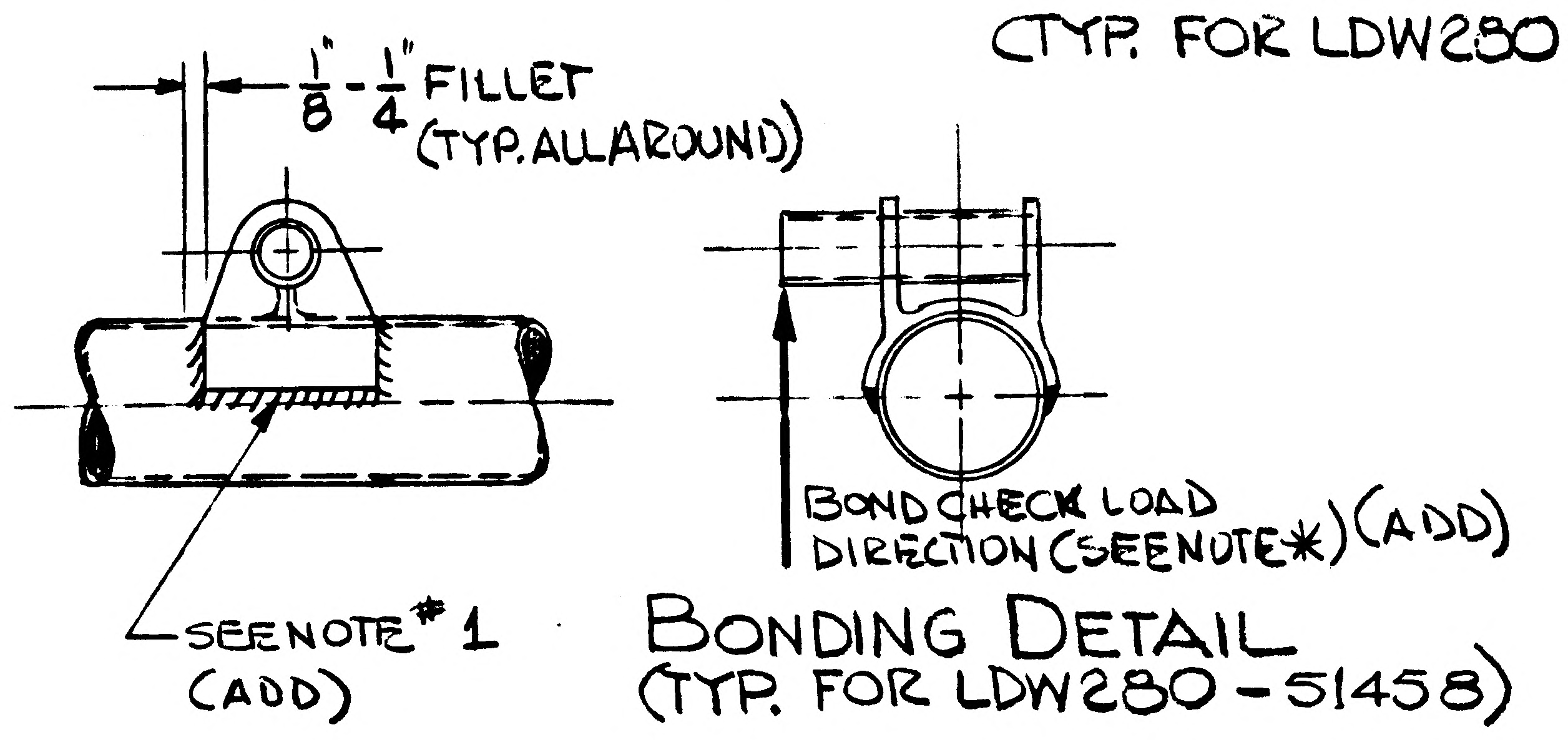
$\frac{1}{8}$-$\frac{1}{4}$ FILLET (TYP. ALL AROUND)
(ADD) BOND CHECK LOAD DIRECTION (SEE NOTE *)
SEE NOTE *1 (ADD)

BONDING DETAIL
(TYP. FOR LDW280-28580)



(ADD) BOND CHECK LOAD DIRECTION (SEE NOTE *)
$\frac{1}{8}$-$\frac{1}{4}$ FILLET (TYP. ALL AROUND)

BONDING DETAIL
(TYP. FOR LDW280-28880)



$\frac{1}{8}$"-$\frac{1}{4}$" FILLET (TYP. ALL AROUND)
SEE NOTE *1 (ADD)
BOND CHECK LOAD DIRECTION (SEE NOTE *) (ADD)

BONDING DETAIL
(TYP. FOR LDW280-51458)

(ADD) NOTE *. AFTER BONDING OF STANDOFFS HAS BEEN COMPLETED EACH STANDOFF BOND SHALL BE CHECKED BY APPLYING A 4 ± 1 POUND LOAD IN THE DIRECTION SHOWN IN THE BONDING DETAIL.

* USE NEXT AVAILABLE NUMBER

3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: TO INSURE BOND RELIABILITY

DESCRIPTION OF EO: IN F/D ADDED NOTE * & BONDING DETAIL & "BOND CHECK" CALLOUT.

(R) GAEC C EO RELEASE: 10/26

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY		B. for MT		10/27				
DATE	10/27/66	10/27/66					10-27-66	10/27/66
1 /	VDI	THERMO	MATLS.	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONF~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTL. A/S-M/S-TOP THERMAL SHIELD	LDW280-28862	A2

ISSUED BY C. A. PAEZ SECTION V. D. I. GROUP NO. 335 PL 35

ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28862
EO NO. A3
CONTROL INFO NO. LDW 280A-3437

ON -3 INSTL LDW280-28880-13, -14, -15 & -16
WAS LDW 280-28880 -1, -2, -3 & -4 RESPECTIVELY

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		3

REASON FOR EO: STANDOFF REDESIGNED

DESCRIPTION OF EO: ON -3 INSTL LDW280-28880-13, -14, -15 & -16 WAS -1, -2, -3 & -4 RESPECTIVELY

GAEC C EO RELEASE: FK 11/17/66

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY		V.J.D.						
✓		✓		DATE	11/16/66	11/16		11/16	11/16		11-16-66	11/16/66
REVISE DWG	RECORD EO	REWORK	SCRAP	#1	VDI	SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: STANDOFF INSTL A/S M/S TDP THERMAL SHIELD

DRAWING NO.: LDW 280-28862

EO NO.: A3

ISSUED BY FRANK CHRISTINA x7033 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

OK

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28862
EO NO. A4
CONTROL INFO NO. LDW280A3728

IN F/D: IN SYMBOL LEGEND FOR STANDOFF LOCATION, REMOVE DASH NUMBERS AS SHN BELOW.

SYMBOL	COORDINATE WITH DRAWING NO.			
A	LDW280-11425	WAS	LDW280-	11425-15&-21
B	↕ -11424	↕	↕	11424-11&-17
C	-11425			11425-11&-17
D	-11423			11423-13&-17
E	-11423			11423-11&-15
F	-11422			11422-13&-17
G	-11422			11422-11&-15
H	LDW280-11424	WAS	LDW280-	11424-15&-21

3
THERMAL SHIELD
12/6

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: OBSOLETE DASH N^os REMOVED TO PREVENT CONFUSION.

DESCRIPTION OF EO: IN FID, IN SYMBOL LEGEND FOR STANDOFF LOCATION, REMOVED DASH NUMBERS

GAEC EO RELEASE: FR 12/6/66

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
LM		LM-1(31)	
LM		LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY									
DATE	11/30/66	12/1/66		11/28	11/15		12/6	12/6/66
#6	VDI	SUPPORT THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C

DRAWING TITLE: STANDOFF INSTL A/S M/S TOP THERMAL SHIELD

DRAWING NO.: LDW280-28862

EO NO.: A4

ISSUED BY M.SHAPIRO X1153 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

A
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28862
EO NO. A5
CONTROL INFO NO. LM5-13080

ON-3 REMOVE LM-2(32) EFF. ADD-5 INSTL EFF LM-2(32) ONLY

CREATE -5 INSTL IDENT TO-3 EXCEPT

LDW280-28399-9(6) REPLACES -5 (6)
LDW280-28399-11(6) REPLACES -7 (6)

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: INTERFERENCE WITH SHIELD & NORTH AMER. DOCKING REQUIRES SHORTER STANDOFFS

DESCRIPTION OF EO: CREATED -5 INSTL EFF LM-2(32). REMOVED LM-2(32, FROM -3 INSTL.

GAEC EO RELEASE C 5

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO
LM		LM-2(32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	WT			~			RMC	
DATE	4/4/67			~	4/6/67	4-4	4-11-67	4/7/67
1	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY C
DRAWING TITLE: STANDOFF INSTL A/S M/S TOP THERMAL SHIELD
DRAWING NO. LDW280-28862
EO NO. A5

ISSUED BY Louis Berlinquette X6510 3/31/67 SECTION VD1 GROUP NO. 335 PL 5

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NAS 9-1100

ENG 32.1 REV 3-65 B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280-
EO NO. 600
CONTROL INFO NO. LM-5- 15154

IN F/D ADD NOTE ✱ TO THE FOLLOWING DWG'S FOR ALL DASH NUMBERS:

PART NUMBER	EO NO.	DWG TITLE	EFFECTIVITY
✓ LDW 280-28163	A7	SEE DWG.	LTA-8 (18)
✓ LDW 280-28164	D3	↑	LTA-8 (18), LM-1 (31) & LM-2 (32)
✓ LDW 280-28862	A6		LTA-8 (18), LM-1 (31) & LM-2 (32)
LDW 280-28863	C1		LTA-8 (18), LM-1 (31) & LM-2 (32)
LDW 280-28864	C2		LTA-8 (18), LM-1 (31) & LM-2 (32)
LDW 280-51457	C5		LM-1 (31) THRU LM-15 (45)
LDW 280-53163	A2		LM-3 (33) THRU LM-15 (45)
LDW 280-53164	A8		LM-3 (33) THRU LM-15 (45)
LDW 280-53862	A6		LM-3 (33) THRU LM-15 (45)
LDW 280-53863	A5		LM-3 (33) THRU LM-15 (45)
LDW 280-53864	A6		LM-3 (33) THRU LM-15 (45)
LDW 280-51163	A4	↓	LM-1 (31), LM-2 (32)

NOTE ✱ AFTER INSTALLATION, IT IS PERMISSIBLE TO REMOVE INSTALLATION TABS FROM G526A & G526C STANDOFFS ON CAGES TO PREVENT TEARING THERMAL BLANKETS.

(✱ NEXT AVAILABLE NUMBER)

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: TO PREVENT STANDOFFS FROM TEARING THERMAL BLANKETS

DESCRIPTION OF EO: IN F/D ADDED NOTE ✱

GAEC EO RELEASE: C JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
SEE TABLE ABOVE			

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD

APPROVED BY / DATE: 6/1/67 (1) V.D.I.

	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY						DAM	
DATE				5-18-67	5-18-67	5-24-67	5/19/67

PRIORITY: C

DRAWING TITLE: STANDOFF INSTALLATION

DRAWING NO.: LEO 280-

EO NO.: 600

ISSUED BY LIAISON J. McGill / OR 6226 SECTION V.D.I. GROUP NO.____ PL____

01 NAS 9-1100

LDW280-28863 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51150	LM-2(32)	1
LM	LDW280-51150	LM-1(31)	1
PART NO. LDW280-28863-3		GAEC SCH NO. 30	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28150	LTA-8(18)	1
PART NO. LDW 280-28863-1		GAEC SCH NO. 30-	

3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	2.01	3.00	4.00			
REV	B	B	B	B	B	B			
SHEET		1.11							
REV		B							
SHEET									
REV									

LAST SECT LTR USED N

LAST DASH NO. USED -3

GRUMMAN REF INFO B

PRIM NO. 215 VE(001) MP-14 B-1-28-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS-9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY CITRANO 9/2/66
LAYOUT BY MAKULA
CHECKED BY W.M. Hartzell 9/6/66
GR LEADER P. HENTON 9/6/66
VEH DES INT 9/
STRUCTURE 9/7
STRUCTURE Hilderman 9/8
WEIGHTS L. Garcia 9/16/66
PROJ ENGR R.M. Carbee 9-8
REL GROUP Botti 9-20-66

Ⓡ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STANDOFF INSTL
ASCENT STAGE - MID SECTION
LEFT HAND TANK

SIZE B
CODE IDENT NO. 26512
LDW28028863 B
SCALE NONE
SHEET 1.00 OF 7

ENG 77.1 12-65

CDR 9/21/66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00 & 4.00	20B 21B					EO A1	ADDED SHEET 1.10. IN F/D & B/M LDW280-28860-91 & LDW280-28860-93 WERE LDW280-51458-31	LTA-8, LM-1, LM-2	✓		J. PAWLITZ 1-20-67		
	2	1.00, 1.10 2.00, 3.00 4.00	2C 20B					EO A2	ADDED TO F/D, & B/M FOR-1, LDW280-28863-65 (1 REQ'D), -67 (1 REQ'D), -69 (1 REQ'D), & -75 (1 REQ'D). ADDED TO LEGEND IN F/D.		NOT	REQ'D			
	3	2.00, 3.00 & 4.00	11B 16B					EO A3	IN F/D & B/M ON-1, LDW280-51458-9 WAS LDW280-51458-31, LDW280-28860-95 WAS LDW280-28860-49.		✓				
	4	2.00 3.00	6B 6C					EO A4	IN F/D & B/M ON-1 INSTL ADDED LDW280-51458-9 (2) & LDW280-51458-31 (1)		✓				
	5	3.00	4D 5D					EO A5	IN F/D ADDED BONDING DETAIL "M" & "N"		NOT	REQD			
	6	1, 1.10, 2.00 2.01, 3.00 & 4.00	15B					EO A6	ON-1 INSTL REMOVED LM-1(31) & LM-2(32) EFF. ADDED -3 INSTL. ON-1, IN ZONE B15 LDW280-51458-31(3) & -69 WAS LDW280-51489-31 (3) & -69.	LM-1, LM-2	✓				
	7	3.00	5D					EO A7	IN F/D ADDED NOTE #2. IN BONDING DETAIL ADDED "BOND CHECK" CALL OUT.	LTA-8, LM-1, LM-2					
	8	1, 1.10, 2.00 2.01, 3.00 & 4.00						EO A8	REVISED -3 INSTL, GS26C-1-2 THRU -1-36 WAS LDW280-28860-3 THRU -95 RESPECTIVELY.	LM-1, LM-2					
	9	2.00, 2.01 & 3.00	16D 5D 6C					EO A9	ADDED: ON-1 INSTL, LDW280-28860-77 & 79 (1 EA REQ'D). ON-3 INSTL, GS26C-1-28, -1-29 (1 EA REQ'D)	LTA-8, LM-1, LM-2					
	10							EO A10	REF. EO A2, IN F/D & B/M LDW280-28860-69 WAS -65 AND LDW280-28860-75 WAS -65. ON-1 INSTL FOR LDW280-28860-65 3 REQ'D WAS 1 REQ'D. REF. E.O. A8, IN F/D & B/M, GS26C-1-26 WAS GS26C-1-24 AND GS26C-1-27 WAS GS26-1-24 ON-3 INSTL. FOR GS26C-1-24, 3 REQ'D WAS 1 REQ'D.						
B	1	1, 1.10, 2.00, 2.01, 3.00	9C 11B					EO-B1	ON-1 INSTL: IN F/D & B/M LDW280-28860-37 WAS -83, LDW280-51458-19 (3) REQ'D WAS (2) REQ'D. LDW280-51458-35 WAS -49. ON-3 INSTL IN F/D & B/M GS26C-1-13 WAS GS26C-1-31, GS26A-1-22 WAS GS26A-1-27. E.L.						

CHG APPROVED

LTR	GROUP LDR	VEH. DES INT.	STRUCTURE	STRUCTURE	WEIGHTS	PROD. ENGR	REL. GROUP				
B	1/25										

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28863	B
SCALE	NONE	SHEET	1.10

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
B	2	1.00 & 1.11 2.00, 2.01 4.00	21D					EO B2	ADDED SHEET 1.11 IN F/D & B/M REMOVED (1) STANDOFF LDW280-28860-65 (FOR-1 INSTL) & GS26C-1-24 (FOR-3 INSTL)	LTA-8, LM-1 & LM-2	✓		J. Pawlitz 1-20-67		
	3		5D 10C					EO B3	ON-3 INSTL ADDED TO DETAIL "M", LDW280P11521-13. ADDED TO B/M ON-3 INSTL LDW280P11521-13 (23) REQ'D/VEH. ON-1 INSTL REMOVED (2) LDW280-51458-31 STANDOFFS. ON-3 INSTL REMOVED (2) GS26A-1-19 STANDOFFS.						
	4		6D					EO B4	ON-1 & -3, IN F/D & B/M GS26A-1-19 WAS LDW280-28860-39, GS26C-1-17 WAS LDW280-28860-19.						
	5	3.00	2C 2D					EO B5	IN F/D: IN SYMBOL LEGEND FOR STANDOFF LOCATION, REMOVED DASH NUMBERS.		NOT	REQ'D			
	6	1.10 & 1.11							REF. E.O. A2, IN DESCRIPTION OF E.O., LDW280-28863 SHOULD BE LDW280-28860.	NOT REQD				1-26-67	1/28/67
	7								REF EO A10, IN DESCRIPTION OF EO., "LDW280-28860-69 WAS -65 & LDW280-28860-75 WAS -65. --- GS26C-1-26 WAS GS26C-1-24 & GS26C-1-27 WAS GS26C-1-24", SHOULD BE, "LDW280-28860-65 WAS -69 & LDW280-28860-65 WAS -75. --- GS26C-1-24 WAS GS26C-1-26 & GS26C-1-24 WAS GS26C-1-27".						
	8		4D 5D					② A&B	IN F/D DETAIL "M" & "N" WAS "BONDING DETAIL".						

CHG APPROVED

LTR	GROUP LDR	VEH. DES. INT	STRUCTURE	STRUCTURE	WEIGHTS	PROJ. ENGR	REL. GROUP
B							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28863	B

SCALE NONE

SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY		PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
-3	-1											
	3	LDW280-51458-63	E		STANDOFF ASSY	SEE DWG						11B
	1	-57										12B
	3	-53										6D
	1	-51										6A
	2	-39										11A
	1	-37										11C
	4	-35										11B
	8	-33										9B
	28	-31										6B
	2	-23										6C
	3	-19										11D
	13	-9										6C
	1	LDW280-51458-7										6B
	3	LDW280-28860-95										16B
	1	-93										20B
	1	-91										21C
	1	-81										9D
	2	-79										11D
	2	-77										11D
	1	-67										21C
	2	-65										19B
	1	-45										11A
	1	-43										12B
	1	-41										11B
	1	-37										9C
	1	-17										9B
	1	-13										6B
	1	LDW280-28860-3			STANDOFF ASSY							6D
23		LDW280P11521-13			SUPPORT	SEE DWG						C5
		LDW280-28863-3			STANDOFF INSTL					NONE	NONE	10A
		LDW280-28863-1	E		STANDOFF INSTL					NONE	NONE	10A

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28863	B

SCALE NONE

SHEET 2.00

ENG 77.2 5-64

01

NAS 9-1100

QTY PER ASSEMBLY		CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
4			GS26C-1-36	E	STANDOFF ASSY	GRUMMAN STD						
1			-1-35									
1			-1-30									
2			-1-29									
2			-1-28									
1			-1-25									
2			-1-24									
2	1		-1-17									
1			-1-16									
1			-1-15									
1			-1-13									
1			-1-9									
1			-1-7									
1			GS26C-1-2									
3			GS26A-2-20									
12			-2-19									
1			-2-18									
2			-2-17									
2			-1-26									
1			-1-24									
1			-1-23									
4			-1-22									
8			-1-21									
3			-1-20									
29	1		-1-19									
4			GS26A-1-18	E	STANDOFF ASSY	GRUMMAN STD						
-3	-1											

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28863	B

SCALE NONE

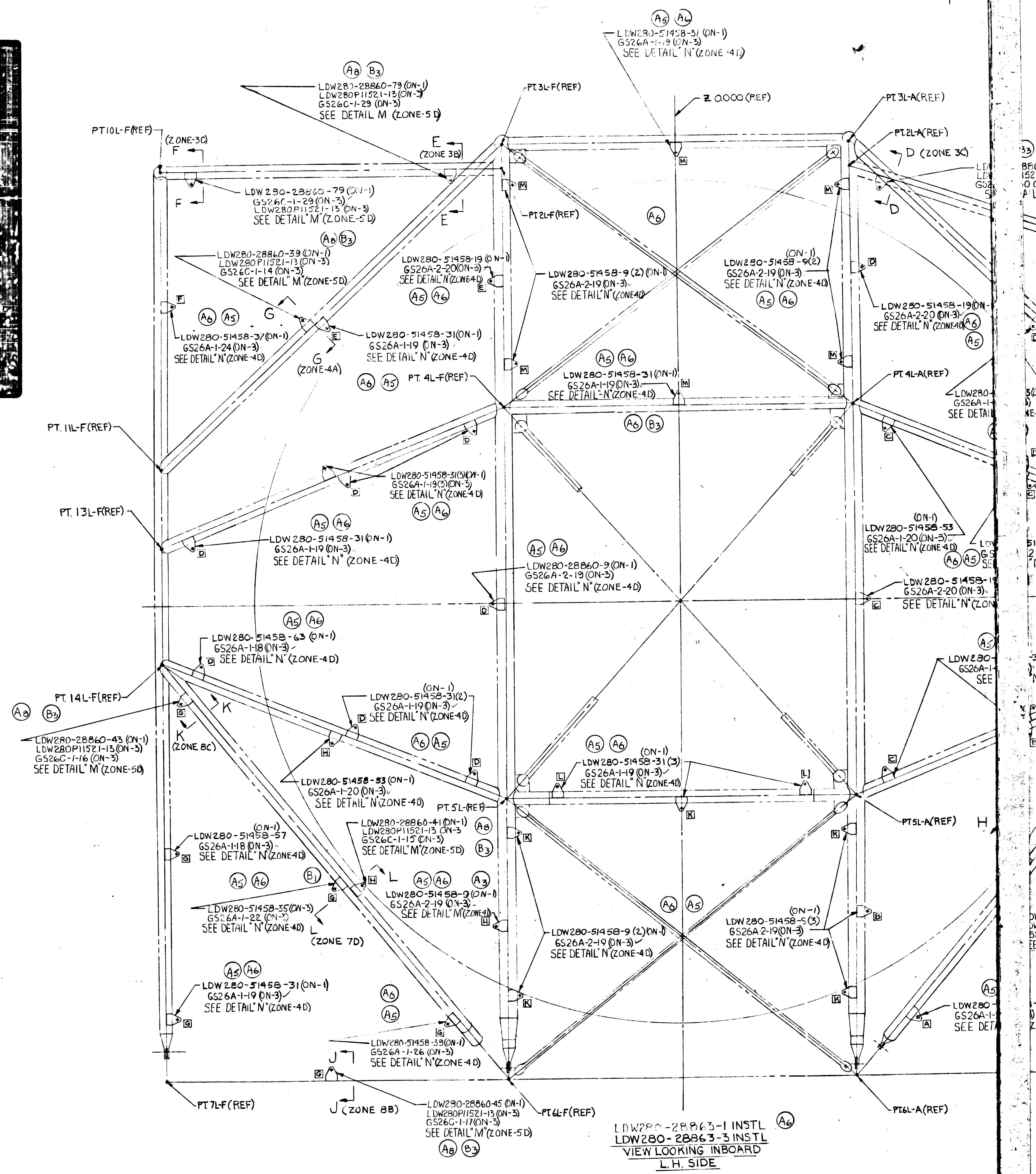
SHEET 2.01

ENG 77.2 7-65

01

NAS 9-1100

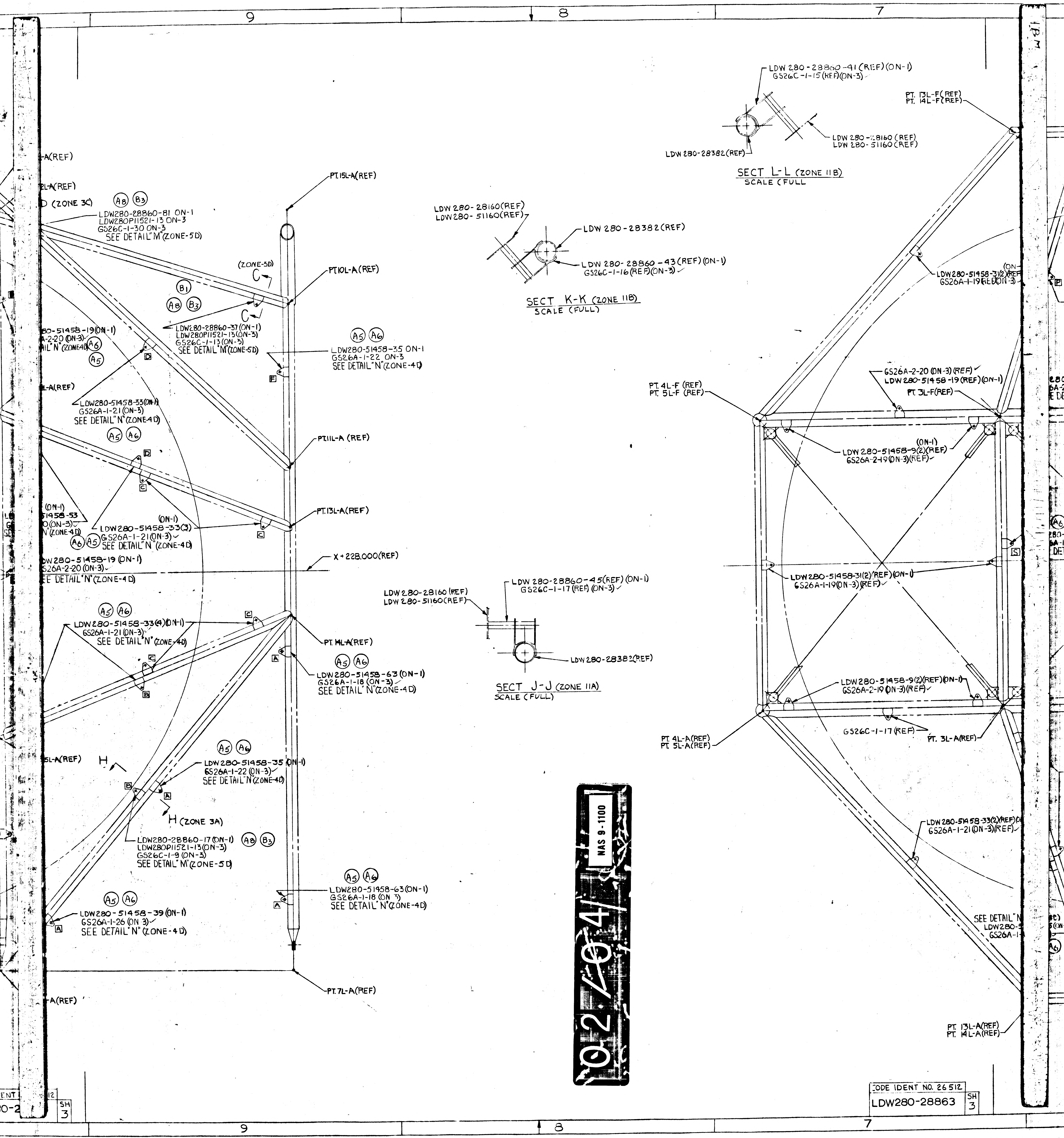
01/04 NAS 9-1100



A5 A6
LDW280-51458-31 (ON-1)
GS26A-1-19 (ON-3)
SEE DETAIL N (ZONE-4D)
A8 B3
LDW280-28860-79 (ON-1)
LDW280P11521-13 (ON-3)
GS26C-1-29 (ON-3)
SEE DETAIL M (ZONE-5D)
PT.3L-F(REF)
Z 0.000 (REF)
PT.3L-A(REF)
PT.2L-A(REF)
D (ZONE 3C)
PT10L-F(REF)
(ZONE-3C)
F
E
(ZONE 3B)
LDW280-28860-79 (ON-1)
GS26C-1-29 (ON-3)
LDW280P11521-13 (ON-3)
SEE DETAIL M (ZONE-5D)
PT.2L-F(REF)
A8 B3
LDW280-28860-39 (ON-1)
LDW280P11521-13 (ON-3)
GS26C-1-14 (ON-3)
SEE DETAIL M (ZONE-5D)
G
LDW280-51458-19 (ON-1)
GS26A-2-20 (ON-3)
SEE DETAIL N (ZONE 4D)
A5 A6
LDW280-51458-9 (2) (ON-1)
GS26A-2-19 (ON-3)
SEE DETAIL N (ZONE 4D)
(ON-1)
LDW280-51458-9 (2)
GS26A-2-19 (ON-3)
SEE DETAIL N (ZONE-4D)
A5 A6
LDW280-51458-19 (ON-1)
GS26A-2-20 (ON-3)
SEE DETAIL N (ZONE 4D)
A6 A5
LDW280-51458-37 (ON-1)
GS26A-1-24 (ON-3)
SEE DETAIL N (ZONE-4D)
LDW280-51458-31 (ON-1)
GS26A-1-19 (ON-3)
SEE DETAIL N (ZONE-4D)
G
(ZONE-4A)
A6 A5
PT. 4L-F(REF)
A5 A6
LDW280-51458-31 (ON-1)
GS26A-1-19 (ON-3)
SEE DETAIL N (ZONE-4D)
A6 B3
PT. 4L-A(REF)
PT. 11L-F(REF)
LDW280-51458-31 (3) (ON-1)
GS26A-1-19 (3) (ON-3)
SEE DETAIL N (ZONE 4D)
A5 A6
PT. 13L-F(REF)
A5 A6
LDW280-51458-31 (ON-1)
GS26A-1-19 (ON-3)
SEE DETAIL N (ZONE-4D)
A5 A6
LDW280-28860-9 (ON-1)
GS26A-2-19 (ON-3)
SEE DETAIL N (ZONE-4D)
(ON-1)
LDW280-51458-53
GS26A-1-20 (ON-3)
SEE DETAIL N (ZONE 4D)
A6 A5
LDW280-51458-19
GS26A-2-20 (ON-3)
SEE DETAIL N (ZON
A5 A6
LDW280-51458-63 (ON-1)
GS26A-1-18 (ON-3)
SEE DETAIL N (ZONE-4D)
PT. 14L-F(REF)
A8 B3
K
(ZONE 8C)
LDW280-28860-43 (ON-1)
LDW280P11521-13 (ON-3)
GS26C-1-16 (ON-3)
SEE DETAIL M (ZONE-5D)
(ON-1)
LDW280-51458-31 (2)
GS26A-1-19 (ON-3)
SEE DETAIL N (ZONE 4D)
A6 A5
A5 A6
(ON-1)
LDW280-51458-31 (3)
GS26A-1-19 (ON-3)
SEE DETAIL N (ZONE 4D)
LDW280-51458-53 (ON-1)
GS26A-1-20 (ON-3)
SEE DETAIL N (ZONE-4D)
PT.5L-(REF)
PT5L-A(REF)
H
(ON-1)
LDW280-51458-57
GS26A-1-18 (ON-3)
SEE DETAIL N (ZONE 4D)
LDW280-28860-41 (ON-1)
LDW280P11521-13 (ON-3)
GS26C-1-15 (ON-3)
SEE DETAIL M (ZONE-5D)
A8 B3
L
A5 A6 A3
LDW280-51458-9 (ON-1)
GS26A-2-19 (ON-3)
SEE DETAIL M (ZONE 4D)
A5 A6 B1
LDW280-51458-35 (ON-3)
GS26A-1-22 (ON-3)
SEE DETAIL N (ZONE-4D)
L
(ZONE 7D)
A6 A5
LDW280-51458-9 (2) (ON-1)
GS26A-2-19 (ON-3)
SEE DETAIL N (ZONE-4D)
(ON-1)
LDW280-51458-9 (3)
GS26A-2-19 (ON-3)
SEE DETAIL N (ZONE-4D)
A5 A6
LDW280-51458-31 (ON-1)
GS26A-1-19 (ON-3)
SEE DETAIL N (ZONE-4D)
A6 A5
LDW280-51458-39 (ON-1)
GS26A-1-26 (ON-3)
SEE DETAIL N (ZONE-4D)
J
J (ZONE 8B)
PT. 7L-F (REF)
LDW280-28860-45 (ON-1)
LDW280P11521-13 (ON-3)
GS26C-1-17 (ON-3)
SEE DETAIL M (ZONE-5D)
A8 B3
PT.6L-F(REF)
PT6L-A(REF)
A5
LDW280
GS26A-1
SEE DET
D E F G H J K L M
12
11
10
A
B
C
D

LDW280-28863-1 INSTL A6
LDW280-28863-3 INSTL
VIEW LOOKING INBOARD
L.H. SIDE

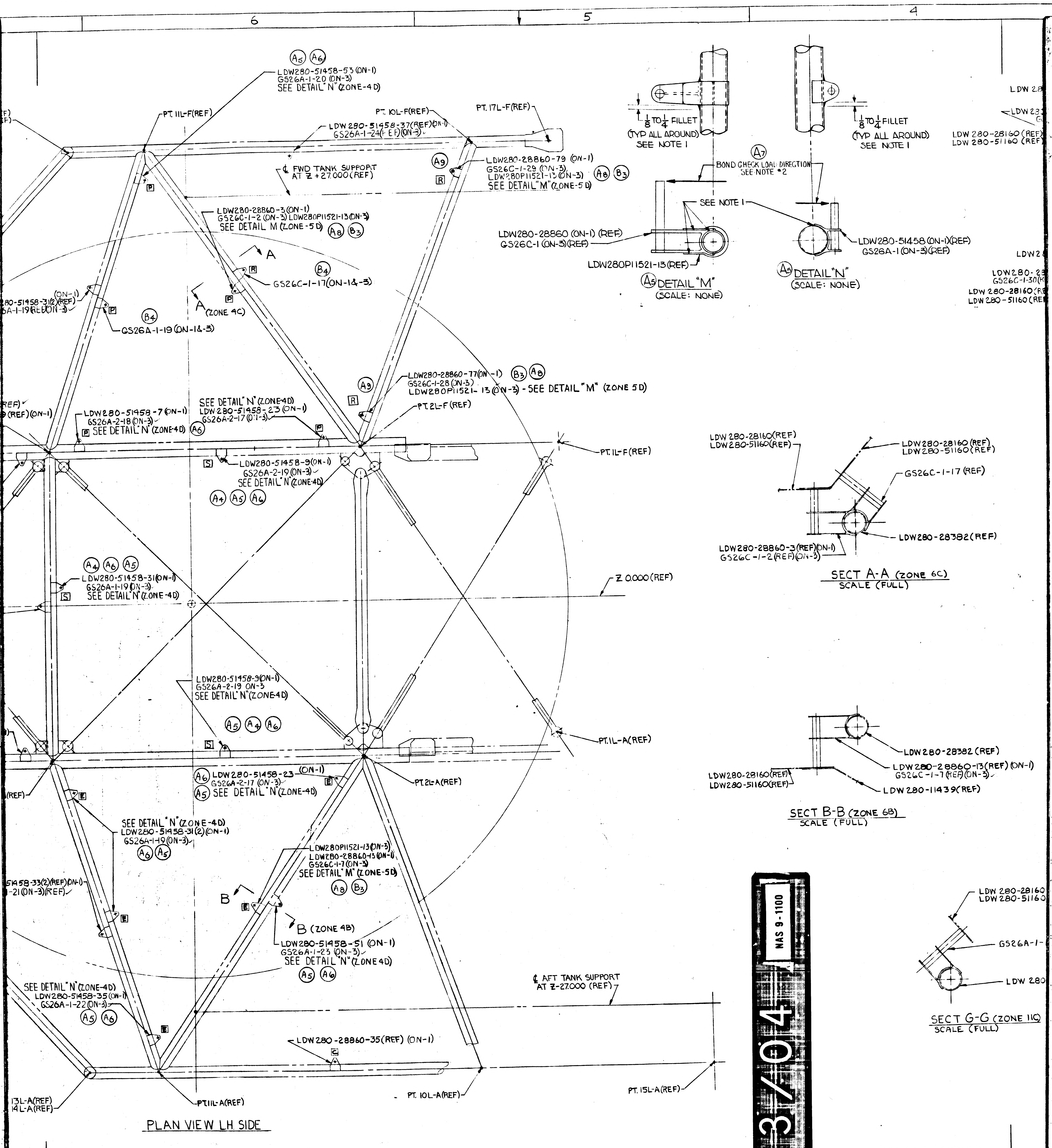
CODE IDENT NO 26512	SH
LDW280-28863	3



9
8
7
-A(REF)
2L-A(REF)
D (ZONE 3C)
A8
B3
LDW280-28860-81 ON-1
LDW280P11521-13 ON-3
GS26C-1-30 ON-3
SEE DETAIL "M" (ZONE-5D)
PT. 15L-A(REF)
(ZONE-5D)
C
PT. 10L-A(REF)
B1
A8
B3
C
LDW280-28860-37 (ON-1)
LDW280P11521-13 (ON-3)
GS26C-1-13 (ON-3)
SEE DETAIL "M" (ZONE-5D)
A5
A6
LDW280-51458-35 ON-1
GS26A-1-22 ON-3
SEE DETAIL "N" (ZONE-4D)
80-51458-19 (ON-1)
A-2-20 (ON-3)
AIL "N" (ZONE 4D)
A6
A5
D
F
L-A(REF)
LDW280-51458-33 (ON-1)
GS26A-1-21 (ON-3)
SEE DETAIL "N" (ZONE-4D)
A5
A6
D
C
PT. 11L-A (REF)
(ON-1)
51458-53
0 (ON-3)
N" (ZONE-4D)
(ON-1)
LDW280-51458-33(3)
GS26A-1-21 (ON-3)
SEE DETAIL "N" (ZONE-4D)
A6
A5
C
PT. 13L-A(REF)
X + 228.000(REF)
DW280-51458-19 (ON-1)
S26A-2-20 (ON-3)
EE DETAIL "N" (ZONE-4D)
A5
A6
LDW280-51458-33(4)(ON-1)
GS26A-1-21 (ON-3)
SEE DETAIL "N" (ZONE-4D)
C
C
B
PT. 14L-A(REF)
A
A5
A6
LDW280-51458-63 (ON-1)
GS26A-1-18 (ON-3)
SEE DETAIL "N" (ZONE-4D)
5L-A(REF)
H
A5
A6
LDW280-51458-35 (ON-1)
GS26A-1-22 (ON-3)
SEE DETAIL "N" (ZONE-4D)
B
A
H (ZONE 3A)
LDW280-28860-17 (ON-1)
LDW280P11521-13 (ON-3)
GS26C-1-9 (ON-3)
SEE DETAIL "M" (ZONE-5D)
A8
B3
A5
A6
LDW280-51458-63 (ON-1)
GS26A-1-18 (ON 3)
SEE DETAIL "N" (ZONE-4D)
A
A5
A6
LDW280-51458-39 (ON-1)
GS26A-1-26 (ON 3)
SEE DETAIL "N" (ZONE-4D)
A
PT. 7L-A(REF)
-A(REF)
LDW 280-28160(REF)
LDW 280-51160(REF)
LDW 280-28382(REF)
LDW 280-28860-43(REF)(ON-1)
GS26C-1-16(REF)(ON-3)
SECT K-K (ZONE 11B)
SCALE (FULL)
LDW 280-28860-41(REF)(ON-1)
GS26C-1-15(REF)(ON-3)
LDW 280-28160 (REF)
LDW 280-51160 (REF)
LDW 280-28382(REF)
SECT L-L (ZONE 11B)
SCALE (FULL
LDW 280-28160 (REF)
LDW 280-51160(REF)
LDW 280-28860-45(REF)(ON-1)
GS26C-1-17(REF)(ON-3)
LDW 280-28382(REF)
SECT J-J (ZONE 11A)
SCALE (FULL)
PT. 13L-F(REF)
PT. 14L-F(REF)
LDW280-51458-31(2)(REF)(ON-
GS26A-1-19(REF)(ON-3)
P
PT. 4L-F (REF)
PT. 5L-F (REF)
GS26A-2-20 (ON-3)(REF)
LDW 280-51458-19 (REF)(ON-1)
PT. 3L-F(REF)
(ON-1)
LDW 280-51458-9(2)(REF)
GS26A-2-19(ON-3)(REF)
LDW280-51458-31(2)(REF)(ON-1)
GS26A-1-19(ON-3)(REF)
S
LDW280-51458-9(2)(REF)(ON-1)
GS26A-2-19(ON-3)(REF)
GS26C-1-17(REF)
PT. 3L-A(REF)
PT. 4L-A(REF)
PT. 5L-A(REF)
LDW280-51458-33(2)(REF)(O
GS26A-1-21(ON-3)(REF)
SEE DETAIL "N
LDW280-5
GS26A-1-
PT. 13L-A(REF)
PT. 14L-A(REF)

CODE IDENT NO. 26512
LDW280-28863
SH 3

02/04
NAS 9-1100


6
5
4
PLAN VIEW LH SIDE
A5 A6
LDW280-51458-53 (ON-1)
GS26A-1-20 (ON-3)
SEE DETAIL "N" (ZONE-4D)
PT. 11L-F(REF)
PT. 10L-F(REF)
PT. 17L-F(REF)
LDW 280-51458-37(REF)(ON-1)
GS26A-1-24(-EF)(ON-3)
℄ FWD TANK SUPPORT
AT Z +27.000 (REF)
A9
LDW280-28860-79 (ON-1)
GS26C-1-29 (ON-3)
LDW280P11521-13 (ON-3)
SEE DETAIL "M" (ZONE-5D)
A8 B3
LDW280-28860-3 (ON-1)
GS26C-1-2 (ON-3) LDW280P11521-13(ON-3)
SEE DETAIL M (ZONE-5D)
A
B4
GS26C-1-17(ON-1&-3)
A (ZONE 4C)
GS26A-1-19 (ON-1&-3)
LDW280-28860-77(ON-1)
GS26C-1-28 (ON-3)
LDW280P11521-13 (ON-3) - SEE DETAIL "M" (ZONE 5D)
PT. 2L-F (REF)
SEE DETAIL "N" (ZONE 4D)
LDW 280-51458-23 (ON-1)
GS26A-2-17 (ON-3)
LDW280-51458-7 (ON-1)
GS26A-2-18 (ON-3)
SEE DETAIL "N" (ZONE-4D)
A6
LDW280-51458-9 (ON-1)
GS26A-2-19 (ON-3)
SEE DETAIL "N" (ZONE-4D)
A4 A5 A6
PT. 1L-F (REF)
LDW280-51458-31(ON-1)
GS26A-1-19 (ON-3)
SEE DETAIL "N" (ZONE-4D)
Z 0.000 (REF)
LDW280-51458-9(ON-1)
GS26A-2-19 ON-3
SEE DETAIL "N" (ZONE 4D)
A5 A4 A6
PT. 1L-A (REF)
LDW280-51458-23 (ON-1)
GS26A-2-17 (ON-3)
SEE DETAIL "N" (ZONE-4D)
PT. 2L-A (REF)
SEE DETAIL "N" (ZONE-4D)
LDW280-51458-31(2) (ON-1)
GS26A-1-19 (ON-3)
LDW280P11521-13(ON-3)
LDW280-28860-13(ON-1)
GS26C-1-7 (ON-3)
SEE DETAIL "M" (ZONE-5D)
A8 B3
B
B (ZONE 4B)
LDW280-51458-51 (ON-1)
GS26A-1-23 (ON-3)
SEE DETAIL "N" (ZONE 4D)
A5 A6
51458-33(2)(REF)(ON-1)
-21 (ON-3)(REF)
SEE DETAIL "N" (ZONE-4D)
LDW280-51458-35(ON-1)
GS26A-1-22(ON-3)
℄ AFT TANK SUPPORT
AT Z-27.000 (REF)
LDW 280-28860-35(REF) (ON-1)
13L-A(REF)
14L-A(REF)
PT. 11L-A(REF)
PT. 10L-A(REF)
PT. 15L-A(REF)
1/8 TO 1/4 FILLET
(TYP ALL AROUND)
SEE NOTE 1
A7
BOND CHECK LOAD DIRECTION
SEE NOTE *2
SEE NOTE 1
LDW280-28860 (ON-1) (REF)
GS26C-1 (ON-3)(REF)
LDW280P11521-13 (REF)
A5 DETAIL "M"
(SCALE: NONE)
LDW280-51458 (ON-1)(REF)
GS26A-1 (ON-3)(REF)
A5 DETAIL "N"
(SCALE: NONE)
LDW 280-28160 (REF)
LDW 280-51160 (REF)
LDW280-28160(REF)
LDW280-51160(REF)
GS26C-1-17 (REF)
LDW280-28382(REF)
LDW280-28860-3(REF)(ON-1)
GS26C-1-2(REF)(ON-3)
SECT A-A (ZONE 6C)
SCALE (FULL)
LDW280-28382 (REF)
LDW280-28860-13(REF) (ON-1)
GS26C-1-7 (REF)(ON-3)
LDW 280-11439(REF)
LDW280-28160(REF)
LDW280-51160(REF)
SECT B-B (ZONE 6B)
SCALE (FULL)
LDW 280-28160
LDW 280-51160
GS26A-1-
LDW 280
SECT G-G (ZONE 11C)
SCALE (FULL)

03/04

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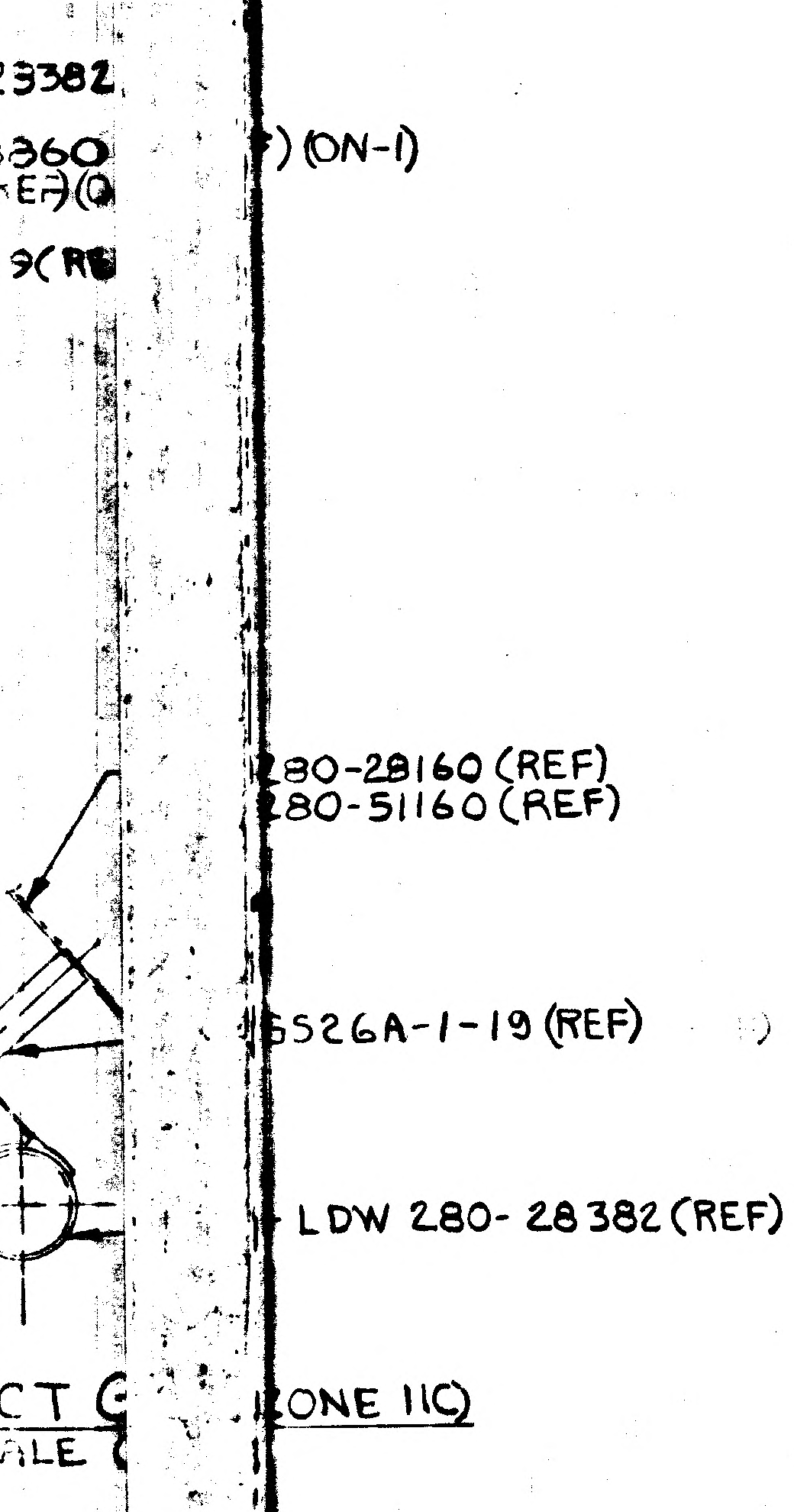
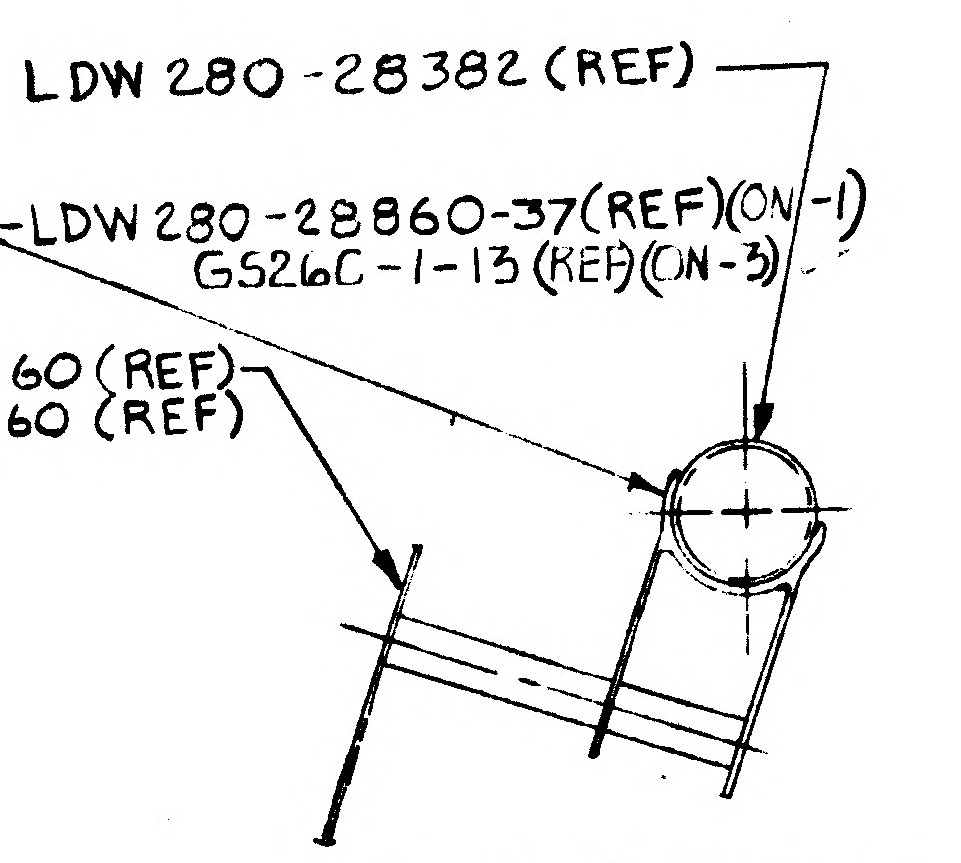
CODE IDENT NO. 26512
LDW280-28863
SH 3


3382
360
EF)(O
9(RE
) (ON-1)
280-28160 (REF)
280-51160 (REF)
GS26A-1-19 (REF)
LDW 280-28382 (REF)
CT G ZONE 11C)
ALE (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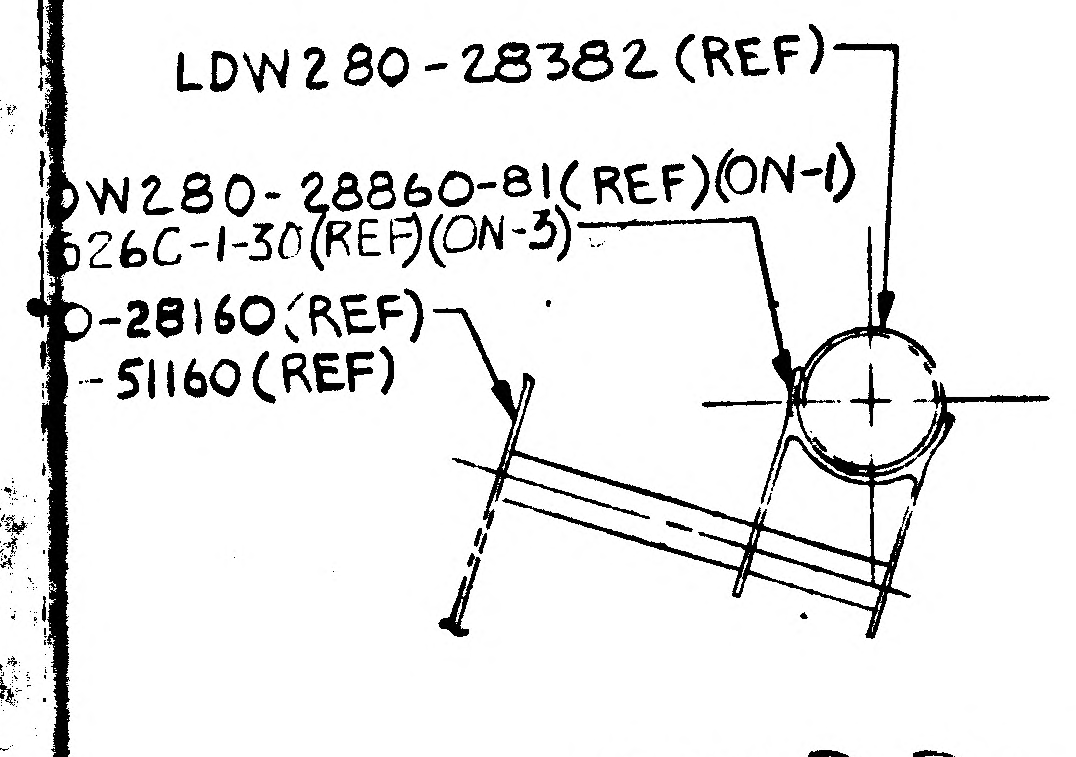
GS26C-1-13 (REF)(ON-3)
8160 (REF)
1160 (REF)

SECT C-C (ZONE 9C)
SCALE (FULL)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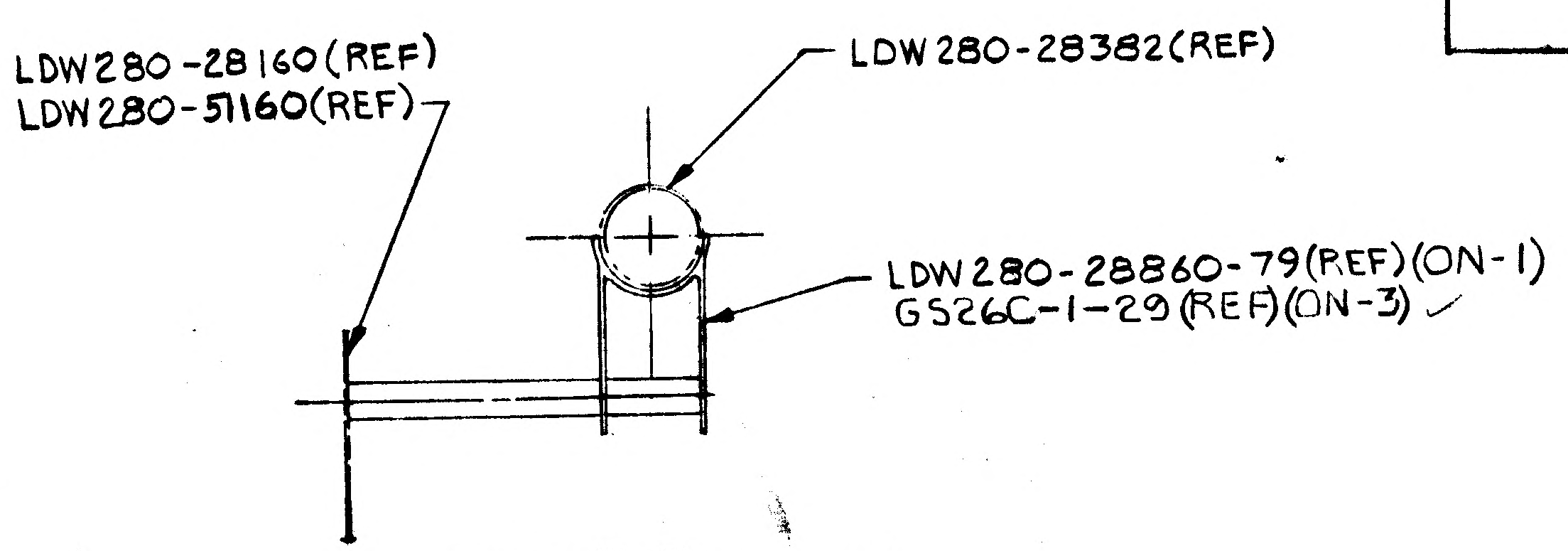
DW280-28860-81(REF)(ON-1)
S26C-1-30(REF)(ON-3)
0-28160 (REF)
-51160 (REF)

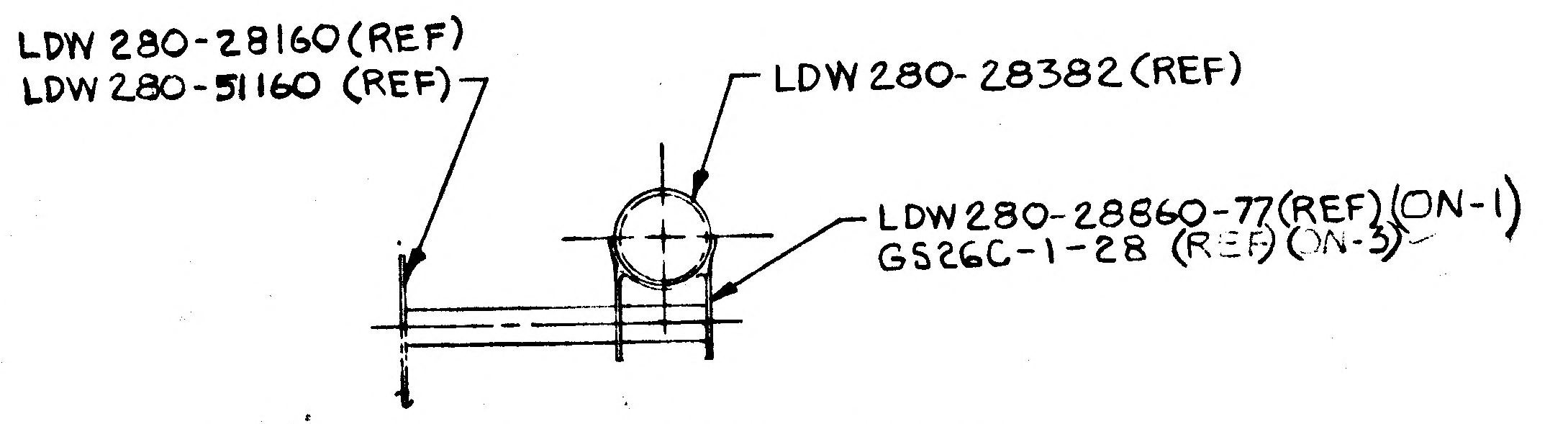
SECT D-D (ZONE 10D)
SCALE (FULL)

SYMBOL LEGEND FOR STANDOFF LOCATION

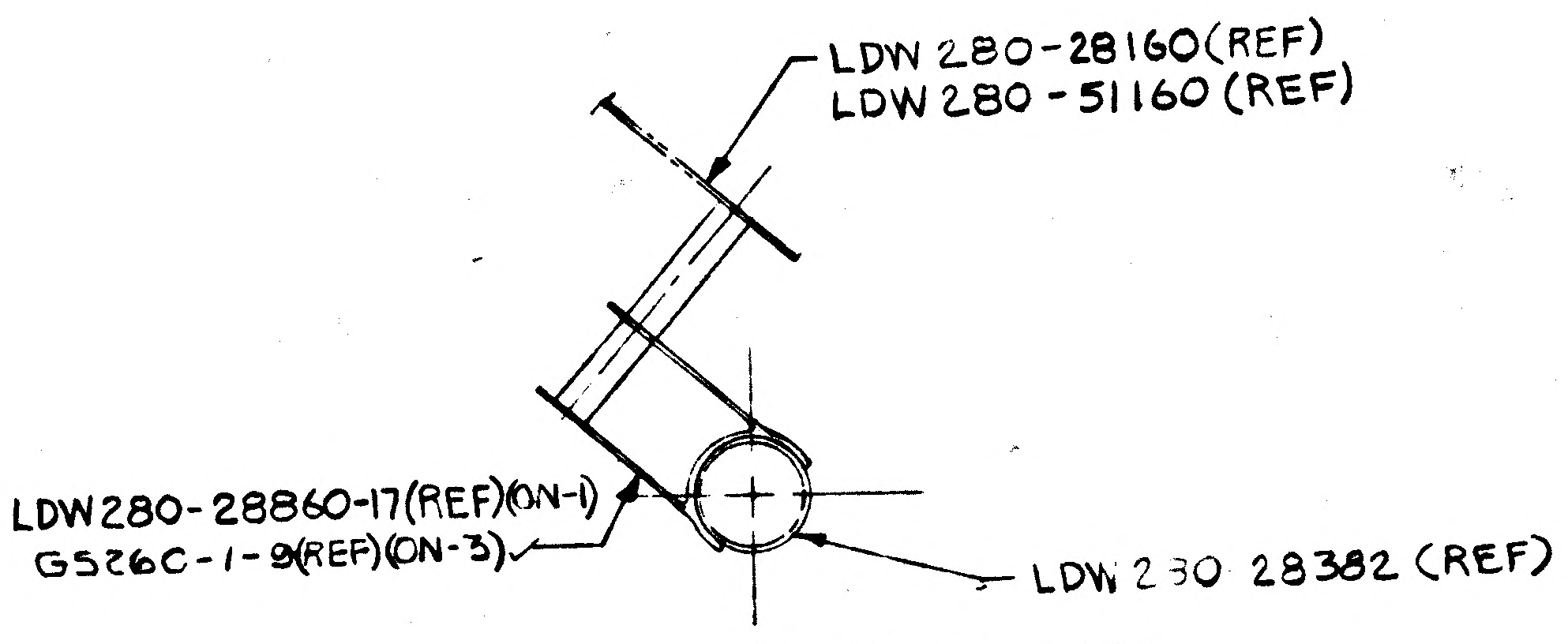
SYMBOL	COORDINATE WITH DRAWING NO.
A	LDW 280-11437
B	LDW 280-11437
C	LDW 280-11937
D	LDW 280-11938
E	LDW 280-11938
F	LDW 280-11439
G	LDW 280-11939
H	LDW 280-11439
J	LDW 280-11940
K	LDW 280-11490
L	LDW 280-11490
M	LDW 280-11491
N	LDW 280-11491
P	LDW 280-11941
R	LDW 280-11942
S	LDW 280-11942
T	LDW 280-11443
V	LDW 280-11443
W	LDW 280-11443
X	LDW 280-11444 LDW 280-11524
Y	LDW 280-11494 LDW 280-11524
Z	LDW 280-11444 – LDW 280-11524 LDW280-14398 } FOR LTA-8 -14399 -14468 } FOR LM-1 & LM-2 -14469


LDW280-28160(REF)
LDW280-51160(REF)
LDW280-28382(REF)
LDW280-28860-79(REF)(ON-1)
GS26C-1-29(REF)(ON-3)

SECT F-F (ZONE 12D)
SCALE (FULL)


LDW 280-28160(REF)
LDW 280-51160 (REF)
LDW 280-28382 (REF)
LDW280-28860-77(REF)(ON-1)
GS26C-1-28 (REF)(ON-3)

SECT E-E (ZONE 11D)
SCALE (FULL)


LDW 280-28160(REF)
LDW 280-51160 (REF)
LDW280-28860-17(REF)(ON-1)
GS26C-1-8(REF)(ON-3)
LDW 280 28382 (REF)

SECT H-H (ZONE 9B)
SCALE (FULL)

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MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

- PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.
- FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030
- DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.
- EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.
- DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.
- MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.
- DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING
- HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.
- ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES
- 125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10
- 200 √ FOR ALL DRILLED HOLES
- REMOVE ALL BURRS. BREAK ALL EDGES .015-.031
- INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS
- SYMBOL √ DENOTES SURFACE TO BE MACHINED
- UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32
- LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.
- TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 40 X 128

PRINTING INFO ONLY
FULL SIZE SHEET AREA (42 X 130)= 37.9 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 9.5 SQ. FT.

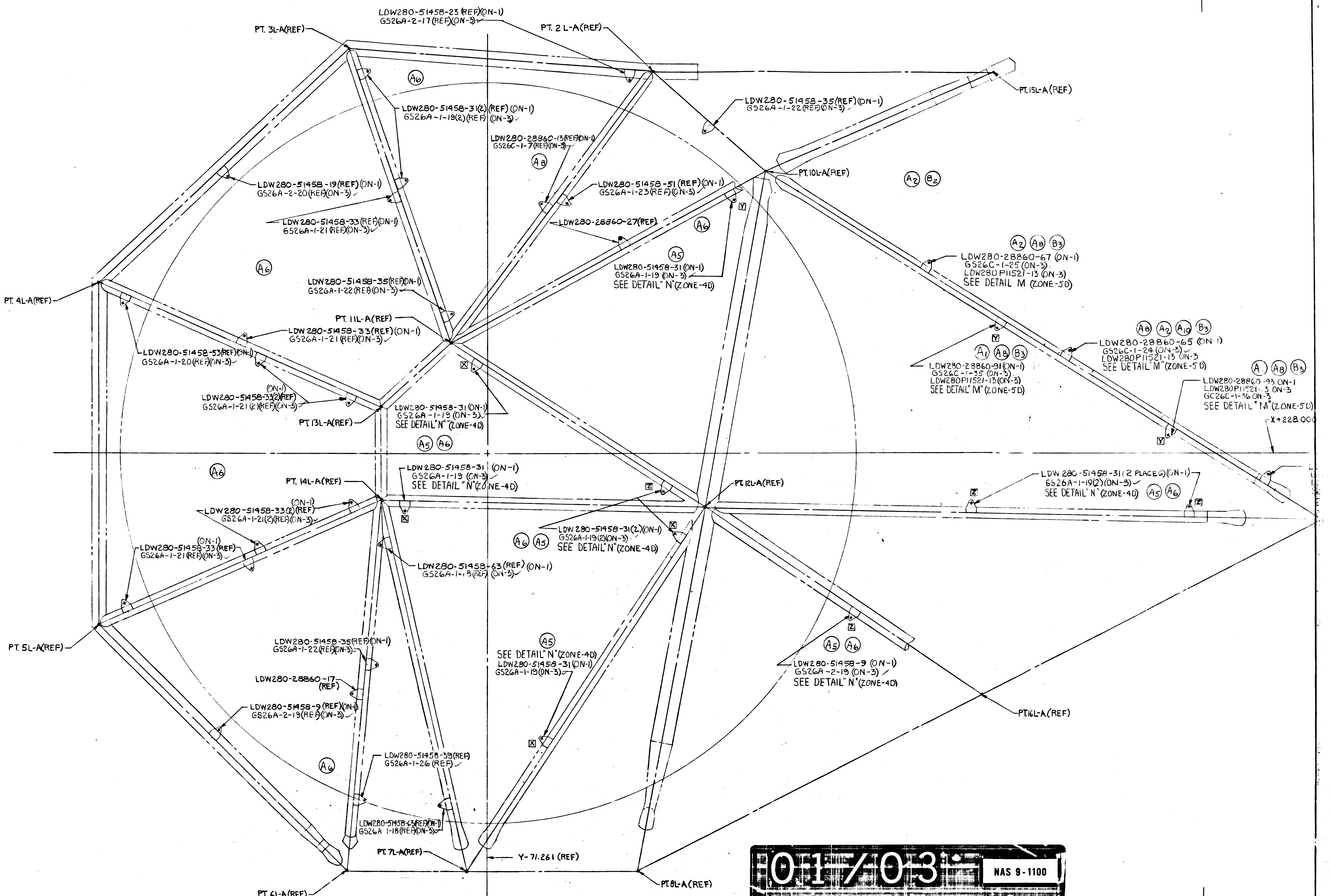
PRINT TRIM LINE

NOTES:
1. BOND ALL STANDOFFS TO STRUCTURE USING EPON 934, IN ACCORDANCE WITH LSP-14-22500, CURE RANGE I.
2. AFTER BONDING OF STANDOFFS HAS BEEN COMPLETED EACH STANDOFF BOND SHALL BE CHECKED BY APPLYING A 4 ± 1 POUND LOAD IN THE DIRECTION SHOWN IN THE BONDING DETAIL.

LDW280-28863 B
LDW280-28863 B

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
SIZE K	CODE IDENT NO. 26512	LDW280-28863	B
LM MODEL OR END ITEM	SCALE 1/1		SHEET 3 OF 3

IBM


24
23
22
21
20
C
B
A
LDW280-51458-23 (REF)(ON-1)
GS26A-2-17 (REF)(ON-3)
PT. 3L-A(REF)
PT. 2 L-A(REF)
A6
LDW280-51458-31(2) (REF) (ON-1)
GS26A-1-19(2) (REF) (ON-3)
LDW280-28860-13(REF)(ON-1)
GS26C-1-7 (REF)(ON-3)
A8
LDW280-51458-35(REF)(ON-1)
GS26A-1-22(REF)(ON-3)
PT. 15L-A(REF)
PT. 10L-A(REF)
A2 B2
LDW280-51458-19(REF)(ON-1)
GS26A-2-20(REF)(ON-3)
LDW280-51458-51 (REF)(ON-1)
GS26A-1-23(REF)(ON-3)
Y
LDW280-51458-33(REF)(ON-1)
GS26A-1-21 (REF)(ON-3)
LDW280-28860-27(REF)
A6
A5
LDW280-51458-31 (ON-1)
GS26A-1-19 (ON-3)
SEE DETAIL "N" (ZONE-4D)
A2 A8 B3
LDW280-28860-67 (ON-1)
GS26C-1-25 (ON-3)
LDW280 P11521-13 (ON-3)
SEE DETAIL M (ZONE-5D)
A6
LDW280-51458-35(REF)(ON-1)
GS26A-1-22(REF)(ON-3)
PT. 4L-A(REF)
PT. 11L-A(REF)
LDW 280-51458-33(REF) (ON-1)
GS26A-1-21 (REF)(ON-3)
LDW280-51458-53(REF)(ON-1)
GS26A-1-20(REF)(ON-3)
X
Y
A8 A2 A10 B3
LDW280-28860-65 (ON-1)
GS26C-1-24 (ON-3)
LDW280P11521-13 ON-3
SEE DETAIL "M" (ZONE-5D)
A1 A8 B3
LDW280-28860-91(ON-1)
GS26C-1-35 (ON-3)
LDW280P11521-13(ON-3)
SEE DETAIL "M" (ZONE-5D)
A A8 B3
LDW280-28860-93 ON-1
LDW280P11521-13 ON-3
GC26C-1-36 ON-3
SEE DETAIL "M" (ZONE-5D)
(ON-1)
LDW280-51458-33(2)(REF)
GS26A-1-21 (2)(REF)(ON-3)
PT. 13L-A(REF)
LDW280-51458-31 (ON-1)
GS26A-1-19 (ON-3)
SEE DETAIL "N" (ZONE-4D)
A5 A6
Y
X+228.000
A6
PT. 14L-A(REF)
LDW 280-51458-31 (ON-1)
GS26A-1-19 (ON-3)
SEE DETAIL "N" (ZONE-4D)
Z
PT. 12L-A(REF)
LDW 280-51458-31 (2 PLACES)(ON-1)
GS26A-1-19(2)(ON-3)
SEE DETAIL "N" (ZONE-4D) A5 A6
Z
Z
(ON-1)
LDW280-51458-33(2)(REF)
GS26A-1-21(2)(REF)(ON-3)
X
X
LDW 280-51458-31(2)(ON-1)
GS26A-1-19(2)(ON-3)
A6 A5 SEE DETAIL "N" (ZONE-4D)
(ON-1)
LDW280-51458-33 (REF)
GS26A-1-21 (REF)(ON-3)
LDW280-51458-63 (REF) (ON-1)
GS26A-1-18 (REF) (ON-3)
PT. 5L-A(REF)
Z
A5
SEE DETAIL "N" (ZONE-4D)
LDW280-51458-31 (ON-1)
GS26A-1-19 (ON-3)
A5 A6
LDW280-51458-35(REF)(ON-1)
GS26A-1-22(REF)(ON-3)
LDW280-51458-9 (ON-1)
GS26A-2-19 (ON-3)
SEE DETAIL "N" (ZONE-4D)
LDW280-28860-17
(REF)
PT. 16L-A(REF)
LDW280-51458-9 (REF)(ON-1)
GS26A-2-19(REF)(ON-3)
X
LDW280-51458-39(REF)
GS26A-1-26 (REF)
A6
LDW280-51458-63(REF)(ON-1)
GS26A 1-18(REF)(ON-3)
PT. 7L-A(REF)
Y-71.261 (REF)
PT. 6L-A(REF)
PT. 8L-A(REF)

VIEW LOOKING FORWARD
AFT FACE L.H. SIDE

3/3

01/03

NAS 9-1100

CODE IDENT NO 26512	
LDW280-28863	SH 4

PT. 10L-F (REF)
PT. 2L-F (REF)
LDW280-51458-23 (REF) (ON-1)
GS26A-2-17 (REF) (ON-3)
LDW280-51458-7 (REF) (ON-
GS26A-2-18 (REF) (ON-3)
A9
LDW280P11521-13 (REF) (ON-3)
LDW280-28860-39 (REF) (ON-
GS26C-1-14 (REF) (ON-3)
LDW280-51458-37 (REF) (ON-1)
GS26A-1-24 (REF) (ON-3)
A8
LDW280-28860-3 (REF) (ON-1)
GS26C-1-2 (REF) (ON-3)
LDW280P11521-13 (REF) (ON-3)
W
LDW280-51458-31 (ON-1)
GS26A-1-19 (ON-3)
SEE DETAIL "N" (ZONE-4D)
GS26C-1-17 (REF)
B4
A5 A6
SEE DETAIL "N" (ZONE-4D)
LDW280-51458-31 (ON-1)
GS26A-1-19 (ON-3)
X
PT 11L-F (RE
A3 A8 B3
LDW280-28860-95 (ON-1)
LDW280P11521-13 (ON-3)
GS26C-1-36 (ON-3)
SEE DETAIL "M" (ZONE-5D)
PT. 15L-F (REF)
PT. 16L-F (REF)
X
SEE DETAIL "N" (ZONE-4D)
LDW280-51458-31 (ON-1)
GS26A-1-19 (ON-3)
A5 A6
W
A8 A3 B3
LDW280-28860-95 (2) (ON-1)
LDW280P11521-13 (2) (ON-3)
GS26C-1-36 (2) (ON-3)
SEE DETAIL "M" (ZONE-5D)
X
W
PT. 12L-F (REF)
LDW280-51458-57 (REF) (ON-1)
GS26A-1-18 (REF) (ON-3)
A5 A6
LDW280-51458-31 (ON-1)
GS26A-1-19 (ON-3)
SEE DETAIL "N" (ZONE-4D)
Z
LDW280-51458-31
GS26A-1-19 REF
LDW280-28860-45
GS26C-1-17 (REF)
PT. 7L-F (REF)
PT. 9L-F (REF)
PT. 8L-F (REF)
Y-71.261 (REF)
A8 A2 A10 B3
LDW280-28860-65 (ON-1)
GS26C-1-24 (ON-3)
LDW280P11521-13 ON-3
SEE DETAIL "M" (ZONE-5D)
A1 A8 B3
LDW280-28860-93 ON-1
LDW280P11521-13 ON-3
GC26C-1-36 ON-3
SEE DETAIL "M" (ZONE-5D)
Y
X+228.000 (REF)
A8 A2 A10 B3
LDW280-28860-65 (ON-1)
GS26C-1-24 (ON-3)
LDW280P11521-13 (ON-3)
SEE DETAIL "M" (ZONE-5D)
1458-31 (2 PLACES) (ON-1)
9 (2) (ON-3)
N" (ZONE-4D)
A5 A6
Z
PT. 9L-A (REF)
20
19
18
17
16

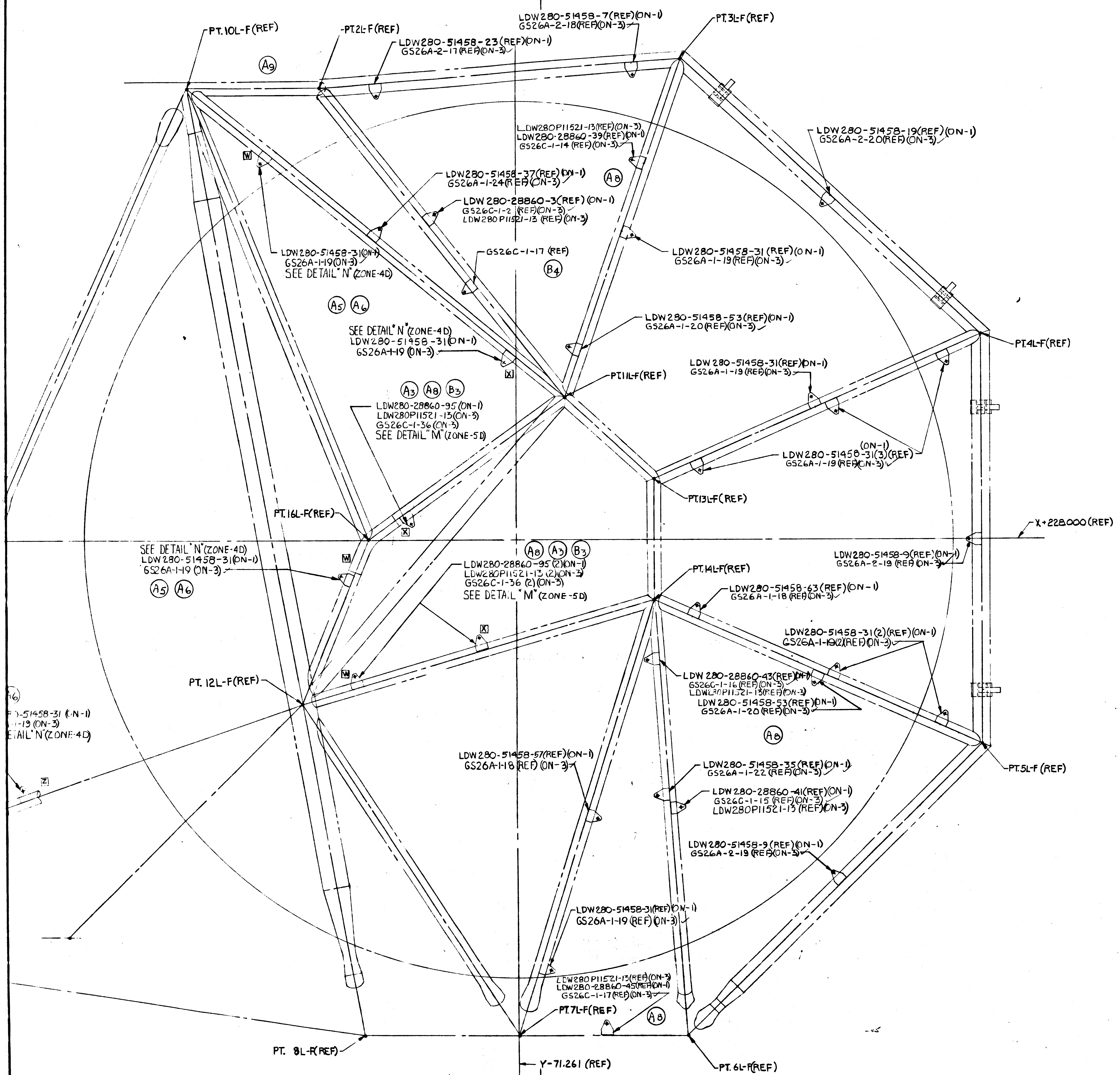
VIEW LOOK
FORWARD F

CODE IDENT NO 26512	
LDW280-28863	SH 4

CODE IDENT NO 26512
DW280-28863 SH 4

02/03

NAS 9-1100


17
16
15
14
PT. 10L-F (REF)
PT. 2L-F (REF)
LDW280-51458-23 (REF) (ON-1)
GS26A-2-17 (REF) (ON-3)
LDW280-51458-7 (REF) (ON-1)
GS26A-2-18 (REF) (ON-3)
PT. 3L-F (REF)
A9
LDW280P11521-13 (REF) (ON-3)
LDW280-28860-39 (REF) (ON-1)
GS26C-1-14 (REF) (ON-3)
LDW280-51458-19 (REF) (ON-1)
GS26A-2-20 (REF) (ON-3)
LDW280-51458-37 (REF) (ON-1)
GS26A-1-24 (REF) (ON-3)
A8
LDW280-28860-3 (REF) (ON-1)
GS26C-1-2 (REF) (ON-3)
LDW280P11521-13 (REF) (ON-3)
W
LDW280-51458-31 (ON-1)
GS26A-1-19 (ON-3)
SEE DETAIL "N" (ZONE-4D)
GS26C-1-17 (REF)
B4
LDW280-51458-31 (REF) (ON-1)
GS26A-1-19 (REF) (ON-3)
A5 A6
LDW280-51458-53 (REF) (ON-1)
GS26A-1-20 (REF) (ON-3)
SEE DETAIL "N" (ZONE-4D)
LDW280-51458-31 (ON-1)
GS26A-1-19 (ON-3)
X
PT. 11L-F (REF)
LDW280-51458-31 (REF) (ON-1)
GS26A-1-19 (REF) (ON-3)
PT. 4L-F (REF)
A3 A8 B3
LDW280-28860-95 (ON-1)
LDW280P11521-13 (ON-3)
GS26C-1-36 (ON-3)
SEE DETAIL "M" (ZONE-5D)
(ON-1)
LDW280-51458-31 (3) (REF)
GS26A-1-19 (REF) (ON-3)
PT. 13L-F (REF)
PT. 16L-F (REF)
X
X+228.000 (REF)
SEE DETAIL "N" (ZONE-4D)
LDW280-51458-31 (ON-1)
GS26A-1-19 (ON-3)
A5 A6
W
A8 A3 B3
LDW280-28860-95 (2) (ON-1)
LDW280P11521-13 (2) (ON-3)
GS26C-1-36 (2) (ON-3)
SEE DETAIL "M" (ZONE-5D)
PT. 14L-F (REF)
LDW280-51458-9 (REF) (ON-1)
GS26A-2-19 (REF) (ON-3)
LDW280-51458-63 (REF) (ON-1)
GS26A-1-18 (REF) (ON-3)
X
LDW280-51458-31 (2) (REF) (ON-1)
GS26A-1-19 (2) (REF) (ON-3)
W
PT. 12L-F (REF)
LDW280-28860-43 (REF) (ON-1)
GS26C-1-16 (REF) (ON-3)
LDW280P11521-13 (REF) (ON-3)
LDW280-51458-53 (REF) (ON-1)
GS26A-1-20 (REF) (ON-3)
A6
-51458-31 (ON-1)
-19 (ON-3)
TAIL "N" (ZONE-4D)
A8
Z
LDW280-51458-57 (REF) (ON-1)
GS26A-1-18 (REF) (ON-3)
LDW280-51458-35 (REF) (ON-1)
GS26A-1-22 (REF) (ON-3)
PT. 5L-F (REF)
LDW280-28860-41 (REF) (ON-1)
GS26C-1-15 (REF) (ON-3)
LDW280P11521-13 (REF) (ON-3)
LDW280-51458-9 (REF) (ON-1)
GS26A-2-19 (REF) (ON-3)
LDW280-51458-31 (REF) (ON-1)
GS26A-1-19 (REF) (ON-3)
LDW280P11521-13 (REF) (ON-3)
LDW280-28860-45 (REF) (ON-1)
GS26C-1-17 (REF) (ON-3)
PT. 7L-F (REF)
A8
PT. 8L-F (REF)
PT. 6L-F (REF)
Y-71.261 (REF)

VIEW LOOKING AFT
FORWARD FACE L.H. SIDE

CODE IDENT NO. 26512	
LDW280-28863	SH 4

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.

- PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.
- FILLET AND INSIDE CORNER RADII TOLERANCES
  - .016R TO .062R ± .010
  - .063R TO .250R ± .015
  - OVER .250R ± .030
- DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.
- EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.
- DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.
- MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.
- DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING
- HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.
- ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES
- $\sqrt{125}$ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10
- $\sqrt{200}$ FOR ALL DRILLED HOLES
- REMOVE ALL BURRS. BREAK ALL EDGES .015-.031
- INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS
- SYMBOL √ DENOTES SURFACE TO BE MACHINED
- UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32
- LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.
- TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 118

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 120)— 30 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)— 7.5 SQ. FT.

PRINT TRIM LINE

C

B

LDW280-28863 B

LDW280-28863 A

03/03
NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-28863	B
MODEL OR END ITEM	SCALE 1/2		SHEET 400	

13

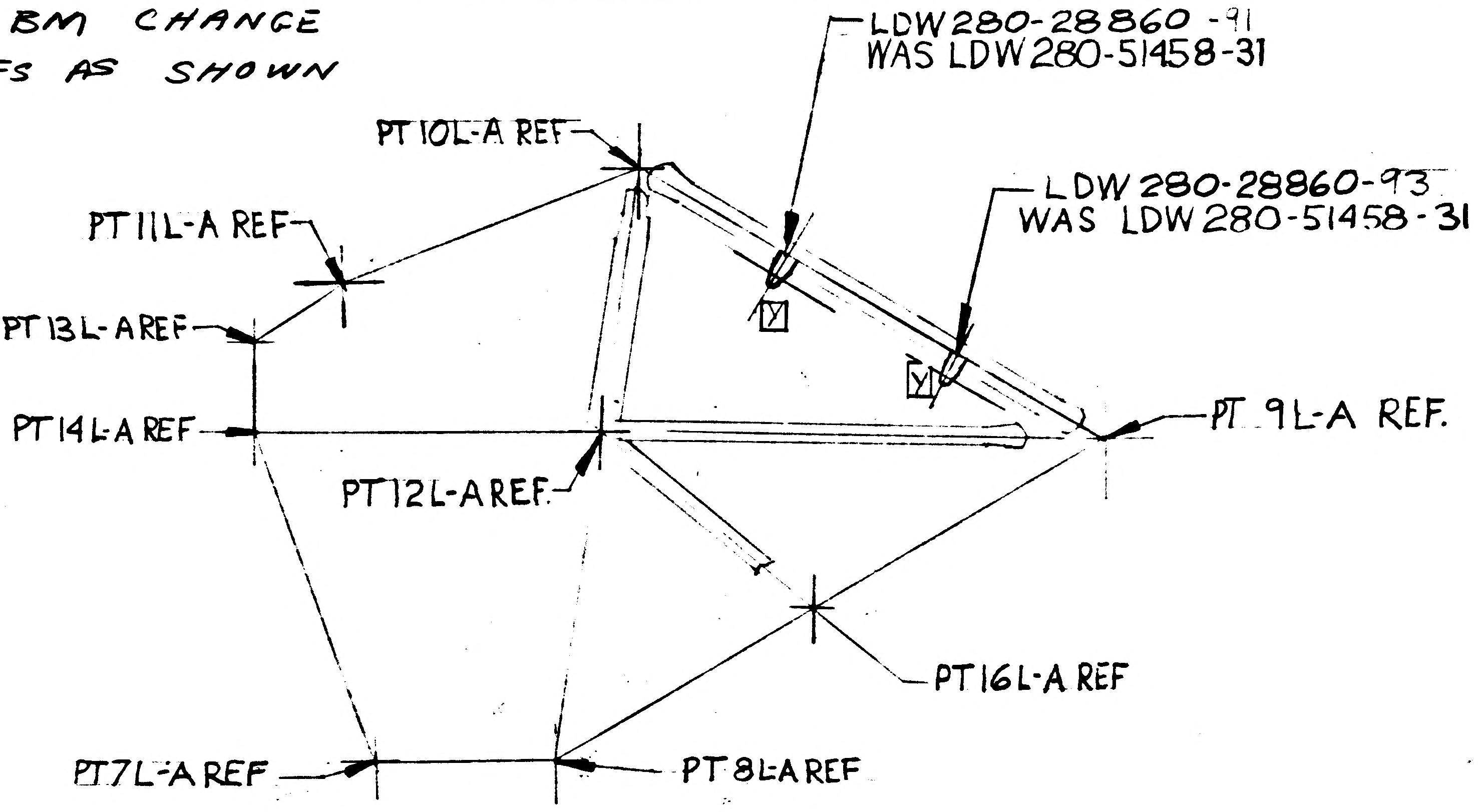
G-1-C

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW 280-28863 | EO NO. A1
CONTROL INFO NO. LDW 280A-0292

IN F/D & BM CHANGE
STAND OFFS AS SHOWN


LDW 280-28860 -91
WAS LDW 280-51458-31
LDW 280-28860-93
WAS LDW 280-51458-31
PT 10L-A REF
PT 11L-A REF
PT 13L-A REF
PT 14L-A REF
PT 12L-A REF
PT 9L-A REF.
PT 16L-A REF
PT 7L-A REF
PT 8L-A REF
V
V

VIEW LOOKING FWD-AFT FACE LEFT HAND SIDE

3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: TO ACCOMMODATE REVISED TRIM LINE

DESCRIPTION OF EO: IN F/D & BM - LDW 280-28860-91 & LDW 280-28860-93 WERE LDW 280-51458-31

GAEC C EO RELEASE: ⑫ [illegible] 9-23

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LEM		LTA 8 (18)	
LEM		LEM 1 (31)	
LEM		LEM 2 (32	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		✓		APPROVED BY	[illegible]	AAR		Heaton	[illegible]		[illegible]	[illegible]
				DATE	7/13	10-4		9/10/66	9/16		9-23-66	9/22/66
REVISE DWG	RECORD EO	REWORK	SCRAP	✓	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STAND OFF INSTL A/S M/S L.H. TANK SHIELD	LDW 280-28863	A1

ISSUED BY Hugh Toner X1441 SECTION VDI GROUP NO 335 PL 35

01

NAS 9-1100

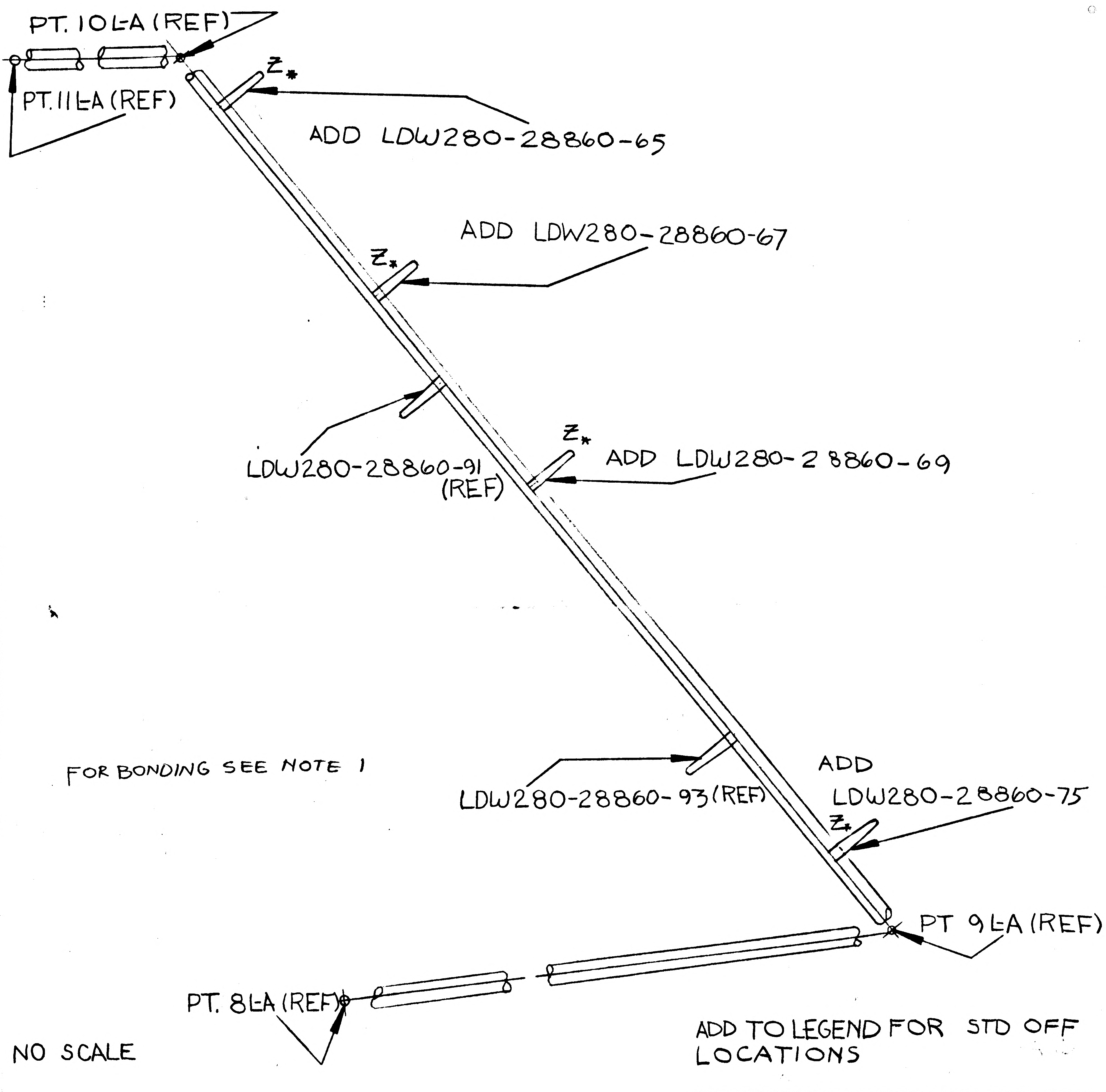
ENG 32.2 REV 3-65

[*]

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28863
EO NO. A2
CONTROL INFO NO. LDW280A-0294

IN FIELD, B/M ADD STAND OFFS AS SHOWN (-1 INSTALL)



PT. 10L-A (REF)
PT. 11L-A (REF)
Z*
ADD LDW280-28860-65
ADD LDW280-28860-67
Z*
LDW280-28860-91 (REF)
Z*
ADD LDW280-28860-69
LDW280-28860-93 (REF)
ADD LDW280-28860-75
Z*
PT 9L-A (REF)
PT. 8L-A (REF)

FOR BONDING SEE NOTE 1

NO SCALE

ADD TO LEGEND FOR STD OFF LOCATIONS

SYMBOL	COORD WITH DRAWING NO.
Z*	LDW280-14398 }LTA-8 -14399 LDW280-14468 }LM-1,-2 -14469

VIEW LOOKING FWD

3

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: PROVIDE STANDOFFS FOR AFT EQPT BAY

DESCRIPTION OF EO: ADDED TO FIELD B/M FOR -1 LDW280-28863 -65(1 RQD), -64(1 RQD), -69,(1 RQD) & -75(1 RQD) ADDED TO LEGEND IN F/D

GAEC EO RELEASE: CE 9.23

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
LM		LM-1(31)	
LM		LTA-8(18)	

DRAWING CHANGE REQD: ✓ REVISE DWG / RECORD EO

DISPOSITION OF PARTS: NOT REWORK / RQD SCRAP

APPROVED BY		LBG		PA	GR		RMS	JRY
DATE	9/15	9/22/66		[illegible]	9		9-23-66	9/22/66
	VJ	~~SUPPORT~~ WIE	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: STAND OFF INSTAL. A/S-M/S LH TANK SHIELDING

DRAWING NO. LDW280-28863

EO NO. A2

ISSUED BY BELEV X 1441 SECTION VEH[illegible] DESIGN GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-63 *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28863
EO NO. A3
CONTROL INFO NO. LDW280A-0235

IN F/D, B/M FOR-1 REVISE AS FOLLOWS

1- IN ZONE 11-B, LDW280-51458-9 (CODE H) (REF) (WAS LDW280-51458-31)

2- LDW280-28860-95 (3 RQD) WAS LDW280-28860-49 (3 RQD)

IN B/M. FOR-1
LDW280-51458-31, 31 RQD (WAS 32 RQD)
LDW280-51458-9, 11 RQD (WAS 10 RQD)
ADD LDW280-28860-95 (3 RQD)
REMOVE LDW280-28860-49 (3 RQD)

3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: ENG. ERROR

DESCRIPTION OF EO: ON-1 LDW280-51458-9 WAS LDW280-51458-31
LDW280-28860-95 (WAS LDW280-28860-49)

GAEC EO RELEASE: P 10/4

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
LM		LM-1(31)	
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY								
DATE ✓	9/15	10/6/66		9/1	9/30		9-30	9/29/66
	VDI.	~~SUPPORT~~ WTS	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: STANDOFF INSTALL. A/S-M/S LH UPPER SHIELD
DRAWING NO. LDW280-28863
EO NO. A3

ISSUED BY G.BELEV X1441 9-14-66 SECTION VDI GROUP NO. 335 PL 35

01

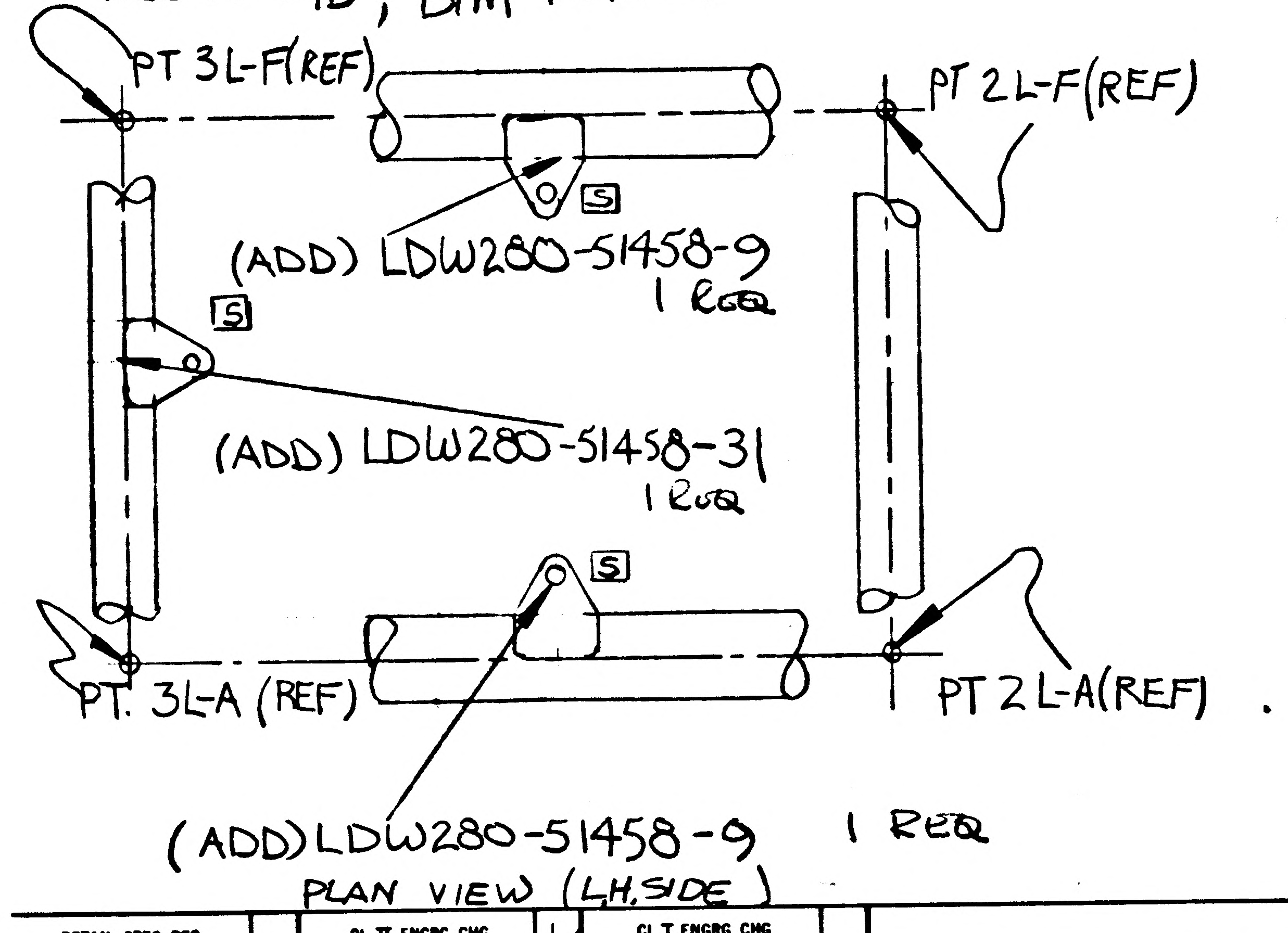
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28863 | EO NO. A4
CONTROL INFO NO. LM-3-4078

ADD TO F/D, B/M FOR -1


PT 3L-F(REF)
PT 2L-F(REF)
5
(ADD) LDW280-51458-9
1 REQ
5
(ADD) LDW280-51458-31
1 REQ
5
PT. 3L-A (REF)
PT 2L-A(REF)
(ADD)LDW280-51458-9
1 REQ

PLAN VIEW (LH, SIDE)

3

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: TO PROVIDE SUPPORT FOR THERMAL SHIELD.

DESCRIPTION OF EO: IN F/D & B/M ON -1 INSTL ADDED LDW280-51458-9 (2) LDW280-51458-31 (1)

GAEC C EO RELEASE

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)-2(32)	
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	RQD

APPROVED BY									
DATE	10/11			10/11	10/11	10/12/66	10-11-66	10-11-66	
10-12-66		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY: C
DRAWING TITLE: STANDOFF INSTALL. A/S-M/S LH TANK SHIELDING
DRAWING NO. LDW280-28863
EO NO. A4

LIAISON/ISSUED BY BELEV / VIC BOLLO 2151 SECTION VEH. DES INT GROUP NO. 335 PL 35

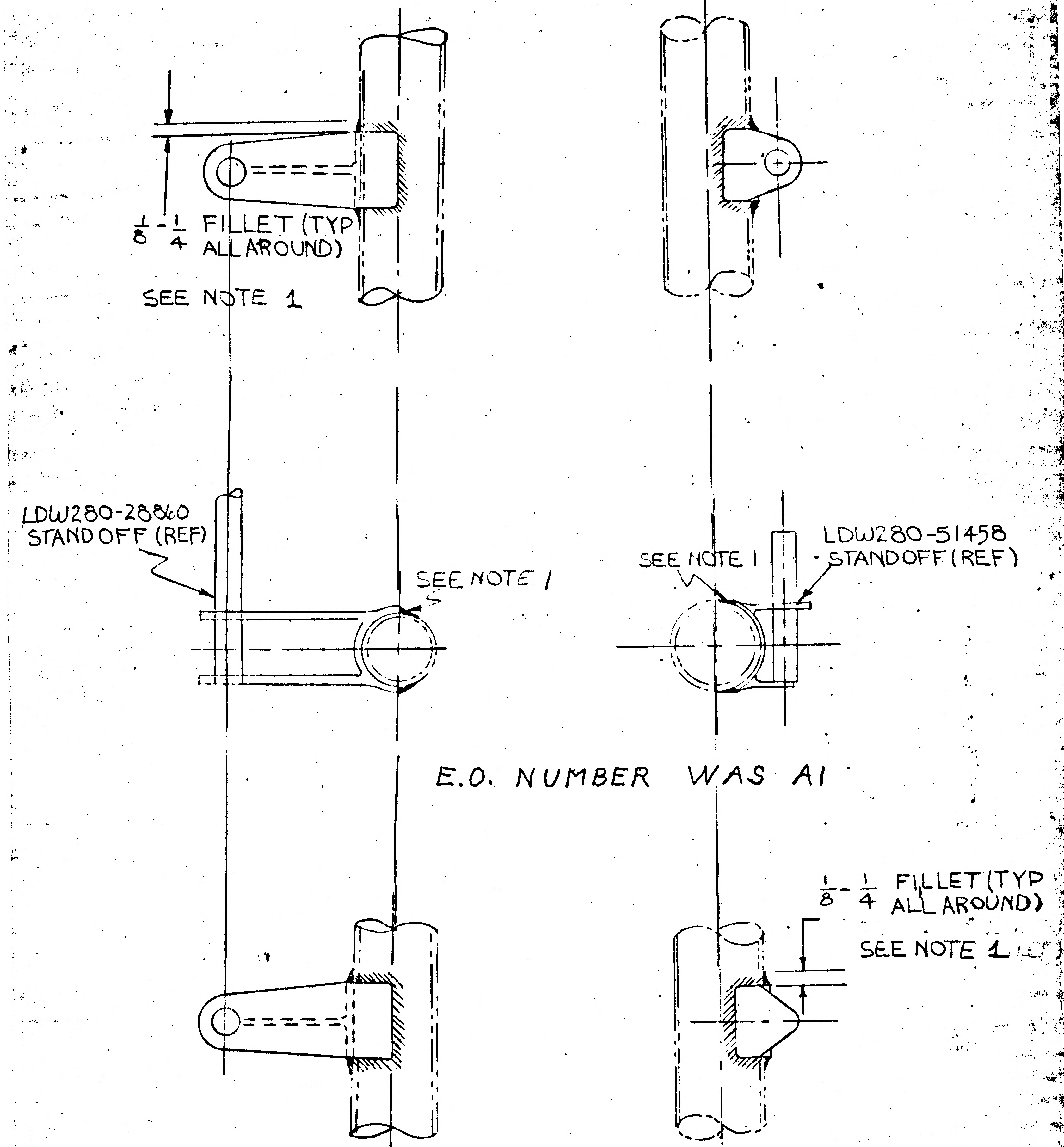
01 NAS 9-1100

ENG 22.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28863		EO NO. A5
CONTROL INFO NO. LM-3-4083		

IN F/D ADD
BONDING DETAILS
AS SHOWN.



1/8 - 1/4 FILLET (TYP ALL AROUND)
SEE NOTE 1
LDW280-28860 STANDOFF (REF)
SEE NOTE 1
SEE NOTE 1
LDW280-51458 STANDOFF (REF)
1/8 - 1/4 FILLET (TYP ALL AROUND)
SEE NOTE 1

E.O. NUMBER WAS A1

BONDING DETAIL TYP FOR LDW280-51458, -28860 STANDOFFS

DETAIL SPEC REQ		CL II ENGRG CHG	V	CL I ENGRG CHG	

REASON FOR EO: TO PROVIDE ADEQUATE BOND AREA FOR STANDOFFS

DESCRIPTION OF EO: IN F/D ADDED BONDING DETAIL

GAEC C EO RELEASE: 3

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)-2(32)	
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
V		NOT RQD	

APPROVED BY			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
DATE	10/11				10/11	10/11	10-12-66	10-14-66	10-12-66
10-12-66	VD1								

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STAND OFF INSTALL A/S-M/S LH TANK SHIELDING	LDW280-28863	A5

LIAISON/ISSUED BY G. BELEV X1441 Bolio 10-12-66 SECTION VD1 GROUP NO. 335

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28863
EO NO. A6
CONTROL INFO NO. LDW 280A-2094

1.) IN B/M FOR -1 INSTL. REMOVE LM-1 (31) & LM-2 (32) EFF.

2.) TO B/M & F/D:
ADD -3 INSTL. IDENT TO -1 EXCEPT AS NOTED IN FOLLOWING TABLE - BELOW. N/A LDW 280-51150 FOR LM-1 & -2 (1) REQ'D/VEH.

(-3 INSTL MAY BE MADE BY REWORKING -1 INSTL.)

4.) IN ZONE 815 CALLOUTS LDW 280-51489-31 (3) (REF) S/B LDW 280-51458 -31 (3) (REF) & LDW 280-51489-63 (REF) S/B LDW 280-51458-63 (REF).

IS: FOR -3 INSTL. LM-1(31) & LM-2(32)	No. REQ'D/VEH -3	WAS: FOR -1 INSTL LM-1(31) & LM-2(32)	No. REQ'D/VEH. -1
GS26A -2-18	1	LDW 280-51458-7	1
-2-19	12	-9	12
-2-20	2	-19	2
-2-17	2	-23	2
-1-19	30	-31	30
-1-21	8	-33	8
-1-22	4	-35	4
-1-24	1	-37	1
-1-26	2	-39	2
-1-23	1	-51	1
-1-20	3	-53	3
-1-18	1	-57	1
GS26A -1-18	3	LDW 280-51458-63	3

3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

REASON FOR EO: REPLACED BY "G" STD.

DESCRIPTION OF EO: ON-1 INSTL REMOVED LM-1(31) & LM-2(32) EFF. ADDED -3 INSTL ON-1 IN ZONE 815 LDW280-51458-31(3) & -69 WAS LDW 280-51489-31(3) & -69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD: ✓ REVISE DWG; RECORD EO
DISPOSITION OF PARTS: ✓ REWORK; SCRAP
APPROVED BY — ✓ DATE 10/11/66; VDI 10/14; ~~SUPPORT~~ Therm 10/16; RELIAB. GROUP; GROUP LEADER 10/14; STRESS GROUP 10/14; LIAISON ENGRG; PROJ ENGRG 10-14-66; 10/14/66
GAEC EO RELEASE: C 10/14
PRIORITY: C
DRAWING TITLE: A/S STANDOFF INSTALLATION MID-SECTION - L.H. TANK SHIELDING
DRAWING NO. LDW280-28863
EO NO. A6

ISSUED BY FRANK CHRISTINA x7033 SECTION VDI GROUP NO. 335 PL 3.5

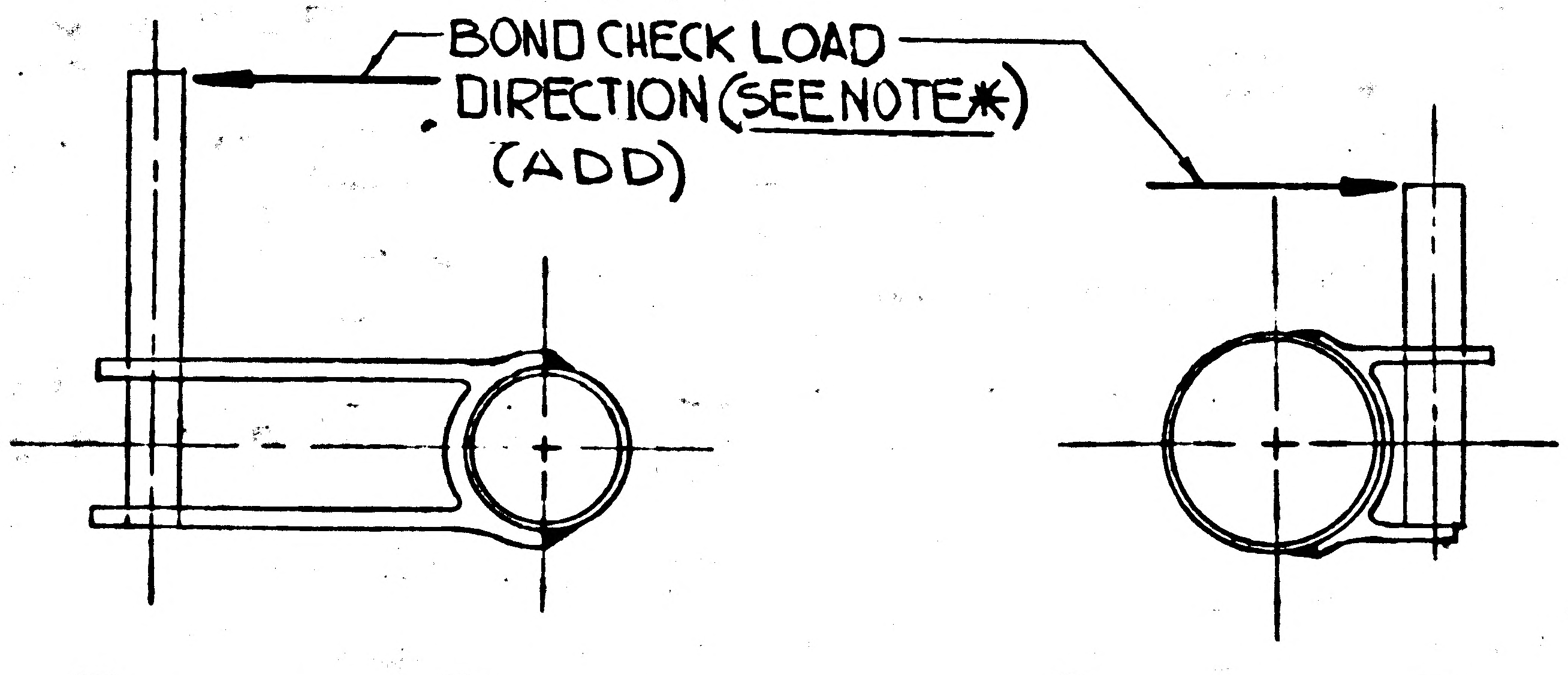
NAS 9-1100

ENG. 20.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-28863
EO NO. A7
CONTROL INFO NO. LDW280A-2470

IN F/D ADD NOTE, IN BONDING DETAIL ADD "BOND CHECK" CALLOUT AS SHOWN BELOW:



BONDING DETAIL
(TYP. FOR LDW280-28860)

BONDING DETAIL
(TYP. FOR LDW280-51458)

(ADD) NOTE ✱. AFTER BONDING OF STANDOFFS HAS BEEN COMPLETED EACH STANDOFF BOND SHALL BE CHECKED BY APPLYING A 4 ± 1 POUND LOAD IN THE DIRECTION SHOWN IN THE BONDING DETAIL.

✱ USE NEXT AVAILABLE NUMBER

(3)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: TO INSURE BOND RELIABILITY

DESCRIPTION OF EO: IN F/D ADDED NOTE ✱, IN BONDING DETAIL ADDED "BOND CHECK" CALLOUT

Ⓡ GAEC C. EO RELEASE 10/28

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓		DATE	10/27/66	10/27/66		10/27	10/27		10-27-66	10/27/66
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	THERMO	MATLS	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTL, A/S-M/S-L.H. TANK SHIELDING	LDW280-28863	A7

ISSUED BY C. A. PAEZ SECTION VDI GROUP NO. 335 PL 35

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28863 | EO NO. A8
CONTROL INFO NO. LDW 280A-2780

ON -3 INSTL REVISE B/M & F/D AS FOLLOWS:

IS: FOR -3 INSTL	No. REQ'D /VEH	WAS: FOR -3 INSTL	No. REQ'D /VEH
GS26C-1-2	1	LDW 280-28860-3	1
-1-7	1	-13	1
-1-9	1	-17	1
-1-8	1	-19	1
-1-14	1	-39	1
-1-15	1	-41	1
-1-16	1	-43	1
-1-17	1	-45	1
-1-24	1	-65	1
-1-25	1	-67	1
-1-26	1	-69	1
-1-27	1	-75	1
-1-28	1	-77	1
-1-29	1	-79	1
-1-30	1	-81	1
-1-31	1	-83	1
-1-35	1	-91	1
-1-36	1	-93	1
GS26C -1-36	3	LDW 280-28860-95	3

3

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☑ | CL I ENGRG CHG ☐

REASON FOR EO: PARTS REPLACED BY "G" STANDARDS.

DESCRIPTION OF EO: REVISED -3 INSTL GS26C-1-2 THRU -1-36 WAS LDW280-28860-3 THRU -95 RESPECTIVELY

Ⓡ GAEC EO RELEASE: FR 11/3/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
LM		LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY									
DATE	10/29/66	10/31		10/28	10/31		10-29-66	11-3-66
5	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GSE~~

PRIORITY: C

DRAWING TITLE: STANDOFF INSTL A/S MID-SECTION THERMAL SHIELD

DRAWING NO. LDW280-28863

EO NO. A8

ISSUED BY FRANK CHRISTINA x7033 10/25/66 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.2 REV 3-65

*

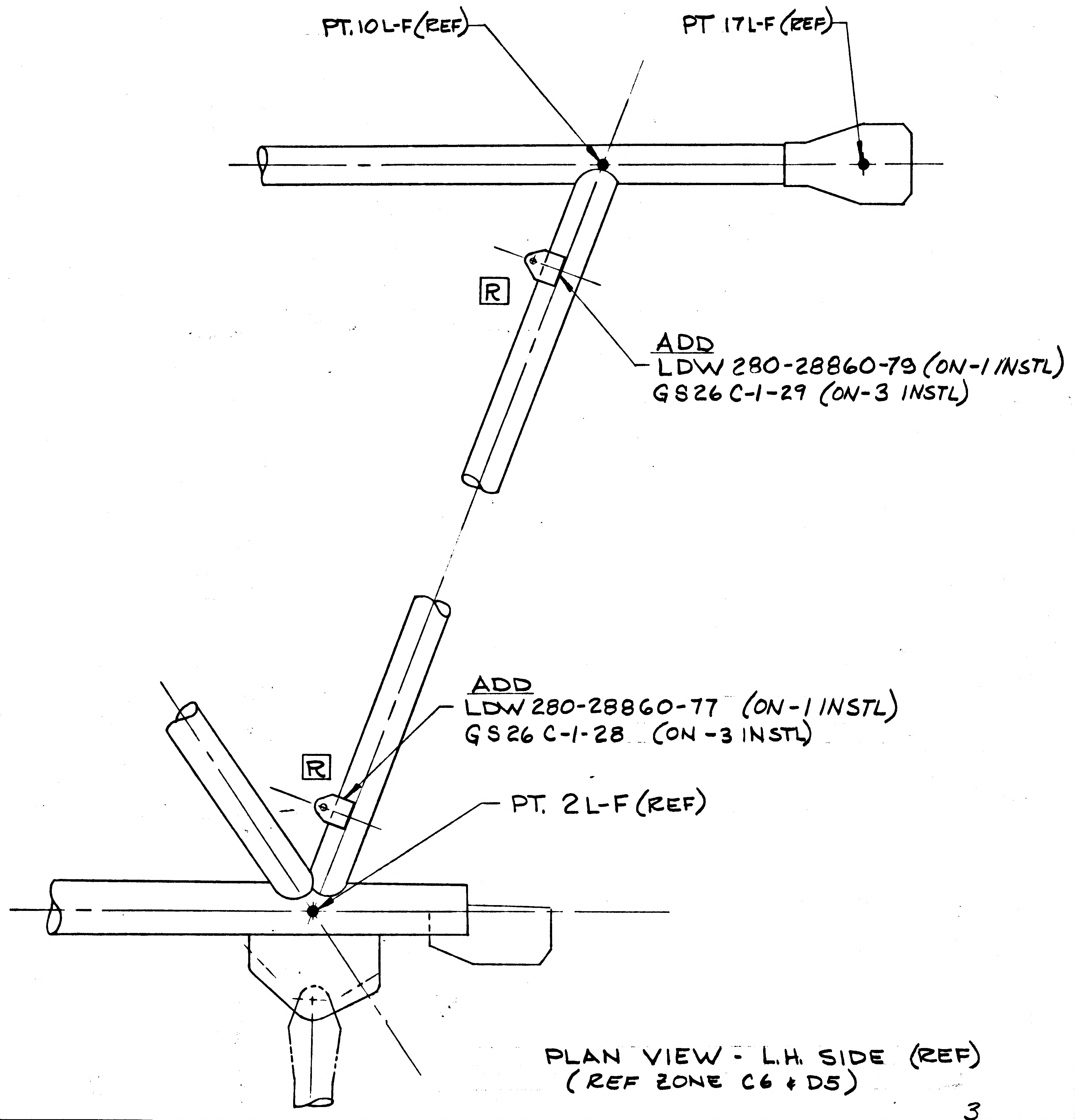
GRUMMAN AIRCRAFT ENGINEERING CORP.

CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28863		EO NO. A9	
CONTROL INFO NO. LDW 280 A-2999			

REMOVE REF CALLOUT- LDW280-28860-33(REF)
FROM SH4.00 ZONE D16


PT. 10L-F (REF)
PT 17L-F (REF)
R
ADD
LDW 280-28860-79 (ON-1 INSTL)
GS26C-1-29 (ON-3 INSTL)
ADD
LDW 280-28860-77 (ON-1 INSTL)
GS26 C-1-28 (ON-3 INSTL)
R
PT. 2L-F (REF)

PLAN VIEW - L.H. SIDE (REF)
(REF ZONE C6 & D5)

3

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO: PROVIDE ADDITIONAL SUPPORT FOR THERMAL SHIELD

DESCRIPTION OF EO:
ADDED:
ON -1 INSTL LDW280-28860-77 & -79 (1 EA REQ'D)
ON -3 INSTL GS26C-1-28, -1-29 (1 EA. REQ'D)

GAEC EO RELEASE: R KE 11/5

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
LM		LM-1(31)	
LM		LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY									
DATE	11/4/66	11/4		11/4	11/4		11-4-66	11-5-66
	#1	VDI	~~SUPPORT~~ THERMAL	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTALLATION A/S M/S — L.H. TANK	LDW 280-28863	A9

ISSUED BY FRANK CHRISTINA x7033 FC SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

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GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28863

EO NO. A10

CONTROL INFO NO. LDW280 A-3310

THIS IS A REVISION OF E.O. A2
IN F/D & B/M : LDW280-28860-69 SHOULD BE -65
LDW28028860-75 SHOULD BE -65
ON -1 INSTL. FOR LDW280-28860-65 3REQ'D WAS 1REQ'D.

THIS IS A REVISION OF E.O. A8
INF/D & B/M : GS26C-1-26 SHOULD BE GS26C-1-24
GS26C-1-27 SHOULD BE GS26C-1-24
ON-3 INSTL. FOR GS26C-1-24 3 REQ'D WAS 1 REQ'D.

DES. OF E.O. CONT.

REF. EO. A8 IN F/D & B/M GS26C-1-26 WAS GS26C-1-24 AND GS26C-1-27 WAS GS26-1-24
ON-3 INSTL. FOR GS26C-1-24 3REQ'D WAS 1REQ'D.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

3

REASON FOR EO: TO CORRECT WRONG STANDOFF CALLOUT

DESCRIPTION OF EO: REF. E.O. A2 IN F/D AND B/M LDW280-28860-69 WAS-65 AND LDW280-28860-75 WAS -65. ON -1 INSTL FOR LDW280-28860-65 3REQ'D WAS 1REQ'D (CONT'D. ABOVE)

Ⓔ GAEC EO RELEASE: 11/12

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY		HAZLETT		NEWTON 11/12			RMc Ⓔ	
DATE	11/12/66	11/12					11-12-66	11-12-66
#1	VDE	~~THERMO~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY: C

DRAWING TITLE: STANDOFF INSTL. A/S-M/S-L.H. TANK SHIELDING

DRAWING NO. LDW280-28863

EO NO. A10

ISSUED BY CARLOS PAEZ SECTION V.D.I. GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28863		EO NO. B1
CONTROL INFO NO. LDW280A-3421		

ON -1 INSTL:

IN F/D & B/M LDW280-28860-37 WAS -83
IN B/M LDW280-51458-19 (3) REQ'D WAS (2) REQ'D.
IN F/D & B/M LDW280-51458-35 WAS -49

ON -3 INSTL:

IN F/D & B/M GS26C-1-13 WAS GS26C-1-31
IN F/D & B/M GS26A-1-22 WAS GS26A-1-27

Pt 2A
28 51458-51

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		3

REASON FOR EO: TO CORRECT WRONG STANDOFF CALLOUT

DESCRIPTION OF EO: NOTED ABOVE

GAEC C EO RELEASE: FR 11/17/66

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LTA-8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	V.I.D							
DATE	11/16/66	11/16		11/16	11/16		11-16-66	11/16/66
#1	VDI	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~SUPV~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTL. A/S.M./S. L.H. TANK	LDW280-28863	B1

ISSUED BY C.A. PAEZ X1392 SECTION V.D.I. GROUP NO. 335 PL 35

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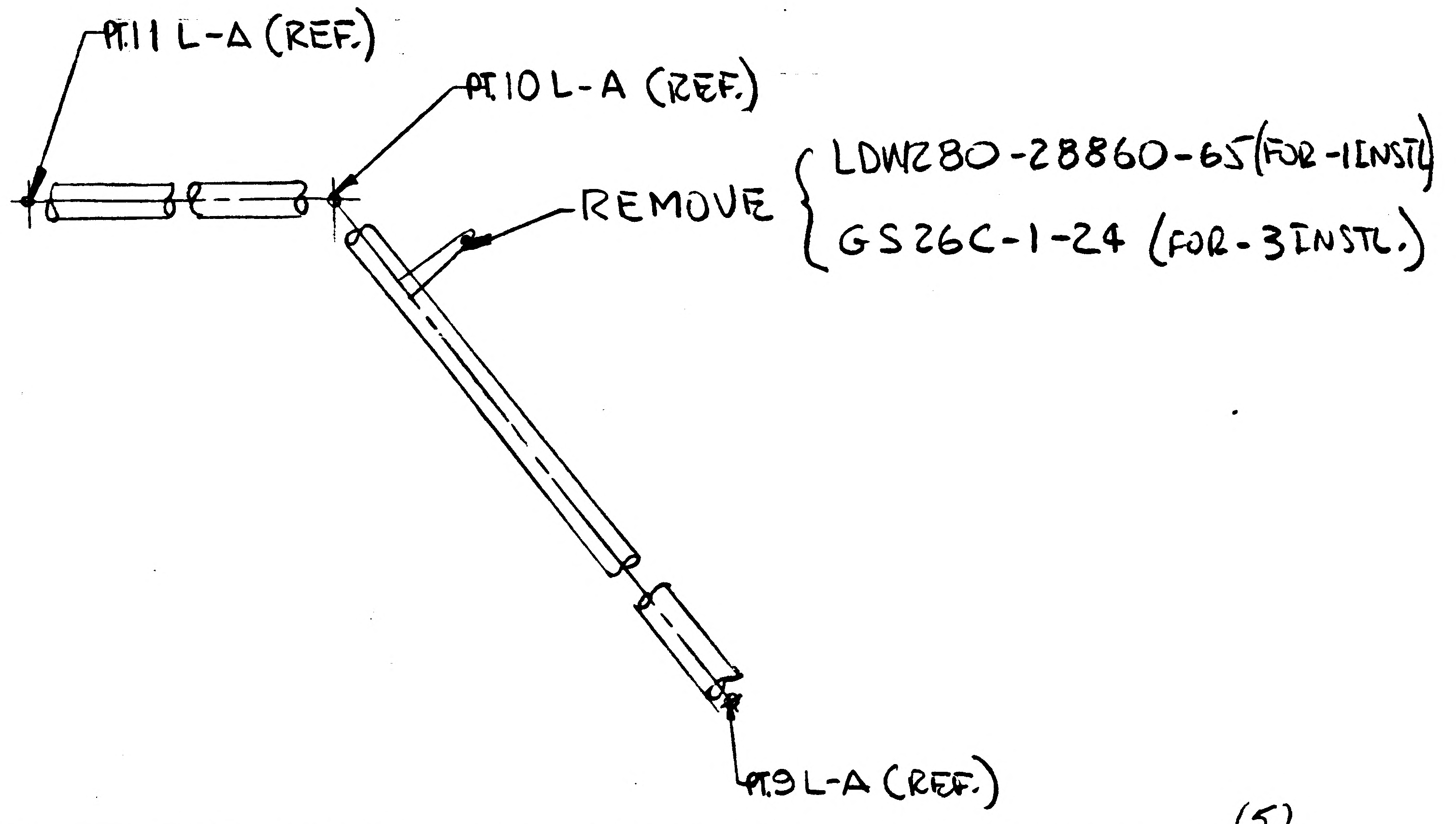
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-28863
EO NO. B2
CONTROL INFO NO. LM-5-11202

IN F/D & B/M


PT.11 L-A (REF.)
PT.10 L-A (REF.)
REMOVE { LDW280-28860-65 (FOR -1 INSTL.)
GS26C-1-24 (FOR -3 INSTL.)
PT.9 L-A (REF.)

(5)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO
STANDOFF NO LONGER REQUIRED

DESCRIPTION OF EO
IN F/D & B/M REMOVED ONE (1) STANDOFF LDW280-28860-65 (FOR -1 INSTL.) & GS26C-1-24 (FOR -3 INSTL.)

GAEC EO RELEASE C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY					NM	CH		
DATE	11/23			11/21	11-25-66	11-25-66	11/24/66	11/25/66
#5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTL. A/S -M/S L.H. TANK SHIELDING	LDW280-28863	B2

ISSUED BY C.A. PAEZ X1392 SECTION V.D.I. GROUP NO. 335 PL 35

01

NAS 9-1100

01 NAS 9-1100

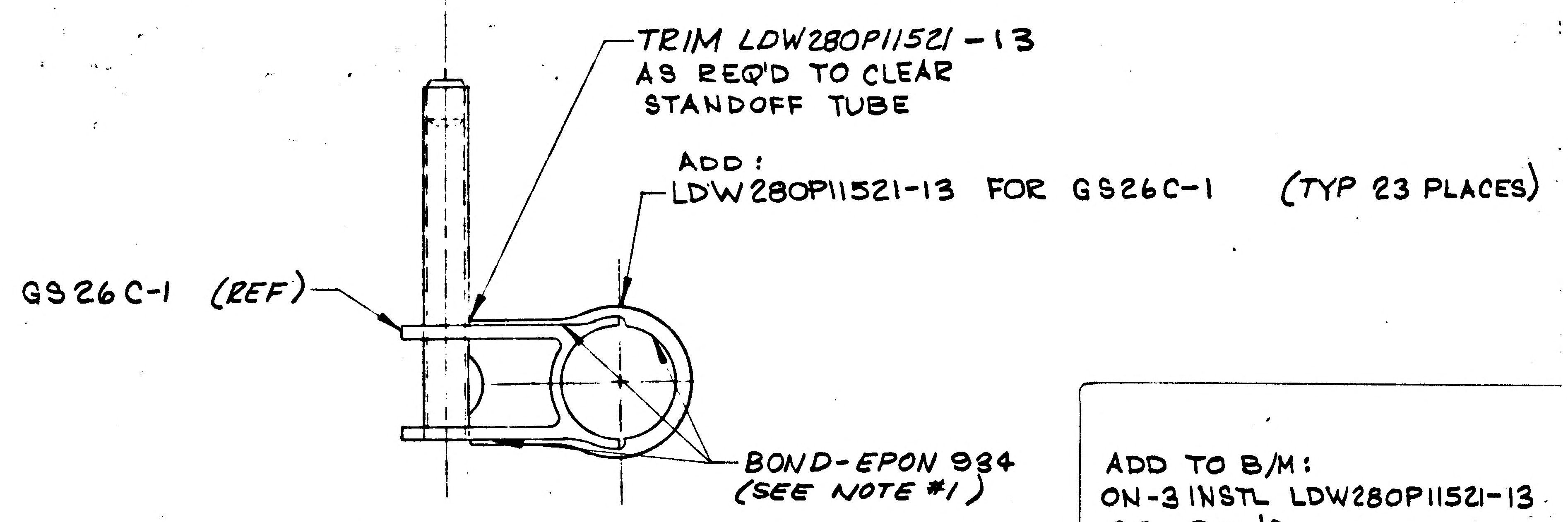
ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28863		EO NO. B3
CONTROL INFO NO. LDW280A-3522		

* USE NEXT AVAILABLE LETTER

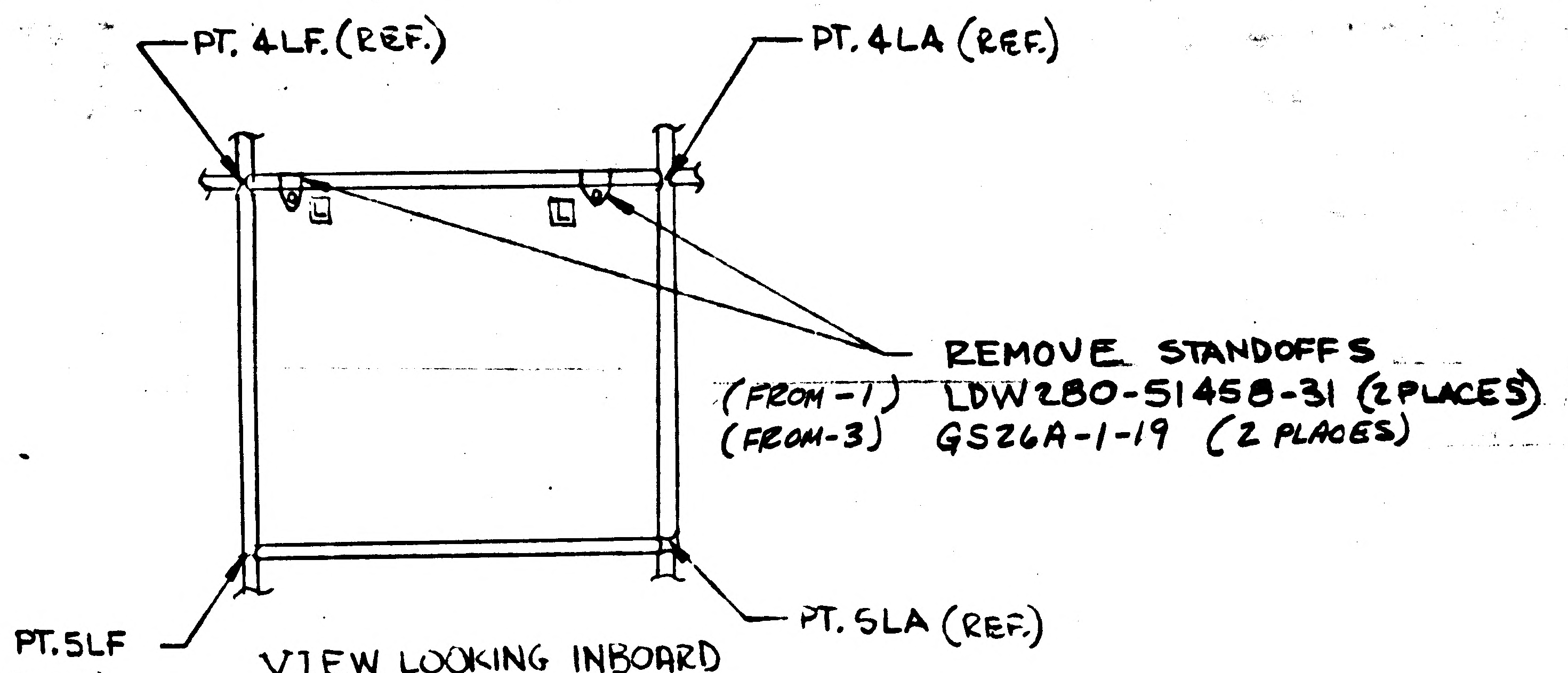


TRIM LDW280P11521 -13
AS REQ'D TO CLEAR
STANDOFF TUBE
ADD:
LDW280P11521-13 FOR GS26C-1 (TYP 23 PLACES)
GS26C-1 (REF)
BOND-EPON 934
(SEE NOTE #1)

~ ON -3 INSTL ~
ADD - DETAIL *
(TYP FOR ALL GS26C/STANDOFFS)

ADD TO B/M:
ON-3 INSTL LDW280P11521-13
23 REQ'D

IN F/D AND B/M
OF -1 & -3 INSTL



PT. 4LF. (REF.)
PT. 4LA (REF.)
REMOVE STANDOFFS
(FROM -1) LDW280-51458-31 (2 PLACES)
(FROM -3) GS26A-1-19 (2 PLACES)
PT. 5LF (REF.)
PT. 5LA (REF.)

VIEW LOOKING INBOARD
LEFT HAND SIDE
-1 & -3 INSTL REF.

3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
ADD ADDITIONAL SUPPORT FOR STANDOFFS & REMOVED STANDOFFS TO ELIMINATE INTERFERENCE	ON -3 INSTL ADDED DETAIL *. ADDED TO B/M ON -3 INSTL LDW280P11521-13 (23) REQ'D/VEH. ON -1 INSTL REMOVED (2) LDW280-51458-31 STANDOFF ON -3 INSTL REMOVED (2) GS26A-1-19 STANDOFF	11/30

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
LM		LM-2 (32)	
LM		LTA-8 (08)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY		V.S.Q.		HENTON			RMC	
DATE	11/19/66	11/22		11/19	11/22		11-23-66	11-29-66
#5	VDI	~~SUPPORT~~ THERMO	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	A/S STANDOFF INSTALLATION M/S - L.H. TANK - LOWER	LDW 280-28863	B3

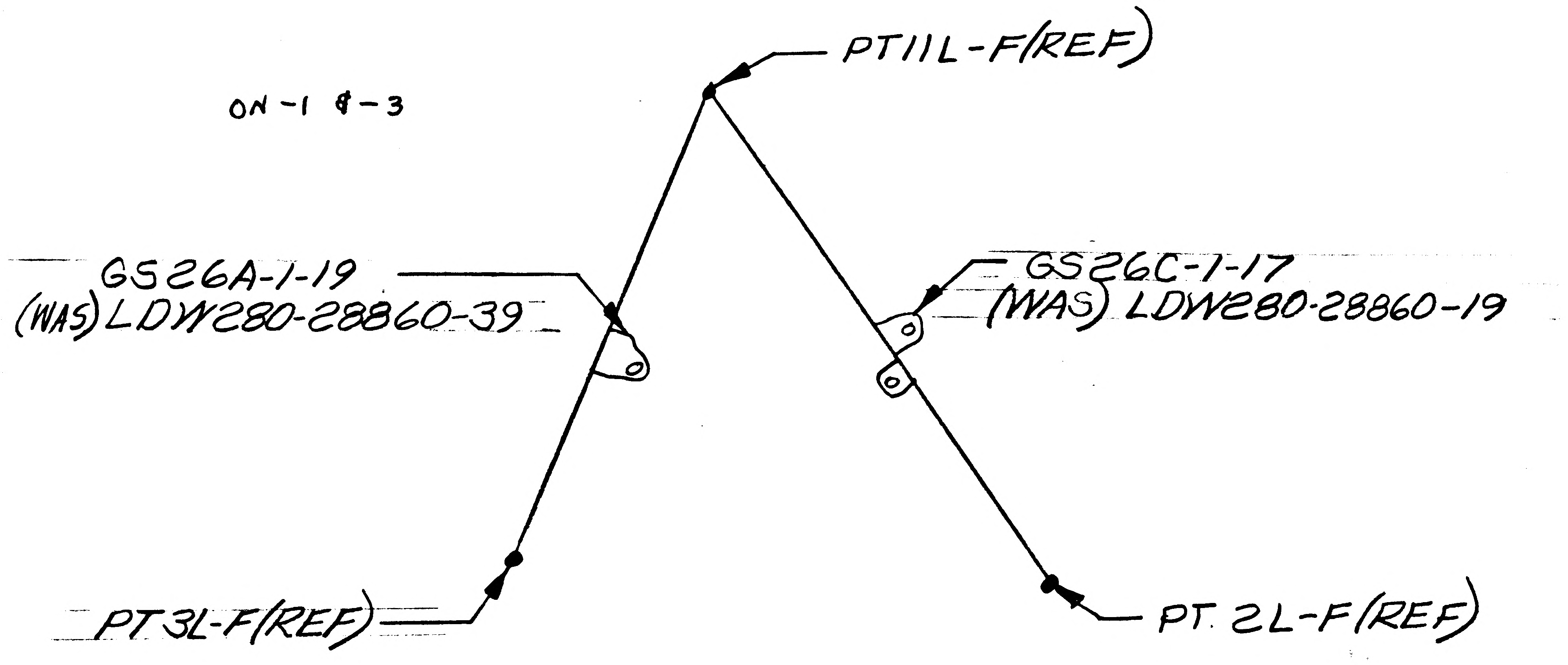
ISSUED BY FRANK CHRISTINA x7033 FC (C.A. PAEZ x1392) SECTION VDI-PAUL HENTON GROUP NO. 335 PL 35

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28863		EO NO. B4	
CONTROL INFO NO. LM-3-4471			

ON-1 & -3



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐	3

REASON FOR EO
TO PROVIDE FOR PROPER INSTL ON N/A.

DESCRIPTION OF EO
ON-1&3 IN FLD & BAY
GS26A-1-19 (WAS) LDW280-28860-39
GS26C-1-17 (WAS) LDW280-28860-19.

GAEC C EO RELEASE
FK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31), -2(32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
☑ REVISE DWG	☐ RECORD EO	☑ REWORK	☐ SCRAP

APPROVED BY	W RVP			-	BM		RMC
DATE	12-4-?			-	12-3-66	12-3-66	12-7-66
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

JRK 12/3/66

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C3	STANDOFF INSTL A/S ~ MID SECT.	LDW280-28863	B4

ISSUED BY LIAISON ~ J. KOSLOSKI X2151 SECTION V.D.I. GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28863	EO NO. B5
CONTROL INFO NO. LDW280A 3729	

IN F/D: IN SYMBOL LEGEND FOR STANDOFF LOCATION, REMOVE DASH NUMBERS AS SHN BELOW.

SYMBOL	COORDINATE WITH DRAWING NO.
A	LDW280-11437 WAS LDW280-11437-15 & -27
B	11437 11437-13 & -25
C	11437 11437-11 & -23
D	11438 11438-11 & -3
E	11438 11438-13 & -21
F	11439 11439-11 & -23
G	11439 11439-13 & -27
H	11439 11439-15 & -25
J	11440 11440-11 & -25
K	11440 11440-13 & -3
L	11440 11440-15 & -27
M	11441 11441-11 & -17
N	11441 11441-13 & -3
P	11441 11441-15 & -21
R	11442 11442-13 & -21
S	11442 11442-11 & -15
T	11443 11443-11 & -19
V	11443 11443-15 & -21
W	11443 11443-13 & -19
X	11444 11444-11
	11524 11524-1
Y	11444 11444-15
	11524 11524-15
Z	11444 11444-17
	LDW280-11524 WAS LDW280-11524-17

01
NAS 9-1100

3

THERMAL SHIELD
Carbee 12-6-66

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		

REASON FOR EO: OBSOLETE DASH Nos REMOVED TO PREVENT CONFUSION.

DESCRIPTION OF EO: IN F/D: IN SYMBOL LEGEND FOR STAND-OFF LOCATION, REMOVED DASH NUMBERS

GAEC EO RELEASE: C FR 12/6/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2(32)	
LM		LM-1(31)	
LM		LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQ'D		DATE	11/30/66	12/1/66		11/28	1/5		12-6	12/6/66
REVISE DWG	RECORD EO	REWORK	SCRAP	#6	VDI	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTL A/S M/S LEFT HAND TANK	LDW280-28863	B5

ISSUED BY M. SHAPIRO X1153 SECTION VDI GROUP NO. 335 PL 35

ENG 32.1 REV 3-65 B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LEO 280-		EO NO. 600
CONTROL INFO NO. LM-5-15154		

IN F/D ADD NOTE ✱ TO THE FOLLOWING DWG'S FOR ALL DASH NUMBERS:

PART NUMBER	EO NO.	DWG TITLE	EFFECTIVITY
✓ LDW280-28163	A7	SEE DWG.	LTA-8(18)
✓ LDW280-28164	D3	↑	LTA-8(18), LM-1(31) & LM-2(32)
✓ LDW280-28862	A6		LTA-8(18), LM-1(31) & LM-2(32)
✓ LDW280-28863	C1		LTA-8(18), LM-1(31) & LM-2(32)
LDW280-28864	C2		LTA-8(18), LM-1(31) & LM-2(32)
LDW280-51457	C5		LM-1(31) THRU LM-15(45)
LDW280-53163	A2		LM-3(33) THRU LM-15(45)
LDW280-53164	A8		LM-3(33) THRU LM-15(45)
LDW280-53862	A6		LM-3(33) THRU LM-15(45)
LDW280-53863	A5		LM-3(33) THRU LM-15(45)
LDW280-53864	A6		LM-3(33) THRU LM-15(45)
LDW280-51163	A4	↓	LM-1(31), LM-2(32)

NOTE ✱ AFTER INSTALLATION, IT IS PERMISSIBLE TO REMOVE INSTALLATION TABS FROM G526A & G526C STANDOFFS ON CAGES TO PREVENT TEARING THERMAL BLANKETS.

(✱ NEXT AVAILABLE NUMBER)

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
TO PREVENT STANDOFFS FROM TEARING THERMAL BLANKETS	IN F/D ADDED NOTE ✱	JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
SEE TABLE ABOVE			

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY						DAM (EJ)	
DATE	6/5/67			5/18/67	5-18-67	5-24-67	5/19/67
1	V.D.I						

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTALLATION	LEO 280-	600

ISSUED BY LIAISON J. McGill / ext 6226 SECTION V.D.I. GROUP NO.____ PL____

01

NAS 9-1100

LDW280-28864 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
L M	LDW280-51150	L M-2(32	1
L M	LDW280-51150	L M-1(31)	1
PART NO. LDW280-28864-3		GAEC SCH NO. 30	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
L M	LDW280-28150	LTA-8(18)	1
PART NO. LDW280-28864-1		GAEC SCH NO. 30—	

3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	1.11	2.00	2.01		3.00	4.00	
REV	B	B	B	B	B		B	B	
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	N	GRUMMAN REL INFO B	
LAST DASH NO. USED	-3	PRIM NO. 215	VE(001) MP-14 B+28 7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH	
DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY	WICK 9/2/66	WEIGHTS	L. Garcia 9/16/66
LAYOUT BY	MAKULA	RELIABILITY	
CHECKED BY	9-6-66	THEEAU	
GR LEADER	A.C. P. HENTON 9/6/66		
VEH DES INT	9/6		
STRUCTURE	9/8	PROJ ENGR	R.M. Carbee 9-10
STRUCTURE	Hilderman 9/8	REL GROUP	Bott 9-20-66

Ⓡ GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STANDOFF INSTL -
ASCENT STAGE ~ MID SECTION
RH TANK ~ LOWER

SIZE	CODE IDENT NO.		
B	26512	LDW280-28864	B
SCALE	NONE	SHEET 1.00 OF 7	

ENG 77.1 12-65

CDR 9/2/66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
A	1	1.00, 1.10 2.00, 3 & 4	20C				✓	EO A1	SH 1 OF 5 WAS SH 1 OF 4 ADDED SH 1.10 IN FLD, B/M ADDED FOR-1 LDW280-28860-65, -67, -69, -75 (1 REQD), ADDED TO LEGEND IN FLD.	LTA-8(18) LM-1(31) LM-2(32)	✓		P. KOCHLING 1-20-67		
	2	1.10, 2.00 & 4.	22C 19C				✓	EO A2	FOR-1, REMOVED LDW280-51458-31(1). LDW280-28860-51 (WAS LDW280-28860-71)		✓				
	3	1.10, 2.01 & 4	24B				✓	EO A3	IN FLD ADDED BONDING DETAIL		NOT	REQD			
	4	1.00, 1.10, 2 2.01, 3 & 4	-					EO A4	ADDED SH 2.01 SH 1 OF 6 WAS 1 OF 5. ON-1 INSTL REMOVED LM-1(31) & LM-2(32) EFF. ADDED -3 INSTL.	LM-1, LM-2	✓				
	5	1.10 & 4	24B					EO A5	IN FLD ADDED NOTE 2, IN BONDING DETAIL ADDED "BOND CHECK" CALLOUT	LTA-8, LM-1 & -2	✓				
	6	1.10, 2.01 3 & 4					✓	EO A6	REVISED -3 INSTL GS26C-1-8 THRU-1-27 WAS LDW280-28860-15 THRU-75 RESPECTIVELY	LM-1(31) LM-2(32)	✓				
	7	1.10, 2.00 2.01 3 & 4	5A				✓	EO A7	IN FLD & B/M: ON-1 REMOVED LDW280-51458-31(1), LDW280-51458-41(1) LDW280-51458-59(1) & LDW280-28860-35(1). ON-3, REMOVED GS26A-1-19 (1/VEH), GS26C-1-12 (1/VEH). GS26A-1-29 (1/VEH) & GS26A-1-31 (1/VEH).	LTA-8(18) LM-1(31) LM-2(32)	✓				
	8	1.10, 2.00 & 3	4C					EO A8	ON-1 IN ZONE C6 REMOVED (1) LDW280-51458-49, IN ZONE C4 RELOCATED (1) LDW280-51458-41.		✓				
	9	1.10, 2.00 2.01 & 4	20B				✓	EO A9	REF EO A1 IN FLD AND B/M LDW280-28860-69 WAS-65 AND LDW280-28860-75 WAS-65 AND LDW280-28860-75 WAS-65, ON-1 INSTL FOR LDW280-28860-65 3 REQD WAS 1 REQD. REF EO A6 IN FLD & B/M GS26C-1-26 WAS GS26C-1-24 AND GS26C-1-27 WAS GS26C-1-24. ON-3 INSTL FOR GS26C-1-24 3 REQD WAS 1 REQD.		✓				
	10	1.10, 2.01 & 3	4C 6C				✓	EO A10	ON-3 INSTL RELOCATED GS26A-1-29(1) & REMOVED LDW280-51458-49(1) & -51(1). ON-1 INSTL REMOVED LDW280-51458-51(1).		✓				
B	1	1.10, 2.00 2.01, & 4	19C					EO B1	IN FLD & B/M REMOVED ONE (1) STANDOFF LDW280-28860-65 FOR -1 INSTL & GS26C-1-24 FOR-3 INSTL.		✓				
	2	1.10, 2.01 & 3	9A				✓	EO B2	ON-3 INSTL ADDED DETAIL "N", ADDED TO B/M ON-3 INSTL LDW280P11521-13(11) REQD/VEH.	LM-1(31) LM-2(32)	✓				

CHG APPROVED

LTR	GROUP LDR	VEH DES. INT	STRUCTURES	STRUCTURES	RELIABILITY	WEIGHTS			
B	1/23								

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28864	B
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
B	3	1.10, 2.00 2.01.3 & 4	5A 22B					EO B3	ADDED SH 1.11 SH 1 OF 7 WAS 1 OF 6 ON-1 & -3 IN FLD & BM GS26A-1-31 (WAS) LDW280-51458-61 GS26A-1-22 (WAS) LDW280-51458-61, GS26A-1-26 (WAS) LDW280-28860-61, ADDED GS26C-1-22 (1) REMOVED (1) LDW280-28860-59	LTA-8 (18) LM-1 (31) LM-2 (32)	✓		P. KOCHLING 1-20-67		
	4	1.10 & 4	24B						REF EO A3 IN BONDING DETAIL ADDED LETTER "L" & "M"		NOT	REQD		1-26-67	1-27-67
	5	1.10 & 4	16B						REF EO A7 REMOVED SECTION H-H NOT APPLICABLE		✓				
	6	1.10 & 3	9A					ⓑ A&B	REF EO B2 ADDED DETAIL N,	LM-1 & LM-2	✓				

CHG APPROVED

LTR	GROUP LDR	VEH.DES.INT.	STRUCTURES	STRUCTURES	RELIABILITY	WEIGHTS
B						

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28864	B
SCALE NONE			SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
					-3	-1											
						1		LDW280-28860-67	E	STANDOFF ASSY	SEE DWG						19C
						3		-65									20B
						1		-51									5A
						1		-25									5B
						1		-21									5B
						1		LDW280-28860-15									5C
						1		LDW280-51458-73									4C
						1		69									8C
						2		-67									7C
						1		-65									5C
						1		-61									5C
						10		-53									6C
						4		-51									7C
						5		-49									6C
						2		-41									4A
						1		-39									5C
						3		-37									4C
						5		-35									5C
						1		-33									4B
						13		LDW280-51458-31		STANDOFF ASSY	SEE DWG						5C
								LDW280-28864-3		STANDOFF INSTL					NONE	NONE	6A
								LDW280-28864-1	E	STANDOFF INSTL					NONE	NONE	6A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28864	B
SCALE NONE		SHEET 200	

ENG 77.2 7-65

01 NAS 9-1100

-3	-1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1		GS26C-1-25	E		STANDOFF ASSY	SEE DWG						19C
3		-24										20B
1		-23										6B
1		-22										22B
1		-21										5B
1		-19										19B
1		-11										5B
1		GS26C-1-10										5B
1		GS26C-1-8										5C
1		GS26A-1-34										4C
1		-30										8C
2		-29										4A
3		-28										5C
5		-27										6C
4		-26										7C
3		-24										4C
4		-23										7C
5		-22										5C
1		-21										4B
10		-20										6C
13		GS26A-1-19			STANDOFF ASSY	SEE DWG						5C
10		LDW280P11521-13			STRAP	SEE DWG						9A
		LDW280-28864-3			STANDOFF INSTL					NONE	NONE	
		LDW280-28864-1	E		STANDOFF INSTL					NONE	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

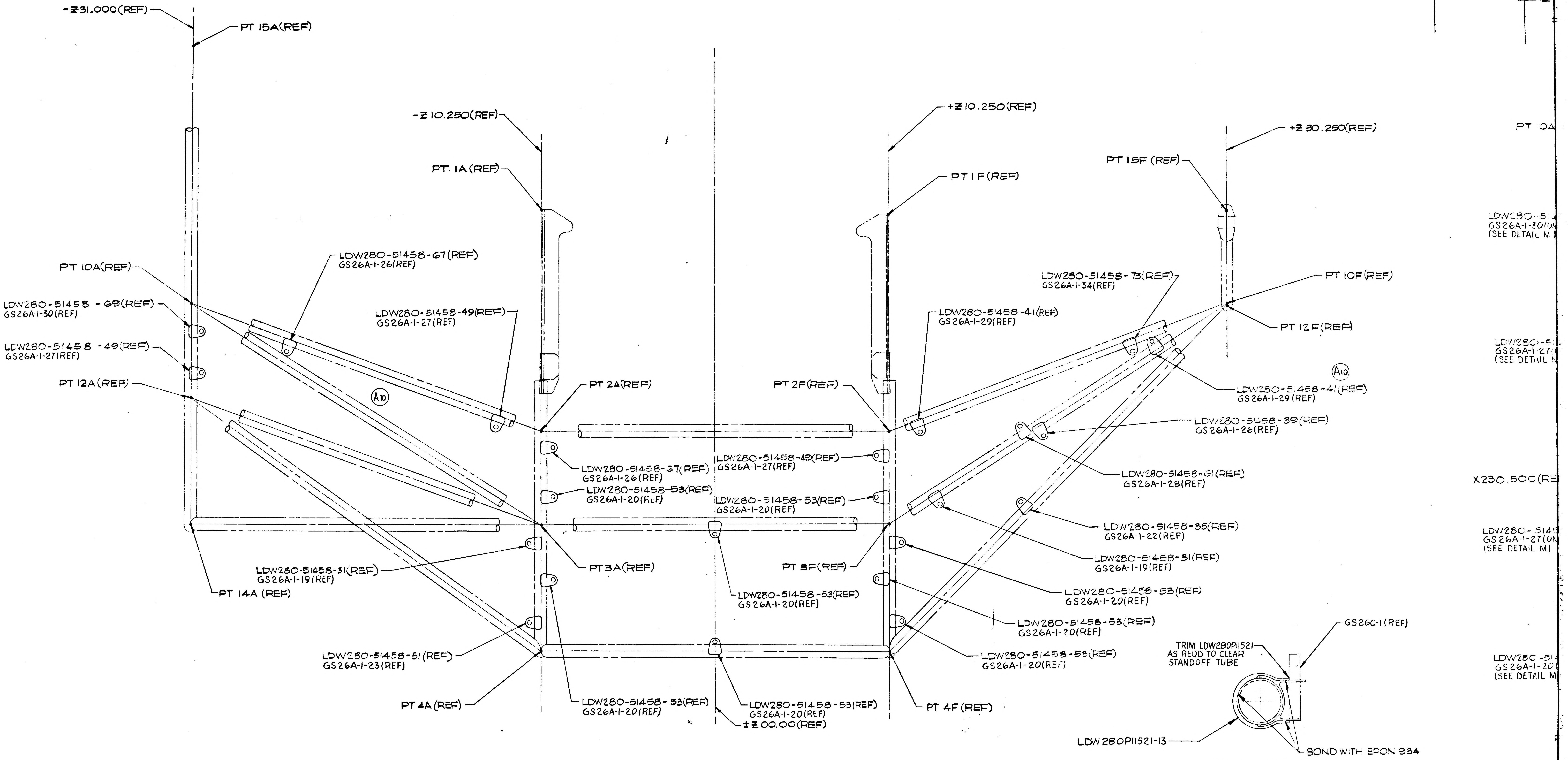
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28864	B

SCALE NONE SHEET 2.01

ENG 77.2 5-64

01 NAS 9-1100


-Z31.000(REF)
PT 15A(REF)
-Z 10.250(REF)
PT 1A (REF)
+Z10.250(REF)
PT 1F (REF)
+Z 30.250(REF)
PT 15F (REF)
PT 0A
PT 10A(REF)
LDW280-51458-67(REF)
GS26A-1-26(REF)
LDW280-51458 -69(REF)
GS26A-1-30(REF)
LDW280-51458-49(REF)
GS26A-1-27(REF)
LDW280-51458 -49(REF)
GS26A-1-27(REF)
PT 12A (REF)
A10
PT 2A(REF)
PT 2F(REF)
LDW280-51458-73(REF)
GS26A-1-34(REF)
PT 10F(REF)
PT 12F(REF)
LDW280-51458 -41(REF)
GS26A-1-29(REF)
A10
LDW280-51458-41(REF)
GS26A-1-29(REF)
LDW280-51458-39(REF)
GS26A-1-26(REF)
LDW280-51458-37(REF)
GS26A-1-26(REF)
LDW280-51458-49(REF)
GS26A-1-27(REF)
LDW280-51458-53(REF)
GS26A-1-20(REF)
LDW280-51458-53(REF)
GS26A-1-20(REF)
LDW280-51458-61(REF)
GS26A-1-28(REF)
LDW280-51458-35(REF)
GS26A-1-22(REF)
LDW280-51458-31(REF)
GS26A-1-19(REF)
PT 3A(REF)
PT 3F(REF)
LDW280-51458-31(REF)
GS26A-1-19(REF)
PT 14A (REF)
LDW280-51458-53(REF)
GS26A-1-20(REF)
LDW280-51458-53(REF)
GS26A-1-20(REF)
LDW280-51458-53(REF)
GS26A-1-20(REF)
LDW280-51458-51 (REF)
GS26A-1-23(REF)
LDW280-51458-53(REF)
GS26A-1-20(REF)
PT 4A (REF)
PT 4F (REF)
LDW280-51458-53(REF)
GS26A-1-20(REF)
LDW280-51458-53(REF)
GS26A-1-20(REF)
±Z 00.00(REF)
GS26C-1 (REF)
TRIM LDW280P11521 AS REQD TO CLEAR STANDOFF TUBE
LDW280P11521-13
BOND WITH EPON 934
LDW280-5
GS26A-1-30(O
(SEE DETAIL M
LDW280-5
GS26A-1-27(
(SEE DETAIL M
X230.500(R
LDW280-5145
GS26A-1-27(O
(SEE DETAIL M)
LDW28C -514
GS26A-1-20(
(SEE DETAIL M

C

B

A

BONDING DETAIL N
TYP FOR ALL GS26C-1 STANDOFFS
(SEE NOTE *1)
SCALE: NONE Ⓑ2

X208.76

VIEW A-A (ZONE 7C)

INBD
FWD

X200.0

01/03 NAS 9-1100

CODE IDENT NO 265 2
LDW280-28864 SH 3

3/3

8
7
6
5
4
C
PT 15A (REF)
A (ZONE 10B)
LDW280-51458-67(ON-1)
GS26A-1-26(ON-3)
(SEE DETAIL M)
LDW280-51458-49(ON-1)
GS26A-1-27(ON-3)
(SEE DETAIL M)
LDW280-51458-67(ON-1)
GS26A-1-26(ON-3)
(SEE DETAIL M)
PT 2A (REF)
PT 2F (REF)
LDW280-51458-41(ON-1)
GS26A-1-29(ON-3)
(SEE DETAIL M)
A
PT 10F (REF)
B
A8 A10
30.250(REF)
PT 10A (REF)
A10
LDW280-51458-53(ON-1)
GS26A-1-20(ON-3)
(SEE DETAIL M)
LDW280-51458-49(ON-1)
GS26A-1-27(ON-3)
(SEE DETAIL M)
LDW280-51458-53(ON-1)
GS26A-1-20(ON-3)
(SEE DETAIL M)
LDW280-51458-61(ON-1)
GS26A-1-28(ON-3
(SEE DETAIL M)
LDW280-51458-73(ON-1)
GS26A-1-34(ON-3)
(SEE DETAIL M)
LDW280-51458-39(ON-1)
GS26A-1-26(ON-3)
(SEE DETAIL M)
A8 A10
LDW280-51458-41(ON-1)
GS26A-1-29(ON-3)
(SEE DETAIL M)
LDW280-51458-53(ON-1)
GS26A-1-20(ON-3)
(SEE DETAIL M)
LDW280-51458-69(ON-1)
GS26A-1-30(ON-3)
(SEE DETAIL M)
PT 3A (REF)
PT 3F (REF)
D (ZONE 15C)
LDW280-28860-15(ON-1)
GS26C-1-8(ON-3)
(SEE DETAIL L & N)
PT 10F (REF)
LDW280-51458-31(ON-1)
GS26A-1-19(ON-3)
(SEE DETAIL M)
LDW280-51458-53(ON-1)
GS26A-1-20(ON-3)
(SEE DETAIL M)
D
LDW280-51458-35(ON-1)
GS26A-1-22(ON-3)
(SEE DETAIL M)
LDW280-51458-37(ON-1)
GS26A-1-24(ON-3)
(SEE DETAIL M)
PT 11F (REF)
F (REF)
LDW280-51458-53(2)(ON-1)
GS26A-1-20(2)(ON-3)
(SEE DETAIL M)
LDW280-51458-49(ON-1)
GS26A-1-27(ON-3)
(SEE DETAIL M)
A10
58-41(REF)
LDW280-51458-51(ON-1)
GS26A-1-23(ON-3)
(SEE DETAIL M)
LDW280-51458-53(2)(ON-1)
GS26A-1-20(2)(ON-3)
(SEE DETAIL M)
LDW280-51458-65(2)(ON-1)
GS26A-1-26(2)(ON-3)
(SEE DETAIL M)
PT 12A (REF)
PT 4A (REF)
PT 4F (REF)
PT 12F (REF)
X230.500 (REF)
B3
GS26A-1-31
(SEE DETAIL M)
X228.000 (REF)
LDW280-51458-31(ON-1)
GS26A-1-19(ON-3)
(SEE DETAIL M)
LDW280-51458-37(ON-1)
GS26A-1-24(ON-3)
(SEE DETAIL M)
LDW280-51458-49(ON-1)
GS26A-1-27(ON-3)
(SEE DETAIL M)
LDW280-51458-35(2)(ON-1)
GS26A-1-22(ON-3)
(SEE DETAIL M)
PT 13F (REF)
B3
X222.673 (REF)
LDW280-51458-59(ON-1)
GS26A-1-31(ON-3)
(SEE DETAIL M)
LDW280-51458-35(ON-1)
GS26A-1-22(ON-3)
(SEE DETAIL M)
GS26C-1 (REF)
LDW280-51458-51(ON-1)
GS26A-1-23(ON-3)
(SEE DETAIL M)
J (ZONE 16A)
GS26C-1-23
(SEE DETAIL N)
B3
LDW280-51458-53(ON-1)
GS26A-1-20(ON-3
(SEE DETAIL M)
B3
GS26A-1-26
(SEE DETAIL M)
J
LDW280-51458-37(ON-1)
GS26A-1-24(ON-3)
(SEE DETAIL M)
G
PT 5A (REF)
PT 5F (REF)
LDW280-51458-33(ON-1)
GS26A-1-21(ON-3)
(SEE DETAIL M)
BOND WITH EPON 934
PT 14A (REF)
E
G (ZONE 16C)
LDW280-51458-49(2)(ON-1)
GS26A-1-27(ON-3)
(SEE DETAIL M)
LDW280-28860-25(ON-1)
GS26C-1-11(ON-3)
(SEE DETAIL L & N)
X208.765 (REF)
E
(ZONE 15B)
LDW280-51458-21(ON-1)
GS26C-1-10(ON-3)
(SEE DETAIL L & N)
GS26A-1-22
(SEE DETAIL M)
B3
LDW280-51458-51(ON-1)
GS26A-1-23(ON-3)
(SEE DETAIL M)
LDW280-51458-51(ON-1)
GS26A-1-23(ON-3)
(SEE DETAIL M)
A7
LDW280-51458-35(ON-3)
GS26A-1-22(ON-3)
(SEE DETAIL M)
X200.000 (REF)
PT 7A (REF)
LDW280-51458-53(ON-1)
GS26A-1-20(ON-3)
(SEE DETAIL M)
PT 7F & 14F (REF)
C
(ZONE 19A)
±Z00.00 (REF)
B
(ZONE 22A)
PT 6A (REF)
PT 6F (REF)
-Z31.000 (REF)
-Z10.250 (REF)
+Z10.250 (REF)
+Z30.250 (REF)
A B C D E F G H J K L M N P R

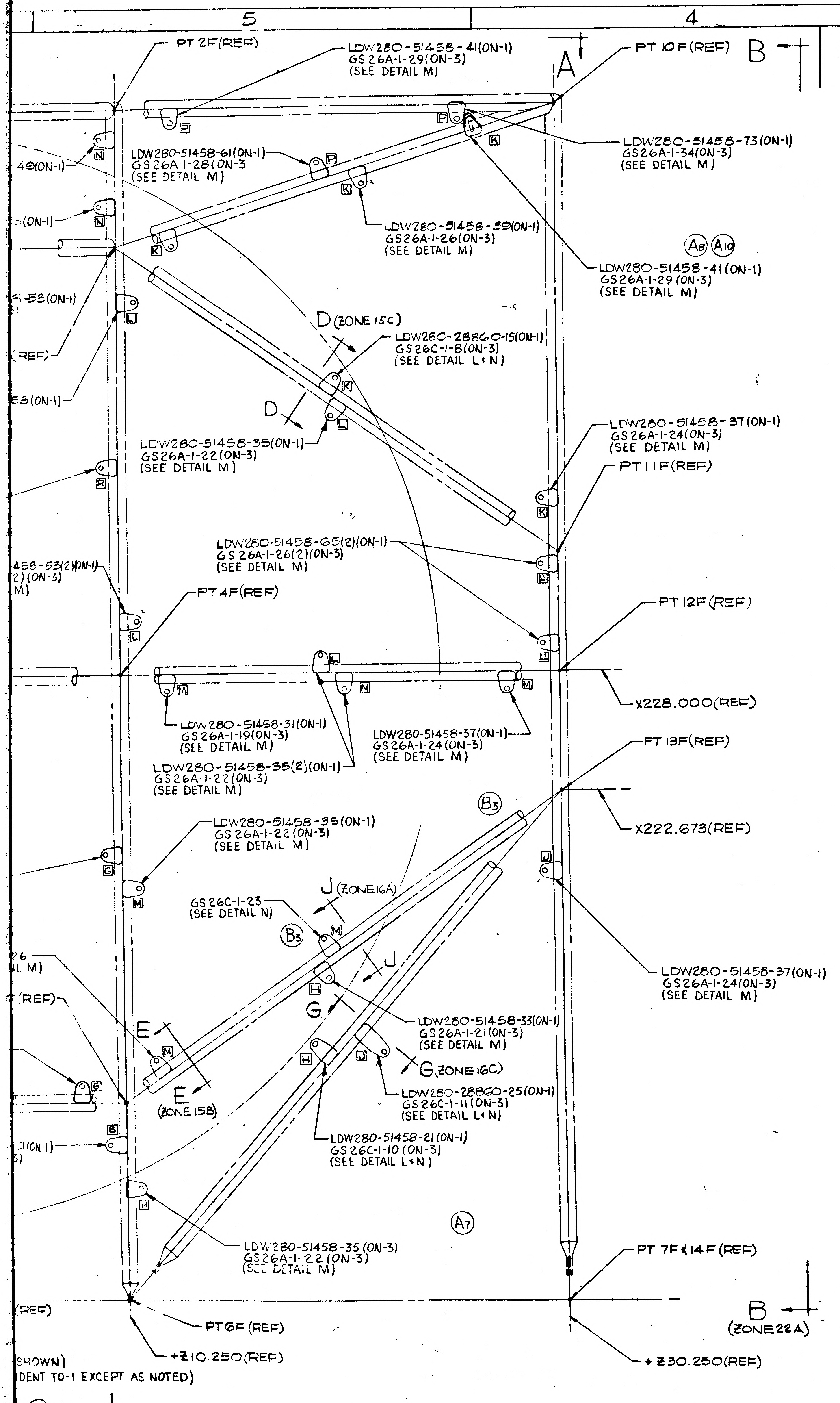
LDW280-28864-1 INSTL (SHOWN)
-3 INSTL (IDENT TO-1 EXCEPT AS NOTED)
VIEW LOOKING INBD RH SIDE
A4

AFT UP

CODE IDENT NO 26512
LDW280-28864 SH 3

02403 NAS 9-1100

CODE IDENT NO 26512
LDW280-28864 SH 3


5
4
3
2
PT 2F(REF)
LDW280-51458-41(ON-1)
GS26A-1-29(ON-3)
(SEE DETAIL M)
A
PT 10F(REF)
B
LDW280-51458-61(ON-1)
GS26A-1-28(ON-3
(SEE DETAIL M)
49(ON-1)
(ON-1)
LDW280-51458-73(ON-1)
GS26A-1-34(ON-3)
(SEE DETAIL M)
LDW280-51458-39(ON-1)
GS26A-1-26(ON-3)
(SEE DETAIL M)
A8
A10
LDW280-51458-41(ON-1)
GS26A-1-29(ON-3)
(SEE DETAIL M)
-53(ON-1)
(REF)
E3(ON-1)
D (ZONE 15C)
LDW280-28860-15(ON-1)
GS26C-1-8(ON-3)
(SEE DETAIL L & N)
D
LDW280-51458-35(ON-1)
GS26A-1-22(ON-3)
(SEE DETAIL M)
LDW280-51458-37(ON-1)
GS26A-1-24(ON-3)
(SEE DETAIL M)
PT 11F(REF)
LDW280-51458-65(2)(ON-1)
GS26A-1-26(2)(ON-3)
(SEE DETAIL M)
458-53(2)(ON-1)
2)(ON-3)
M)
PT 4F(REF)
PT 12F(REF)
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GS26A-1-19(ON-3)
(SEE DETAIL M)
LDW280-51458-37(ON-1)
GS26A-1-24(ON-3)
(SEE DETAIL M)
LDW280-51458-35(2)(ON-1)
GS26A-1-22(ON-3)
(SEE DETAIL M)
PT 13F(REF)
B3
X222.673(REF)
LDW280-51458-35(ON-1)
GS26A-1-22(ON-3)
(SEE DETAIL M)
J (ZONE 16A)
GS26C-1-23
(SEE DETAIL N)
B3
J
LDW280-51458-37(ON-1)
GS26A-1-24(ON-3)
(SEE DETAIL M)
26
L M)
(REF)
G
E
LDW280-51458-33(ON-1)
GS26A-1-21(ON-3)
(SEE DETAIL M)
G (ZONE 16C)
E
(ZONE 15B)
LDW280-28860-25(ON-1)
GS26C-1-11(ON-3)
(SEE DETAIL L & N)
(ON-1)
LDW280-51458-21(ON-1)
GS26C-1-10(ON-3)
(SEE DETAIL L & N)
A7
LDW280-51458-35(ON-3)
GS26A-1-22(ON-3)
(SEE DETAIL M)
PT 7F & 14F(REF)
(REF)
PT 6F(REF)
B
(ZONE 22A)
+Z10.250(REF)
+Z30.250(REF)
A B C D E F G H J K L M N P R

SHOWN)
DENT TO-1 EXCEPT AS NOTED)

A4 AFT UP

CODE IDENT NO. 26512
LDW280-28864 SH 3

SYMBOL LEGEND FOR STANDOFF LOCATION

SYMBOL	COORDINATE WITH DWG NO.
A	LDW280-11445-11 & -17
B	-11445-13 & -19
C	-11446-11 & -19
D	-11446-13 & -21
E	-11446-15 & -23
F	-11446-17 & -25
G	-11447-27 & -33
H	-11447-29 & -35
J	-11447-31 & -37
K	-11448-11 & -25
L	-11448-13 & -27
M	-11448-23 & -29
N	-11449-13 & -17
P	-11449-15 & -29
R	-11449-25 & -27
S	-11450-11,-13,-15 & -17
T	LDW280-11451-11-13-15,17,-19 & -1
U	LDW280-14393 LTA-8 LDW280-14399 LTA-8 LDW280-14468 LM-1,-2 LDW280-14469 LM-1,-2

MKRO

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

- PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.
- FILLET AND INSIDE CORNER RADII TOLERANCES
  - .016R TO .062R ± .010
  - .063R TO .250R ± .015
  - OVER .250R ± .030
- DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.
- EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.
- DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.
- MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.
- DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING
- HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.
- ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES
- 125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10
- 200√ FOR ALL DRILLED HOLES
- REMOVE ALL BURRS. BREAK ALL EDGES .015-.031
- INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS
- SYMBOL √ DENOTES SURFACE TO BE MACHINED
- UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32
- LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.
- TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 118

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 120)= 30.0 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 7.5 SQ. FT.

PRINT TRIM LINE

NOTES:

1. BOND ALL STANDOFFS TO STRUCTURE IN ACCORDANCE WITH LSP-14-22500, USING EPON #934 CURE RANGE I
2. AFTER BONDING OF STANDOFFS HAS BEEN COMPLETED EACH STANDOFF BOND SHALL BE CHECKED BY APPLYING A 4 ± 1 POUND LOAD IN THE DIRECTION SHOWN IN THE BONDING DETAIL.

LDW280-28864 B

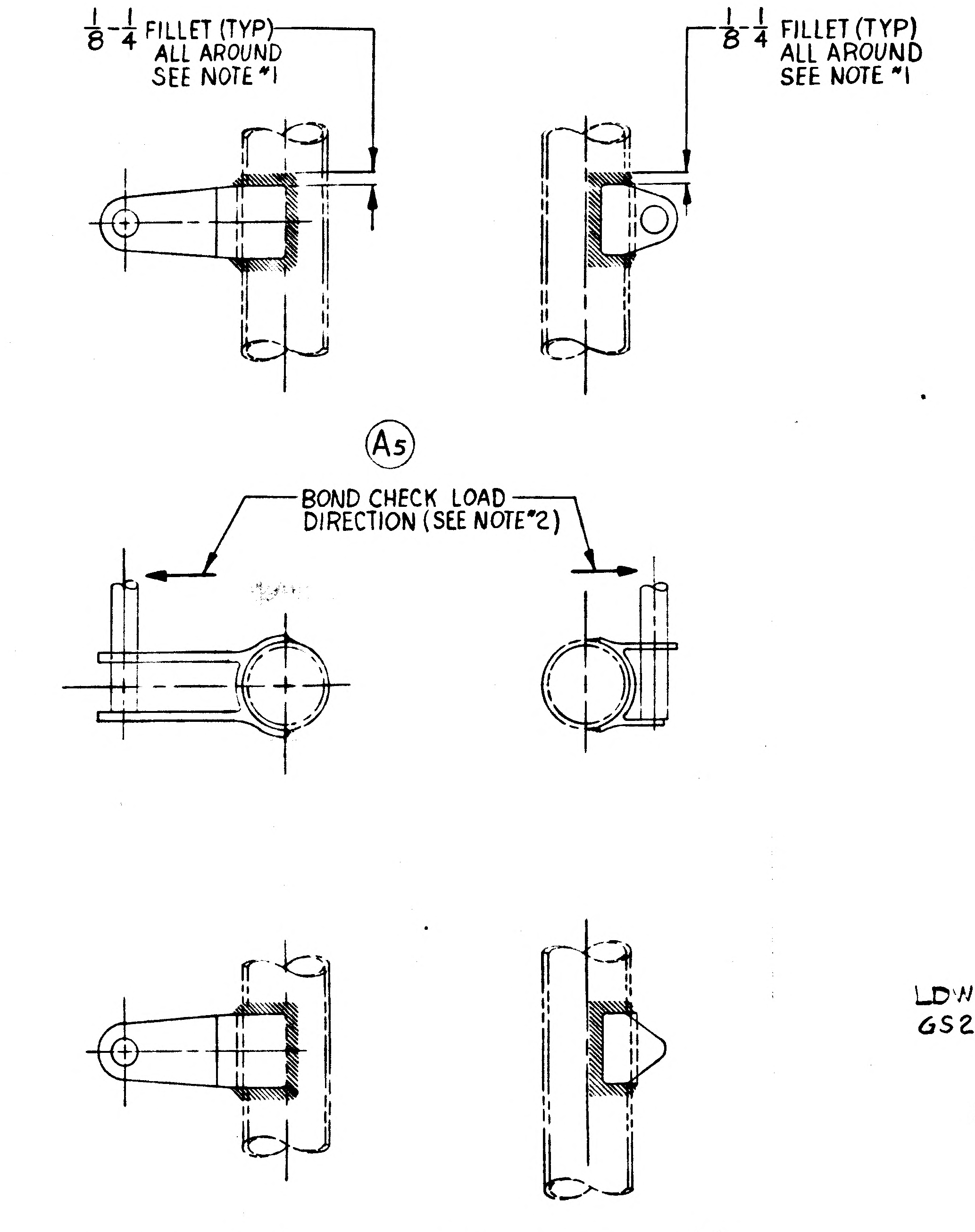
LDW280-28864 B

03/03

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LEM	J	26512	LDW280-28864	B
	SCALE 1/2 & NOTED		SHEET 3	

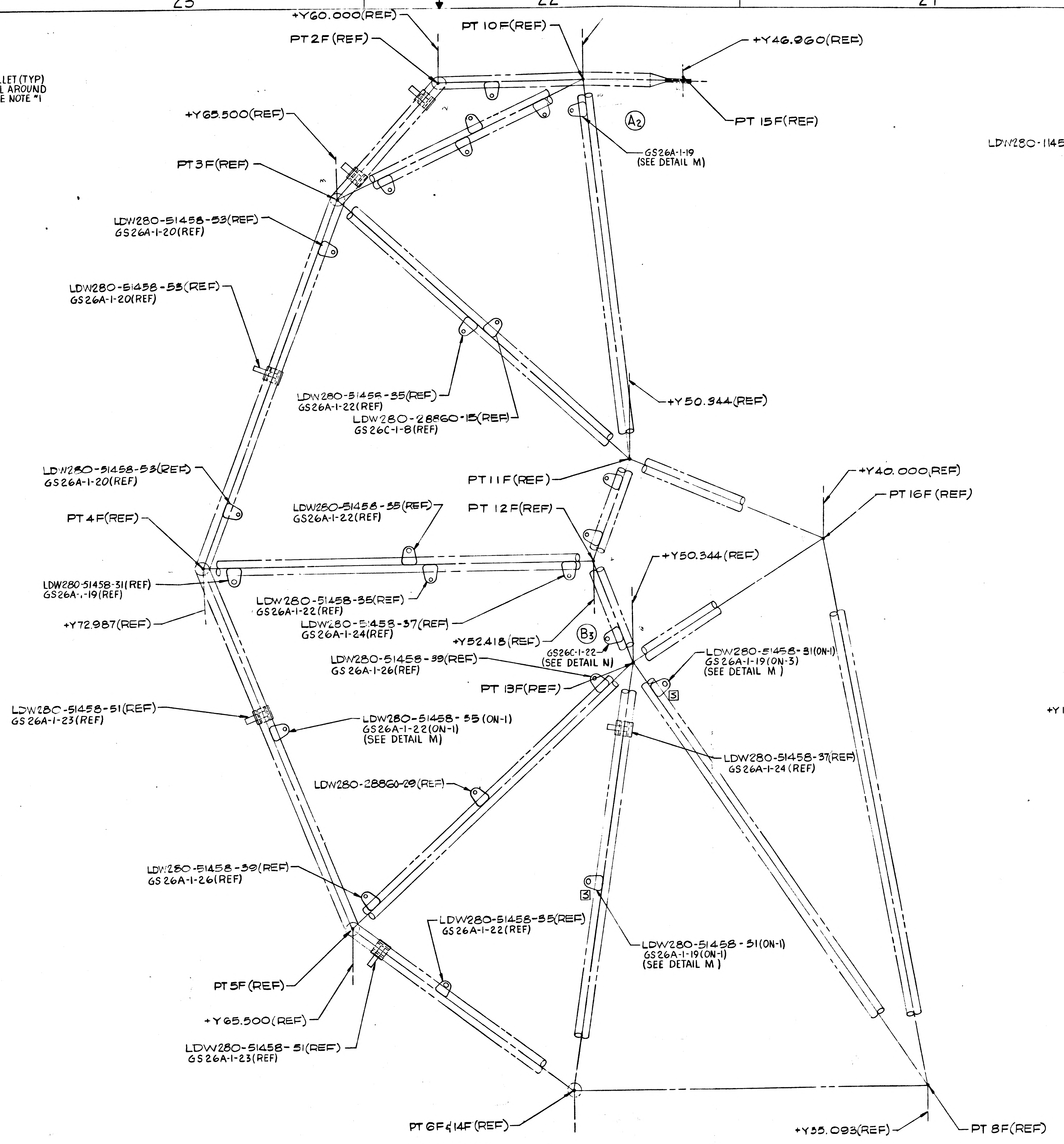


1/8 - 1/4 FILLET (TYP) ALL AROUND SEE NOTE *1
1/8 - 1/4 FILLET (TYP) ALL AROUND SEE NOTE *1
A5
BOND CHECK LOAD DIRECTION (SEE NOTE *2)

BONDING DETAIL L
TYP FOR LDW280-28860
SCALE: NONE

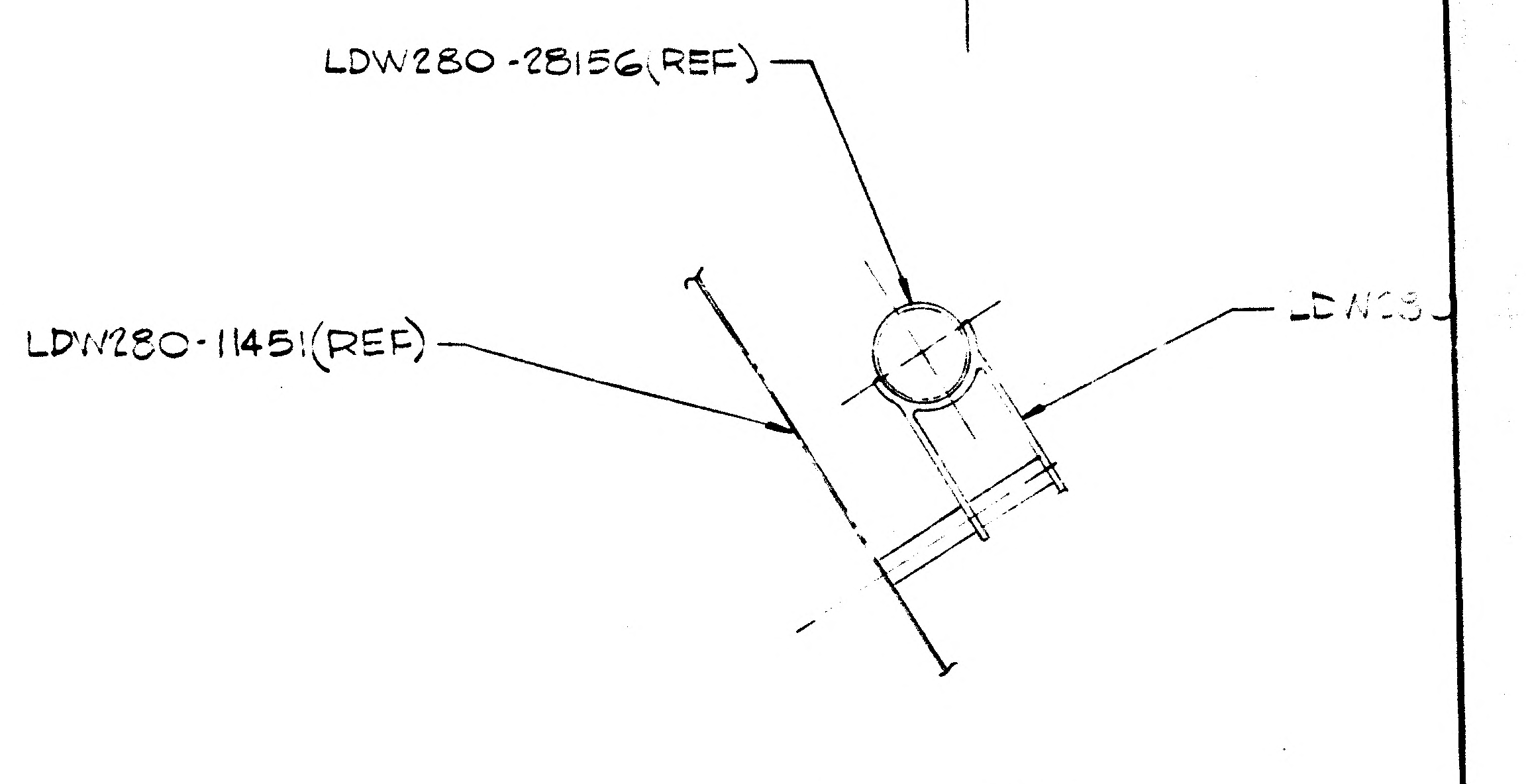
BONDING DETAIL M
TYP FOR LDW280-51458 & GS26A-1
SCALE: NONE

A3



+Y60.000(REF)
PT 2F(REF)
PT 10F(REF)
+Y46.960(REF)
PT 15F(REF)
A2
GS26A-1-19 (SEE DETAIL M)
+Y65.500(REF)
PT 3F(REF)
LDW280-51458-53(REF) GS26A-1-20(REF)
LDW280-51458-53(REF) GS26A-1-20(REF)
LDW280-51458-35(REF) GS26A-1-22(REF)
LDW280-28860-15(REF) GS26C-1-8(REF)
+Y50.344(REF)
LDW280-51458-53(REF) GS26A-1-20(REF)
PT 11F(REF)
+Y40.000(REF)
PT 16F(REF)
LDW280-51458-35(REF) GS26A-1-22(REF)
PT 12F(REF)
PT 4F(REF)
+Y50.344(REF)
LDW280-51458-31(REF) GS26A-1-19(REF)
LDW280-51458-35(REF) GS26A-1-22(REF)
LDW280-51458-37(REF) GS26A-1-24(REF)
+Y72.987(REF)
+Y52.418(REF)
B3
GS26C-1-22 (SEE DETAIL N)
LDW280-51458-39(REF) GS26A-1-26(REF)
LDW280-51458-31(ON-1) GS26A-1-19(ON-3) (SEE DETAIL M)
PT 13F(REF)
S
LDW280-51458-51(REF) GS26A-1-23(REF)
LDW280-51458-55(ON-1) GS26A-1-22(ON-1) (SEE DETAIL M)
LDW280-51458-37(REF) GS26A-1-24(REF)
LDW280-28860-29(REF)
LDW280-51458-39(REF) GS26A-1-26(REF)
S
LDW280-51458-55(REF) GS26A-1-22(REF)
LDW280-51458-31(ON-1) GS26A-1-19(ON-1) (SEE DETAIL M)
PT 5F(REF)
+Y65.500(REF)
LDW280-51458-51(REF) GS26A-1-23(REF)
PT 6F & 14F(REF)
+Y54.000(REF)
+Y55.093(REF)
PT 8F(REF)

VIEW B-B (ZONE 4 A)



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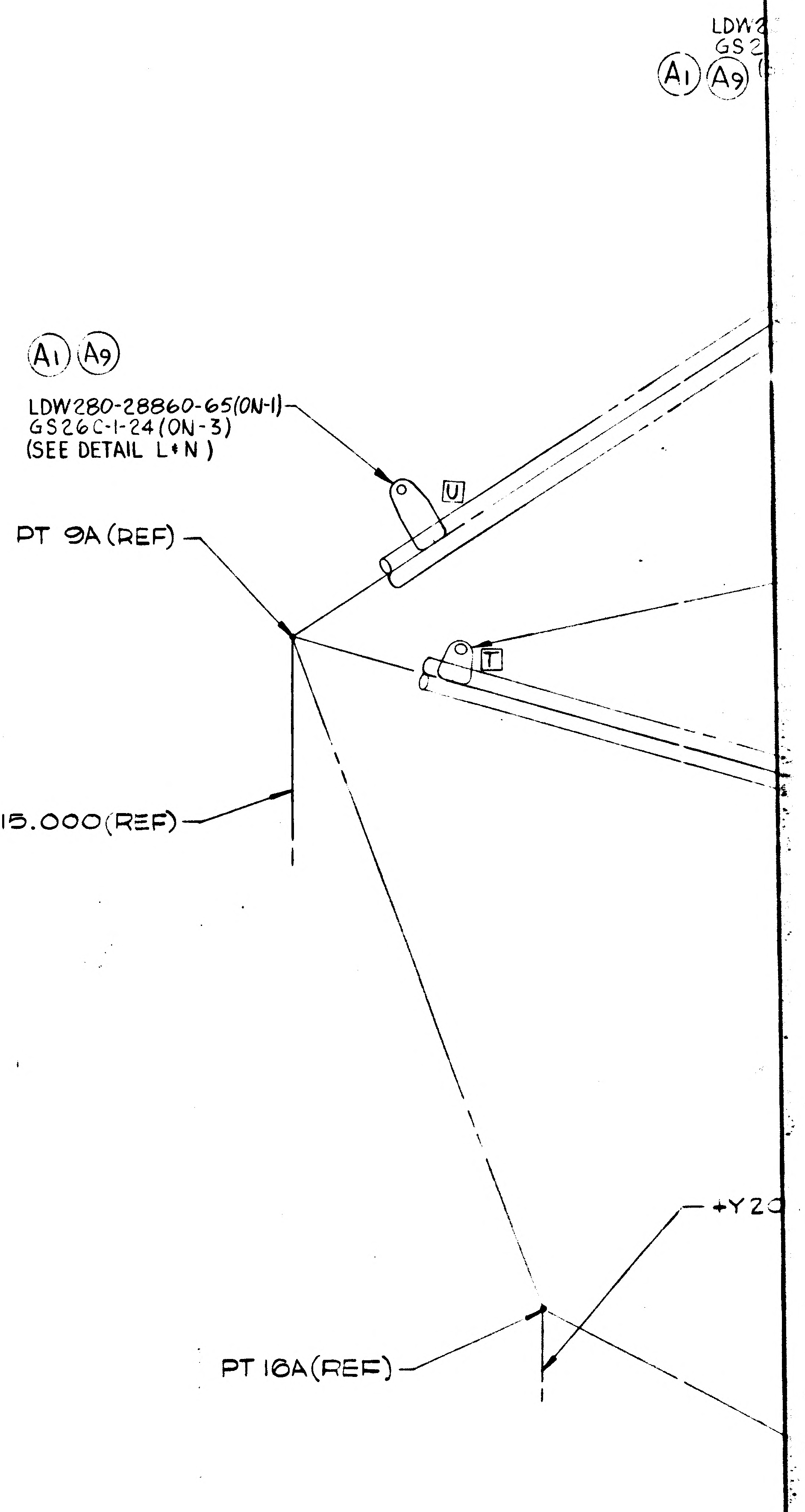
LDW280-11451(REF)

SECTION F-F (ZONE 19C)
SCALE: FULL SIZE

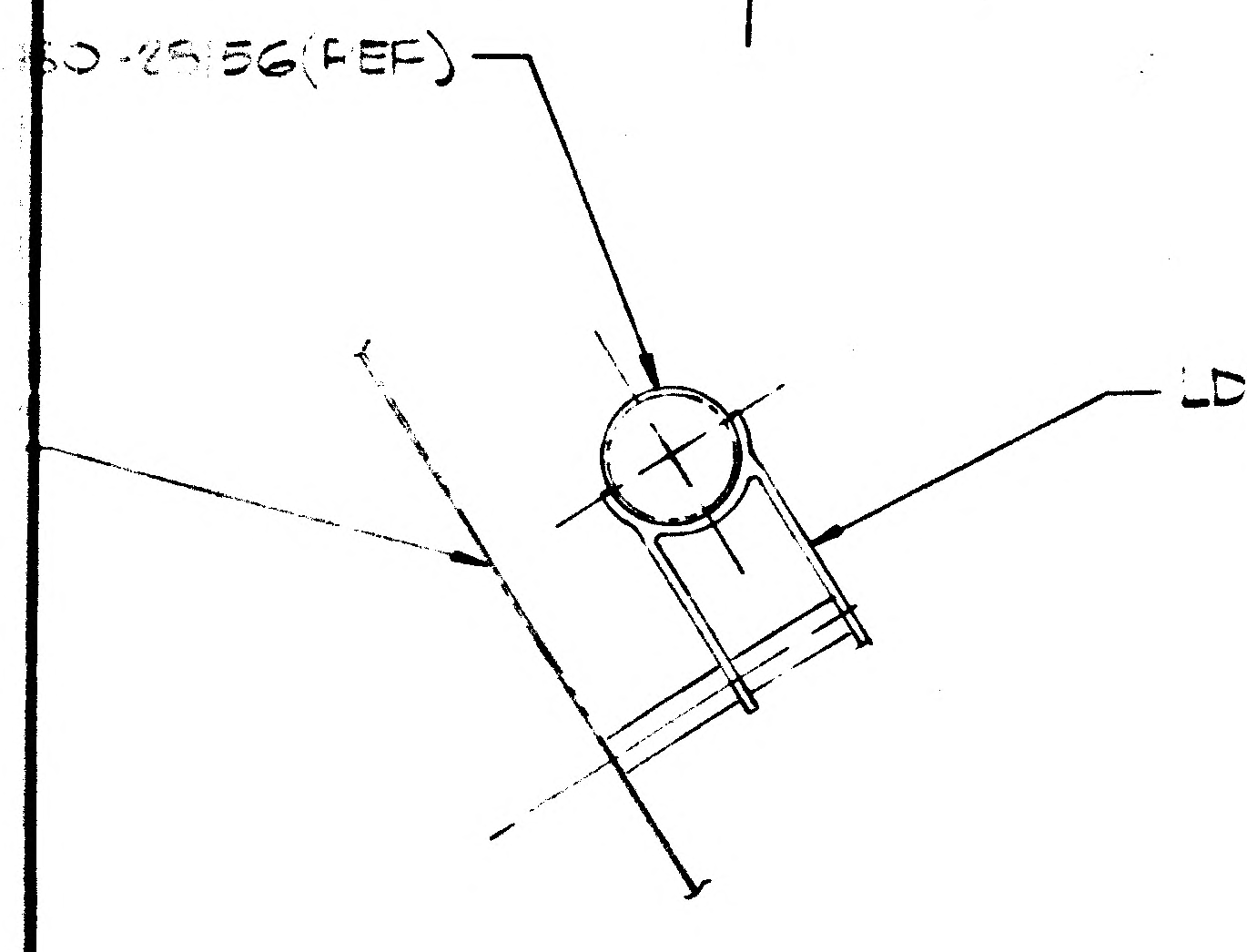


A1 A9
A1 A9
LDW280-28860-65(ON-1) GS26C-1-24(ON-3) (SEE DETAIL L & N)
U
PT 9A(REF)
T
+Y15.000(REF)
PT 18A(REF)

01/03

NAS 9-1100

CODE IDENT NO. 26512	
LDW280-28864	S-4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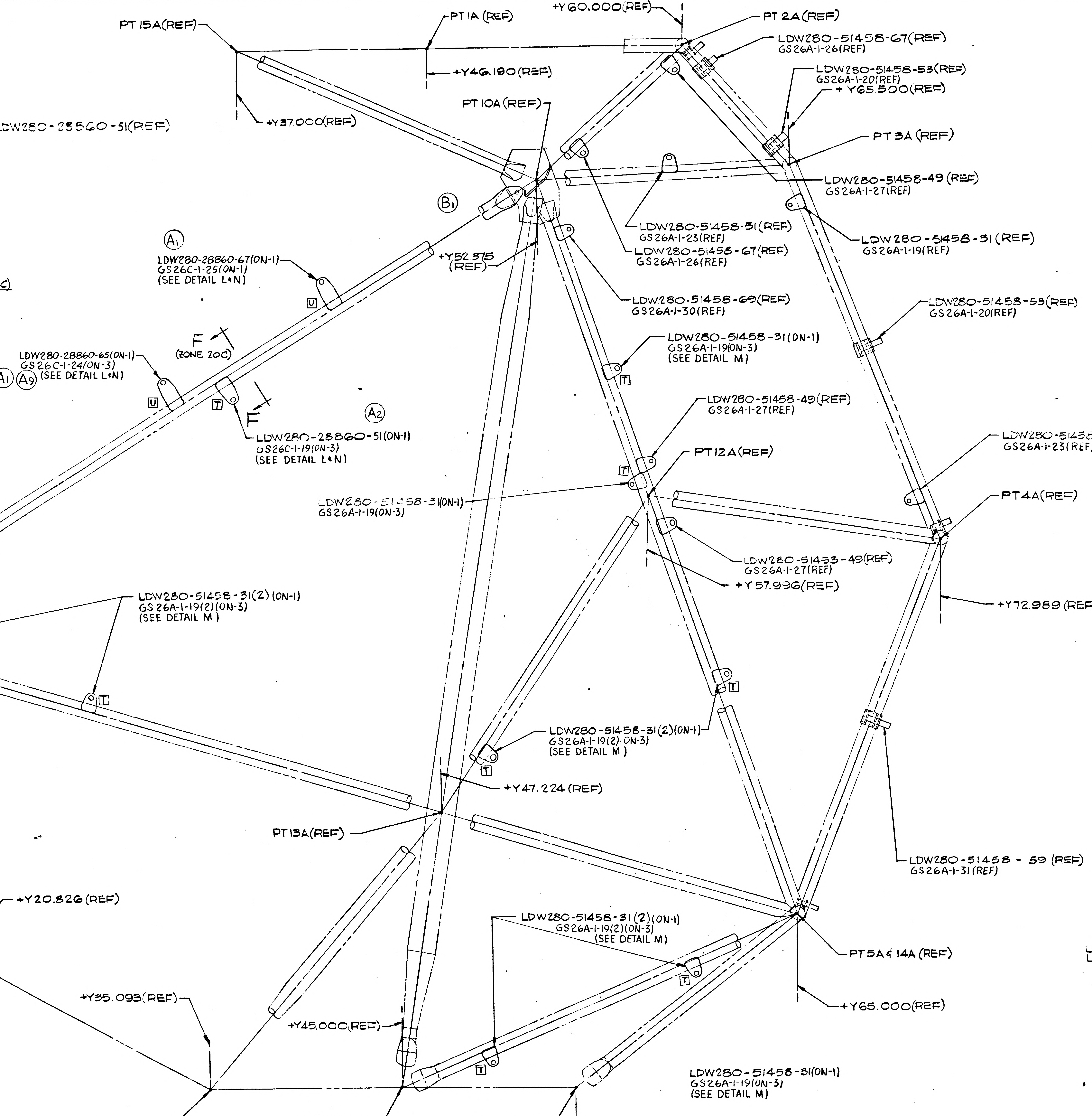
SECTION F-F (ZONE 19C)
SCALE: FULL SIZE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GS26A-1-23(REF)
LDW280-51458-67(REF)
GS26A-1-26(REF)
LDW280-51458-31(REF)
GS26A-1-19(REF)
A1
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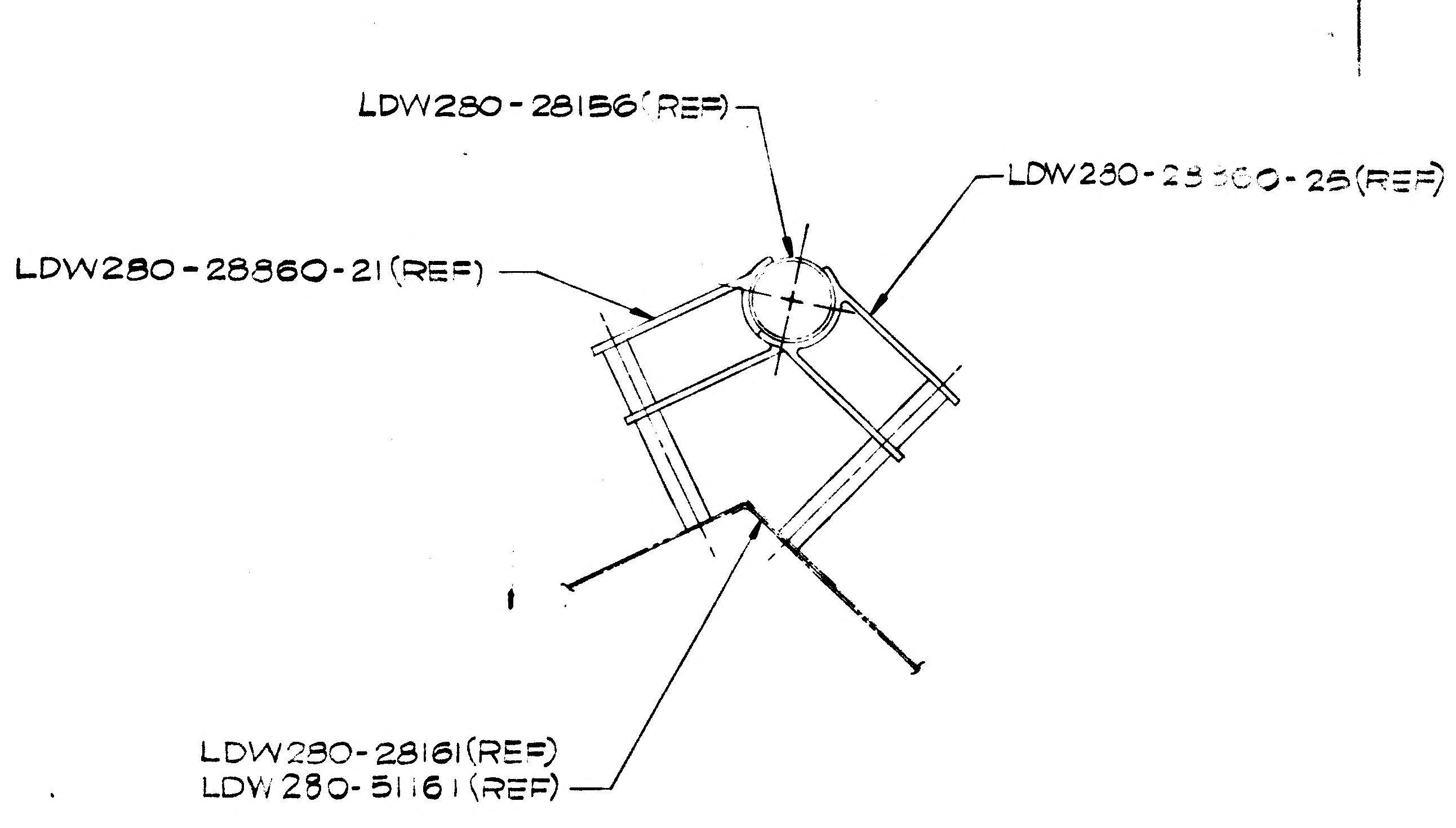
GS26C-1-25(ON-1)
(SEE DETAIL L&N)
+Y52.375
(REF)
U
LDW280-51458-69(REF)
GS26A-1-30(REF)
LDW280-51458-53(REF)
GS26A-1-20(REF)
F
(ZONE 20C)
LDW280-51458-31(ON-1)
GS26A-1-19(ON-3)
(SEE DETAIL M)
LDW280-28860-65(ON-1)
GS26C-1-24(ON-3)
A1 A9 (SEE DETAIL L&N)
U
T
F
A2
LDW280-51458-49(REF)
GS26A-1-27(REF)
LDW280-28860-51(ON-1)
GS26C-1-19(ON-3)
(SEE DETAIL L&N)
T
PT12A(REF)
LDW280-51458-51(REF)
GS26A-1-23(REF)
LDW280-51458-31(ON-1)
GS26A-1-19(ON-3)
PT4A(REF)
28860-65(ON-1)
24(ON-3)
AIL L&N)
U
LDW280-51458-49(REF)
GS26A-1-27(REF)
+Y57.996(REF)
EF)
+Y72.989 (REF)
LDW280-51458-31(2) (ON-1)
GS26A-1-19(2)(ON-3)
(SEE DETAIL M)
T
T
T
EF)
LDW280-51458-31(2)(ON-1)
GS26A-1-19(2)(ON-3)
(SEE DETAIL M)
T
+Y47.224 (REF)
PT13A(REF)
LDW280-51458 - 59 (REF)
GS26A-1-31(REF)
+Y20.826 (REF)
LDW280-51458-31(2)(ON-1)
GS26A-1-19(2)(ON-3)
(SEE DETAIL M)
PT 16A (REF)
PT 5A & 14A (REF)
T
+Y35.093(REF)
+Y45.000(REF)
+Y65.000(REF)
T
LDW280-51458-51(ON-1)
GS26A-1-19(ON-3)
(SEE DETAIL M)
PT 8A (REF)
PT 7A(REF)
PT 6A (REF)
+Y54.000 (REF)

VIEW C-C (ZONE 8A)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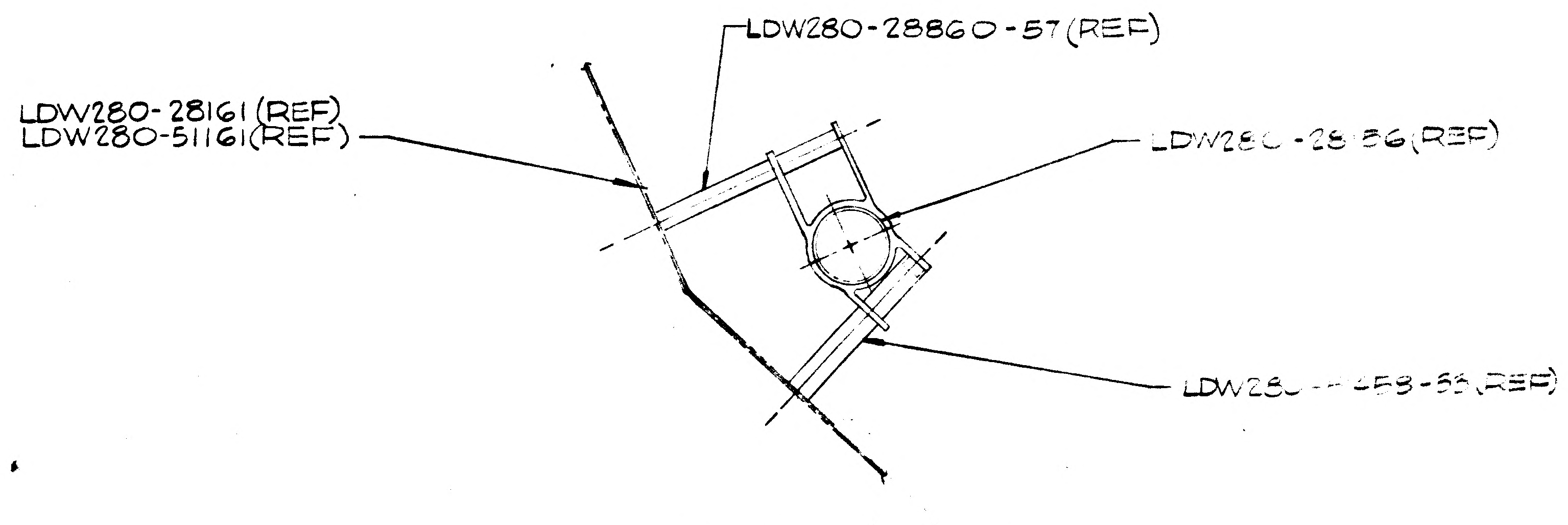
SECTION G-G (ZONE 5A)
SCALE: FULL SIZE

B5

LDW280-2
LDW280-5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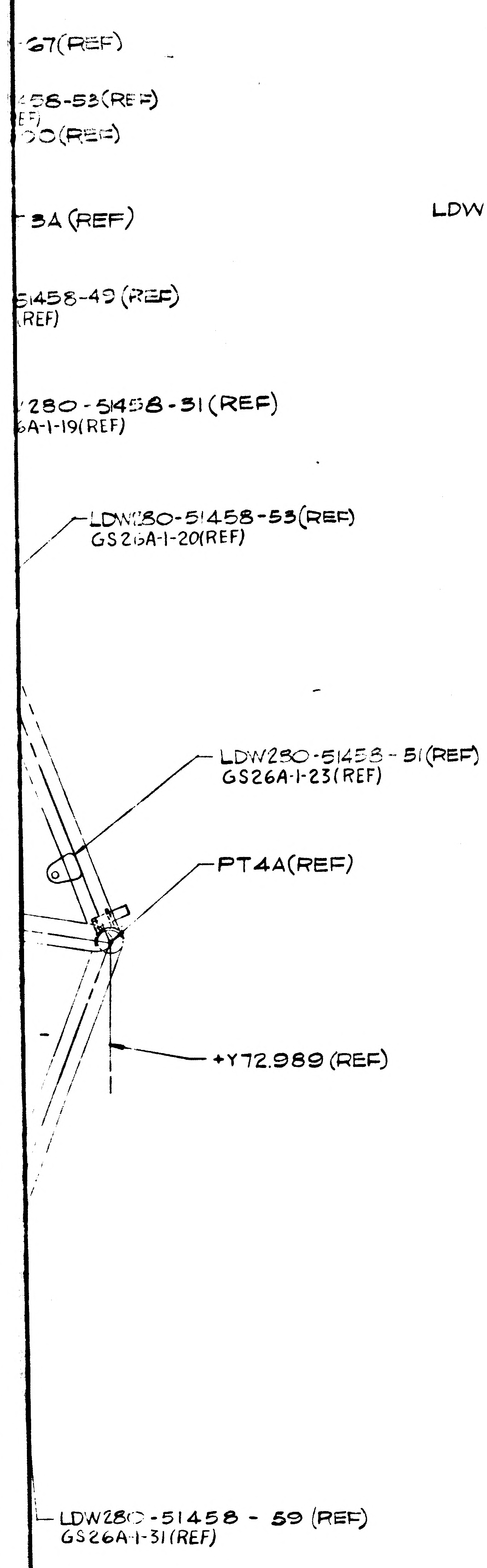
SECTION J-J (ZONE 5B)
SCALE: FULL SIZE

02/03 NAS 9-1100

CODE IDENT NO. 26512	
LDW280-28864	SH 4

CODE IDENT NO. 26512	
LDW280-28864	SH 4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O(REF)
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(REF)
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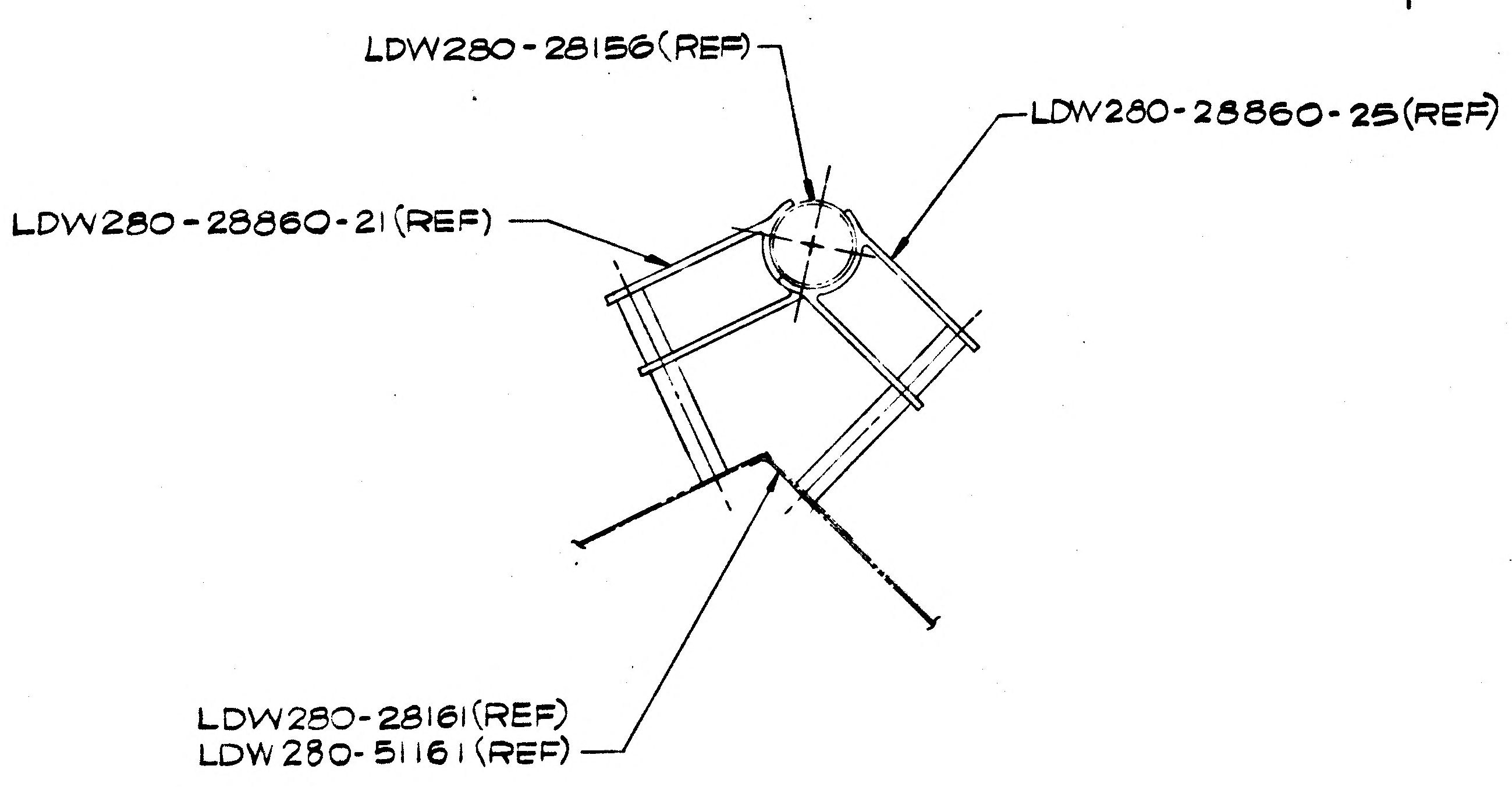
GS26A-1-20(REF)
LDW280-51458-51(REF)
GS26A-1-23(REF)
PT4A(REF)
+Y72.989 (REF)
LDW280-51458-59 (REF)
GS26A-1-31(REF)

14A (REF)

O(REF)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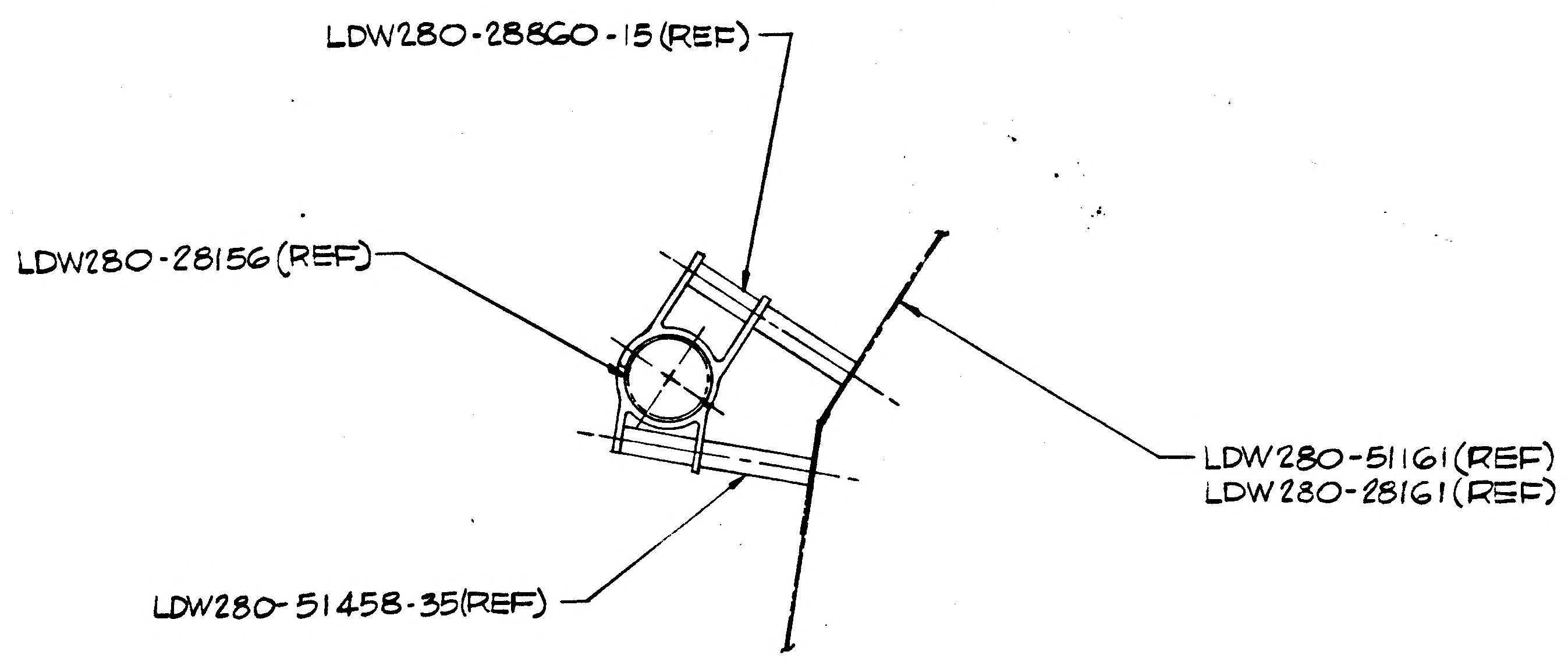
LDW280-28161(REF)
LDW280-51161(REF)

SECTION G-G (ZONE 5A)
SCALE: FULL SIZE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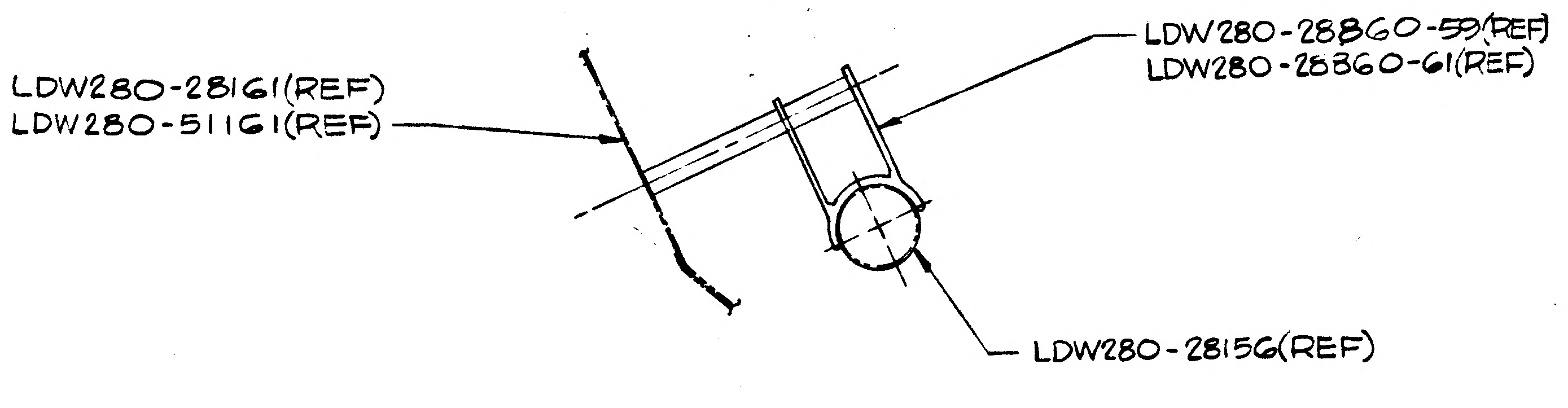
SECTION D-D (ZONE 4B)
SCALE: FULL SIZE

B5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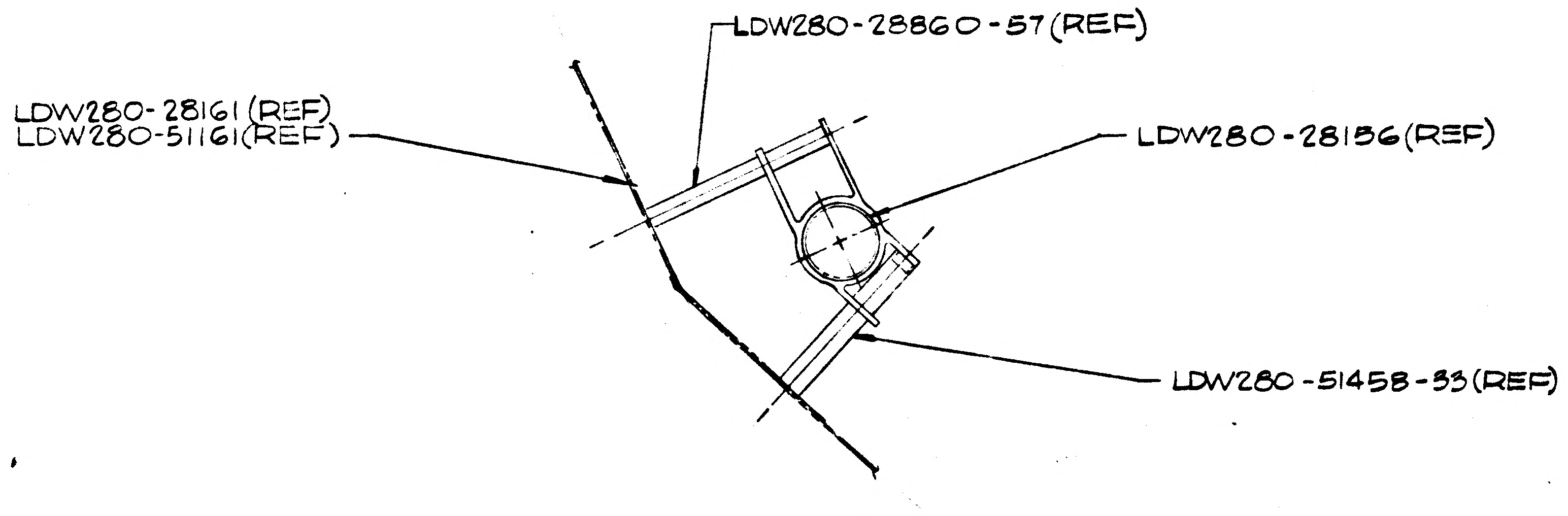
LDW280-28156(REF)

SECTION E-E (ZONE 4B & 5A)
SCALE: NONE
TYP INSTL 2 PLACES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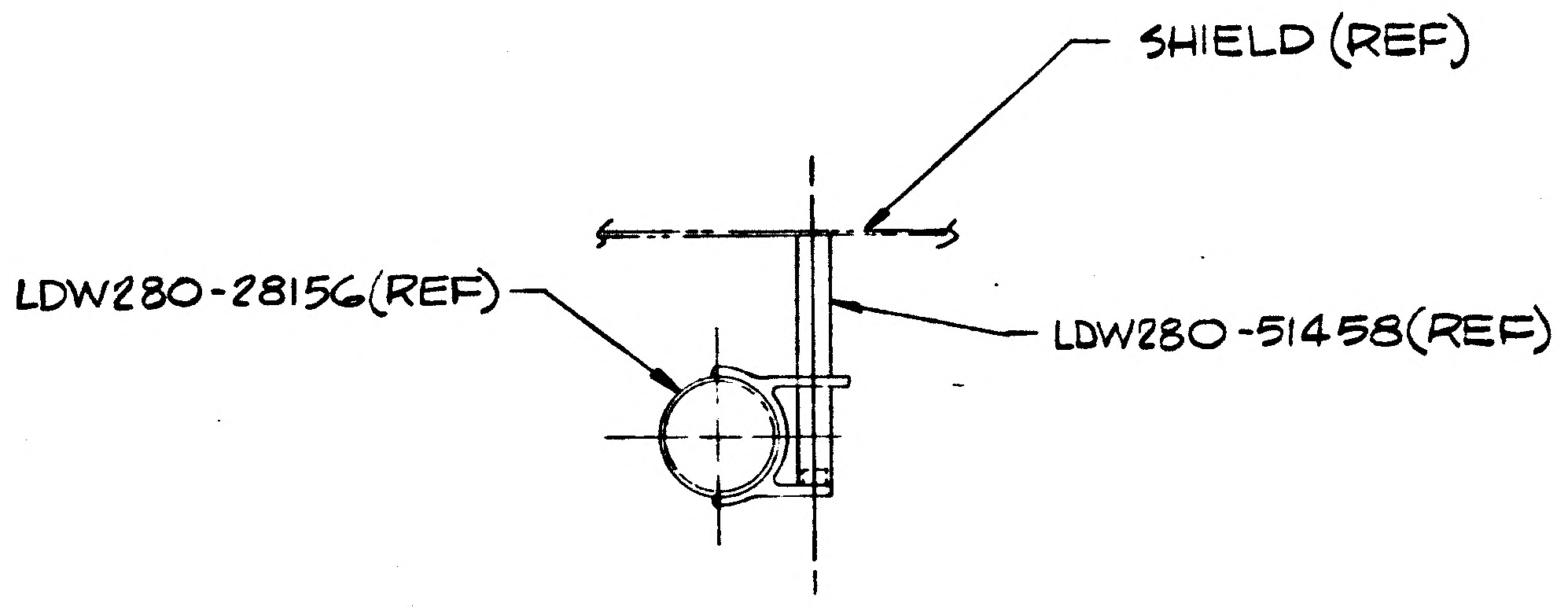
SECTION J-J (ZONE 5B)
SCALE: FULL SIZE


SHIELD (REF)
LDW280-28156(REF)
LDW280-51458(REF)

DETAIL 'K'
TYP STANDOFF MOUNTING
FOR ALL LDW280-51458 STANDOFFS
SCALE: NONE
(SEE NOTE * 1)

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ⊠
USE BOTH SIDES IF NECESSARY.

FILLET AND INSIDE CORNER
RADII TOLERANCES
.016R TO .062R ± .010
.063R TO .250R ± .015
OVER .250R ± .030

DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.

EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.

DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.

MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.

DIAMETERS MARKED
MUST BE CONCENTRIC WITHIN
FULL INDICATOR
READING

HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.

ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES

125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10

200 √ FOR ALL DRILLED HOLES

REMOVE ALL BURRS.
BREAK ALL EDGES .015-.031

INSPECTION INFORMATION
MINIMUM PERMISSIBLE
AVERAGE EDGE DISTANCE
MARKED IS

SYMBOL √ DENOTES SURFACE TO BE MACHINED

UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32

LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.

TOLERANCE ON LOFTED DELINEATIONS IS

DWG SIZE 34 X 118

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 120)= 30.0 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 7.5 SQ. FT.

PRINT TRIM LINE

C

B

LDW280-28864 B

A

LDW280-28864 B

03/03

NAS 9-1100

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-28864	B
MODEL OR END ITEM	SCALE 1/2	NOTED	SHEET 4.00	

CODE IDENT NO. 26512	
LDW280-28864	SH 4

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28864 | EO NO. C1
CONTROL INFO NO. LDW280A3731

IN F/D: IN SYMBOL LEGEND FOR STANDOFF LOCATION,
REMOVE DASH NUMBERS AS SHN BELOW.

SYMBOL	COORDINATE WITH DRAWING NO.
A	LDW280-11445 WAS LDW280-11445-11 & -17
B	11445 11445-13 & -19
C	11446 11446-11 & -19
D	11446 11446-13 & -21
E	11446 11446-15 & -23
F	11446 11446-17 & -25
G	11447 11447-27 & -33
H	11447 11447-29 & -35
J	11447 11447-31 & -37
K	11448 11448-11 & -25
L	11448 11448-13 & -27
M	11448 11448-23 & -29
N	11449 11449-13 & -17
P	11449 11449-15 & -29
R	11449 11449-25 & -27
S	11450 11450-11, -13, -15 & -17
T	LDW280-11451 WAS LDW280-11451-11, -13, -15, -17 -19 & -1

3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: OBSOLETE DASH NOS REMOVED TO PREVENT CONFUSION.

DESCRIPTION OF EO: IN F/D: IN SYMBOL LEGEND FOR STANDOFF LOCATION, REMOVED DASH NUMBERS

GAEC EO RELEASE: FR 12/6/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
LM		LM-1(31)	
LM		LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: NOT REQ'D

APPROVED BY									
DATE	11/30/66	12/1/66			11/29	12/1		12/6/66	12/6/66
	#6.	VDI	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: STANDOFF INSTL A/S HIS RH TANK ~ LOWER

DRAWING NO.: LDW280-28864

EO NO.: C1

ISSUED BY M. SHAPIRO X1153 SECTION VDI GROUP NO. 335 PL 35

01
NAS 9-1100

ENG 32.1 REV 3-65 B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280-
EO NO. 600
CONTROL INFO NO. LM-5-15154

IN F/D ADD NOTE ✱ TO THE FOLLOWING DWG'S FOR ALL DASH NUMBERS:

PART NUMBER	EO NO.	DWG TITLE	EFFECTIVITY
✓ LDW280-28163	A7	SEE DWG.	LTA-8(18)
✓ LDW280-28164	D3	↑	LTA-8(18), LM-1(31) & LM-2(32)
✓ LDW280-28862	A6		LTA-8(18), LM-1(31) & LM-2(32)
✓ LDW280-28863	C1		LTA-8 (18), LM-1(31) & LM-2(32)
✓ LDW280-28864	C2		LTA-8 (18), LM-1(31) & LM-2(32)
LDW280-51457	C5		LM-1(31) THRU LM-15(45)
LDW280-53163	A2		LM-3 (33) THRU LM-15 (45)
LDW280-53164	A8		LM-3(33) THRU LM-15 (45)
LDW280-53862	A6		LM-3(33) THRU LM-15(45)
LDW280-53863	A5		LM-3 (33) THRU LM-15 (45)
LDW280-53864	A6		LM-3 (33) THRU LM-15 (45)
LDW280-51163	A4	↓	LM-1 (31), LM-2(32)

NOTE ✱ AFTER INSTALLATION, IT IS PERMISSIBLE TO REMOVE INSTALLATION TABS FROM GS26A & GS26C STANDOFFS ON CAGES TO PREVENT TEARING THERMAL BLANKETS.

(✱ NEXT AVAILABLE NUMBER)

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

3

REASON FOR EO: TO PREVENT STANDOFFS FROM TEARING THERMAL BLANKETS

DESCRIPTION OF EO: IN F/D ADDED NOTE ✱

GAEC C EO RELEASE: K

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
SEE TABLE ABOVE			

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY	FDR						DAM	
DATE	6/5/67			5/18/67	5-18-67	5-24-67	6/19/67	
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY C

DRAWING TITLE: STANDOFF INSTALLATION

DRAWING NO. LEO 280-

EO NO. 600

ISSUED BY LIAISON J. McGill / ext 6226 SECTION V.D.I. GROUP NO.____ PL____

Q1 NAS 9-1100

B

ENG 32.1 REV 3-65

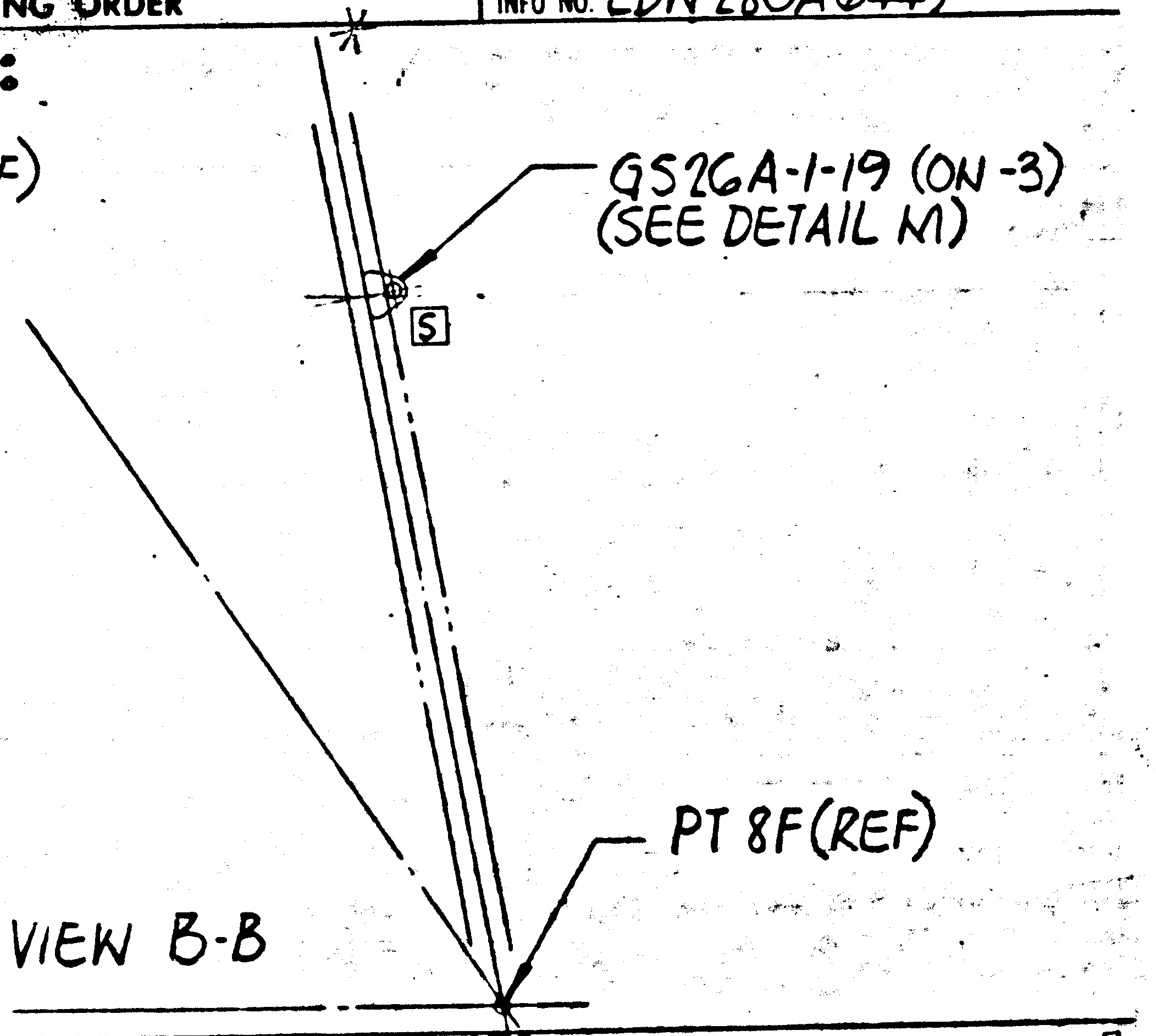
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28864		EO NO. C 3	
CONTROL INFO NO. LDW280A6449			

ADD GS26A-1-19 TO B/M & F/D AS SHOWN:

LEGEND FOR STANDOFF LOCATIONS (REF)

S LDW280-11450 (REF).



DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD1069 CCA 553

3

REASON FOR EO: TO ACCOMMODATE REVISION OF CIRCUIT INTERRUPTERS

DESCRIPTION OF EO: ON -3: ADDED GS26A-1-19

GAEC EO RELEASE: JK 5/26/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO
LM	LM 1 (31)	& LM 2 (32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY							Dam	
DATE	3/9/67				5/15/67		5/17/67	5/18/67
2	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTL-A/S-M/S-RH TANK-LOWER	LDW280-28864	C3

ISSUED BY SALVADOR X7033 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

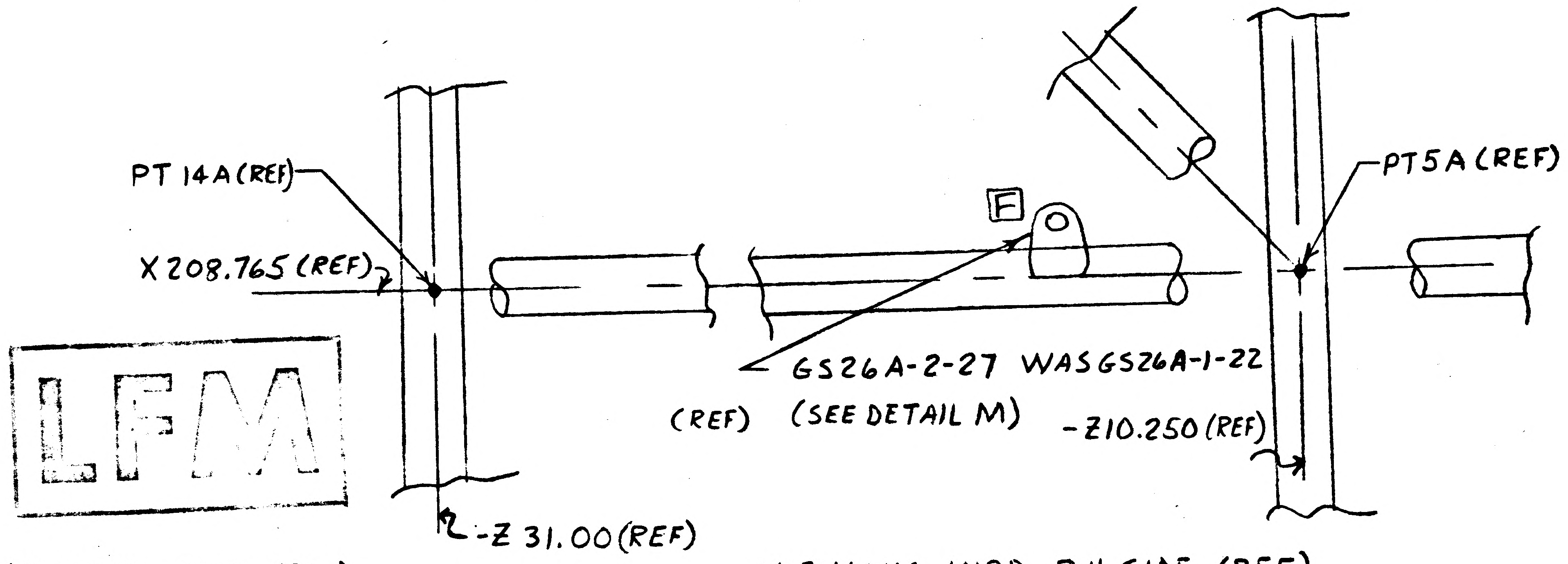
ENG 32.1 REV 3-65

B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-28864	EO NO.	C4
CONTROL INFO NO.	LDW280-B0368		

ON-3 INSTL F/D+B/M GS26A-1-22 SHOULD BE GS26A-2-27 AS SHOWN FOR BONDING DETAIL M (ADD) TYP FOR GS26A-2



LFM

N/A LDW280-51150 (REF)

VIEW LKG INBD R.H SIDE (REF)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD #2197

REASON FOR EO
TO ELIMINATE INTERFERENCE WITH BLAST SHIELD. NEED LARGER DIA. STAND OFF OVER LDW280 M11393-11 ADDED EO C6 (LDW280-28156)

DESCRIPTION OF EO
ON-3 F/D+B/M GS26A-2-27 WAS GS26A-1-22. ADDED "TYP FOR GS26A-2" TO BONDING DETAIL M.

GAEC EO RELEASE: JK 11/11/67 32 05 025

MODEL	~~PROCURING ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 56	LM-1(31)	
		LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	~~LIAISON~~ ENGRG	PROJ ENGRG	~~GOVT.~~
APPROVED BY				ZDR		PROJ KSC		
DATE	11/10/67			11-10-67	11/10/67		11/10/67	11-10-67
O	VDI							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTL A/S MID SECT R.H TANK ~ LOWER	LDW280-28864	C4

ISSUED BY J. GRASSIANO X 86755 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28865

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
		GAEC SCH NO.	

PART NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
		GAEC SCH NO.	

PART NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28159	LEM-2(32)	1
LEM	LDW280-28159	LEM-1(31)	1
LEM	LDW280-28159	LTA-8(18)	1
PART NO. LDW280-28865-1		GAEC SCH NO. 30 SH-2	

3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00			
REV								
SHEET								
REV								
SHEET								
REV								

LAST SECT LTR USED D-D
LAST DASH NO. USED -3

GRUMMAN REF INFO
PRIM NO. 215 LE(001) MP-8-31-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM #1
DOCUMENTATION TYPE II

DRAWN BY CAPPADORO 8-27-66
LAYOUT BY G.OLIVER 8-29-66
CHECKED BY 8-29-66
GROUP LDR 8-29
VEH. DES. INT. 8/29
STRUCTURES
STRUCTURES 8/30
WEIGHTS 9/13
RELIABILITY
THERMO V.J.I.
PROJ ENGR R.W. Carbee 8-31
REL GROUP 9-27-66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

COVER INSTALLATION
DRAIN LINE, LOWER THERMAL SHIELDING
ASCENT STAGE, MID SECTION, L H

SIZE B
CODE IDENT NO. 26512
LDW280-28865
SCALE NONE
SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 8-26-66

01

NAS 9-1100

QTY PER ASSEMBLY		CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
-3	-1											
			MS20470AD4	E	RIVET	STD PART						
			MS20470AD5			STD PART						
2			GR500A 4F			GRUMMAN STD						
3			GR500A-4E									
13	2		GR500A-4D									
	4		GR500A-4C									
77	4		GR500A-4B		RIVET							
1			GG10A-8-1		GROMMET	GRUMMAN STD						5A
AS REQD			SHIM		SEE NOTE 2							
1			LDW280M11158-1		FITTING	SEE DWG						3A
1			LDW280-11497-13		ZEE	SEE DWG						6B
1			LDW280-11497-11		ZEE							6B
1			LDW280-11496-19		BRACKET							6A
1			-17									5A
	1		-15									9C
1			-13		BRACKET							4A
1			LDW280-11496-11		WEB							7A
1			LDW280-11495-17		CLIP							6A
1			-15		CLIP							5A
	1		-13		BRACKET							7C
	1		LDW280-11495-11		BRACKET	SEE DWG						6C
	1		LDW280-28865-3		COVER ASSEMBLY							4A
			LDW280-28865-1	E	COVER INSTALLATION					NONE	NONE	4A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
						88	ANODIZE	LSP14-9030

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28865

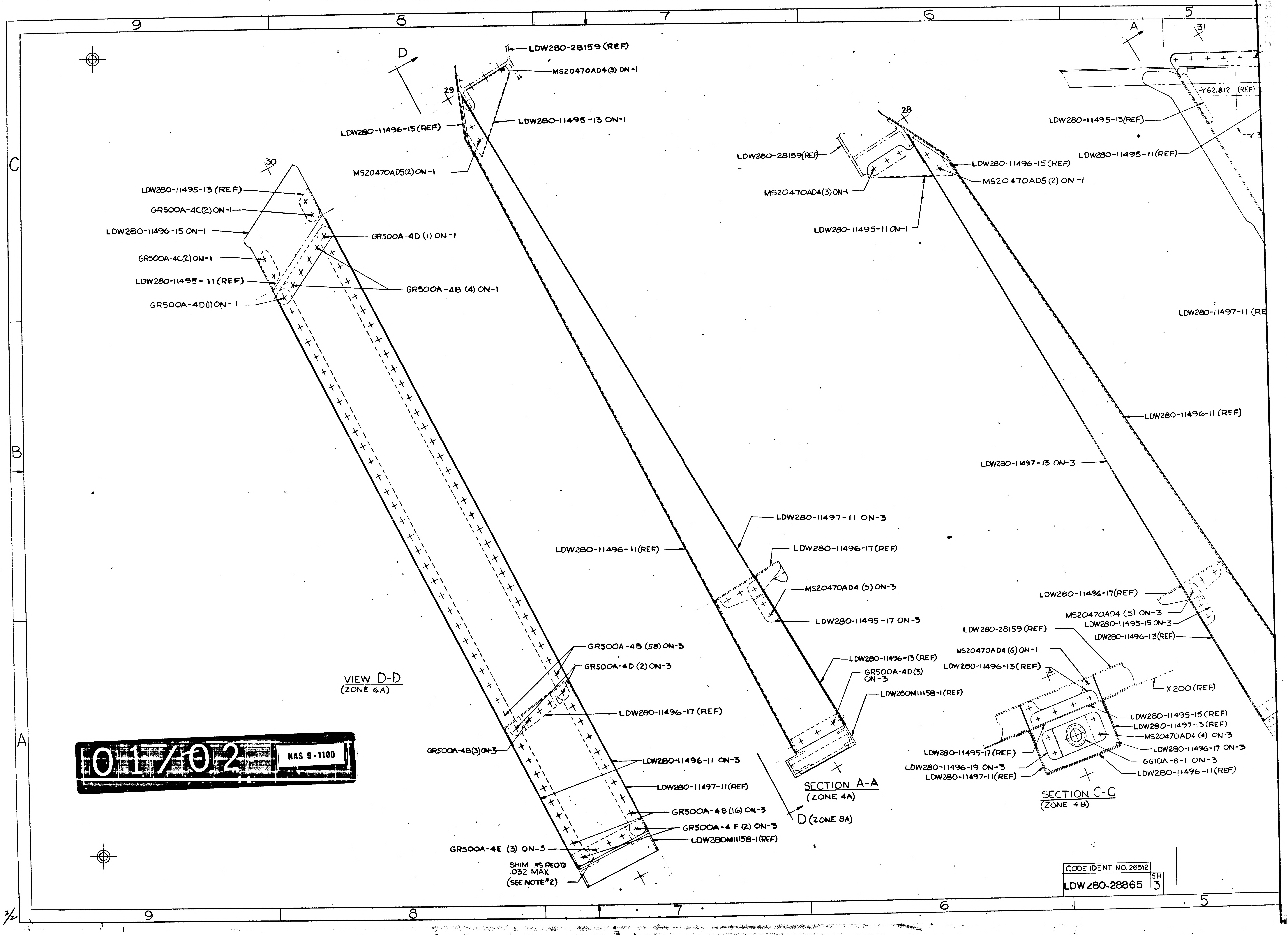
SCALE NONE

SHEET 2.00

ENG 77.2 7-65

01

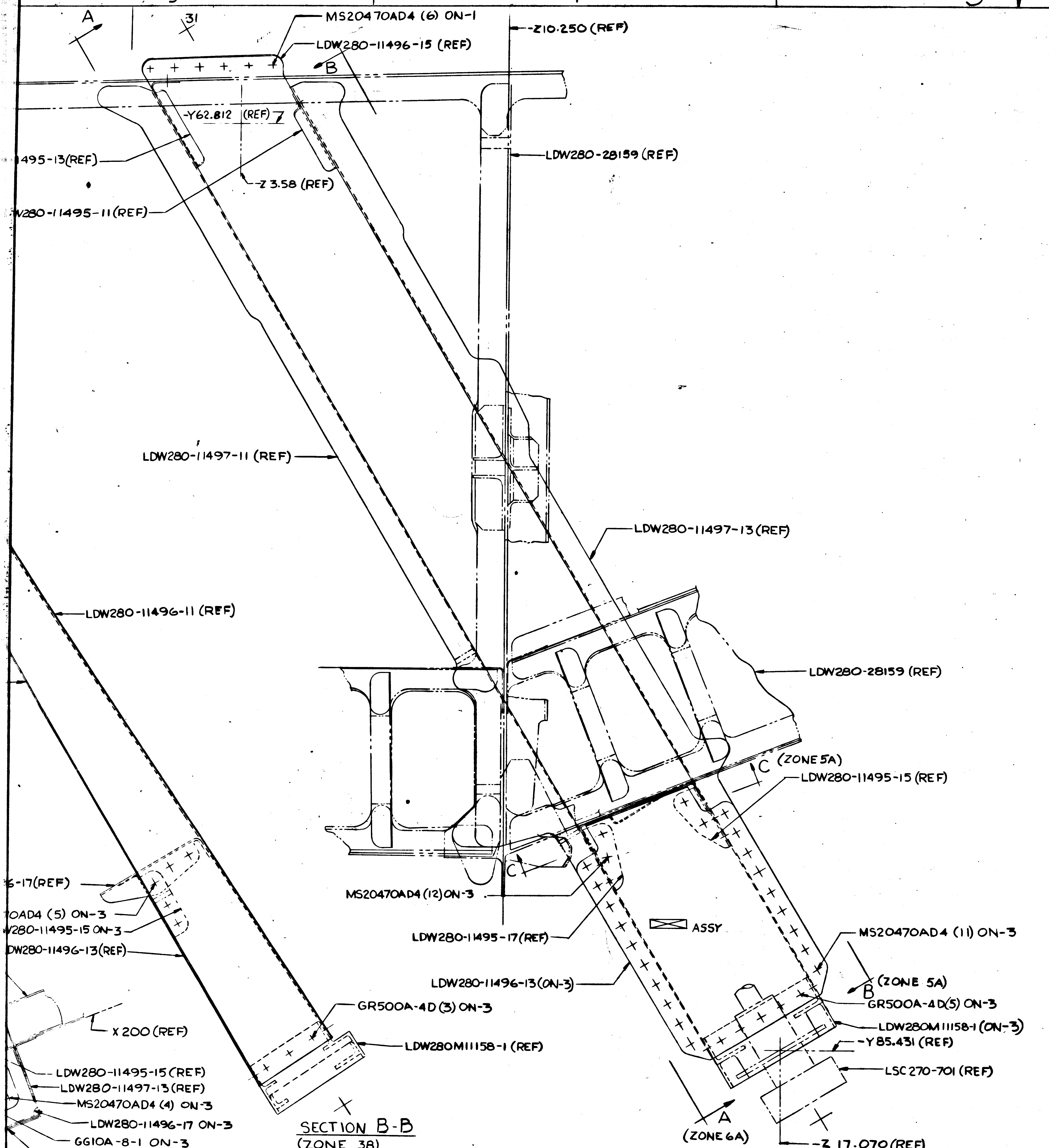
NAS 9-1100



9
8
7
6
5
C
B
A
D
A
31
-Y62.812 (REF)
-Z 3
LDW280-28159 (REF)
MS20470AD4(3) ON-1
29
LDW280-11496-15 (REF)
LDW280-11495-13 ON-1
MS20470AD5(2) ON-1
30
LDW280-11495-13 (REF)
GR500A-4C(2) ON-1
LDW280-11496-15 ON-1
GR500A-4D (1) ON-1
GR500A-4C(2) ON-1
LDW280-11495-11 (REF)
GR500A-4B (4) ON-1
GR500A-4D(1) ON-1
28
LDW280-28159(REF)
LDW280-11496-15 (REF)
MS20470AD5 (2) ON-1
MS20470AD4(3) ON-1
LDW280-11495-11 ON-1
LDW280-11495-13(REF)
LDW280-11495-11(REF)
LDW280-11497-11 (RE
LDW280-11496-11 (REF)
LDW280-11497-13 ON-3
LDW280-11497-11 ON-3
LDW280-11496-11(REF)
LDW280-11496-17 (REF)
MS20470AD4 (5) ON-3
LDW280-11495-17 ON-3
LDW280-11496-17(REF)
MS20470AD4 (5) ON-3
LDW280-11495-15 ON-3
LDW280-11496-13(REF)
LDW280-28159 (REF)
MS20470AD4 (6) ON-1
LDW280-11496-13(REF)
4
X 200 (REF)
GR500A-4B (58) ON-3
GR500A-4D (2) ON-3
LDW280-11496-13 (REF)
GR500A-4D(3) ON-3
LDW280M11158-1(REF)
VIEW D-D
(ZONE 6A)
LDW280-11496-17 (REF)
GR500A-4B(3) ON-3
LDW280-11496-11 ON-3
LDW280-11497-11(REF)
GR500A-4B (16) ON-3
GR500A-4 F (2) ON-3
LDW280M11158-1(REF)
GR500A-4E (3) ON-3
SHIM AS REQ'D .032 MAX
(SEE NOTE #2)
SECTION A-A
(ZONE 4A)
D (ZONE 8A)
LDW280-11495-15 (REF)
LDW280-11497-13 (REF)
MS20470AD4 (4) ON-3
LDW280-11496-17 ON-3
GG10A-8-1 ON-3
LDW280-11496-11 (REF)
LDW280-11495-17 (REF)
LDW280-11496-19 ON-3
LDW280-11497-11 (REF)
SECTION C-C
(ZONE 4B)
01/02
NAS 9-1100
CODE IDENT NO. 26512
LDW280-28865
SH 3

SHEET 3

3/2


A
31
MS20470AD4 (6) ON-1
LDW280-11496-15 (REF)
B
Z10.250 (REF)
Y62.812 (REF)
1495-13(REF)
Z 3.58 (REF)
W280-11495-11(REF)
LDW280-28159 (REF)
LDW280-11497-11 (REF)
LDW280-11497-13(REF)
LDW280-11496-11 (REF)
LDW280-28159 (REF)
(ZONE 5A)
C
LDW280-11495-15 (REF)
C
MS20470AD4 (12) ON-3
6-17(REF)
70AD4 (5) ON-3
W280-11495-15 ON-3
DW280-11496-13(REF)
ASSY
LDW280-11495-17(REF)
MS20470AD4 (11) ON-3
LDW280-11496-13(ON-3)
(ZONE 5A)
B
GR500A-4D(5) ON-3
GR500A-4D (3) ON-3
LDW280M11158-1 (ON-3)
Y 85.431 (REF)
LDW280M11158-1 (REF)
LSC 270-701 (REF)
X 200 (REF)
LDW280-11495-15 (REF)
LDW280-11497-13 (REF)
MS20470AD4 (4) ON-3
LDW280-11496-17 ON-3
GG10A-8-1 ON-3
LDW280-11496-11 (REF)
A
(ZONE 6A)
Z 17.070 (REF)
-C

SECTION B-B
(ZONE 38)

LDW280-28865 -1 INSTL
LDW280-28865 -3 ASSY

70
0
30

NOTES:
1. NO TOOLING HOLES PERMITTED IN PARTS.
2. SHIM TO BE 7075-T6, .032 MAX ~~QQ-A250/12~~ FINISH #88
3. INSTALL FASTENERS PER LSP-14-15303 & LSP-14-15302.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▨ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS ± 1/32	✓

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 90)= 22.5 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 5.6 SQ. FT.

PRINT TRIM LINE

LDW280-28865

LDW280-28865

02/02 NAS 9-1100

ENT NO. 26512
0-28865 SH 3

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LEM	J	26512	LDW280-28865
	SCALE		SHEET 300

FOR PHOTO REPRODUCTION

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28865 | EO NO. A2
CONTROL INFO NO. LM-3-4300

ON-1 LDW280-11496-23 WAS LDW280-11496-13-1

LDW280-11495-19 WAS LDW280-11495-15-1
LDW280-11495-21 WAS LDW280-11495-17-1

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐	3

REASON FOR EO: TO BRING DRAWING UP TO DATE AND AGREE WITH EXISTING EO.S

DESCRIPTION OF EO: ON-1 LDW280-11496-23 WAS LDW280-11496-13-1, LDW280-11495-19 WAS LDW280-11495-15-1, LDW280-11495-21 WAS LDW280-11495-17-1

GAEC EO RELEASE: FR

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (31)	
		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG ✓ / RECORD EO
DISPOSITION OF PARTS: REWORK ✓ / SCRAP

APPROVED BY		V.J.R.			—			
DATE	11/19/66	11/22		11/18	—	11-7-66	11-10-66	11/8/66
1	VDI	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COVER INSTALLATION A.S.-M.S.-L.H.-THERMAL SHIELD	LDW280-28865	A2

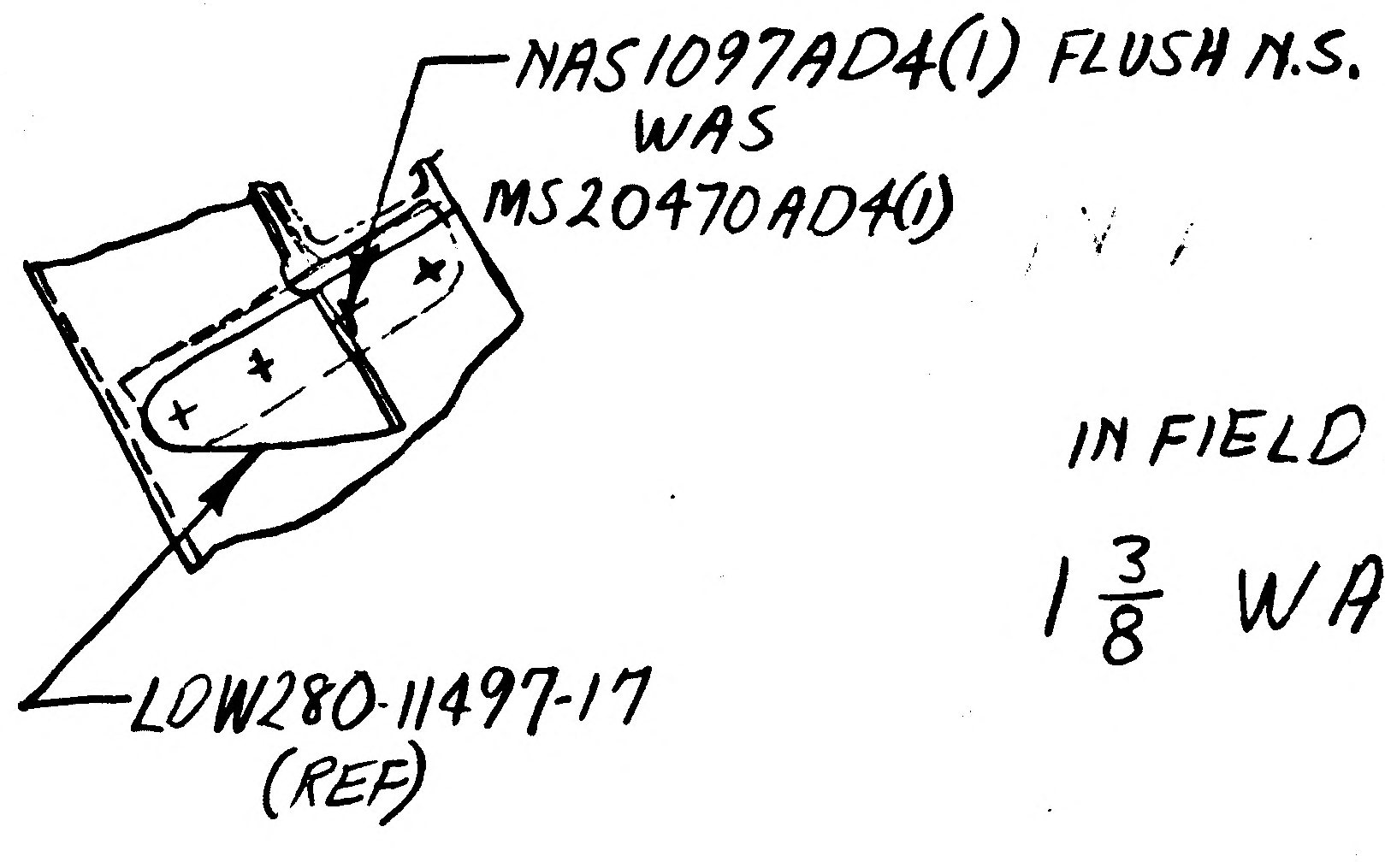
ISSUED BY LIAISON / VIC BOLLO   SECTION VDI   GROUP NO. 335   PL 35

01   NAS 9-1100

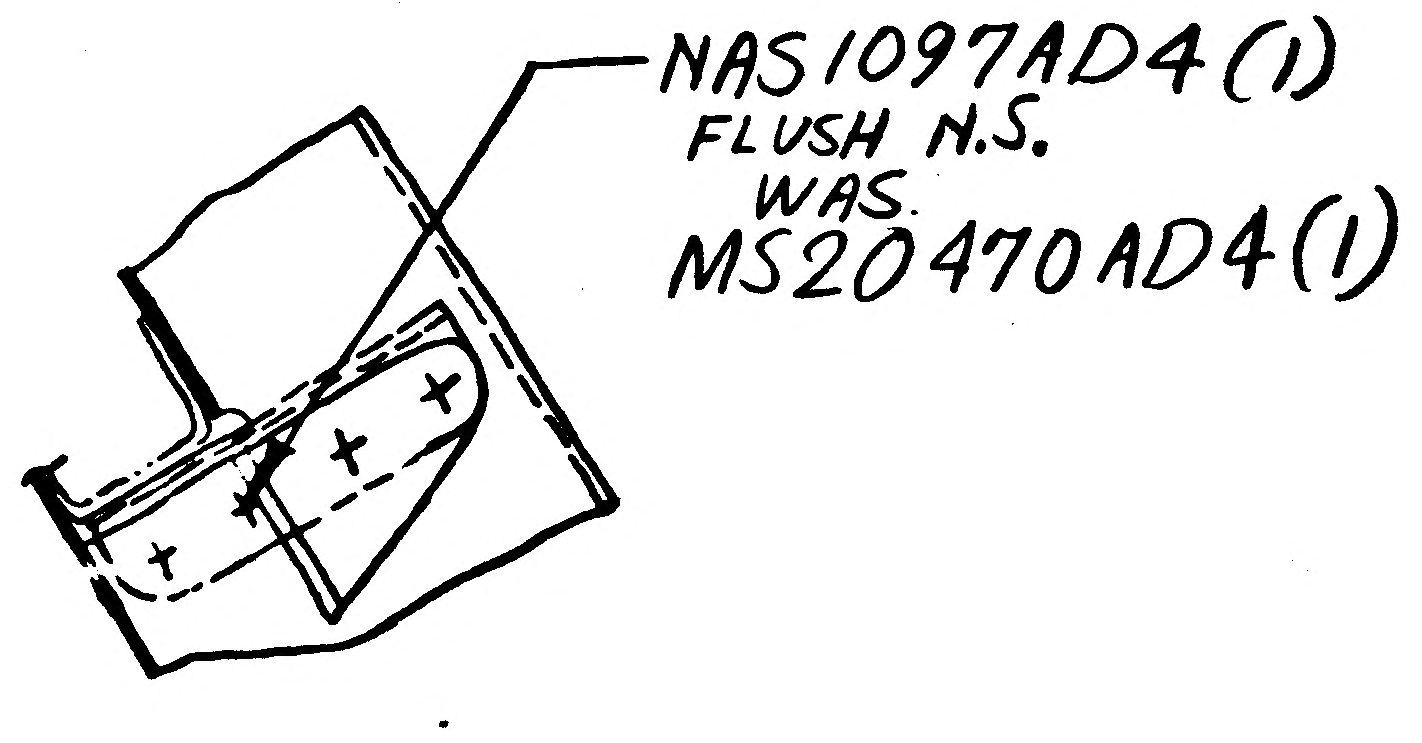
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28865
EO NO. A4
CONTROL INFO NO. LM-3-4474, 4467



IN FIELD ZONE 4B
$1\frac{3}{8}$ WAS $1\frac{1}{4}$



THIS IS A REVISION OF E.O. A1

* PARTS CONFORM TO THIS E.O. 3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: $1\frac{1}{4}$ DIM WOULD CAUSE AN I.E.R CONDITION

DESCRIPTION OF EO: (REF EO A1) $1\frac{3}{8}$ WAS $1\frac{1}{4}$, NAS1097AD4(2) WAS MS20470AD4(2)

GAEC EC RELEASE: ✓

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31)	
		LM-2(32)	QUAL TST (ED)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		*	
REVISE DWG	RECORD EO	REWORK	SCRAP

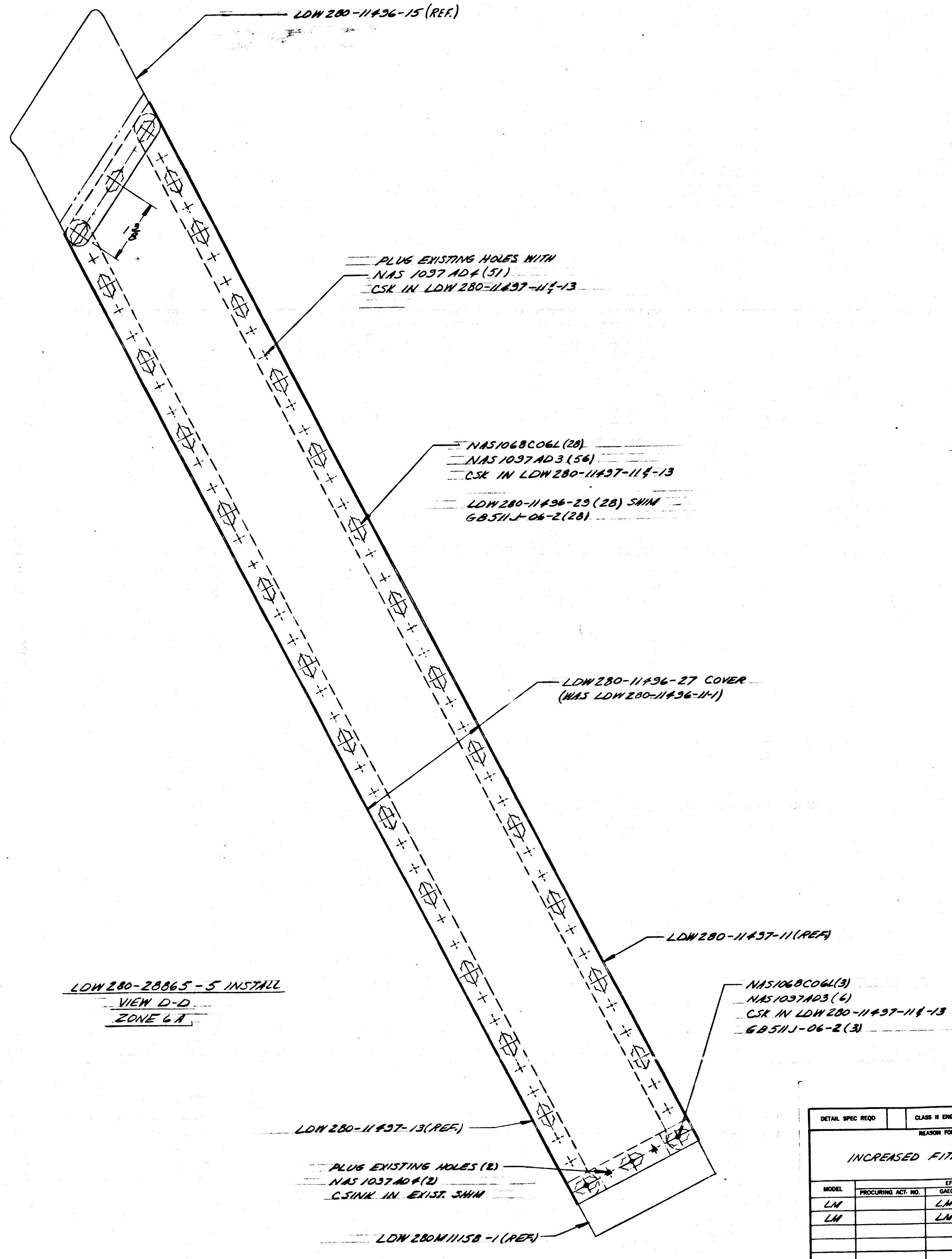
APPROVED BY		V.D.J				BM			
DATE	12/1/66	12/16			12/12	12-7-66	12-7-66	12-7-66	12-7-66
1	VDI	~~THERM~~ THERM	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C_3
DRAWING TITLE: COVER INSTL. DRAIN LINE LWR. THERMAL SHIELDING A/S M/S L.H.
DRAWING NO.: LDW280-28865
EO NO.: A4

ISSUED BY LIAISON/TARTAMELLA (X2151) MB SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

FULL SIZE SHT. AREA (30 x 48) = 10 SQ. FT.
1/2 SIZE SHT. AREA = 2.5 SQ. FT.


LDW280-11496-15 (REF.)
$1\frac{3}{8}$
PLUG EXISTING HOLES WITH
NAS 1097 AD4 (51)
CSK IN LDW280-11497-11 & -13
NAS1068C06L (28)
NAS 1097 AD3 (56)
CSK IN LDW280-11497-11 & -13
LDW280-11496-29 (28) SHIM
GB511J-06-2 (28)
LDW280-11496-27 COVER
(WAS LDW280-11496-11-1)
LDW280-11497-11 (REF.)
NAS1068C06L(3)
NAS1097AD3 (6)
CSK IN LDW280-11497-11 & -13
GB511J-06-2 (3)
LDW280-11497-13 (REF.)
PLUG EXISTING HOLES (2)
NAS 1037 AD4 (2)
CSINK IN EXIST. SHIM
LDW280M11158-1 (REF.)

LDW280-28865-5 INSTALL
VIEW D-D
ZONE 6A

01 NAS 9-1100

1. CREATE LDW280-28865-5 COVER INSTALL.
IDENTICAL TO LDW280-28865-1 INSTALL, EXCEPT AS FOLLOWS;
LDW280-11496-27 (WAS -11-1)
NAS 1068C06L (31)
NAS 1097 AD3 (62) } (WAS GR500A-4)
GB511J-06-2 (31)
LDW280-11496-29 (28) SHIM
-5 INSTALL. EFF. ON LM-1 & LM-2 - (1) REQD./VEH.
ON N/A LDW280-28159
(REF. -1 REMOVE LM-1 & 2
2. PLUG EXISTING HOLES WITH NAS 1097 AD4 (55)

3

DETAIL SPEC REQD		CLASS II ENGRG CHG	✓
CLASS I ENGRG CHG		LCD -1244	
CONTROL INFO NO.	LDW-30A6598	GRUMMAN EO RELEASE	JK 4/27/67
REASON FOR EO	INCREASED FITH LOADS	DESCRIPTION OF EO	IN B/M & F/D ADDED -5 REMOVE LM-1 (31) AND LM-2 (32) FROM -1

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING REVISION REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	BY / DATE		SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGR	
✓		✓		BY				F.D.R.	JV			
				DATE	4/26/67			4/26/67	4/27/67		4/27/67	4-28-67
				5	VD1							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COVER INSTALL. A/S-M/S-DRAIN LINE-LWR. SHLD.	LDW280-28865	A5

ENGINEERING ORDER

ISSUED BY F. CURASI SECTION VEH DES INT. GROUP NO. 335 PL 25 CODE IDENT. NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 32.3 REV 3-65

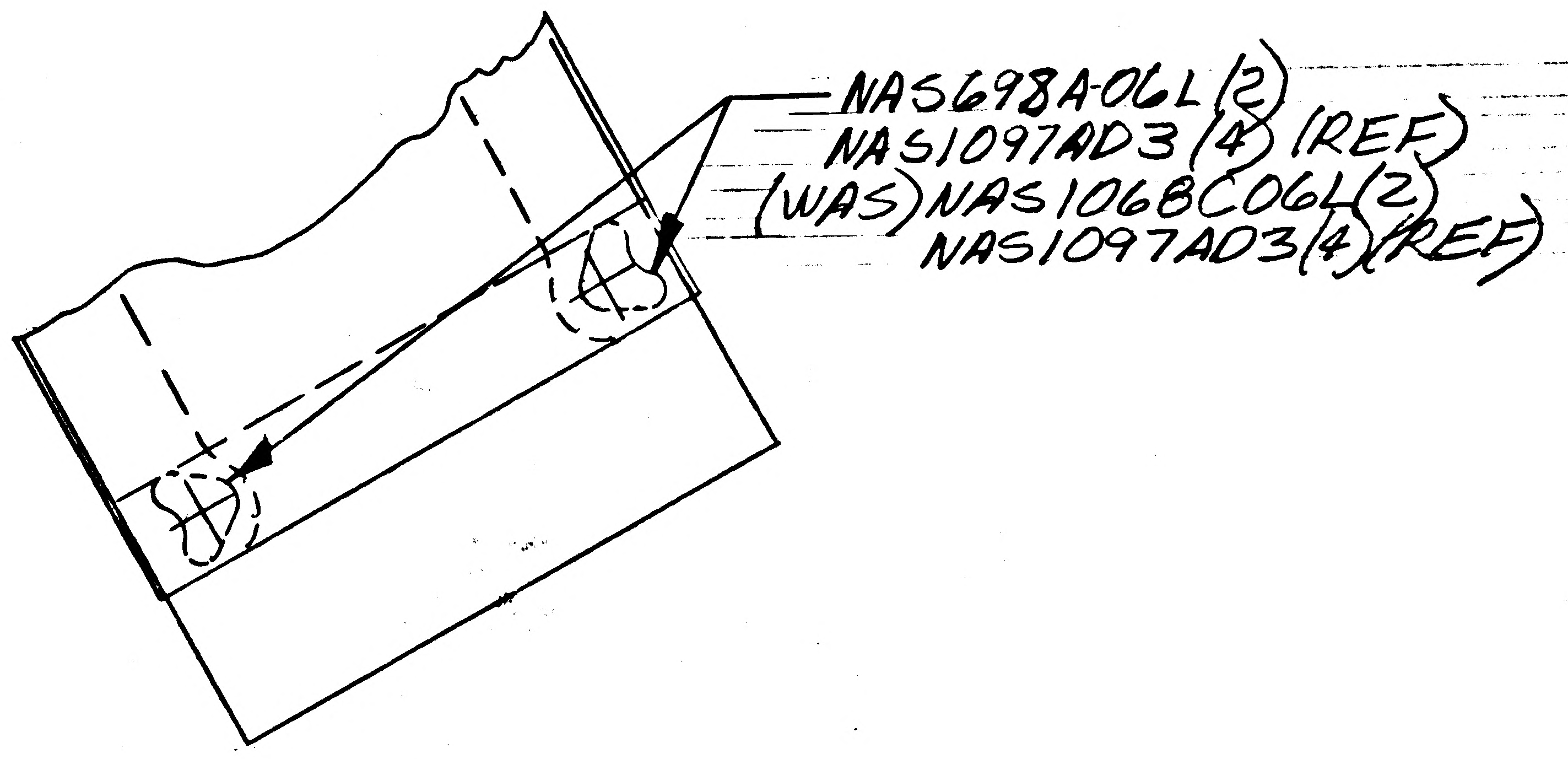
B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28865
EO NO. A6
CONTROL INFO NO. LM-3-5017

ON-5 THIS IS A REVISION OF EO A5



DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

3

REASON FOR EO: EXISTING NUT PLATE CANNOT BE INSTALLED

DESCRIPTION OF EO: REVISION OF EO A5 ON-5 NAS698A-06L(2) (WAS) NAS1068C06L(2)

GAEC EO RELEASE C
JK
Q3025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31) LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	7HR				BN		DAM	
DATE	5/26/67			4-28-67	5-1-67	5-2-67	5-1-67	
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY C3
DRAWING TITLE: COVER INSTALL A/S~M/S~DRAIN LINE~LWR. SH.
DRAWING NO. LDW280-28865
EO NO. A6

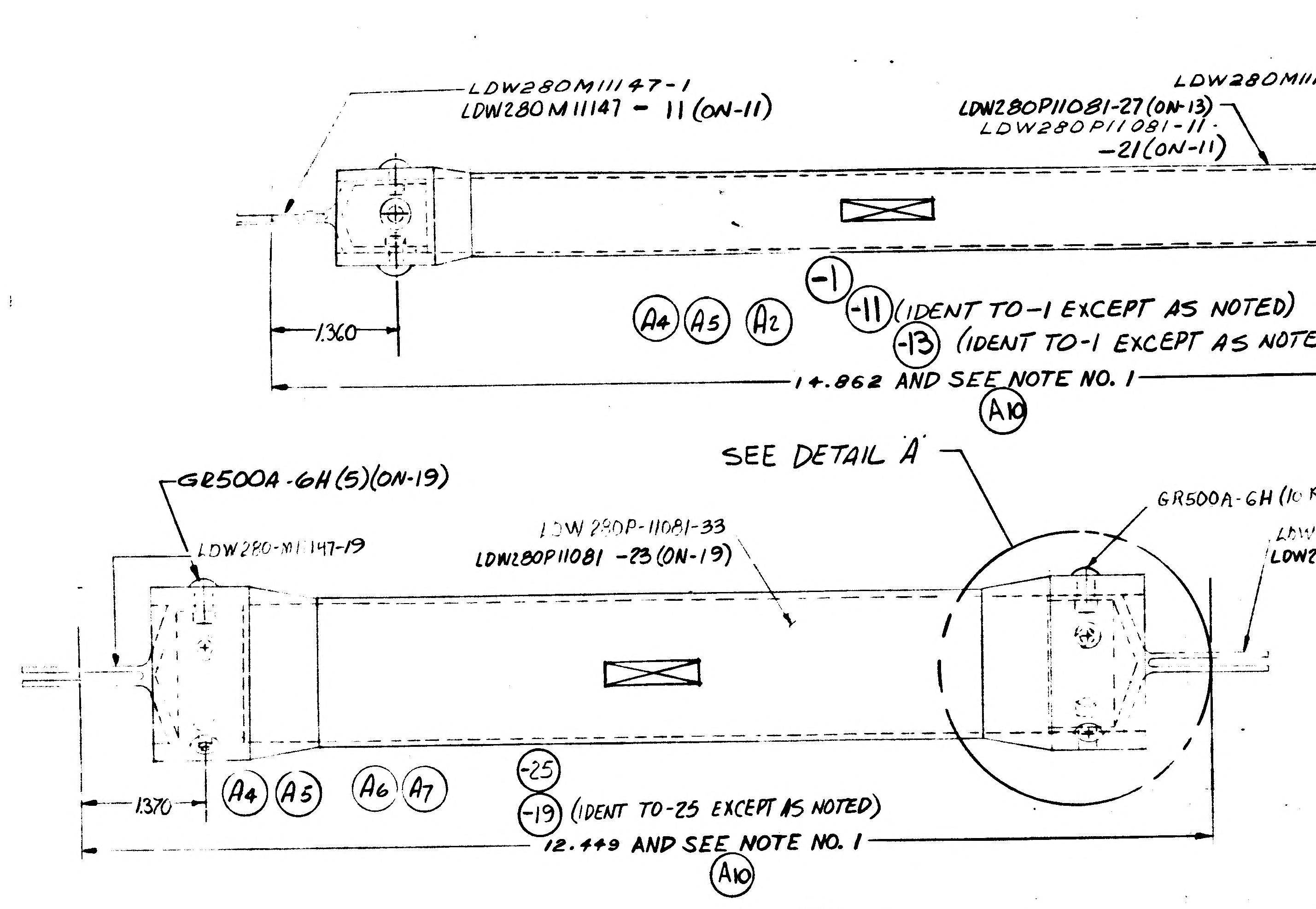
ISSUED BY LIAISON~J.KOSLOSKI x2151 SECTION V.D.I. GROUP NO. 335 PL 25

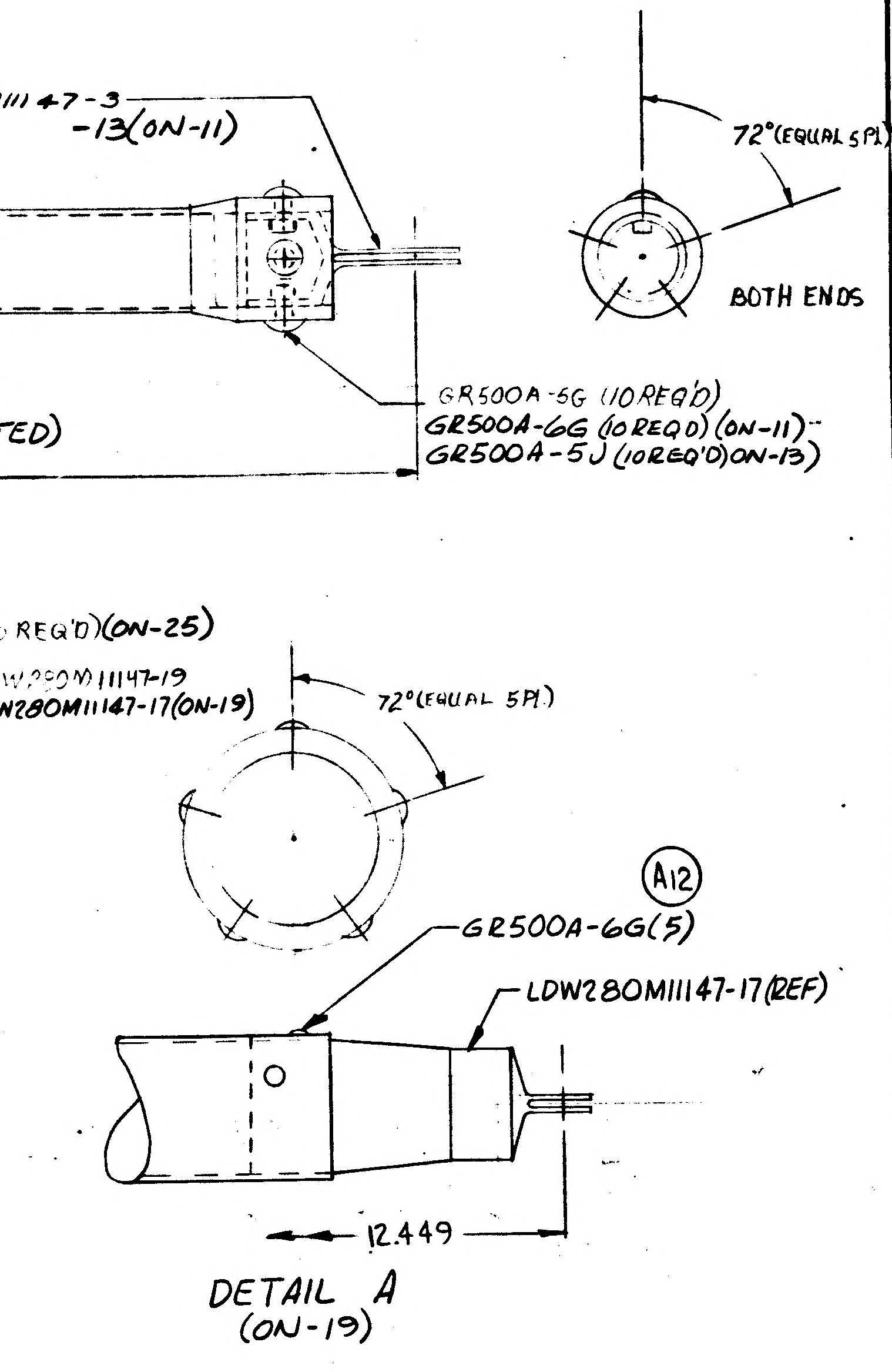
01

NAS 9-1100

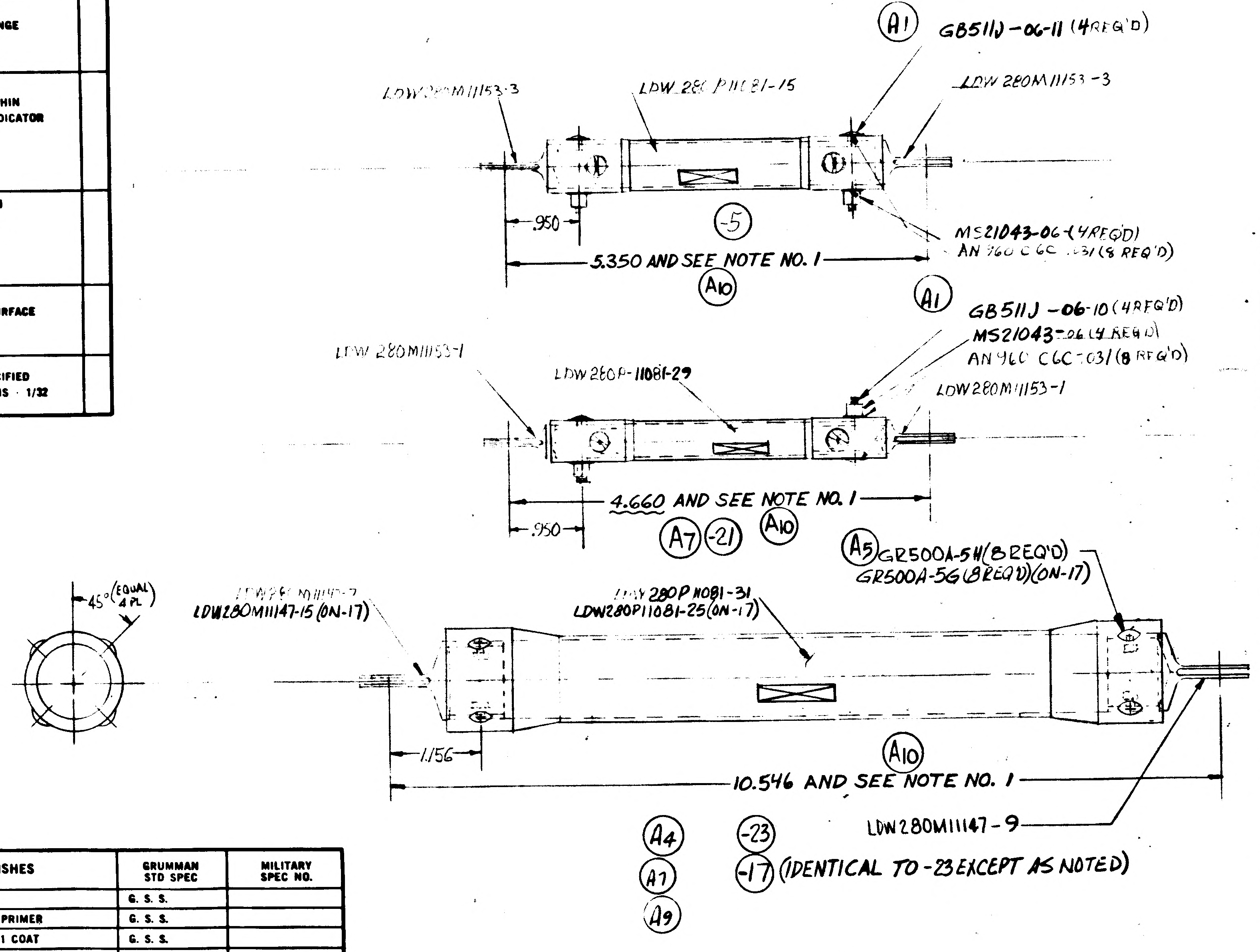
4 3 2 1

MANUFACTURING OPERATIONS	
NOTES CHECKED ✓ APPLY TO THIS DWG.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES EXCEPT AS NOTED.	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031 EXCEPT AS NOTED.	
125 SURFACE ROUGHNESS INCLUDING PEAMED HOLES PER MIL-STD-10 EXCEPT AS NOTED.	
200 FOR ALL DRILLED HOLES UNLESS OTHERWISE SPECIFIED.	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ∫ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	


LDW280M11147-1
LDW280M11147-11 (ON-11)
LDW280P11081-27 (ON-13)
LDW280P11081-11
-21 (ON-11)
LDW280M11147-3
-13 (ON-11)
1.360
(A4) (A5) (A2)
(-1)
-11 (IDENT TO -1 EXCEPT AS NOTED)
(-13) (IDENT TO -1 EXCEPT AS NOTED)
14.862 AND SEE NOTE NO. 1
(A10)
GR500A-6G (10 REQ'D)
GR500A-6G (10 REQ'D) (ON-11)
GR500A-5J (10 REQ'D) (ON-13)
SEE DETAIL A
GR500A-6H (5) (ON-19)
LDW280M11147-19
LDW280P11081-33
LDW280P11081-23 (ON-19)
GR500A-6H (10 REQ'D) (ON-25)
LDW280M11147-19
LDW280M11147-17 (ON-19)
1.370
(A4) (A5) (A6) (A7)
(-25)
(-19) (IDENT TO -25 EXCEPT AS NOTED)
12.449 AND SEE NOTE NO. 1
(A10)


72° (EQUAL 5 PL)
BOTH ENDS
72° (EQUAL 5 PL)
(A12)
GR500A-6G (5)
LDW280M11147-17 (REF)
12.449

DETAIL A
(ON-19)


(A1) GB511J-06-11 (4 REQ'D)
LDW280M11153-3
LDW280P11081-15
LDW280M11153-3
MS21043-06 (4 REQ'D)
AN960C6C.031 (8 REQ'D)
.950
(-5)
5.350 AND SEE NOTE NO. 1
(A10)
(A1) GB511J-06-10 (4 REQ'D)
MS21043-06 (4 REQ'D)
AN960C6C.031 (8 REQ'D)
LDW280M11153-1
LDW280P11081-29
LDW280M11153-1
.950
4.660 AND SEE NOTE NO. 1
(A7) (-21) (A10)
(A5) GR500A-5H (8 REQ'D)
GR500A-5G (8 REQ'D) (ON-17)
45° (EQUAL 4 PL)
LDW280M11147-7
LDW280M11147-15 (ON-17)
LDW280P11081-31
LDW280P11081-25 (ON-17)
1.156
(A10)
10.546 AND SEE NOTE NO. 1
LDW280M11147-9
(A4) (A7) (A9)
(-23)
(-17) (IDENTICAL TO -23 EXCEPT AS NOTED)

REVISIONS

REVISION LETTER	ITEM NO.	ZONE	GRUMMAN INFO ONLY DCRF OR ECP	CLASS II	CLASS I	DET SPEC REQ	ENGRG ORDER	DESCRIPTION	REVISED BY AND DATE	EFFECTIVE ON MODULE NUMBER	DISPOSITION OF EXIST PARTS RE-WORK	SCRAP	ENGRG APPD	GOVT APPD
A	1	3B					EO A1	IN F/D & B/M -5 & -7 ASSY GB511J-06-8 WAS NAS1218-06-8, GB511J-06-11 WAS NAS1218-06-11, MS21043-06 WAS MS1218-06	G. ENGEL 1-25-68	LTA-8 LM-1, LM-2	✓			
	2	3C		✓			EO A2	1. CREATED -11 ASSY EFFECTIVE LM-3(33) THRU LM-15(45) N/A LDW280-53153 IREQ'D MOD. 2. EXTENDED EFFECTIVITY OF -3, -5, -7, & -9 TO LM-3(33) THRU LM-15(45)		LM-3 THRU LM-15	NONE	REQ'D		
	3			✓			LEO280-510 LCD—1124	ON -3, -5, -7, -9 & -11 ADDED PA-1 (47) REQUIREMENT		PA-1 (47)	NOT	REQ'D		
	4	3C 3B 3A		✓			EO A4 LCD—1244	ADDED -13, -15 & -17 ASSY, REVISED EFFECTIVITY OF -1, -3 & -9 WAS LTA-8, LM-1 THRU LM-15		LM-1 LM-2	✓			
	5	4B 3C		✓			EO A5 LCD—1244	REF EO A4: ON -13, -15, & -17 ASSY'S RESPCTLY ADDED GR500A-5J (10 REQ'D) WAS GR500A-5G (10 REQ'D), GR500A-6H (10 REQ'D) WAS GR500A-6G (10 REQ'D), GR500A-5G (8 REQ'D) WAS GR500A-5F (8 REQ'D)		LM-1, LM-2	✓			
	6	3B		✓			EO A6	IN B/M & F/D ADDED -19, REMOVED -15, ADDED GR500A-6G (10)		LM-1, LM-2	✓			
	7	3B 3A 3C			✓		EO A7 LCD 1244	ADDED -21, -23, & -25 ASSY'S REMOVED -7, -9 & -3 ASSY'S		LM-3 THRU LM-15 PA-1		-3, -7 -9		
	8			✓			LEO280-733 LCD 2104	FOR -5, -11, -21, -23 & -25 ADDED QUAL TEST REQUIREMENTS		QUAL TEST (70)	NOT	REQ'D		
	9	3A		✓			EO A9	ON -23 F/D, B/M, CALLOUT GR500A-5H WAS 4H EO A7 (REF)		LM-3 THRU LM-15, PA-1 QUAL TEST (70)	✓			
	10			✓			LEO280-846	ADDED NOTE NO. 1		LM-3 THRU LM-15 QUAL TEST	✓			
	11			✓			LCD 1244	REF EO A4: "REVISED EFF OF -1, -3 & -9 WAS LTA-8, LM-1 THRU LM-15." S/B "REVISED EFF OF -1 WAS LTA-8, LM-1 & LM-2; OF -3 & -9 WAS LTA-8, LM-1 THRU LM-15 & PA-1."		LM-1 LM-2	✓			
	12			✓				REF EO A6: "ADDED GR500A-6G (10)" S/B "ADDED GR500A-6G (5)."	RMS	LM-1 LM-2	✓			
B	1				✓		LCD 2838 PKG 2	RESTRICTED -11, -21, -23 & -25 TO LM-3, LM-4 & LM-5 & PA-1, WAS LM-3 THRU -15, PA-1 & QUAL TEST. -5 TO LM-1 THRU -5, LTA-8, PA-1 & QUAL TEST	LAMBERT 6-12-68	LM-6 THRU -15		✓		

NOTES:
1. STRUT LENGTH TO BE DETERMINED ON INSTL, ON NEXT ASSY LDW280-53153, MAINTAIN MIN EDGE DISTANCE ON ROD END FASTENER OF 1½ D.

SWIP

-19	-17	-13	-11	-23	-21	-5	-25	-1	PART OR IDENTIFYING NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE (EA)	PROCESS SYMBOL	FINISH NO.	UNIT WT	ZONE
							2		LDW280M11147-19			FORK	SEE DWG	SEE DWG			NONE	NONE		
1									LDW280M11147-17			FORK	SEE DWG	SEE DWG						
5							10		GR500A-6H			BLIND RIVET	GRUMMAN STD							
		10							GR500A-5J			BLIND RIVET	GRUMMAN STD							
		1							LDW280P11081-27			STRUT	SEE DWG	SEE DWG						
	1								LDW280P11081-25			STRUT								
1									LDW280P11081-23			STRUT								
	1								LDW280M11147-15			FORK								
			1						LDW280M11147-13			FORK								
			1						LDW280M11147-11			FORK								
			1						LDW280P11081-21			STRUT	SEE DWG	SEE DWG			NONE	NONE		
					8	8			AN960-C6C(.031)			WASHER	GRUMMAN STD				NONE	NONE		
					4	4			MS21043-06			NUT								
						4			GB511J-06-11			BOLT								
					4				GB511J-06-10			BOLT								
5			10						GR500A-6G			BLIND RIVET								
	8							10	GR500A-5G			BLIND RIVET								
				8					GR500A-5H			BLIND RIVET	GRUMMAN STD							
				1					LDW280P11081-31			STRUT	SEE DWG	SEE DWG						
					1				LDW280P11081-29											
						1			LDW280P11081-15											
							1		LDW280P11081-33											
								1	LDW280P11081-11			STRUT								
						2			LDW280M11153-3			FORK								
					2				LDW280M11153-1											
	1			1					LDW280M11147-9											
				1					LDW280M11147-7											
1									LDW280M11147-5											
		1						1	LDW280M11147-3											
		1						1	LDW280M11147-1			FORK								
									LDW280-28866-25			STRUT ASSY								
									-23											
									-21											
									-19											
									-17											
									-13											
									-11											
									-5											
									LDW280-28866-1			STRUT ASSY.	SEE DWG	SEE DWG			NONE	NONE		

QTY REQ'D PER ASSY

5

NO.	FINISHES	GRUMMAN STD SPEC	MILITARY SPEC NO.
2	CADMIUM PLATE	G. S. S.	
10	ZINC CHROMATE PRIMER	G. S. S.	
15	TINTED PRIMER: 1 COAT	G. S. S.	
76	ALODINE	G. S. S.	
88	ANODIZE	G. S. S.	

SYM	PROCESSES	GRUMMAN STD SPEC	MILITARY SPEC NO.
	AL HEAT TREAT		MIL-H-6088
	MAGNAFLUX		MIL-I-6868
	PENETRANT INSPECTION (ZYGLO)		MIL-I-6866
	THREADING		MIL-S-7742
	STEEL HEAT TREAT PSI ROCKWELL C TO C		

MODEL	NEXT ASSY	MODULE NO.	REQ'D PER MODULE
LM	LDW280-53153	QUAL TEST (70)	1 EA
LM	LTM280-26876	PA-1 (47)	1 EA
LM	LDW280-53153	LM-3(33) THRU LM-5(35)	1 EA
LM	LDW280-51153	LM-1(31) & LM-2(32)	1 EA
LM	LDW280-28153	LTA-8 (18)	1 EA
PART NO. LDW280-28866-5			
LM	LDW280-51153	LM-1(31) & LM-2(32)	1 EA
PART NO. LDW280-28866-13, -17, -19		GRUMMAN SCH INFO 30	

MODEL	NEXT ASSY	MODULE NO.	REQ'D PER MODULE
LM	LDW280-53153	QUAL TEST (70)	1 EA
LM	LTM280-26876	PA-1 (47)	1 EA
LM	LDW280-53153	LM-3(33) THRU LM-5(35)	1 EA
PART NO. LDW280-28866-11, -21, -23, -25		GRUMMAN SCH INFO 30	

MODEL	NEXT ASSY	MODULE NO.	REQ'D PER MODULE
LM	LDW280-28153	LTA-8 (18)	1
PART NO. LDW280-28866-1		GRUMMAN SCH INFO 30 SH-2	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE UNLESS SPECIFIED
FRACTIONS · DECIMALS · ANGLES
± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE
GRUMMAN REL INFO
PRIM. NO. 215

DRAWN BY		
CHECKED BY		
LAYOUT BY	R.F. ENGEL	
SR LDR		
VEH DES.		
STRUCT		
STRUCT		
PROJECT		8-30
THERMO		9/9
WEIGHTS		9/12
RELEASE		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., N. Y.

STRUT ASSEMBLIES
ENGINE BAY SHIELD - A/S-M/S

CONTRACT NO. NAS 9-1100 DOCUMENTATION TYPE II
CODE IDENT NO. 26512 SIZE F LDW280-28866 E
SCALE FULL LINE ITEM I SHEET 1 of 1

REV "B" CDR 6/25/68

3 2 1

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

*

DWG NO. LDW280-28866
EO NO. A1
CONTROL INFO NO. LM-5-9678

IN F/D & B/M ON -5 & -7 ASSY'S

NAS1218-06-8 (S/B) GB511J-06-8
NAS1218-06-11 (S/B) GB511J-06-11
MS1218-06 (S/B) MS21043-06

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ ✓

REASON FOR EO: H'WARE NOT AVAILIBLE

DESCRIPTION OF EO: IN F/D & B/M -5&-7 ASSY GB511J-06-8 WAS NAS1213-06-8, GB511J-06-11 WAS NAS1218-06-11, MS21043-06 WAS MS1218-06

GAEC EO RELEASE: C FR

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		LTA-8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: REWORK ✓ SCRAP ☐

APPROVED BY					JFA	CH	RMcG(E)	JRP
DATE	11/23			11/23	1-10-66	11-10-66	11-14-66	11/10/66
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: STRUT ASSEMBLIES ENGINE BAY SHIELD -A/S-M/S

DRAWING NO.: LDW280-28866

EO NO.: A1

ISSUED BY LIAISON J. McGILL /GR X6452 SECTION HENTON/VDI GROUP NO. ____ PL 35

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LDW280-28866
EO NO. A✓
CONTROL INFO NO. LDW280A-3325

1. CREATE -11 ASSY IDENTICAL TO -1 ASSY EXCEPT AS FOLLOWS:
    - a) LDW280P11081-21 IN PLACE OF LDW280P11081-11
    - b) LDW280M11147-11 IN PLACE OF LDW280M11147-1
    - c) LDW280M11147-13 IN PLACE OF LDW280M11147-3
    - d) GR500A-6G IN PLACE OF GR500A-5G
2. -11 EFFECTIVE LM-3(33) THRU LM-15(45) N/A LDW280-53153 1REQD/MOD
3. EXTEND EFFECTIVITY OF -3, -5, -7 & -9 TO LM-3(33) THRU LM-15(45)
    N/A LDW 280-53153 1EA REQD/MOD

DETAIL SPEC REQ ☐ CL II ENGRG CHG ✓ CL I ENGRG CHG ☐

LAV 250-844

3

REASON FOR EO: TO EXTEND EFFECTIVITY.

DESCRIPTION OF EO: 1. CREATED -11 ASSY EFFECTIVE LM-3(33) THRU LM-15(45) N/A LDW280-53153 1REQD/MOD. 2. EXTENDED EFFECTIVITY OF -3, -5, -7 & 9 TO LM-3(33) THRU LM-15(45)

GAEC C EO RELEASE: FR 11/23 C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
LM		THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐

DISPOSITION OF PARTS: NONE REQD

APPROVED BY			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
DATE	11/14				11/14	11/17		11-18-66	11-22
#2	V01								

PRIORITY: C

DRAWING TITLE: STRUT ASSEMBLIES- ENGINE COMP. A/S-M/S-L.H.

DRAWING NO. LDW280-28866

EO NO. A✓

ISSUED BY W. MANOS X-1441 11/12/66 SECTION VEH. DES. INT. GROUP NO. 335 PL 35

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LEO 280
EO NO. 510
CONTROL INFO NO. LDW280A-5720

FOR THE FOLLOWING DWG'S LISTED BELOW, ADD PA-1(WS) EFFECTIVITY

DWG Nº	DASH Nº **	REQ'D/MOD	DWG TITLE	N/A	CHANGE Nº
LDW280-28879	-1	1	SEE DWG	LTM280-26876	A2
LDW280-28898	-1	1		LTM280-26876	A4
LDW280-28481	-5	1		LTM280-26876	A5
P11512	-11	1		LDW280-28879	A3
M11119	-1	1		LDW280-28879	A3
	-14-3	1EA		LDW280-28481	
	-1	2		LTM280-26876	
M11199	-11	2		LDW280 28898	A2
M11200	-11	1			A3
M11201	-11	1			A2
P11579	-11	1			A3
P11580	-11	1			A5
P11581	-11	1			A2
P11582	-11	1			A3
P11589	-11	2		LDW280-28898	A6
P11013	-13	1		LDW280-28481	B2
53224	-1	1		LTM280-26876	A4
10681	-13	1		LDW280-53224	B1
10682	-13,-17-19,-20	1EA			B4
10683	-13,-15	2EA			B3
11256	-11,-15 -13	1EA 2			A1
11530	-11,-13	1EA			A4
11777	-11	1			B2
M11149	-5,-7	1EA			B4
P11494	-3	1		LDW280-53224	A2
53225	-1	1		LTM280-26876	A5
10685	-23,-27,-29	1EA		LDW280-53225	A6
11257	-11,-13-15,-17	1EA			A2
11278	-11,-13	1EA			A1
11527	-3	1			B1
11680	-11,-13,-15,-17	1EA			A2
M11259	-11,-13	1EA		LDW280-53225	B1
28866	-3-5,-7,-9,-11	1EA		LTM280-26876	A3
M11147	-11,-13,-7,-9 -5	1EA 2		LDW280-28866	B4
M11153	-1,-3	2EA			B1
P11081	-13-15-17,-19,-21	1EA		LDW280-28866	B1
28867	-3,-11	1EA		LTM280-26876	A3
M11146	-1,-3 -5,-7 -1,-3	1EA 2EA 1EA		LDW280-28867 LDW280-28867 LDW280-53867	B1
M11152	-1,-3	2EA		LDW280-28867	B2
P11080	-11,-13,-15-19-21	1EA		LDW280-28867	A2
53867	-1,-3,-5	1EA		LTM280-26876	A1
P11258	-11,-13,-15	1EA		LDW280-53867	A1
M11036	-11	2		LDW280-53867	A3
LDW280M11037	-11	2	SEE DWG	LDW280-53867	A3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ LCR 19-1124 5

REASON FOR EO: UPDATE DWG REQ'TS FOR PA-1

DESCRIPTION OF EO: ON ** ADDED PA-1(WS) REQ'TS

GAEC EO RELEASE: JK 3/11/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		PA-1(WS)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	3/7/67	3/7/67		3/7/67	3/7		3/8/67	3-11-67
	5	VDI					Dam	AC

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO 280
EO NO.: 510

ISSUED BY M. SHAPIRO X1153 SECTION VDI GROUP NO. 335 PL 3 1

01
NAS 9-1100

A

ENG 32.1 REV 3-65

FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28866 | EO NO. A4
CONTROL INFO NO. LDW280A-6527

IN F/D & P/M:

ON-13^1 LDW280P11081-27 WAS -11

ON-15^3 LDW280P11081-23 WAS-13

ON-17,^{9} LDW280M11147-15 WAS -7
LDW280P11081-25 WAS -19

ADD -13,-15 & -17 ASSY'S IDENTICAL TO -1,-3 & -9
EXCEPT AS NOTED ABOVE

N/A LDW280-51153
EFF LM-1 (31) & LM-2 (32)
(1EA REQD/VEH)

FOR -1,-3,-9, REMOVE LM-1, LM-2 EFF

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	LCP·19-1244 5

REASON FOR EO: INCREASED FITH LOADS

DESCRIPTION OF EO: ADDED -13,-15&-17 ASSY
REVISED EFF OF -1,-3,&-9 WAS LTA-8, LM-1 THRU LM-16

GAEC EO RELEASE: C JK 4/22/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
		LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY	JaP	M.D.		FDR				AC
DATE	4/22/67	4-22		4/22/67	4/22		4/22/67	4-22-67
5	VDI	SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: STRUT ASSY A/S M/S ENG BAY SHIELD
DRAWING NO.: LDW280-28866
EO NO.: A4

ISSUED BY M Shapiro 1392 SECTION UDI GROUP NO. 335 PL25

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NAS 9-1100

B

ENG 32.1 REV 3-65

FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28866
EO NO. A5
CONTROL INFO NO. LDW280A6549

THIS E.O. REVISES E.O. A4 IN F/D, M/B&B/M ~

ON -13 ASSY ~ ADD. GR500A-5J (10 REQ'D.), WAS GR500A-5G (10 REQD)

ON -15 ASSY ~ ADD GR500A-6H (10 REQ'D.), WAS GR500A-6G (10 REQ'D.)

ON -17 ASSY ~ ADD GR500A-5G (8 REQD), WAS GR500A-5F (8 REQD)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD19-1244

3

REASON FOR EO: INCREASED FITH LOADS

DESCRIPTION OF EO: REF EO A4 ON -13, -15, & -17 ASSYS RESPCTLY ADDED GR500A-5J (10 REQ'D) WAS GR500A-5G (10 REQ'D), GR500A-6H (10 REQ'D), WAS GR500A-6G (10 REQ'D) GR500A-5G (8 REQ'D) WAS GR500A-5F (8 REQ'D)

Ⓡ GAEC C EO RELEASE: JK 4/24/67

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM1 (31)	
LM		LM2 (32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	Jaf	VJ2		J.H.R.					
DATE	4/24/67	4/24		4/24/67	4/24/67		4/24/67	4/24/67	
5	V.DI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT	

PRIORITY: C

DRAWING TITLE: STRUT ASSY ~ A/S, M/S ENGINE BAY SHIELD

DRAWING NO.: LDW280-28866

EO NO.: A5

ISSUED BY GM GREEN / F. DeRESPINIS X7036 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

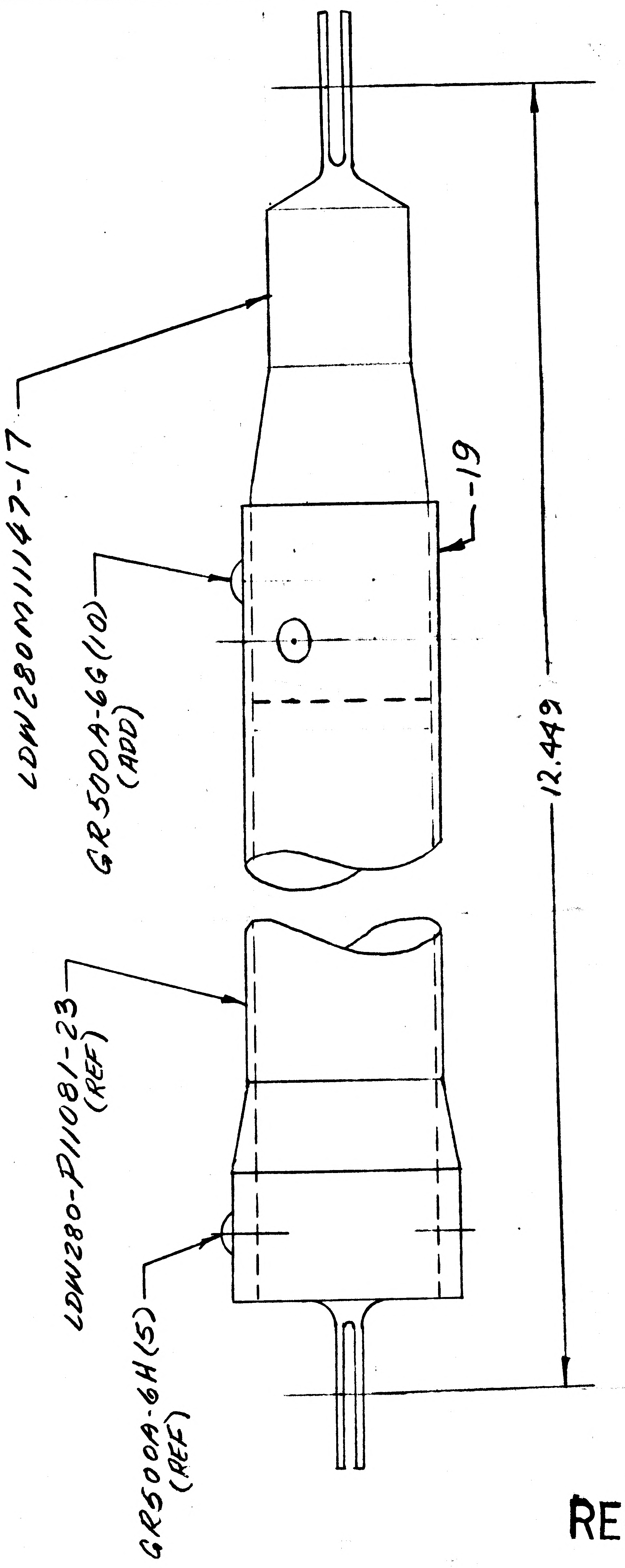
01

NAS 9-1100

ENG 32.2 REV 3-63 Ⓡ

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-28866
EO NO.	A6
CONTROL INFO NO.	LM-5-15024



LDW280-28866-19 IDENTICAL TO -15 EXCEPT AS SHOWN.

N/A LDW280-51153
EFF. LM-1(31), LM-2(32)
(1EA REQD/VEH)

REMOVE -15 ASSY.

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG													5
REASON FOR EO TO PROVIDE ADDITIONAL CLEARANCE FOR DRAIN LINE					DESCRIPTION OF EO IN B/M & F/D ADDED -19, REMOVED -15, ADDED GR500A-6G(10).												GAEC C EO RELEASE JK 05 026
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	FDR			—	DV	CH	DAM	JPF	
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		✓		DATE	5/20/67			—	5/3/67	5-3-67	5-5-67	5/3/67	
LM		LM-1(31)		REVISE DWG	RECORD EO	REWORK	SCRAP	/	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONF~~	
		LM-2(32)		PRIORITY C		DRAWING TITLE STRUT ASSY. A/S-M/S-ENGINE BAY SHIELD						DRAWING NO. LDW280-28866				EO NO. A6	

ISSUED BY LIAISON J. JARVIS SECTION VDI GROUP NO. 280 PL 25

01 NAS 9-1100

A

ENG 32.1 REV 3-65

FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28866
EO NO. A1
CONTROL INFO NO. LDW280A6986

IN F/D & B/M ADD -21, -23 & -25 IDENTICAL TO -7, -9 & -3 RESPECTIVELY EXCEPT AS FOLLOWS:

-21 ASSY. (a) REMOVE~LDW280P11081-17, ADD~LDW280P11081-29
(b) REMOVE~GB511J-06-8 (4 REQ'D) ADD~GB511J-06-10 (4 REQ'D)

-23 ASSY. (a) REMOVE~LDW280P11081-19, ADD~LDW280P11081-31
(b) REMOVE~GR500A-5F (8 REQ'D), ADD~GR500A-4H (8 REQ'D)

-25 ASSY. (a) REMOVE~LDW280P11081-13, ADD~LDW280P11081-33
(b) REMOVE~LDW280M11147-5 (2 REQ'D), ADD~LDW280M11147-19 (2 REQ'D)
(c) REMOVE~GR500A-6G (10 REQ'D), ADD~GR500A-6H (10 REQ'D)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD-1244 5

REASON FOR EO: INCREASED FITH REQUIREMENTS

DESCRIPTION OF EO: ADDED~-21, -23 & -25 ASSY'S REMOVED~-7, -9 & -3 ASSY'S

GAEC EO RELEASE: JK 6/1/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
LM		THRU LM-15(45)	
LM		PA-1(47)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK SCRAP -7 -9 -3

APPROVED BY								
DATE	5/22/67			5/20/67	5/24/67		5/26/67	5/31/67
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: STRUT ASSEMBLIES ~ A/S, M/S ENG. BAY SHIELD

DRAWING NO. LDW280-28866

EO NO. A1

ISSUED BY C M GREEN X7036 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280 28866		EO NO. A9
CONTROL INFO NO. LM-2-4150		

ON-23
F/D, B/M

EOA7(REF)

LDW280-28866-23 FASTENER CALLOUT:
GR500A-4H (8 REQ'D) S/B GR500A-5H(8REQ'D)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG ☐

REASON FOR EO: TO CONFORM TO STRENGTH REQUIREMENTS

DESCRIPTION OF EO: ON-23 F/D, B/M CALLOUT: GR500A-5H WAS-4H EOA7 (REF)

GAEC EO RELEASE: (2) 033 THRU 036 02 025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45) PA-1(47) QUALTEST(70)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
				—				
DATE 11/8/67	12/2/67			—	11/9/67	11/9/67	12/2/67	11-9-67

PRIORITY: C

DRAWING TITLE: STRUT ASSEMBLIES ENGINE BAY SHIELD -A/S-M/S

DRAWING NO.: LDW280-28866

EO NO.: A9

ISSUED BY LIAISON T. WALSH X3604 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

RELEASED BY LIAISON

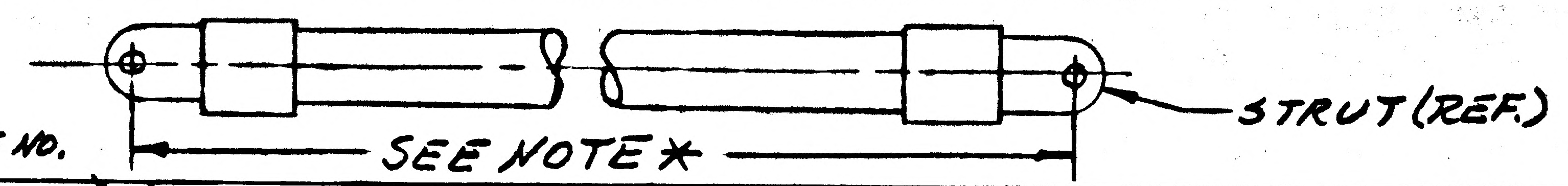
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO 280
EO NO. 846
CONTROL INFO NO. LM-5-17875

DWG NO.	CHG. NO.	TITLE
✓ LDW280-28481-9	B2	STRUT ASSY.
✓ LDW280-28866-11, 21, 23, -25 & -5	A10	STRUT ASSY.
LDW280-28867-19 & -23	A7	STRUT ASSY.
LDW280-28877-3	A6	STRUT ASSY.
LDW280-28879-5	A6	STRUT ASSY.
LDW280-28483-1 & -9	B6	STRUT ASSY.
LDW280-53867-9, -11 & -13	A6	STRUT ASSY.
LDW280-53483-5 & -7	A5	STRUT ASSY.

ON THE ABOVE DWGS. ADD NOTE*. STRUT LENGTH TO BE DETERMINED ON INSTL. ON NEXT ASSY. LDW280-53153. MAINTAIN MIN. EDGE DISTANCE ON ROD END FASTENER OF 1½D.



*USE NEXT AVAILABLE NO.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ✓ CL I ENGRG CHG ☐ (5)

REASON FOR EO: TO PERMIT ADJUSTMENT OF STRUT ON INSTL. R.T.E. 02-855-8001

DESCRIPTION OF EO: ADDED NOTE*.

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		QUAL TEST (70) LM-3 (33)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY								
DATE	1/22/68				1-22-68	1-22-68	1/27/68	1/23/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVS~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 846

ISSUED BY LIAISON J. JARVIS SECTION V.D.I. GROUP NO. 280 PL 25

01

NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280
EO NO. 1290
CONTROL INFO NO. LDW280B7234

ON DWGS LISTED BELOW, ADD LM-6(36) THRU LM-15(45) EFF.

DRAWING NO.	DASH NO *	CHG NO	TITLE	N/A
LDW280-53867	-13 & -9	B1	STRUT ASSY-A/S-M/S	LDW280-53153
-28866	-25 & -23	C1	STRUT ASSY- A/S-M/S	LDW280-53153
-28877	-3	B2	STRUT ASSY- A/S-M/S	LDW280-53153
P11258	-19	B2	STRUT-A/S-M/S	LDW280-53867
P11080	-27	C1	STRUT- A/S-M/S	LDW280-53867
P11081	-33 & -31	C1	STRUT- A/S-M/S	LDW280-28866
P11519	-11	B2	STRUT-A/S- M/S	LDW280-28877
M11146	-1 & -3	C1	FORK- A/S-M/S	LDW280-53867
M11036	-11	B1	FORK- A/S-M/S	LDW280-53867
M11147	-19,7 & -9	D1	FORK- A/S-M/S	~~LDW280-28866~~
LDW280 M11175	-5 & -7	B1	FORK- A/S-M/S	LDW280-28877

01 NAS 9-1100

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD-3803 PKG #11 (6)

REASON FOR EO: REDESIGN LH TORUS RING & TUB SPT STRUTS FOR INCREASED FITH LOADS

DESCRIPTION OF EO: FOR DASH * ADDED LM-6(36) THRU LM-15(45) EFF.

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REWORK REFQD SCRAP

APPROVED BY	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
DATE	2/25/69			2/25/69	2/26/69 CL	2/26/69	2-27-69

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO-280
EO NO.: 1290

ISSUED BY JOHN K LEE 87222 2-24-68
CDR C22869
SECTION VDI
GROUP NO. 280 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1628
CONTROL INFO NO. LDW280 B8198

FOR DASH(*) REMOVE LM-15(45) EFF.

DRAWING NUMBER	DASH NUMBER *	TITLE	NEXT ASSEMBLY	CHANGE №
LDW280-28866	-23 & -25	SEE DWG	LDW 280-53153	C2
-28877	-3			B3
-28879	-7			B1
-53867	-9 & -15			B4
-56867	-5, -7 & -9			A3
-56866	-1, -3 & -9			A3
-56481	-1			A1
-28898	-1			B1
-53203	-1			D2
LDW280-53225	-1	SEE DWG	LDW280-53153	D3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LGD # 3587 PKG 13 Pg. 1 (5)

REASON FOR EO: CONFIGURATION CHANGE TO LM-15

DESCRIPTION OF EO: FOR DASH(*) REMOVE LM-15(45) EFF.

GAEC EO RELEASE: 8-26-69; 8/27/69

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			✓
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				FDR/9V				
DATE	7/23/69			1-22-69				8-27-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONT REL

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO-280
EO NO.: 1628

8-15-69
ISSUED BY GEO. W. ROCKLEIN X86048 4/25/69 (ML) SECTION VEH. DES. INT. GROUP NO. 335 PL 25

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NAS 9-1100

LDW280-28867 A

SWIP

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LTM280-26876	PA-1 (47)	1
	LDW280-53153	QUAL TEST (70)	1
		LM-5 (35)	1
		LM-4 (34)	1
	LDW280-53153	LM-3 (33)	1
	LDW280-51153	LM-2 (32)	1
LM	LDW280-51153	LM-1 (31)	1

PART NO. LDW280-28867-19 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LTM280-26876	PA-1 (47)	1
	LDW280-53153	QUALTEST (70)	1
		LM-5 (35)	1
		LM-4 (34)	1
LM	LDW280-53153	LM-3 (33)	1

PART NO. LDW280-28867-23 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51153	LM-2 (32)	1 EA
LM	LDW280-51153	LM-1 (31)	1 EA

LDW280-28867-13, -15, -17 & -21

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28153	LTA-8 (18)	1 EA

PART NO. LDW280-28867-1, -3, -5, -7 & -9 | GAEC SCH NO. 30SH2

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10			2.00	2.01	3.00		
REV	A	A			A	A	A		
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO A	
		PRIM NO.	VK(501)
LAST DASH NO. USED	-23	215	MP-16 7/11

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100 | LINE ITEM 1 | DOCUMENTATION TYPE II

DRAWN BY			
LAYOUT BY	P. FRANZESE 8-24		
CHECKED BY			
GR. LEADER	P. HENTOLI 8-24		
VEH. DES. INT.	W. BISCHOFF 8-25		
STRUCTURES	R. HILDERMAN 8-27	PROJ ENGR	R. CARBEE 8-30-66
STRUCTURES		REL GROUP	C. BOTTI 9-12-66
WEIGHTS	D. ROBESCH 9-12		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRUT ASSEMBLIES
ENGINE BAY SHIELD-ASCENT STAGE
MID-SECTION

SIZE	CODE IDENT NO.		
B	26512	LDW280-28867	A
SCALE	NONE	SHEET 1.00 OF 5	

ENG 77.1 12-65

REV "A" CDR 7/11/68

SUPERSEDES LDW280-28867 NO CHG 9-12-66

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
								RETRACED NO	CHANGE, LAST REV. "N.C." ADDED SHEETS 1.10,2.00,2.01 & 3.00 R.LAMBERT 6-19-68						
A	1	1.00,1.10, 2.01,3.00						EO-A1	IN FIELD & B/M, ON-5 ASSY., MS21043-06 WAS MS1218-06 & GB511J-06-8 WAS NAS1218-06-8.	LTA-8 LM-1 & -2	✓		R. LAMBERT 6-19-68		
	2	1.00,1.10,2.00, 2.01,3.00					✓	EO-A2	IN FIELD, B/M & MOD/BLK, ADDED -11. FOR -3, ADDED N/A LDW280-53153 EFF. LM-3 (33) THRU LM-15 (45).	LM-3 THRU LM-15	NOT	REQD.			
	3	1.00,1.10					✓	LEO280-510 LCD-19-1124	ON -3 & -11, ADDED PA-1 (47) REQ'TS.	PA-1					
	4	1.00,1.10,2.00, 2.01,3.00					✓	EO-A4 LCD-19-1124	ADDED -13, -15, -17, -19 & -21. REMOVED -1, -3, -5, -7 & -9 LM-1 & LM-2 REQUIREMENTS	LM-1 & -2		-1, -3, -5, -7 & -9			
	5	1.00,1.10,2.00, 2.01,3.00				✓		EO-A5 LCD-1244	ADDED -23, DELETED -11, REMOVED -3. REVISED EFF. OF -19 WAS LM-1 (31) & LM-2 (32)	LM-3 THRU-15 PA-1		-3 & -11			
	6	1.00,1.10					✓	LEO280-733 LCD-2104	FOR -23 & -19, ADDED QUAL. TEST REQUIREMENTS	QUAL. TEST	NOT	REQD.			
	7	1.10,3.00					✓	LEO280-846	ADDED NOTE 1	LM-3 THRU-15 QUAL TEST	✓				
	8	1.00,1.10				✓		LCD-2838 ok PKG 2	RESTRICTED -19 TO LM-1 (31) THRU LM-5 (35) PA-1 (47) & QUAL TEST (70) RESTRICTED -23 TO LM-3 (33) THRU LM-5 (35) QUAL TEST (70) & PA-1 (47)	LM-6 THRU LM-15		✓			

CHG APPROVED	LTR	GROUP LDR	VEH.DES.INT.	STRUCTURES	STRUCTURES	WEIGHTS	THERMO
	A	7/1/68	7/2/68	7/2/68	7/3/68		7/2/68

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28867	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01
NAS 9-1100

			-23	-21	-19	-17	-15	-13	-9	-7	-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			1												LDW280P11080-33	E	STRUT	SEE DWG						
				1											-31									
					1										-29									
						1									-27									
							1								-25									
								1							-23									
									1						-19									
										1					-17									
											1				-15									
												1			-13									
													1		LDW280P11080-11		STRUT							
					1										LDW280M11152-5		FORK							
					1					2					LDW280M11152-3									
						2					2				LDW280M11152-1									
				2											LDW280M11146-9									
									2						-7									
		1	2				2					2			-5									
								1					1		-3									
								1					1		LDW280M11146-1		FORK	SEE DWG.						
															LDW280-28867-23		STRUT ASSY.					NONE	NONE	
															-21									
															-19									
															-17									
															-15									
															-13									
															-9									
															-7									
															-5									
															-3									
															LDW280-28867-1	E	STRUT ASSY					NONE	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28867	A
SCALE NONE			SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

QTY PER ASSEMBLY																					
-23	-21	-19	-17	-15	-13	-9	-7	-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			8					8				AN960C6C-031	E	WASHER	STD. PART						
			4					4				MS21043-06		NUT	STD. PART						
	8											GR500A - 5J		RIVET	GRUMMAN STD						
		8										-5G									
					8							-5H									
8				8					8			-5F									
						8						-5E									
										8		-5D									
							8					GR500A - 4E		RIVET							
			4									GB511J-06-10		SCREW							
								4				GB511J-06-8	E	SCREW	GRUMMAN STD.						

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-28867 | A

SCALE NONE | SHEET 2.01

ENG 77.2 7-65

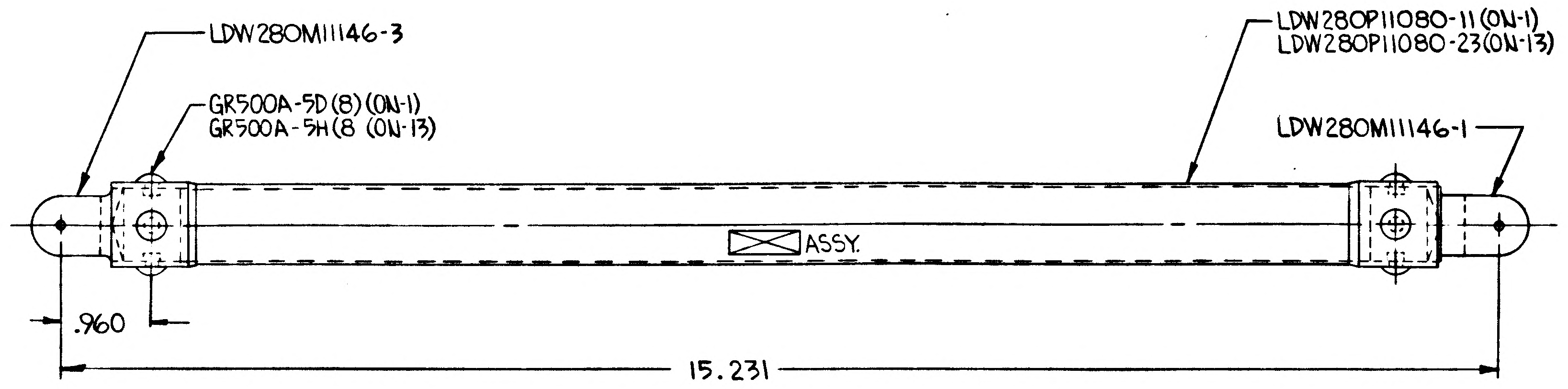
01

NAS 9-1100

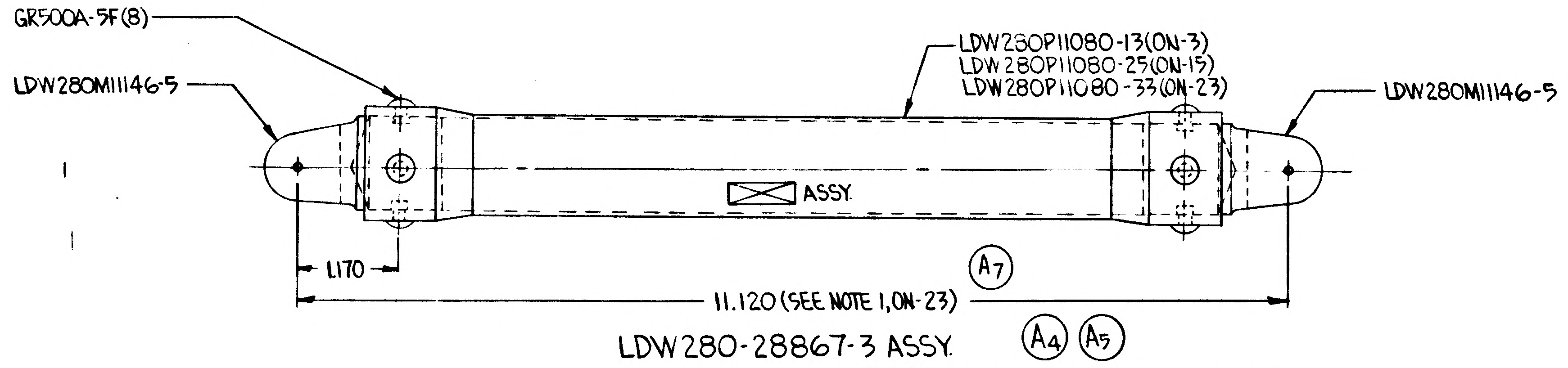
SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY~~	✓
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
INSTALL RIVETS IN ACCORDANCE WITH LSP14-15302	✓

NOTE :

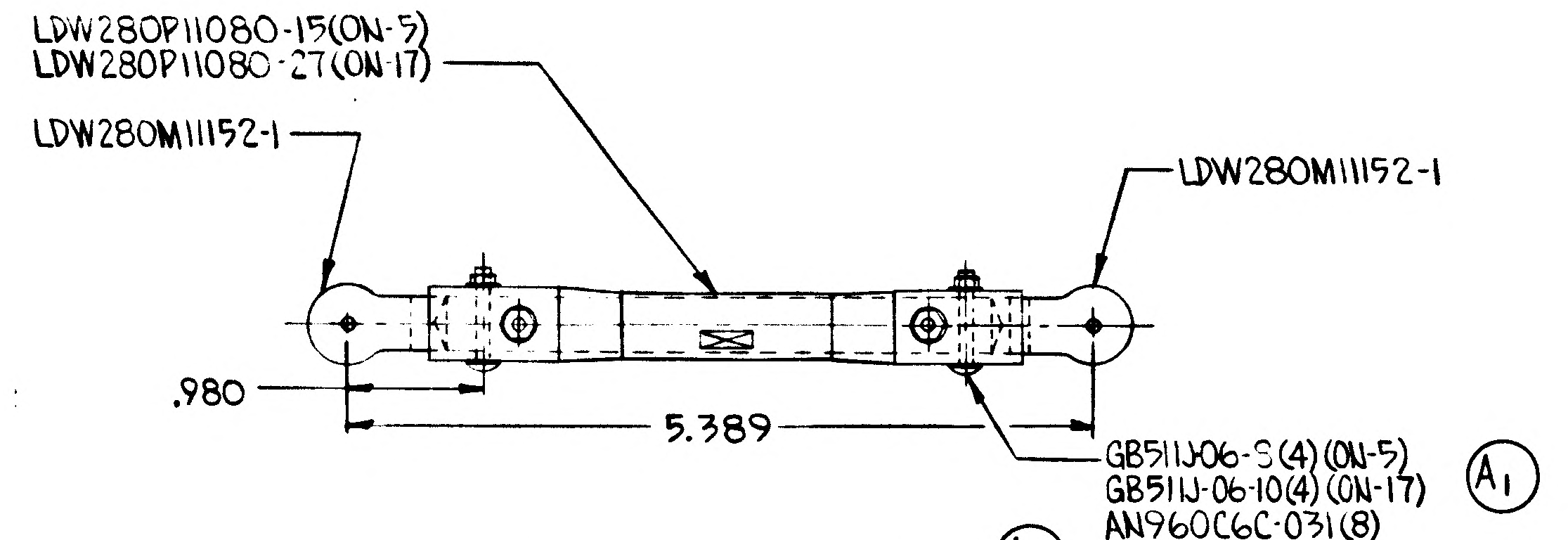
1. STRUT LENGTH TO BE DETERMINED ON INSTL., ON NEXT ASSY. LDW280-53153. MAINTAIN MIN. EDGE DISTANCE ON ROD END FASTENER OF 1½ D.


LDW280M11146-3
GR500A-5D (8) (ON-1)
GR500A-5H (8 (ON-13)
LDW280P11080-11 (ON-1)
LDW280P11080-23 (ON-13)
LDW280M11146-1
ASSY.
.960
15.231

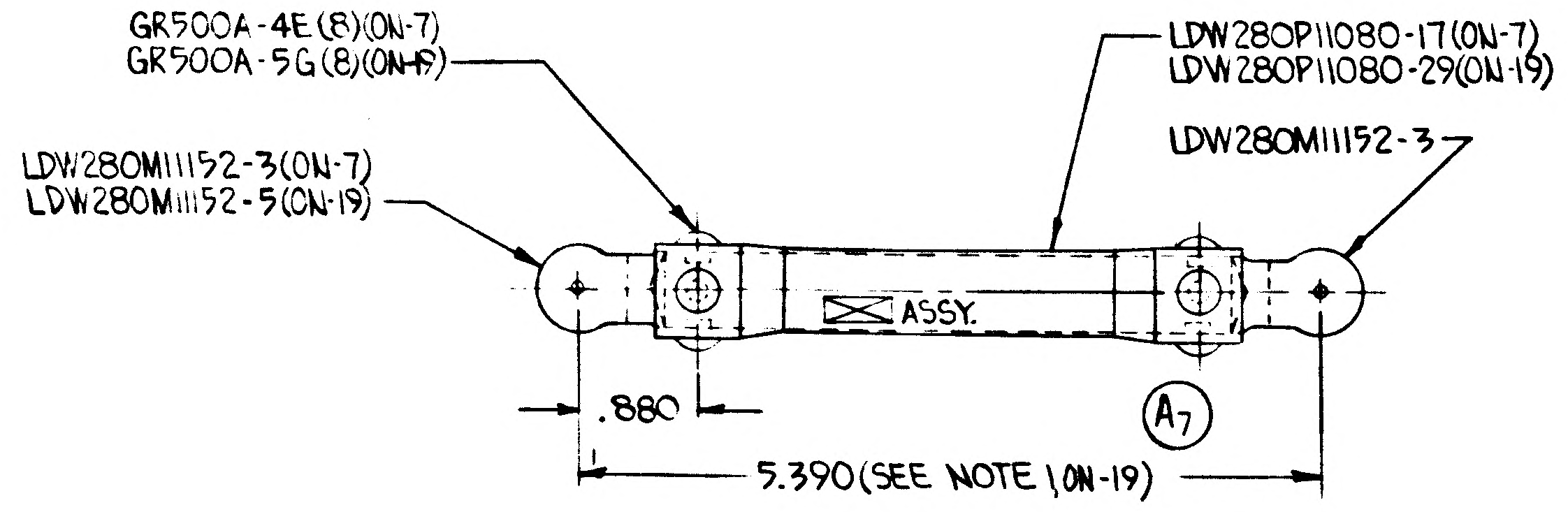
LDW280-28867-1 ASSY. (A4)
-13 ASSY. (IDENT. TO -1 EXCEPT AS SHOWN)


GR500A-5F (8)
LDW280M11146-5
LDW280P11080-13 (ON-3)
LDW280P11080-25 (ON-15)
LDW280P11080-33 (ON-23)
LDW280M11146-5
ASSY.
1.170
11.120 (SEE NOTE 1, ON-23)
A7

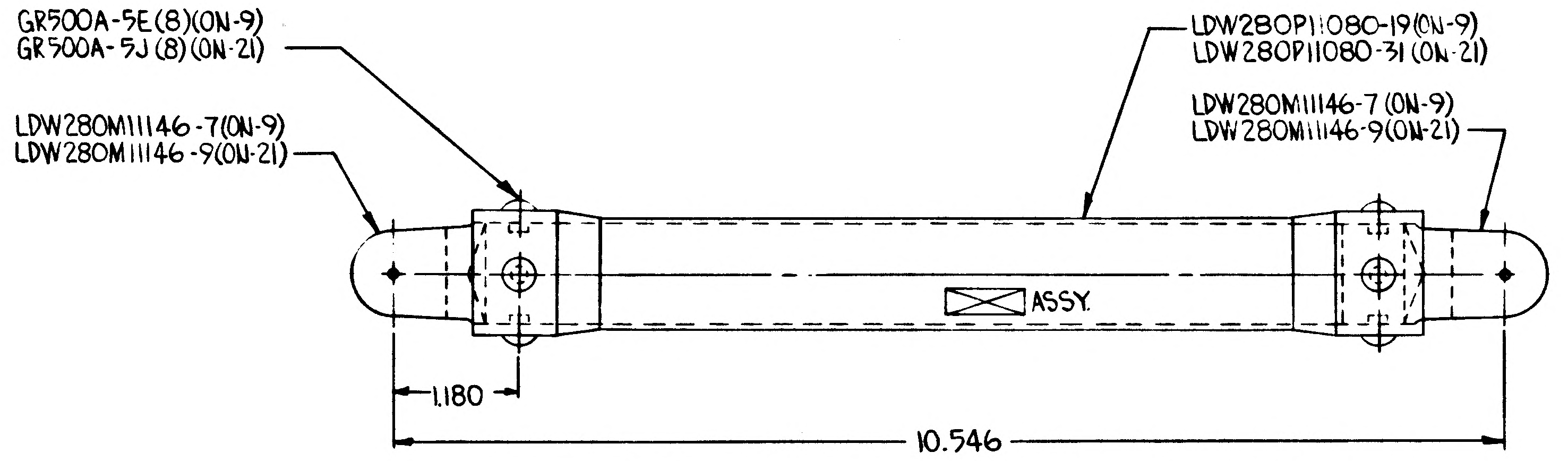
LDW280-28867-3 ASSY. (A4) (A5)
-15 ASSY. (IDENT. TO -3 EXCEPT AS SHOWN)
-23 ASSY. (IDENT. TO -3 EXCEPT AS SHOWN)


LDW280P11080-15 (ON-5)
LDW280P11080-27 (ON-17)
LDW280M11152-1
LDW280M11152-1
.980
5.389
GB511J-06-S (4) (ON-5)
GB511J-06-10 (4) (ON-17)
AN960C6C-031 (8)
MS21043-06 (4)
A1

LDW280-28867-5 ASSY. (A4)
-17 ASSY. (IDENT. TO -5 EXCEPT AS SHOWN)


GR500A-4E (8) (ON-7)
GR500A-5G (8) (ON-19)
LDW280M11152-3 (ON-7)
LDW280M11152-5 (ON-19)
LDW280P11080-17 (ON-7)
LDW280P11080-29 (ON-19)
LDW280M11152-3
ASSY.
.880
5.390 (SEE NOTE 1, ON-19)
A7

LDW280-28867-7 ASSY. (A2) (A4) (A5)
-19 ASSY. (IDENT. TO -7 EXCEPT AS SHOWN)


GR500A-5E (8) (ON-9)
GR500A-5J (8) (ON-21)
LDW280M11146-7 (ON-9)
LDW280M11146-9 (ON-21)
LDW280P11080-19 (ON-9)
LDW280P11080-31 (ON-21)
LDW280M11146-7 (ON-9)
LDW280M11146-9 (ON-21)
ASSY.
1.180
10.546

LDW280-28867-9 ASSY. (A4)
-21 ASSY. (IDENT. TO -9 EXCEPT AS SHOWN)

01 NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORPORATION BETHPAGE, NEW YORK 11714			
SIZE F	CODE IDENT NO. 26512	LDW280-28867	A
SCALE FULL		SHEET 3.[illegible]	

ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28867
EO NO. A1
CONTROL INFO NO. LM-5-9679

IN F/D & B/M ON -5 ASSY

MS1218-06 (S/B) MS21043-06
NAS1218-06-8 (S/B) GB511J-06-8

11/10

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

5

REASON FOR EO: H'WARE NOT AVAILABLE

DESCRIPTION OF EO: IN F/D & B/M ON -5 ASSY
MS21043-06 WAS MS1218-06, GB511J-06-8
WAS NAS1218-06-8

GAEC EO RELEASE: ⑧ KE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

					GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY	[illegible]				PH	JFJ	CH	PMc	JR
DATE	11/23				11/23	11-10-66	11-10-66	11-16-66	11/10/66
1	VDI	SUPPORT	RELIAB. GROUP						

PRIORITY: C
DRAWING TITLE: STRUT ASSEMBLIES ENGINE BAY SHIELD-A/S-M/S
DRAWING NO.: LDW280-28867
EO NO.: A1

ISSUED BY LIAISON J. McGILL/GR X6452 SECTION HENTON GROUP NO.____ PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28867	EO NO. A✓
CONTROL INFO NO. LDW280-A-3331	

IN F/D, B/M & M/B ADD -11 IDENTICAL TO -7 EXCEPT LDW280P11080-21 REPLACES LDW280P11080-17. N/A LDW280-53153 1 REQ'D/MOD. EFFECTIVITY LEM-3 (33) THRU LEM-15 (45).

IN M/B FOR -3 ADD N/A LDW280-53153 1 REQ'D/MOD EFFECTIVITY LM-3 (33) THRU LM-15 (45)

3

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LAV 250-844

REASON FOR EO: TO UPDATE EFFECTIVITY FOR LM-3 - LM-15

DESCRIPTION OF EO: IN F/D, B/M & M/B ADDED -11. FOR -3 ADDED N/A LDW280-53153 EFF. LM-3 (33) THRU LM-15 (45)

GAEC EO RELEASE: A FR 11/23/66

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	
		THRU	
LM		LM-3 (33)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQ'D		DATE	11/14			11/14	11/17		11-18-66	11-22
REVISE DWG	RECORD EO	REWORK	SCRAP	#2		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRUT / ASSY. ~ ENGINE COMP. ~ A/S ~ M/S ~ R.H.	LDW280-28867	A✓

ISSUED BY F. DIGIOVANNI X7033 SECTION V.D.I. GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280	EO NO. 510
CONTROL INFO NO. LDW280A-5720	

FOR THE FOLLOWING DWG'S LISTED BELOW, ADD PA-1(W5) EFFECTIVITY

DWG Nº	DASH Nº **	REQ'D/MOD	DWG TITLE	N/A	CHANGE Nº
LDW280-28879	-1	1	SEE DWG	LTM280-26876	A2
LDW280-28898	-1	1		LTM280-26876	A4
LDW280-28481	-5	1		LTM280-26876	A5
P11512	-11	1		LDW280-28879	A3
M11119	-1 -14-3 -1	1 1EA 2		LDW280-28879 LDW280-28481 LTM280-26876	A3
M11199	-11	2		LDW280 28898	A2
M11200	-11	1			A3
M11201	-11	1			A2
P11579	-11	1			A3
P11580	-11	1			A5
P11581	-11	1			A2
P11582	-11	1			A3
P11589	-11	2		LDW280-28898	A6
P11013	-13	1		LDW280-28481	B2
53224	-1	1		LTM280-26876	A4
10681	-13	1		LDW280-53224	B1
10682	-13,-17-19,-20	1EA			B4
10683	-13,-15	2EA			B3
11256	-11,-15 -13	1EA 2			A1
11530	-11,-13	1EA			A4
11777	-11	1			B2
M11149	-5,-7	1EA			B4
P11494	-3	1		LDW280-53224	A2
53225	-1	1		LTM280-26876	A5
10685	-25,-27,-29	1EA		LDW280-53225	A6
11257	-11,-13,-15,-17	1EA			A2
11278	-11,-13	1EA			A1
11527	-3	1			B1
11680	-11,-13,-15,-17	1EA			A2
M11259	-11,-13	1EA		LDW280-53225	B1
28866	-3-5,-7,-9,-11	1EA		LTM280-26876	A3
M11147	-11,-13,-7,-9 -5	1EA 2		LDW280-28866	B4
M11153	-1,-3	2EA			B1
P11081	-13-15-17,-19,-21	1EA		LDW280-28866	B1
28867	-3,-11	1EA		LTM280-26876	A3
M11146	-1,-3 -5,-7 -1,-3	1EA 2EA 1EA		LDW280-28867 LDW280-28867 LDW280-53867	B1
M11152	-1,-3	2EA		LDW280-28867	B2
P11080	-11,-13,-15,-19,-21	1EA		LDW280-28867	A2
53867	-1,-3,-5	1EA		LTM280-26876	A1
P11258	-11,-13,-15	1EA		LDW280-53867	A1
M11036	-11	2		LDW280-53867	A3
LDW280M11037	-11	2	SEE DWG	LDW280-53867	A3

DETAIL SPEC REQ		CL II ENGRG CHG ✓	CL I ENGRG CHG	LCR 19-1124	5
REASON FOR EO	UPDATE DWG REQTS FOR PA-1	DESCRIPTION OF EO	ON ** ADDED PA-1(W5) REQTS	GAEC EO RELEASE	JK 3/11/

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		PA-1(W5)	

DRAWING CHANGE REQD	REVISE DWG ✓	RECORD EO	DISPOSITION OF PARTS	NOT REQ'D		APPROVED BY				Sam	AC
						DATE	3/7/67	3/7/67	3/7/67	3/8/67	3-11-67
				REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP

LIAISON ENGRG — PROJ ENGRG — ~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED ABOVE	LEO 280	510

ISSUED BY M. SHAPIRO X1153 SECTION VDI GROUP NO. 335 PL 3/5 1

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NAS 9-1100

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NAS 9-1100

A

ENG 32.2 REV 3-65

FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

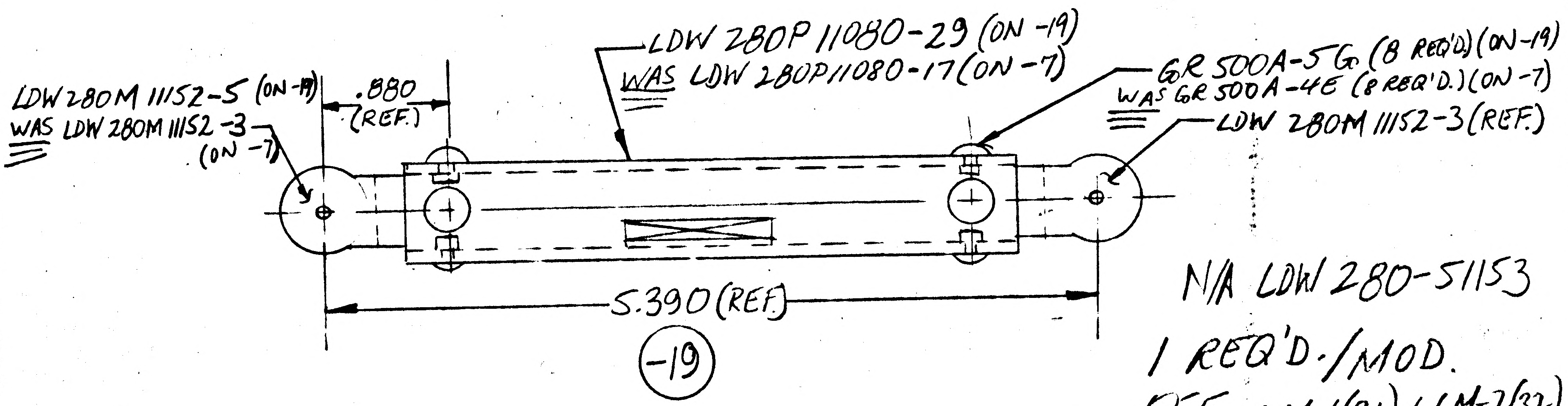
DWG. NO. LDW 280-28867 | EO NO. A4
CONTROL INFO NO. LDW 280A6528

IN F/D, M/B, & B/M ADD -13 IDENTICAL TO -1 EXCEPT LDW 280P11080-23 ON -13 REPLACES LDW 280P11080-11 ON -1 & GR 500A-5H (8 REQ'D) ON -13 REPLACES GR 500A-5D (8 REQ'D.) ON -1. N/A LDW 280-51153 ~ 1 REQ'D./MOD.
EFF. LM-1 (31) & LM-2 (32)

IN F/D, M/B, & B/M ADD -15 IDENTICAL TO -3 EXCEPT LDW 280P11080-25 ON -15. REPLACES LDW 280P11080-13 ON -3.
N/A LDW 280-51153 ~ 1 REQ'D./MOD. EFF. LM-1(31) & LM-2 (32)

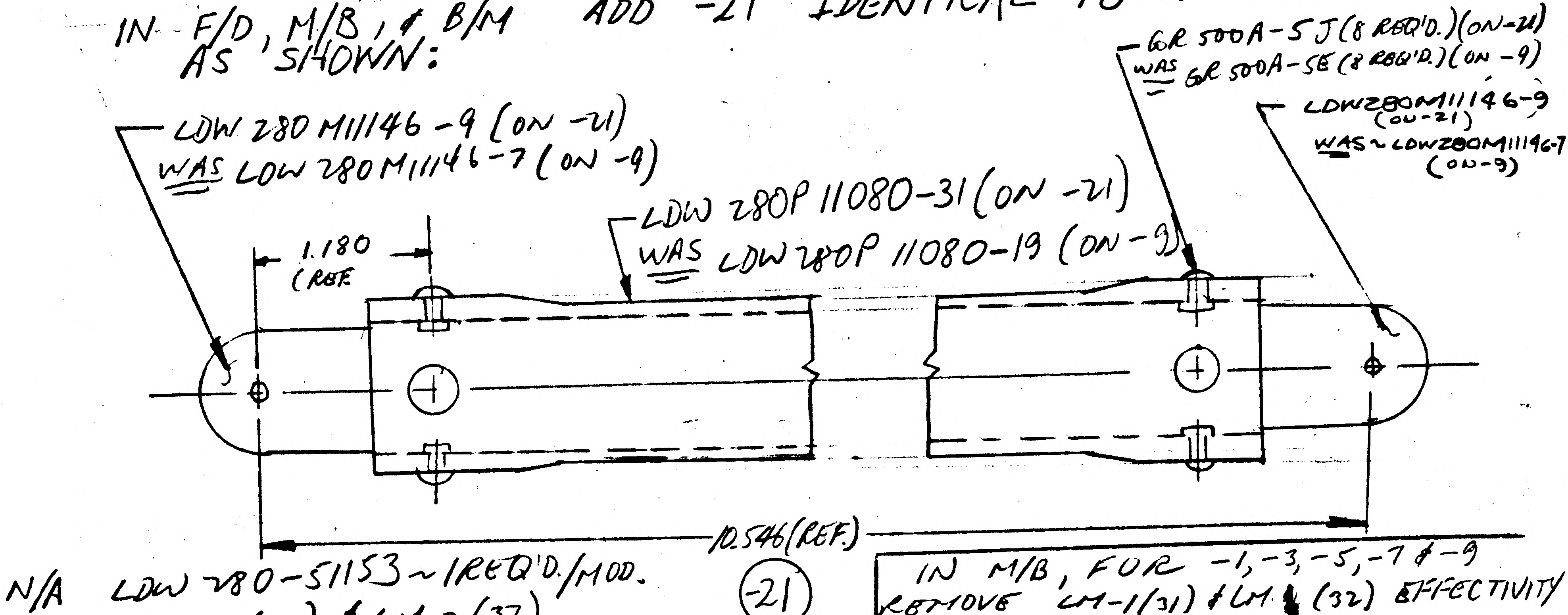
IN F/D, M/B, & B/M ADD -17 IDENTICAL TO -5 EXCEPT LDW 280P11080-27 ON -17. REPLACES LDW 280P11080-15 ON -5. & GB511J-06-10 (4 REQ'D.) ON -17 REPLACES GB511J-06-8 (4 REQ'D.) ON -5.
N/A LDW 280-51153 ~ 1 REQ'D./MOD. EFF. LM-1(31) & LM-2(32)

IN F/D, M/B, & B/M ADD -19 IDENTICAL TO -7 EXCEPT AS SHOWN:


LDW 280M 11152-5 (ON -19)
WAS LDW 280M 11152-3 (ON -7)
.880 (REF.)
LDW 280P 11080-29 (ON -19)
WAS LDW 280P11080-17 (ON -7)
GR 500A-5G (8 REQ'D) (ON -19)
WAS GR 500A-4E (8 REQ'D.) (ON -7)
LDW 280M 11152-3 (REF.)
5.390 (REF.)
-19

N/A LDW 280-51153
1 REQ'D./MOD.
EFF. LM-1(31) & LM-2(32)

IN F/D, M/B, & B/M ADD -21 IDENTICAL TO -9 EXCEPT AS SHOWN:


GR 500A-5J (8 REQ'D.) (ON -21)
WAS GR 500A-5E (8 REQ'D.) (ON -9)
LDW 280M11146-9 (ON -21)
WAS LDW 280M11146-7 (ON -9)
LDW 280M11146-9 (ON -21)
WAS ~ LDW 280M11146-7 (ON -9)
LDW 280P 11080-31 (ON -21)
WAS LDW 280P 11080-19 (ON -9)
1.180 (REF.
10.546 (REF.)
-21

N/A LDW 280-51153 ~ 1 REQ'D./MOD.
EFF. LM-1 (31) & LM-2 (32)

IN M/B, FOR -1, -3, -5, -7 & -9 REMOVE LM-1(31) & LM-2 (32) EFFECTIVITY

5

LCD 19-1244

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑
CL I ENGRG CHG	☐		

REASON FOR EO: INCREASED FITH LOADS

DESCRIPTION OF EO: ADDED -13 -15, -17, -19 & -21 REMOVED -1, -3, -5, -7 & -9. LM-1, & LM-2 REQUIREMENTS.

GAEC EO RELEASE: C
JK 4/27/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31	
		& LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓			-1, -7 -3, -9 -5

APPROVED BY					GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY		V.D.J.			F.N.R.				
DATE	4/20/67	4/24			4/23/67	4/2		4/2/67	4/24/67
5	VDI	SUPPORT	RELIAB. GROUP						

PRIORITY: C

DRAWING TITLE: STRUT ASSEMBLIES ENGINE BAY SHIELD - A/S - M/S

DRAWING NO. LDW 280-28867

EO NO. A4

ISSUED BY I. KLEIN x7035 SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28867
EO NO. A5
CONTROL INFO NO. LDW280A6984

ADD -23 ASSY. IDENTICAL TO -3 ASSY. EXCEPT LDW280P11080-33 STRUT
REPLACES LDW280P11080-13 STRUT
-23 ASSY REPLACES -3 ASSY.
FOR -23 ADD { N/A LDW280-53153 1 REQ'D/MOD EFF. LM-3(33) THRU LM-15(45)
N/A LTM280-26876 1 REQ'D/MOD EFF. PA-1(47)

DELETE -11 ASSY. REPLACE WITH -19 ASSY.
FOR -19 ADD { N/A LDW280-53153 1 REQ'D/MOD. EFF. LM-3(33) THRU LM-15(45)
N/A LTM280-26876 1 REQ'D/MOD. EFF. PA-1(47)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ✓ CL I ENGRG CHG ✓ LCD-1244 5

REASON FOR EO: INCREASED FITH LOADS

DESCRIPTION OF EO: ADDED -23, DELETED -11, REMOVED -3
REVISED EFF. OF -19 WAS LM-1(31) & LM-2(32),

GAEC EO RELEASE C
JL 6-2-7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU	
		LM-15(45)	
LM		PA-1(47)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK — SCRAP -3 -11

APPROVED BY / DATE 5/20/67 5 VDI SUPPORT RELIAB. GROUP

GROUP LEADER 5/20/67 STRESS GROUP 5/24/67 LIAISON ENGRG PROJ ENGRG 5/24/67 6/1/67

PRIORITY C

DRAWING TITLE: STRUT ASSY. - A/S - MID SECTION ENG. COMP. - R.H.

DRAWING NO. LDW280-28867

EO NO. A5

ISSUED BY A. PROKOPETZ X7036 SECTION V.D.I GROUP NO. 335 PL 25

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NAS 9-1100

RELEASED BY LIAISON

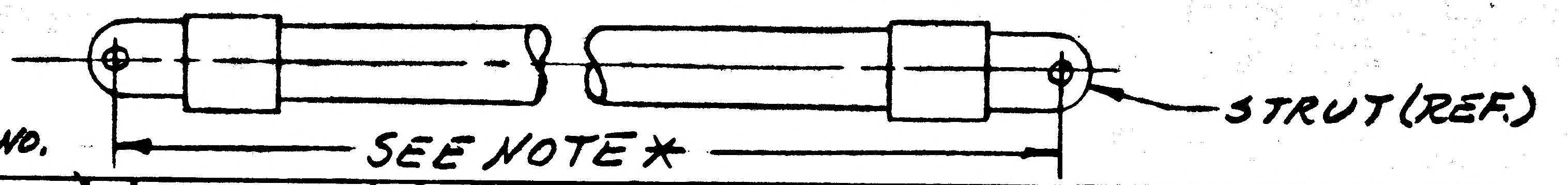
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 846
CONTROL INFO NO. LM-5-17875

DWG NO.	CHG. NO.	TITLE
✓ LDW280-28481-9	B2	STRUT ASSY.
✓ LDW280-28866-11, 21, 23, -25 & -5	A10	STRUT ASSY.
LDW280-28867-19 & -23	A7	STRUT ASSY.
LDW280-28877-3	A6	STRUT ASSY.
LDW280-28879-5	A6	STRUT ASSY.
LDW280-28483-1 & -9	B6	STRUT ASSY.
LDW280-53867-9-11 & -13	A6	STRUT ASSY.
LDW280-53483-5 & -7	A5	STRUT ASSY.

ON THE ABOVE DWGS. ADD NOTE *. STRUT LENGTH TO BE DETERMINED ON INSTL. ON NEXT ASSY. LDW280-53153. MAINTAIN MIN. EDGE DISTANCE ON ROD END FASTENER OF 1½D.



* USE NEXT AVAILABLE NO.

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ☑ | CL I ENGRG CHG ☐ | (5)

REASON FOR EO: TO PERMIT ADJUSTMENT OF STRUT ON INSTL. R.T.E. 02-855-8001

DESCRIPTION OF EO: ADDED NOTE *.

GAEC EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		QUAL TEST (70) LM-3 (33)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY								
DATE	1/22/68				1-22-68	1-22-68	1/27/68	1/25/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C | DRAWING TITLE: NOTED | DRAWING NO.: LEO 280 | EO NO.: 846

ISSUED BY LIAISON J. JARVIS SECTION V.D.I. GROUP NO. 280 PL. 25

01

NAS 9-1100

LDW280-28869 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28162	LTA-8 (18)	1
PART NO. LDW 280-28869-1-1		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28162	QUALTEST(70)	1
LM	LDW280-28162	LEM-2(32)	1
LM	LDW280-28162	LEM-1(31)	1
PART NO. LDW280-28869-1		GAEC SCH NO. 30-	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	100	1.10	200	201		300			
REV	B	B	B	B		B			
SHEET		1.11							
REV		B							
SHEET									
REV									

LAST SECT LTR USED	L-L	GRUMMAN REL INFO B		
LAST DASH NO. USED	-3-1	PRIM NO.	K(001)	
		215	MP-16 B-9/16/	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT	
CLASS II ENGRG CHANGE	
CLASS I ENGRG CHANGE	

CONTRACT NO. NAS 9-1100 | LINE ITEM #1 | DOCUMENTATION TYPE II

DRAWN BY	ESICK 9/7/66	RELIABILITY	
LAYOUT BY	T.THOMPSON 9/8	THERMO.	
CHECKED BY	JS 9-7-66		
GRLEADER	A.C.P. HENTON 9/8		
VEHDESINT	9/9/66		
STRUCTURE	9/10/66	PROJ ENGR	R.M. Carbee 9-12
STRUCTURE	E. HILDEBRAND	REL GROUP	
WEIGHTS	[illegible]		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SUPPORT INSTALLATION
ASCENT STAGE-MID SECT-OXIDIZER
FILL-DRAIN SHIELD

SIZE	CODE IDENT NO.		
B	26512	LDW280-28869	B
SCALE	NONE	SHEET 1.00 OF 6	

ENG 77.1 12-65

CDR 9/2/66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
A	1	2.01 3.00	4B						IN F/D & B/M ON-3 DELETED LDW280-11505-15. ADDED LDW 280-11505-21	LTA-8 (18) LM-1 (31) LM-2 (32)	✓		F. DIGIOVANNI 10/10/66		10/13/66
	2	2.01 3.00	6A						IN F/D & B/M ON-3 DELETED - LDW 280-11505-17. ADDED LDW 280-11505-19.		✓				
	3	2.01 3.00	8A						IN F/D & B/M ON-3 DELETED LDW 280-11506-11. ADDED LDW 280-11506-17.		✓				
	4	2.01 3.00	4B						IN F/D & B/M ON-3 DELETED LDW280-11079-13. ADDED LDW 280-11079-21		✓				
	5	2.01 3.00	3B						IN F/D & B/M ON-3 DELTETED LDW280-11079-19. ADDED LDW 280-11079-23		✓				
	6	2.00 3.00	5B						IN F/D & B/M ON-3 DELETED LDW 280-11077-15. ADDED LDW 280-11077-21		✓				
	7	3.00	4C						IN F/D CHANGED TRIM OF LDW280-11076-19 TO AGREE WITH DETAIL		✓				
	8	2.01 3.00	2B						IN F/D & B/M ADDED LDW 280-28893-1 ON-3 (5 REQ'D)		✓				
	9	3.00	2A						IN F/D ADDED MS20470-AD3 (10)		✓				
	10	3.00	3B						IN F/D " MS20470-AD3 (56) WAS MS20470 AD3 (48)		✓				
	11	1.01							ADDED SH. 1.01		NOT	REQ'D			
B	1	1.00					✓	LE0280-368	ON-1 ADDED "QUAL TEST"	QUAL TEST	NOT	REQD			
	2	2.01 3.00	8B					EOB2	IN FLD & B/M -1 INSTL LDW280-11506-14 REPLACED LDW280-11506-13	LT-8, LM-1 LM-2 QUAL TEST	✓	H.D.	STUMBERGER 3/25/68		

FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28869	B
SCALE NONE			SHEET 1.10

ENG 77.3 5-66

Q1 NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
B	3	2.01 3.00	2B					EOB3	IN FLD & B/M(-1) NAS698A06L (2 PLCS) WAS NAS697A06L REVISED PICT. OF LDW280-11079-21 IN SECT. B-B (ADDED SH 1.11	LTA-8, LM-2 QUAL TEST, LM-1	✓		PETER STUMBERGER 3/26/68 H.D.		
	4	2.01 3.00	8B					EOB4	IN FLD & B/M -1 INSTL REMOVED LDW280-11506-14 ADDED LDW 280-11506-25	LTA-8 LM-1, LM-2					
	5	1.00	8B					EOB5	(REF EOB4) ADDED QUAL TEST (70) TO EFFECTIVITY BLOCK OF E.O.	QUAL TEST	NOT	REQD			
	6	2.01 3.00	6A				✓	EOB6	IN FLD & B/M (ON-1) LDW280-11506-19 (WAS) LDW280-11506-11	LTA-8, LM-1 LM-2, QUAL TEST	✓				
	7	2.01 3.00	6A				✓	EOB7	REF: EO B6 ON-1, IN FLD & B/M, LDW280-11506-19 WAS LDW280-11506-17						
	8	3.00	1A			✓		EO B8 (LCD-10774)	ADDED EO TO RECORD BLOCK FOR LM-1	NOTED	NOTED				
	9	1.00, 2.00 2.01, 3.00	4B			✓		EO B9 LCD 20273	ADDED LDW 280-28869-1-1 WAS -1 FOR LTA-8 REQM'TS.	LTA-8	✓		J. CHUPAS 9-6-68 L.D.		
	10	1.00, 2.00 2.01, 3.00	4B	②		✓		LCD 20273	REF E0 B9: ADDED LDW 280-28869-1-1 WAS-1 SHOULD BE ADDED LDW280-28869-1-1 & -3-1 WAS -1 & -3			9-14-68		F. Zaleiko 9-11-68	L.D.

CHG APPD	LTR	GROUP LDR	SUB SYS ENG	STRUCT	STRUCT	WEIGHTS	RELIABILITY	MAT'LS
	B							

FOR CONTINUATION OF REVISIONS SEE SHEET ______

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28869	B
SCALE	NONE		SHEET 1.11

ENG 77.3 5-65

01

NAS 9-1100

							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				5	5			LDW280-28893-1	E	STANDOFF ASSY	SEE DWG						2A
				1		1		LDW280-11078-19	E	GUSSET	SEE DWG						3C
				1		1		-17		GUSSET							5C
			1		1			-15		CLIP							6A
			1		1			-13		CLIP							6C
			1		1			LDW280-11078-11		CHANNEL							3A
			1		1			LDW280-11077-19		BRACKET							4E
			1		1			-17		BRACKET							8B
			1		1			-21		ANGLE							5A
			1		1			-13		ANGLE							6B
			1		1			LDW280-11077-11		ANGLE							3A
			1		1			LDW280-11076-19		CHANNEL							7C
			1		1			-17		ANGLE							8B
			1		1			-15									6B
			1		1			-13									8A
			1		1			LDW280-11076-11		ANGLE							7A
			1		1			LDW280-11075-19		FRAME							8A
			1		1			-17									8B
			1		1			-15									6B
			1		1			-13									7A
			1		1			LDW280-11075-11		FRAME							6A
			1		1			LDW280-11074-15		SKIN							3A
			1		1			LDW280-11074-13		SKIN							3B
			1		1			LDW280-11074-11		SKIN	SEE DWG						7B
				1				LDW280-28869-3-1		SUPPORT ASSY					NONE	NONE	4B
								LDW280-28869-1-1		SUPPORT INSTL					NONE	NONE	4E
						1		LDW280-28869-3		SUPPORT ASSY					NONE	NONE	4E
								LDW280-28869-1	E	SUPPORT INSTL					NONE	NONE	4E
			-3-1	-1-1	-3	-1											
QTY PER ASSEMBLY																	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28869	B

SCALE NONE SHEET 2.00

ENG 77.2 7-65

01 NAS 9-1100

			QTY PER ASSEMBLY				CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			-3-1	-1-1	-3	-1											
								NAS1097-B3	E	RIVET	STD PART						
			23	8	31	8		GB511J-06		SCREW	GRUMMAN STD						
								MS20470AD3		RIVET	STD PART						
								MS20426AD3		RIVET							
								NAS1097AD3		RIVET							
			15	6	22	6		NAS697-A06L		NUT, PLATE							
			4		4			NAS696-A06L		NUT, PLATE	STD PART						
					1			NAS680-A06L		NUT, PLATE	STD PART						
						2		NAS698A06L		NUT, PLATE	STD PART						
				1		1		LDW280P11526-15		COLLAR	SEE DWG						8C
					1			LDW280P11082-3		SUPPORT ASSY							3B
					1			LDW280P11082-1		COVER ASSY							3B
			1		1			LDW280-11506-15		ANGLE							8C
				1		1		LDW280-11506-25		CLIP							8B
			1		1			LDW280-11506-19		ANGLE							8A
			1		1			LDW280-11505-21		ANGLE							6A
			1		1			-19		ANGLE							4B/4C
			1		1			-13		SHIM							8C
			1		1			LDW280-11505-11		CHANNEL							3A
			1		1			LDW280-11079-23		ANGLE							3C
			1		1			-17		CLIP							7B
			1		1			-15		CLIP							7B
			1		1			-21		ANGLE							7C
				1		1		LDW280-11079-11	E	GUSSET	SEE DWG						2C

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28869	B (B)

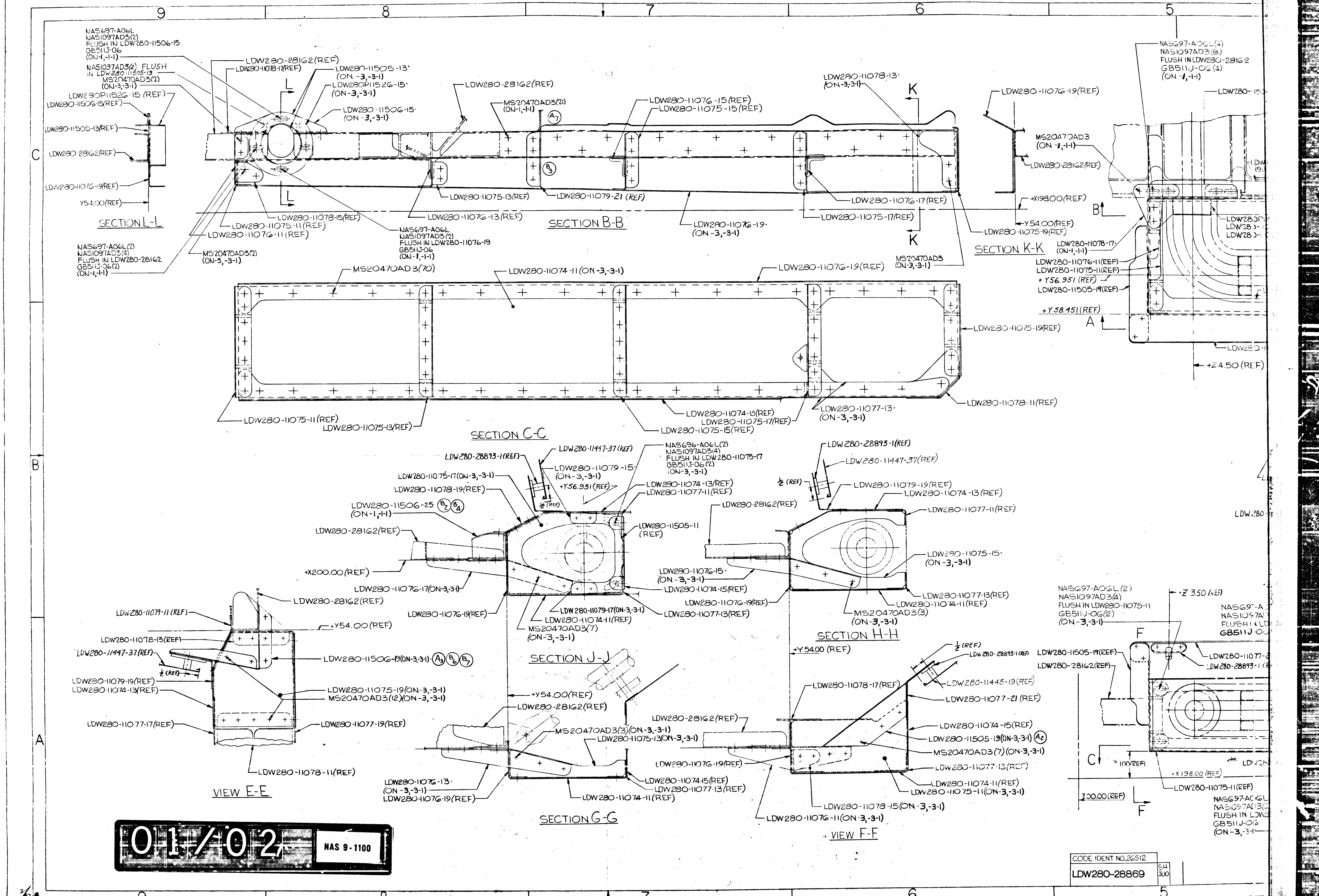
SCALE NONE

SHEET 2.01

ENG 77.2 7-65

01

NAS 9-1100



9
8
7
6
5
C
B
A
NAS697-A06L
NAS1097AD3(2)
FLUSH IN LDW280-11506-15
GB511J-06
(ON-1,-1-1)
NAS1097AD3(2) FLUSH
IN LDW280-11505-13
MS20470AD3(2)
(ON-3,-3-1)
LDW280P11526-15 (REF)
LDW280-11506-15(REF)
LDW280-11505-13(REF)
LDW280-28162(REF)
LDW280-11076-19(REF)
Y54.00(REF)
SECTION L-L
LDW280-28162(REF)
LDW280-11078-17(REF)
LDW280-11505-13·
(ON-3,-3-1)
LDW280P11526-15·
(ON-3,-3-1)
LDW280-11506-15·
(ON-3,-3-1)
L
L
LDW280-28162(REF)
MS20470AD3(21)
(ON-1,-1-1)
A7
B3
LDW280-11076-15(REF)
LDW280-11075-15(REF)
LDW280-11078-13·
(ON-3,-3-1)
K
K
LDW280-11075-13(REF)
LDW280-11079-21 (REF)
LDW280-11076-13(REF)
LDW280-11078-15(REF)
LDW280-11075-11(REF)
LDW280-11076-11(REF)
NAS697-A06L
NAS1097AD3(2)
FLUSH IN LDW280-11076-19
GB511J-06
(ON-1,-1-1)
SECTION B-B
LDW280-11076-19·
(ON-3,-3-1)
LDW280-11076-17(REF)
LDW280-11075-17(REF)
LDW280-11075-19(REF)
MS20470AD3
(ON-3,-3-1)
NAS697-A06L(2)
NAS1097AD3(4)
FLUSH IN LDW280-28162
GB511J-06(2)
(ON-1,-1-1)
MS20470AD3(2)
(ON-3,-3-1)
LDW280-11076-19(REF)
MS20470AD3
(ON-1,-1-1)
LDW280-28162(REF)
+X198.00(REF)
+Y54.00(REF)
SECTION K-K
NAS697-A06L(4)
NAS1097AD3(8)
FLUSH IN LDW280-28162
GB511J-06(4)
(ON-1,-1-1)
LDW280-115
B
LDW280-11078-17·
(ON-1,-1-1)
LDW280-11076-11(REF)
LDW280-11075-11(REF)
+Y56.951 (REF)
LDW280-11505-19(REF)
+Y58.451(REF)
A
LDW280-
+Z4.50 (REF)
MS20470AD3(70)
LDW280-11074-11(ON-3,-3-1)
LDW280-11076-19(REF)
LDW280-11075-19(REF)
LDW280-11078-11(REF)
LDW280-11075-11(REF)
LDW280-11075-13(REF)
LDW280-11074-15(REF)
LDW280-11075-17(REF)
LDW280-11077-13·
(ON-3,-3-1)
LDW280-11075-15(REF)
SECTION C-C
LDW280-28893-1(REF)
LDW280-11447-37(REF)
LDW280-11075-17(ON-3,-3-1)
LDW280-11078-19(REF)
LDW280-11079-15·
(ON-3,-3-1)
+Y56.951(REF)
1/2(REF)
NAS696-A06L(2)
NAS1097AD3(4)
FLUSH IN LDW280-11075-17
GB511J-06(2)
(ON-3,-3-1)
LDW280-11074-13(REF)
LDW280-11077-11(REF)
LDW280-11506-25 B2 B4
(ON-1,-1-1)
LDW280-11505-11
(REF)
LDW280-28162(REF)
+X200.00(REF)
LDW280-11076-17(ON-3,-3-1)
LDW280-11076-19(REF)
LDW280-11076-15·
(ON-3,-3-1)
LDW280-11074-15(REF)
LDW280-11079-17(ON-3,-3-1)
LDW280-11074-11(REF)
LDW280-11077-13(REF)
MS20470AD3(7)
(ON-3,-3-1)
SECTION J-J
LDW280-28162(REF)
LDW280-11079-11 (REF)
+Y54.00(REF)
LDW280-11078-13(REF)
LDW280-11447-37(REF)
1/2(REF)
LDW280-11506-19(ON-3,-3-1) A3 B6 B7
LDW280-11079-19(REF)
LDW280-11074-13(REF)
LDW280-11075-19(ON-3,-3-1)
MS20470AD3(12)(ON-3,-3-1)
LDW280-11077-17(REF)
LDW280-11077-19(REF)
LDW280-11078-11(REF)
VIEW E-E
+Y54.00(REF)
LDW280-28162(REF)
MS20470AD3(3)(ON-3,-3-1)
LDW280-11075-13(ON-3,-3-1)
LDW280-11076-13·
(ON-3,-3-1)
LDW280-11076-19(REF)
LDW280-11074-15(REF)
LDW280-11077-13(REF)
LDW280-11074-11(REF)
SECTION G-G
LDW280-28893-1(REF)
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1/2 (REF)
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LDW280-28162(REF)
LDW280-11077-11(REF)
LDW280-11075-15·
(ON-3,-3-1)
LDW280-11077-13(REF)
LDW280-11074-11(REF)
LDW280-11076-19(REF)
MS20470AD3(3)
(ON-3,-3-1)
SECTION H-H
+Y54.00 (REF)
1/2 (REF)
LDW280-28893-1(REF)
LDW280-11445-19(REF)
LDW280-11078-17(REF)
LDW280-11077-21 (REF)
LDW280-28162(REF)
LDW280-11074-15(REF)
LDW280-11505-19(ON-3,-3-1) A2
MS20470AD3(7)(ON-3,-3-1)
LDW280-11076-19(REF)
LDW280-11077-13(REF)
LDW280-11074-11(REF)
LDW280-11075-11(ON-3,-3-1)
LDW280-11078-15(ON-3,-3-1)
LDW280-11076-11(ON-3,-3-1)
VIEW F-F
NAS697-A06L(2)
NAS1097AD3(4)
FLUSH IN LDW280-11075-11
GB511J-06(2)
(ON-3,-3-1)
+Z 3.50 (REF)
NAS697-A
NAS1097AI
FLUSH IN LD
GB511J-0
F
LDW280-11505-19(REF)
LDW280-28162(REF)
LDW280-11077-2
LDW280-28893-1 (R
C
100(REF)
+X198.00 (REF)
LDW280-11075-11(REF)
Z00.00(REF)
F
NAS697-A06L
NAS1097AD3(2
FLUSH IN LDW2
GB511J-06
(ON-3,-3-1
LDW280

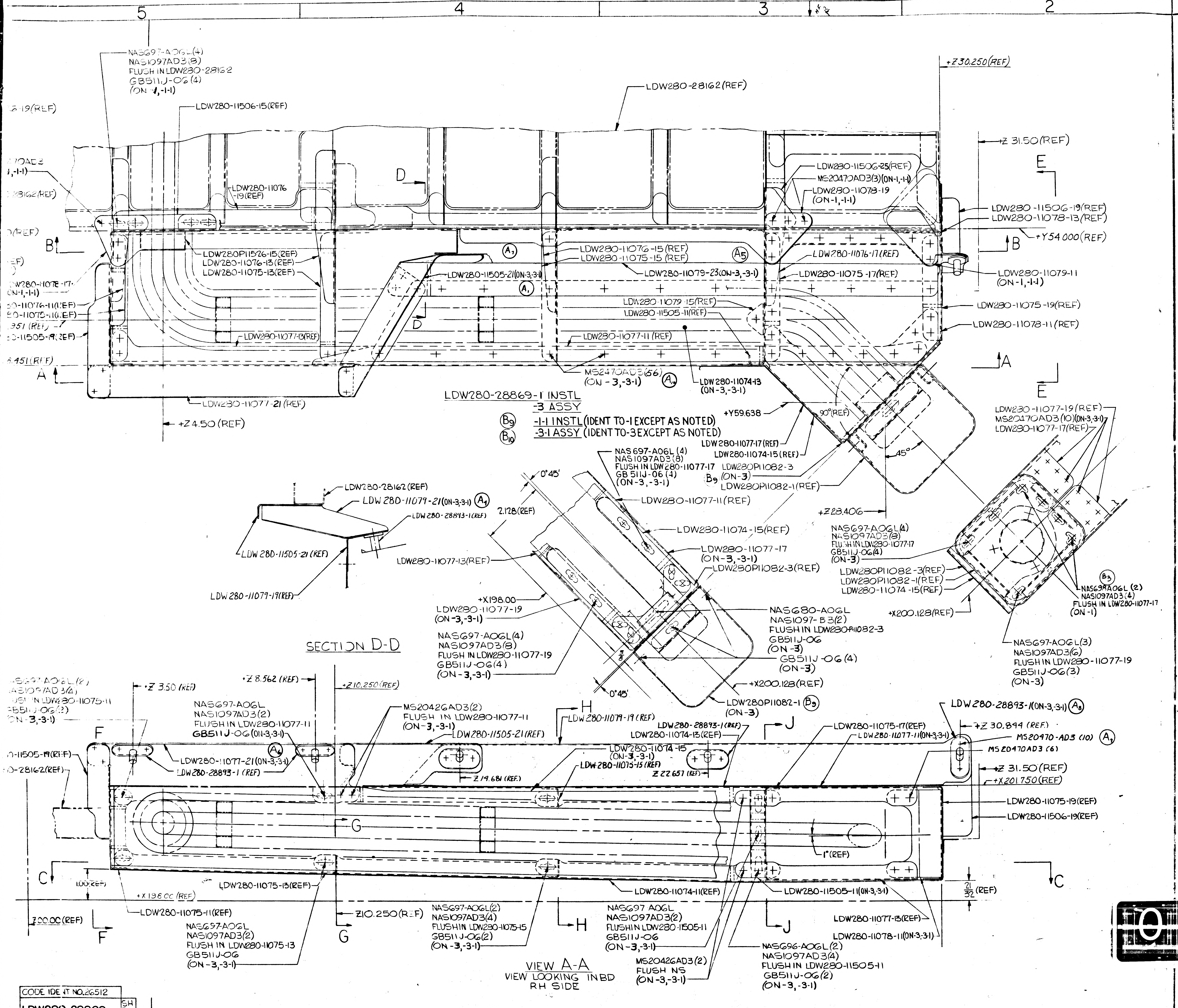
01/02

NAS 9-1100

CODE IDENT NO. 26512

LDW280-28869

SH 300


5
4
3
2
NAS697-A06L(4)
NAS1097AD3(8)
FLUSH IN LDW280-28162
GB511J-06(4)
(ON -1,-1-1)
LDW280-28162(REF)
LDW280-11506-15(REF)
+Z30.250(REF)
LDW280-11076-19(REF)
D
B
A
LDW280P11526-15(REF)
LDW280-11076-13(REF)
LDW280-11075-13(REF)
LDW280-11505-21(ON-3,-3-1)
LDW280-11077-13(REF)
LDW280-11076-15(REF)
LDW280-11075-15(REF)
LDW280-11079-23(ON-3,-3-1)
LDW280-11079-15(REF)
LDW280-11505-11(REF)
LDW280-11077-11(REF)
MS20470AD3(66)
(ON-3,-3-1)
LDW280-11077-21(REF)
+Z4.50(REF)
+Z 31.50(REF)
E
LDW280-11506-25(REF)
MS20470AD3(3)(ON-1,-1-1)
LDW280-11078-19
(ON-1,-1-1)
LDW280-11506-19(REF)
LDW280-11078-13(REF)
+Y54.000(REF)
LDW280-11076-17(REF)
LDW280-11075-17(REF)
LDW280-11079-11
(ON-1,-1-1)
LDW280-11075-19(REF)
LDW280-11078-11(REF)
LDW280-11074-13
(ON-3,-3-1)
LDW280-28869-1 INSTL
-3 ASSY
B9 -1-1 INSTL (IDENT TO -1 EXCEPT AS NOTED)
B10 -3-1 ASSY (IDENT TO -3 EXCEPT AS NOTED)
+Y59.638
90°(REF)
45°
LDW280-11077-17(REF)
LDW280-11074-15(REF)
LDW280P11082-3
(ON-3)
LDW280P11082-1(REF)
+Z28.406
LDW280-11077-19(REF)
MS20470AD3(10)(ON-3,-3-1)
LDW280-11077-17(REF)
LDW280-28162(REF)
LDW280-11079-21(ON-3,-3-1)
LDW280-28893-1(REF)
LDW280-11505-21(REF)
LDW280-11079-19(REF)
SECTION D-D
0°45'
2.128(REF)
NAS697-A06L(4)
NAS1097AD3(8)
FLUSH IN LDW280-11077-17
GB511J-06(4)
(ON-3,-3-1)
LDW280-11077-11(REF)
LDW280-11074-15(REF)
LDW280-11077-17
(ON-3,-3-1)
LDW280P11082-3(REF)
LDW280-11077-13(REF)
+X198.00
LDW280-11077-19
(ON-3,-3-1)
NAS697-A06L(4)
NAS1097AD3(8)
FLUSH IN LDW280-11077-19
GB511J-06(4)
(ON-3,-3-1)
NAS680-A06L
NAS1097-B3(2)
FLUSH IN LDW280P11082-3
GB511J-06
(ON-3)
GB511J-06(4)
(ON-3)
+X200.128(REF)
LDW280P11082-1
(ON-3)
NAS697-A06L(4)
NAS1097AD3(8)
FLUSH IN LDW280-11077-17
GB511J-06(4)
(ON-3)
LDW280P11082-3(REF)
LDW280P11082-1(REF)
LDW280-11074-15(REF)
+X200.128(REF)
NAS697A06L(2)
NAS1097AD3(4)
FLUSH IN LDW280-11077-17
(ON-1)
NAS697-A06L(3)
NAS1097AD3(6)
FLUSH IN LDW280-11077-19
GB511J-06(3)
(ON-3)
+Z 3.50(REF)
+Z 8.562(REF)
+Z10.250(REF)
NAS697-A06L
NAS1097AD3(2)
FLUSH IN LDW280-11077-11
GB511J-06(ON-3,-3-1)
MS20426AD3(2)
FLUSH IN LDW280-11077-11
(ON-3,-3-1)
LDW280-11505-21(REF)
H
LDW280-11079-19(REF)
LDW280-28893-1(REF)
LDW280-11074-13(REF)
J
LDW280-28893-1(ON-3,-3-1)
LDW280-11075-17(REF)
LDW280-11077-11(ON-3,-3-1)
+Z 30.894(REF)
MS20470-AD3(10)
MS20470AD3(6)
+Z 31.50(REF)
+X201.750(REF)
F
LDW280-11505-19(REF)
LDW280-28162(REF)
LDW280-11077-21(ON-3,-3-1)
LDW280-28893-1(REF)
LDW280-11074-15
(ON-3,-3-1)
LDW280-11075-15(REF)
Z19.681(REF)
Z22.657(REF)
G
LDW280-11075-19(REF)
LDW280-11506-19(REF)
1°(REF)
C
.100(REF)
+X198.00(REF)
LDW280-11075-13(REF)
LDW280-11074-11(REF)
LDW280-11505-11(ON-3,-3-1)
21/32(REF)
200.00(REF)
LDW280-11075-11(REF)
Z10.250(REF)
NAS697-A06L
NAS1097AD3(2)
FLUSH IN LDW280-11075-13
GB511J-06
(ON-3,-3-1)
NAS697-A06L(2)
NAS1097AD3(4)
FLUSH IN LDW280-11075-15
GB511J-06(2)
(ON-3,-3-1)
NAS697-A06L
NAS1097AD3(2)
FLUSH IN LDW280-11505-11
GB511J-06
(ON-3,-3-1)
MS20426AD3(2)
FLUSH NS
(ON-3,-3-1)
NAS696-A06L(2)
NAS1097AD3(4)
FLUSH IN LDW280-11505-11
GB511J-06(2)
(ON-3,-3-1)
LDW280-11077-13(REF)
LDW280-11078-11(ON-3,-3-1)
VIEW A-A
VIEW LOOKING INBD
RH SIDE

CODE IDENT NO. 26512

LDW280-28869 SH 300

NOTES
1. INSTALL FASTENERS PER LSP-14-15302 & LSP-14-15306.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE ~~AVERAGE~~ EDGE DISTANCE ~~MARKED~~ IS 1/2 FASTENER DIA. FROM FASTENER ℄	✓
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 90) = 22.72 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 5.68 SQ. FT.

PRINT TRIM LINE

C
B
A

LDW280-28869 B

RECORD DATA		
MODEL	EO NO.	EFFECTIVITY
LM	B8	LM-1 (31)

02/02

NAS 9-1100

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
J	26512	LDW280-28869	B

LEM
MODEL OR END ITEM
SCALE FULL
SHEET 300

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER
ENG 22.1 REV 3-65

DWG. NO. LDW280-28869
EO NO. B2
CONTROL INFO NO. LM-5- 9913

IN F/D & B/M -1 INSTL

LDW280-11506-14 REPLACES LDW280-11506-13

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

5

REASON FOR EO: LDW280-11506-13 WAS DESIGNED INCORRECTLY.

DESCRIPTION OF EO: IN F/D & B/M -1 INSTL LDW280-11506-14 REPLACED LDW280-11506-13

GAEC EO RELEASE: C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	QUAL TEST (70)
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
				—	CH	RWC (W)	
DATE				—	12-1	12-16-66	12-11-66

PRIORITY: C

DRAWING TITLE: SUPPORT INSTALLATION A/S MID SECT OXIDIZER FILL DRAIN SHIELD

DRAWING NO.: LDW280-28869

EO NO.: B2

ISSUED BY LIAISON J. McGILL X6452 SECTION VDI GROUP NO. PL 35

01

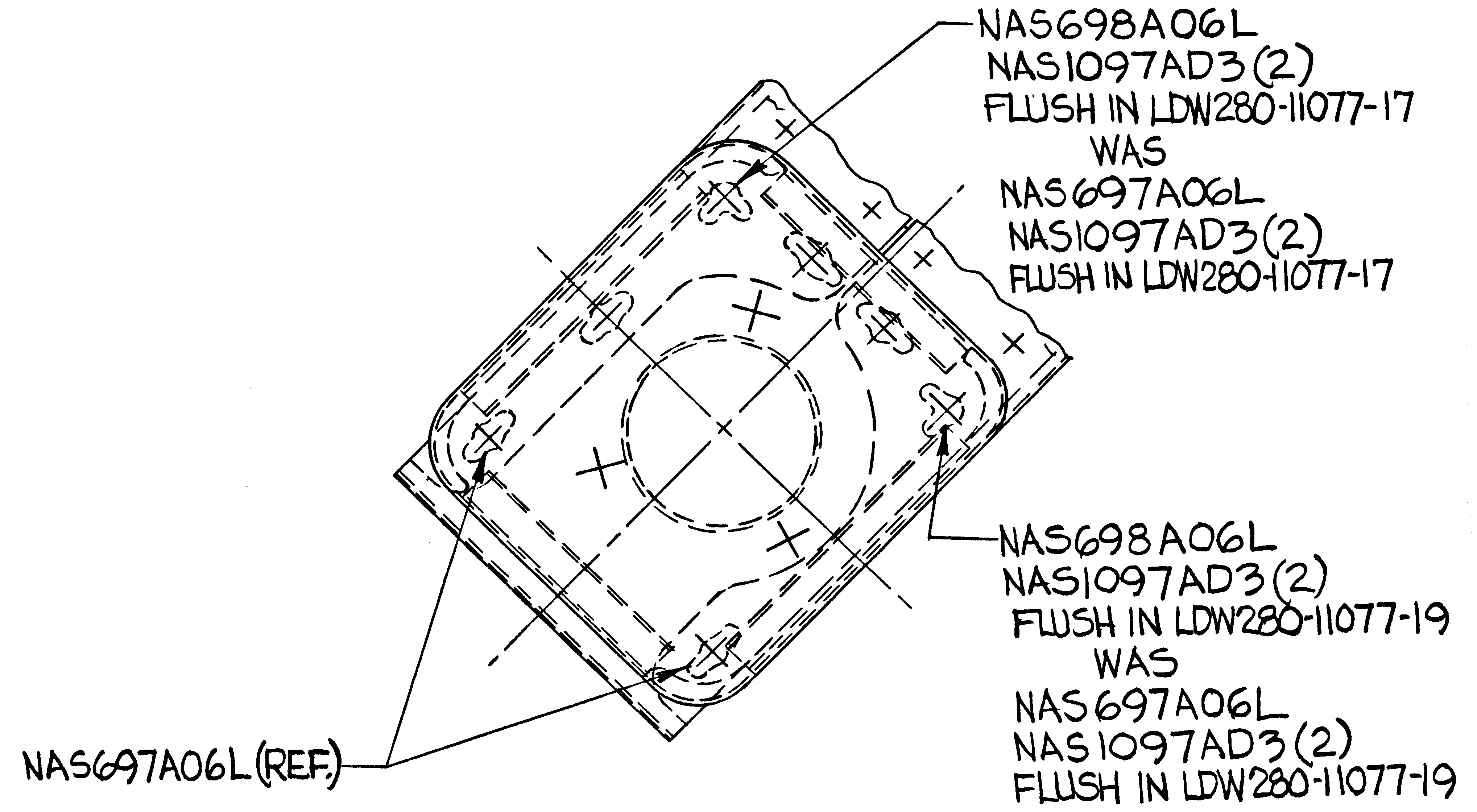
NAS 9-1100

ENG 32.2 REV 3-65

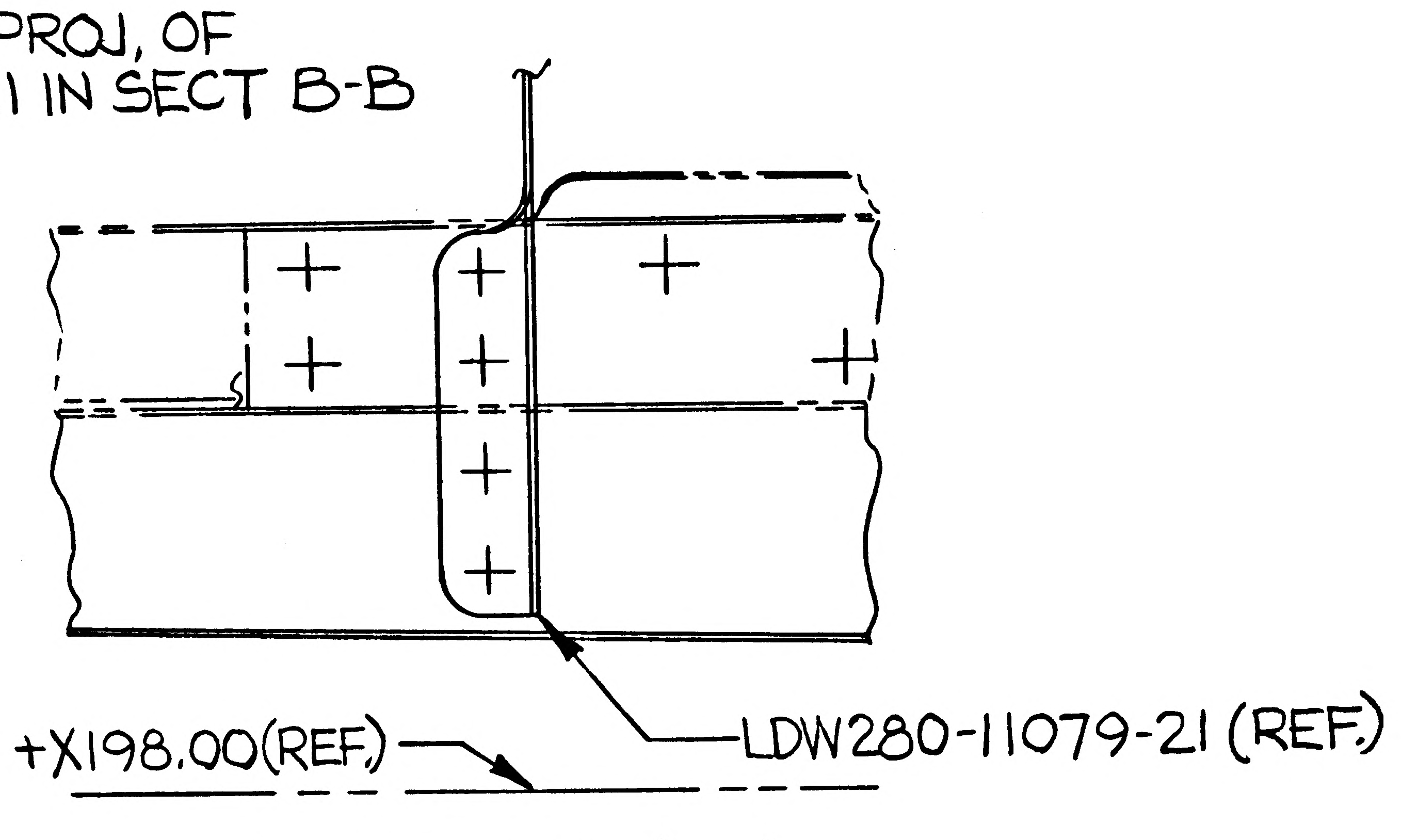
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28869 EO NO. B3
CONTROL INFO NO. LM-3-4354

IN FLD, ZONE 2-B (FOR -1)
& B/M


NAS698A06L
NAS1097AD3(2)
FLUSH IN LDW280-11077-17
WAS
NAS697A06L
NAS1097AD3(2)
FLUSH IN LDW280-11077-17
NAS698A06L
NAS1097AD3(2)
FLUSH IN LDW280-11077-19
WAS
NAS697A06L
NAS1097AD3(2)
FLUSH IN LDW280-11077-19
NAS697A06L(REF.)

IN FLD, REVISE PROJ, OF
LDW280-11079-21 IN SECT B-B


+X198.00(REF.)
LDW280-11079-21 (REF.)

SECT. B-B (REF.)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		3

REASON FOR EO: NAS697A P/N INTERFERE WITH STRUCT.

DESCRIPTION OF EO: IN FLD & B/M (-1) NAS698A06L (2 PLCS) WAS NAS697A06L. REVISED PICT. OF LDW280-11079-21 IN SECT. B-B.

GAEC C EO RELEASE: ✓ AR

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	LM-1 (31)
		LM-2 (32)	
		QUAL TEST (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
REVISE DWG	RECORD EO	REWORK	SCRAP		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~QC~~
✓		✓		APPROVED BY	[illegible]		—	BM	[illegible]	[illegible]	[illegible]
				DATE	12/15/66		—	12-12-66	12-12-66	12-13-66	12/12/66
				I	W/I						

PRIORITY: C3
DRAWING TITLE: SUPPT. INSTL. A/S, MIDSECT. OXIDIZER FILL-DRAIN SHIELD
DRAWING NO.: LDW280-28869
EO NO.: B3

ISSUED BY LIAISON/ALEC HARVEY (X2151) 12-10-66 SECTION V. D. I. GROUP NO. 335 PL 35

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28869		EO NO. B4
CONTROL INFO NO. LM-5- 12055		

IN F/D & B/M -1 INSTL

REMOVE LDW280-11506-14 (1)

ADD LDW280-11506-25(1)

LDW280-11506-25 REPLACES LDW280-11506-14

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG			TS (5)

REASON FOR EO	DESCRIPTION OF EO	ⓔ GAEC C EO RELEASE
LDW280-11506-25 REPLACES LDW280-11506-14	IN F/D & B/M -1 INSTL REMOVED LDW280-11506-14 ADDED LDW280-11506-25	LE

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓		DATE	1/11/67			1/10	12-22-66	12-22-66	12/28	12-27-66
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SUPPORT INSTL A/S~ MID SECT~ OXIDIZER FILL-DRAIN SHIELD	LDW280-28869	B4

ISSUED BY LIAISON J. McGill/Col X6452 SECTION YD1 GROUP NO._____ PL 35

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NAS 9-1100

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28869
EO NO. B5
CONTROL INFO NO. LM-5-12061

THIS IS A REVISION OF EOB4

ADD QUAL TEST (70) TO EFFECTIVITY BLOCK OF EO

RELEASED BY LIAISON

5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO
INSTL REQD ON QUAL TEST (70)	(REF EOB4) ADDED QUAL TEST (70) TO EFFECTIVITY BLOCK OF EO

② GAEC EO RELEASE: LE

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		QUAL TEST (70)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		NOT REQD		APPROVED BY	JAP						RMC (EW)	
REVISE DWG	RECORD EO	REWORK	SCRAP	DATE	1/11/67			1/10	12-28-66	12-28-66	1-4-67	12-28-66
				6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SUPPORT INSTL A/S-MID SECT-OXIDIZER FILL DRAIN SHIELD	LDW280-28869	B5

ISSUED BY LIAISON J. McGILL / x6452 SECTION VDI GROUP NO. ______ PL 35

01 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28869		EO NO. B6
CONTROL INFO NO. LM-5-12800		

IN FLD & B/M (ON-1)
LDW280-11506-11 (S/B) LDW280-11506-19;

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	5

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
INCORRECT CALL OUT	IN FLD & B/M (ON-1) LDW280-11506-19 (WAS) LDW280-11506-11;	JK 31 05 025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	QUAL TEST (A)
		LM1 (31)	
		LM2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓		DATE					4-14-67	4-14-67	4-17-67	4/14/67
REVISE DWG	RECORD EO	REWORK	SCRAP	/		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

Initials in approval columns: IF · CH · RMC (E)

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SUPPORT INSTL, ASCENT STAGE MID SECT-OXIDIZER FILL-DRAIN SHLD	LDW280-28869	B6

ISSUED BY LIAISON-MD REYES X6216 SECTION VO1/F. DESPRINIS GROUP NO. 335 PL 25

01

NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-28869	EO NO. B7
CONTROL INFO NO. LM-5-12802	

THIS IS A REVISION OF EO B6

IN FLD & B/M (ON-1)

LDW280-11506-17 S/B LDW280-11506-19

WAS

LDW280-11506-11 S/B LDW280-11506-19

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐

5

REASON FOR EO: INCORRECT CALLOUT

DESCRIPTION OF EO: REF: EO B6
ON-1, IN FLD & B/M, LDW280-11506-19
WAS LDW280-11506-17

GAEC C EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-B (18)	QUAL TEST (?)
		LM-1 (31)	
		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
DATE	1				JF 4-14-67	JF 4-14-67	RMC 4-17-67

4/14/67

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SUPPORT INSTL - A/S - M/S OXIDIZER FILL-DRAIN SHIELD	LDW280-28869	B7

ISSUED BY LIAISON - J. McGILL X-6226 SECTION YDI GROUP NO.____ PL 25

01

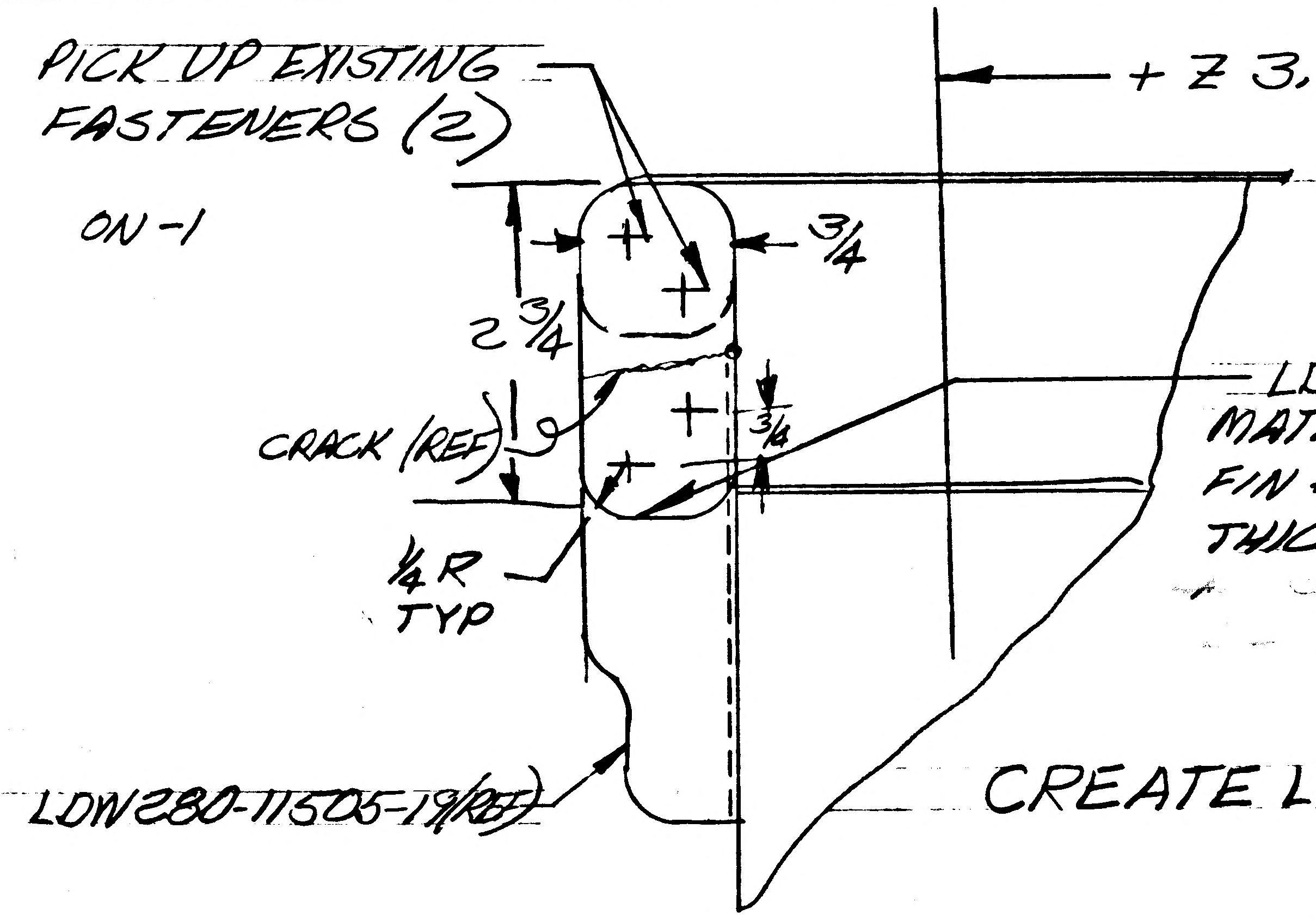
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENG 32.1 REV 3-65

ENGINEERING ORDER

DWG. NO. LDW280-28869 EO NO. B8
CONTROL INFO NO. LM-83-2144



LDW280-28869 B8-911
MATL 2024-T3, QQ-A-250/4
FIN #76 PER LSP14-9010.
THICK. .020.

CREATE LDW280-28869 B8-901 ASSY.

RECORD E.O.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD-10774 83

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO REPAIR TORN THERMAL SHIELD. REF S/C DR #457	ADDED EO TO RECORD BLOCK FOR LM-1	JK 11/3/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO ✓	REWORK ✓	SCRAP

APPROVED BY		JAP				ES PE		MAK
DATE	10/31	11/1/67		10/31	11/1/67		10-31	11/1/67
	SYS	~~SUPPORT~~ VDI	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	~~LIAISON ENGRG~~	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SUPPORT INSTL A/S ~ M/S ~ OXIDIZER ~ FILL & DRAIN	LDW280-28869	B8

ISSUED BY LIAISON ~ J. KOSLOSKI x2818 SECTION V.D.I. GROUP NO. 812 PL 83K

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. NOTED		EO NO.
CONTROL INFO NO. LM 52-0860		

ADD LDW280-28869-1-1 WAS -1
(-1-1 IS IDENT TO -1 EXCEPT AS NOTED) REMOVE LDW280P11082-1 & -3 ASSY'S.

N/A FOR-1-1- LDW280-28162 - LTA8 EFF.

IN MOD BLK

FOR -1 REMOVE LTA-8 REQMTS

CORRECTED E.O. NUMBER
FOR LDW280-28869
B9 WAS B2 CNB 3-21-68

	DWG. NO LDW280-28869	E.O. NO B9
N.H.A. DISCRIPTION ON-1 LDW280-28869-1-1 WAS-1	N/A DWG NO LDW280-28162	EO NO. H3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 20273 (52)

REASON FOR EO: COVER NOT REQ'D ON LTA8

DESCRIPTION OF EO: ADDED LDW280-28869-1-1 WAS -1 FOR LTA8 REQM'TS.

GAEC EO RELEASE: JK 3/2

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		✓	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				RKW			
DATE	3-5-68			3-6-68		3-6-68	3/6/68
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C		NOTED	

ISSUED BY DON RAGAS X4606 SECTION M.S.C PROJ. ENGR GROUP NO. 827 PL 52

01 NAS 9-1100

LDW280-28871 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53453	LM-3 (33)	1EA
LM	LDW280-51453	LM-2 (32)	1EA
LM	LDW280-51453	LM-1 (31)	1EA
LM	LDW280-28453	LTA-8 (18)	1EA

PART NO. LDW 280 - 28871-1 & -2

GAEC SCH NO. 30

3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED H-H

LAST DASH NO. USED -2

GRUMMAN REL INFO A

PRIM NO. 215 LE(001) MP-14 A-12-1-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ± .020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100 LINE ITEM #1 DOCUMENTATION TYPE II

DRAWN BY	A.BISHOP 9-8-66	RELIABILITY	
LAYOUT BY	F.CURASI 9-23-66		
CHECKED BY	ARATOLI 9-14-66		
GR LEADER	J Pusateri 9-23-66		
VEH DES INT	[illegible] 1/1/2?		
STRUCTURES	[illegible]	PROJ ENGR	[illegible] 10-1
STRUCTURES	Hildebrand 9/29	REL GROUP	B. K. 10-13-66
WEIGHTS	Rohrbach 10-7		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTALLATION
ASCENT STAGE-MID SECTION-REACTION
CONTROL SYSTEM CLUSTER ~ AFT

SIZE B CODE IDENT NO. 26512 LDW280-28871 A

SCALE NONE SHEET 1.00 OF 4

CDR 10/1/66

77.1 12-65

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ____

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00							ADDED SH 1.10 SH 1 OF 4 WAS 1 OF 3 ON -1 & -2: REMOVED LDW280-11286-15(2), NAS697A06L(4). REVISED PICTURE OF LDW280-28872-1. ADDED LDW280P 11675-11(2), -15(2), -17(1), -19(1), -20(1), NAS680A06K(4), NAS1218-06-1 (12), AN960 D6(12), NAS697A06LK(12), MS20426B3(24), GT835P-8 & NOTE 3	LTA-8 LM-1,-2,-3	✓		LeCun 11/14/66		11-30-66

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS						
A	—	11/20/66									

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	DWG NO.	REV
B	26512	LDW280-28871	A

SCALE NONE SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY		CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
-2	-1											
AS REQD	AS REQD		GT835P-8	E	TAPE	GRUMMAN STD						
			MS20426B3	E	RIVET	STD PART						
12	12		NAS697A06LK	E	NUT PLATE	STD PART						
4	4		NAS680A06K	↑	NUT PLATE	↑						
37	37		AN960D6		WASHER							
37	37		NAS1218-06-1		SCREW							
12	12		NAS698A06L		NUT PLATE	↓						
9	9		NAS697A06L		NUT PLATE	STD PART						
1			LDW280P11675-20		COVER	SEE DWG						
	1		↑ -19		↑	↑						
1	1		-17									
2	2		↓ -15		↓							
2	2		LDW280P11675-11		COVER							
1			LDW280-28872-2		SHIELD ASSY	↓						5A
	1		LDW280-28872-1		SHIELD ASSY	SEE DWG						5A
			LDW280-28871-2	↓	SHIELD INSTL					NONE	NONE	
			LDW280-28871-1	E	SHIELD INSTL					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

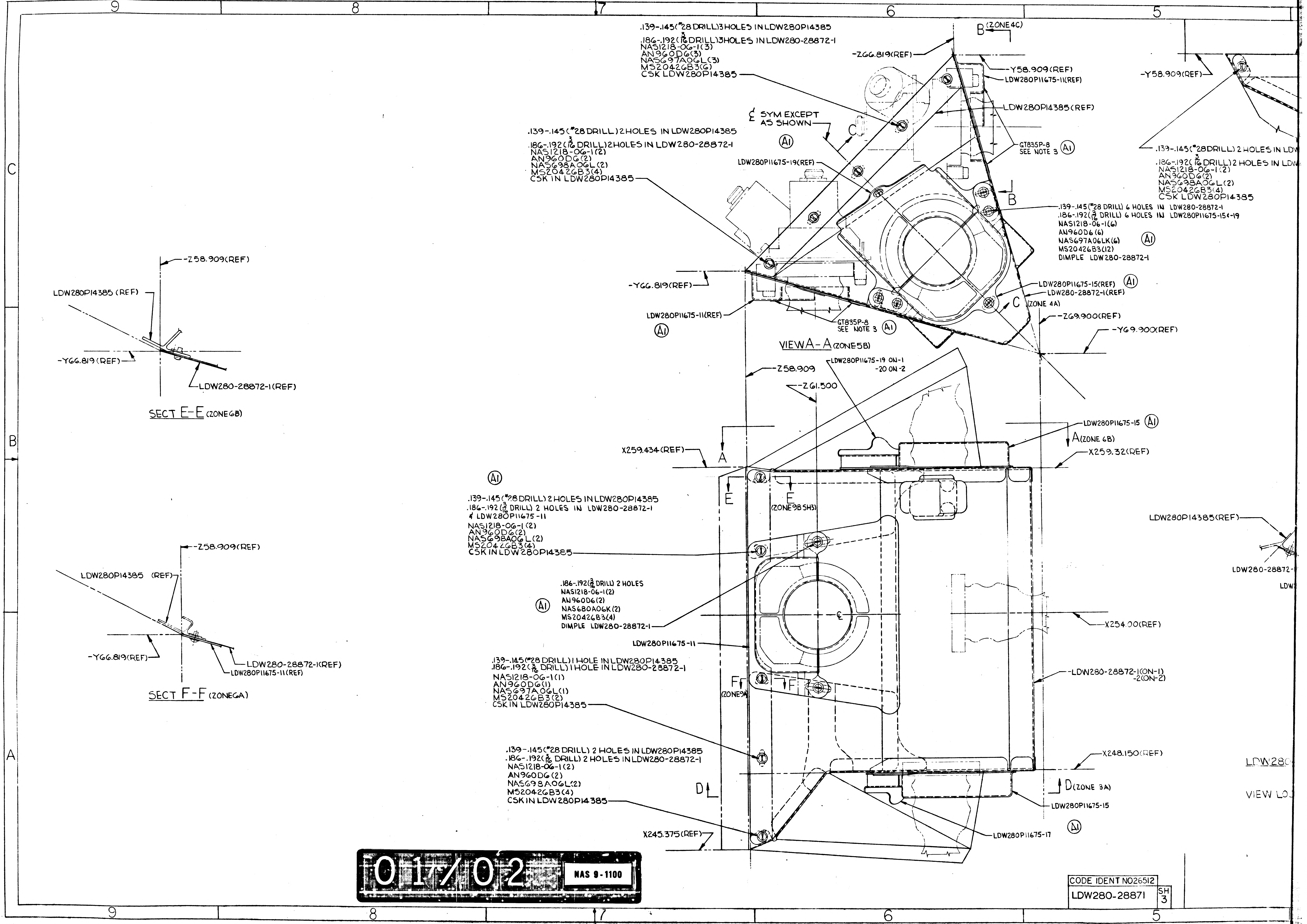
I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28871	A
SCALE NONE		SHEET 2.00	

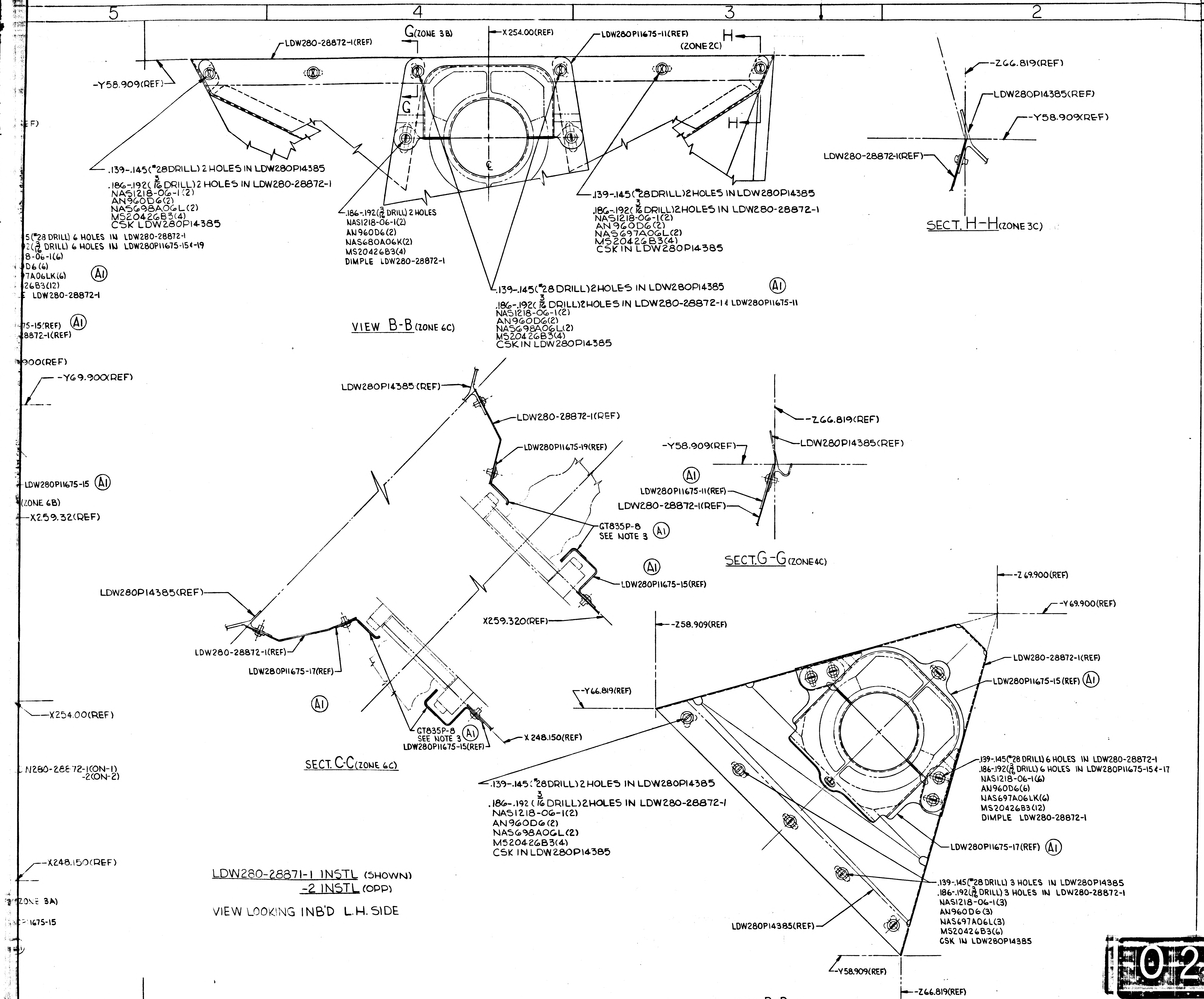
ENG 77.2 7-65

01 NAS 9-1100


9
8
7
6
5
C
B
A
.139-.145(#28 DRILL)3 HOLES IN LDW280P14385
.186-.192(3/16 DRILL)3 HOLES IN LDW280-28872-1
NAS1218-06-1(3)
AN960D6(3)
NAS697A06L(3)
MS20426B3(6)
CSK LDW280P14385
B (ZONE 4C)
-Z66.819(REF)
-Y58.909(REF)
LDW280P11675-11(REF)
LDW280P14385(REF)
℄ SYM EXCEPT AS SHOWN
A1
GT835P-8
SEE NOTE 3
.139-.145(#28 DRILL) 2 HOLES IN LDW280P14385
.186-.192(3/16 DRILL) 2 HOLES IN LDW280-28872-1
NAS1218-06-1(2)
AN960D6(2)
NAS698A06L(2)
MS20426B3(4)
CSK IN LDW280P14385
LDW280P11675-19(REF)
B
.139-.145(#28 DRILL) 6 HOLES IN LDW280-28872-1
.186-.192(3/16 DRILL) 6 HOLES IN LDW280P11675-15&-19
NAS1218-06-1(6)
AN960D6(6)
NAS697A06LK(6)
MS20426B3(12)
DIMPLE LDW280-28872-1
-Y66.819(REF)
LDW280P11675-15(REF)
LDW280-28872-1(REF)
C (ZONE 4A)
LDW280P11675-11(REF)
GT835P-8
SEE NOTE 3
-Z69.900(REF)
-Y69.900(REF)
VIEW A-A (ZONE 5B)
-Y58.909(REF)
.139-.145(#28 DRILL) 2 HOLES IN LDW
.186-.192(3/16 DRILL) 2 HOLES IN LDW
AN960D6(2)
NAS698A06L(2)
MS20426B3(4)
CSK LDW280P14385
-Z58.909(REF)
LDW280P14385 (REF)
-Y66.819 (REF)
LDW280-28872-1(REF)
SECT E-E (ZONE 6B)
-Z58.909
LDW280P11675-19 ON-1
-20 ON-2
-Z61.500
LDW280P11675-15
A (ZONE 6B)
X259.434(REF)
A
X259.32(REF)
E
E
(ZONE 9B SH3)
.139-.145(#28 DRILL) 2 HOLES IN LDW280P14385
.186-.192(3/16 DRILL) 2 HOLES IN LDW280-28872-1
& LDW280P11675-11
NAS1218-06-1(2)
AN960D6(2)
NAS698A06L(2)
MS20426B3(4)
CSK IN LDW280P14385
LDW280P14385(REF)
LDW280-28872-
LDW
.186-.192(3/16 DRILL) 2 HOLES
NAS1218-06-1(2)
AN960D6(2)
NAS680A06K(2)
MS20426B3(4)
DIMPLE LDW280-28872-1
℄
X254.00(REF)
-Z58.909(REF)
LDW280P14385 (REF)
-Y66.819(REF)
LDW280-28872-1(REF)
LDW280P11675-11(REF)
SECT F-F (ZONE 6A)
LDW280P11675-11
.139-.145(#28 DRILL) 1 HOLE IN LDW280P14385
.186-.192(3/16 DRILL) 1 HOLE IN LDW280-28872-1
NAS1218-06-1(1)
AN960D6(1)
NAS697A06L(1)
MS20426B3(2)
CSK IN LDW280P14385
F
(ZONE 9A)
F
-LDW280-28872-1(ON-1)
-2(ON-2)
.139-.145(#28 DRILL) 2 HOLES IN LDW280P14385
.186-.192(3/16 DRILL) 2 HOLES IN LDW280-28872-1
NAS1218-06-1(2)
AN960D6(2)
NAS698A06L(2)
MS20426B3(4)
CSK IN LDW280P14385
X248.150(REF)
D
D (ZONE 3A)
LDW280P11675-15
LDW280P11675-17
X245.375(REF)
LDW280
VIEW LO

01/02 NAS 9-1100

CODE IDENT NO 26512
LDW280-28871 SH 3


5
4
3
2
1
-LDW280-28872-1(REF)
G(ZONE 3B)
X 254.00(REF)
LDW280P11675-11(REF)
H
(ZONE 2C)
-Y58.909(REF)
EF)
G
G
H
H
.139-.145(#28DRILL) 2 HOLES IN LDW280P14385
.186-.192(3/16 DRILL) 2 HOLES IN LDW280-28872-1
NAS1218-06-1(2)
AN960D6(2)
NAS698A06L(2)
MS20426B3(4)
CSK LDW280P14385
.186-.192(3/16 DRILL) 2 HOLES
NAS1218-06-1(2)
AN960D6(2)
NAS680A06K(2)
MS20426B3(4)
DIMPLE LDW280-28872-1
.139-.145(#28DRILL)2HOLES IN LDW280P14385
.186-.192(3/16 DRILL)2HOLES IN LDW280-28872-1
NAS1218-06-1(2)
AN960D6(2)
NAS697A06L(2)
MS20426B3(4)
CSK IN LDW280P14385
5(#28 DRILL) 6 HOLES IN LDW280-28872-1
2(3/16 DRILL) 6 HOLES IN LDW280P11675-15&-19
8-06-1(6)
D6(6)
7A06LK(6)
26B3(12)
E LDW280-28872-1
A1
.139-.145(#28 DRILL)2HOLES IN LDW280P14385
A1
.186-.192(3/16 DRILL)2HOLES IN LDW280-28872-1& LDW280P11675-11
NAS1218-06-1(2)
AN960D6(2)
NAS698A06L(2)
MS20426B3(4)
CSK IN LDW280P14385
75-15(REF)
A1
8872-1(REF)
VIEW B-B (ZONE 6C)
-Z66.819(REF)
LDW280P14385(REF)
-Y58.909(REF)
LDW280-28872-1(REF)
SECT. H-H (ZONE 3C)
900(REF)
-Y69.900(REF)
LDW280P14385(REF)
LDW280-28872-1(REF)
LDW280P11675-19(REF)
LDW280P11675-15
A1
(ZONE 6B)
-X259.32(REF)
GT835P-8
SEE NOTE 3
A1
A1
LDW280P11675-15(REF)
LDW280P14385(REF)
X259.320(REF)
LDW280-28872-1(REF)
LDW280P11675-17(REF)
A1
GT835P-8
SEE NOTE 3
A1
LDW280P11675-15(REF)
X 248.150(REF)
-X254.00(REF)
SECT. C-C (ZONE 6C)
N280-28872-1(ON-1)
-2(ON-2)
-Z66.819(REF)
LDW280P14385(REF)
-Y58.909(REF)
A1
LDW280P11675-11(REF)
LDW280-28872-1(REF)
SECT. G-G (ZONE 4C)
-Z 69.900(REF)
-Y69.900(REF)
-Z58.909(REF)
LDW280-28872-1(REF)
LDW280P11675-15(REF)
A1
-Y66.819(REF)
.139-.145(#28 DRILL) 6 HOLES IN LDW280-28872-1
.186-.192(3/16 DRILL) 6 HOLES IN LDW280P11675-15&-17
NAS1218-06-1(6)
AN960D6(6)
NAS697A06LK(6)
MS20426B3(12)
DIMPLE LDW280-28872-1
.139-.145(#28DRILL)2HOLES IN LDW280P14385
.186-.192(3/16 DRILL)2HOLES IN LDW280-28872-1
NAS1218-06-1(2)
AN960D6(2)
NAS698A06L(2)
MS20426B3(4)
CSK IN LDW280P14385
LDW280P11675-17(REF)
A1
.139-.145(#28 DRILL) 3 HOLES IN LDW280P14385
.186-.192(3/16 DRILL) 3 HOLES IN LDW280-28872-1
NAS1218-06-1(3)
AN960D6(3)
NAS697A06L(3)
MS20426B3(6)
CSK IN LDW280P14385
-X248.150(REF)
LDW280P14385(REF)
(ZONE 3A)
P11675-15
-Y58.909(REF)
-Z66.819(REF)
VIEW D-D (ZONE 5A)

LDW280-28871-1 INSTL (SHOWN)
-2 INSTL (OPP)

VIEW LOOKING INB'D L.H. SIDE

NOTES:

1. NO TOOLING HOLES PERMITTED IN PARTS.

2. INSTALL FASTENERS PER LSP14-15302

3. TAPE ALL AROUND COVER FLANGES USING GT835P-8 TAPE BEFORE INSTL.

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125√ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200√ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE [redacted] IS 1½ FASTENER DIA FROM FASTENER ℄	✓
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 88

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 90)- 22.5SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)- 5.6SQ. FT.

PRINT TRIM LINE

C

B

A

LDW280-28871 A

LDW280-28871 A

02/02

NAS 9-1100

CODE IDENT NO26512
LDW280-28871 SH 3

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28871	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

2FR

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LE0280
EO NO. 797
CONTROL INFO NO. LDW280A9764

ON THE FOLLOWING DRAWINGS REVISE EFFECTIVITIES FOR ALL DASH NO'S. *

DWG. NO.	REMOVE **	EFFECTIVITY (WAS) ***	CHG NO.
✓ LDW280-10947	LM-2 THRU LM-15	LTA-8(18), LM-1(31) THRU LM-15(45), PR-1	C6
✓ -11286	↕	LTA-8(18) LM-1(31) THRU LM-15(45), PR-1 & TEST-75	A10
✓ -11294	↕	↕	B6
✓ -11491	↕	↕	A5
✓ -11492	↕	↕	A4
✓ -P11675	LM-2 THRU LM-15	LTA-8(18) LM-1(31) THRU LM-15(45), PR-1 & TEST-75	A4
✓ -28495	LM-2	LTA-8(18), LM-1(31) & LM-2(32)	B5
✓ -28496	LM-2	LTA-8(18), LM-1(31) & LM-2(32)	C8
✓ -28871	LM-2 & LM-3	LTA-8(18), LM-1(31), LM-2(32) & LM-3(33)	B1
-28872	LM-2 & LM-3	LTA-8(18), LM-1(31), LM-2(32) & LM-3(33)	B4
-52180	LM-2 THRU LM-15	LM-1(31) THRU LM-15(45)	C1
LDW280-52897	LM-2 THRU LM-15	LM-1(31) THRU LM-15(45)	C5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2229

REASON FOR EO: REDESIGN OF REACTION CONTROL SYSTEM THRUSTER CLUSTER THERMAL SHIELD & BLANKET

DESCRIPTION OF EO:
FOR *
REMOVED: EFFECTIVITY **
EFFECTIVITY (WAS) ***

GAEC EO RELEASE: JK 11/15/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	NOTED ABOVE		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

		V.D.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY					F.D.R.				
DATE	R	11/11/67			11-10-67	11/14/67		11/14/67	11-14-67

PRIORITY: C
DRAWING TITLE: "SEE DWG."
DRAWING NO.: LEO 280
EO NO.: 797

ISSUED BY: 11-20 F. CURASI X7033 & GM GREEN X1392 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28872 A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28871	LM-3(33)	1EA
↕	↕	LM-2(32)	1EA
		LM-1(31)	1EA
LM	LDW280-28871	LTA-8(18)	1EA
PART NO. LDW280-28872-1 & -2		GAEC SCH NO. 30	

3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH				
SHEET	1.00	1.10	2.00	3.00
REV	A	A	A	A
SHEET				
REV				
SHEET				
REV				

LAST SECT LTR USED D-D

LAST DASH NO. USED -2

GRUMMAN REL INFO

PRIM NO. 215 VE(001) MP-14 12-1-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY	T.MACAULAY 9-8-66	RELIABILITY	
LAYOUT BY	F.CURASI 9-23-66		
CHECKED BY	ARATOLI 9-14-66		
GR LEADER	J Pusateri 9-22-66		
VEHDESINT			
STRUCTURES		PROJ ENGR	RM Carbee 10-1
STRUCTURES	HILDEBRAN 9/29	REL GROUP	Botti 10-13-66
WEIGHTS	10-7		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD ASSEMBLY
ASCENT STAGE-MID SECTION-REACTION CONTROL SYSTEM CLUSTER-AFT

SIZE B | CODE IDENT NO. 26512 | LDW280-28872 | A

SCALE NONE | SHEET 1.00 OF 4

ENG 77.1 12-65

CDR 10-1-66

01 NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
											REWORK	SCRAP			
A	1	1.00, 1.10 2.00, 3.00							ADDED SH 1.10 SH 1 OF 4 WAS 1 OF 3. ON -1 & -2: REMOVED LDW280-11491-1(2), NAS1218-06-1(20), AN960 D6(20), NAS697A06LK(20) & MS20426B3(40). LDW280-10947-21 WAS -11, LDW280-10947-23 WAS -13. REVISED PICTURE OF LDW280-11491-13 & -15. ADDED LDW280P11675-13(2)	LTA-8 LM-1,-2,-3	✓		LeCun 11/10/66		11 30
	2	2.00, 1.10							IN B/M FOR -1 & -2 ADDED LDW280-11294-1 (2) CB		NOT	REQD	MULLEN		

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS					
	A	—	11/28	11/8							

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28872	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY		CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
-2	-1											
			MS20470B3	E	RIVET	STD PART						
			MS20426B3		RIVET							
24	24		AN960D6		WASHER							
24	24		NAS1218-06-1		SCREW							
24	24		NAS697A06LK		NUT PLATE	STD PART						
1			LDW280-11492-16		COVER	SEE DWG						6D
	1		-15									6D
1			-14									9B
	1		-13									9B
1			-12									9A
	1		LDW280-11492-11		COVER							9A
1			LDW280-11491-16		CHANNEL							8C
	1		-15									8C
1			-14									7A
	1		LDW280-11491-13		CHANNEL							7A
2	2		LDW280P11675-13		COVER							5C/9B
2	2		LDW280-11294-1		COVER ASSY							5C/7B
2	2		LDW280-11294-11		ANGLE							8C/8D
1			LDW280-11286-18		COVER							5D
	1		LDW280-11286-17		COVER							5D
1	1		LDW280-10947-23		SKIN							7A
2	2		LDW280-10947-21		FRAME	SEE DWG						7A/7B
			LDW280-28872-2		SHIELD ASSY					NONE	NONE	8A
			LDW280-28872-1	E	SHIELD ASSY					NONE	NONE	8A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

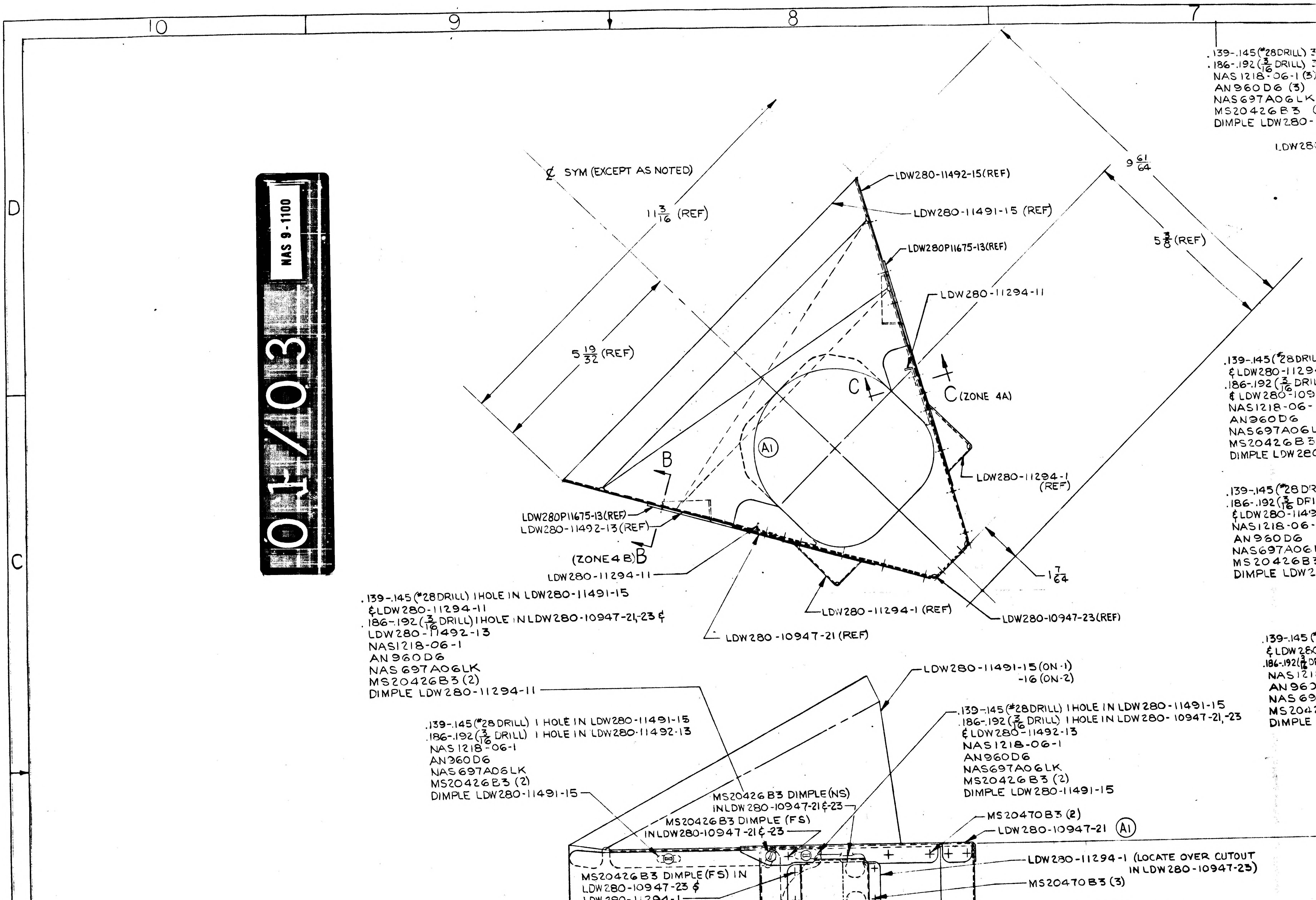
SIZE	CODE IDENT NO.		
B	26512	LDW280-28872	A
SCALE NONE		SHEET 2.00	

ENG 77.2 7-65

01

NAS 9-1100

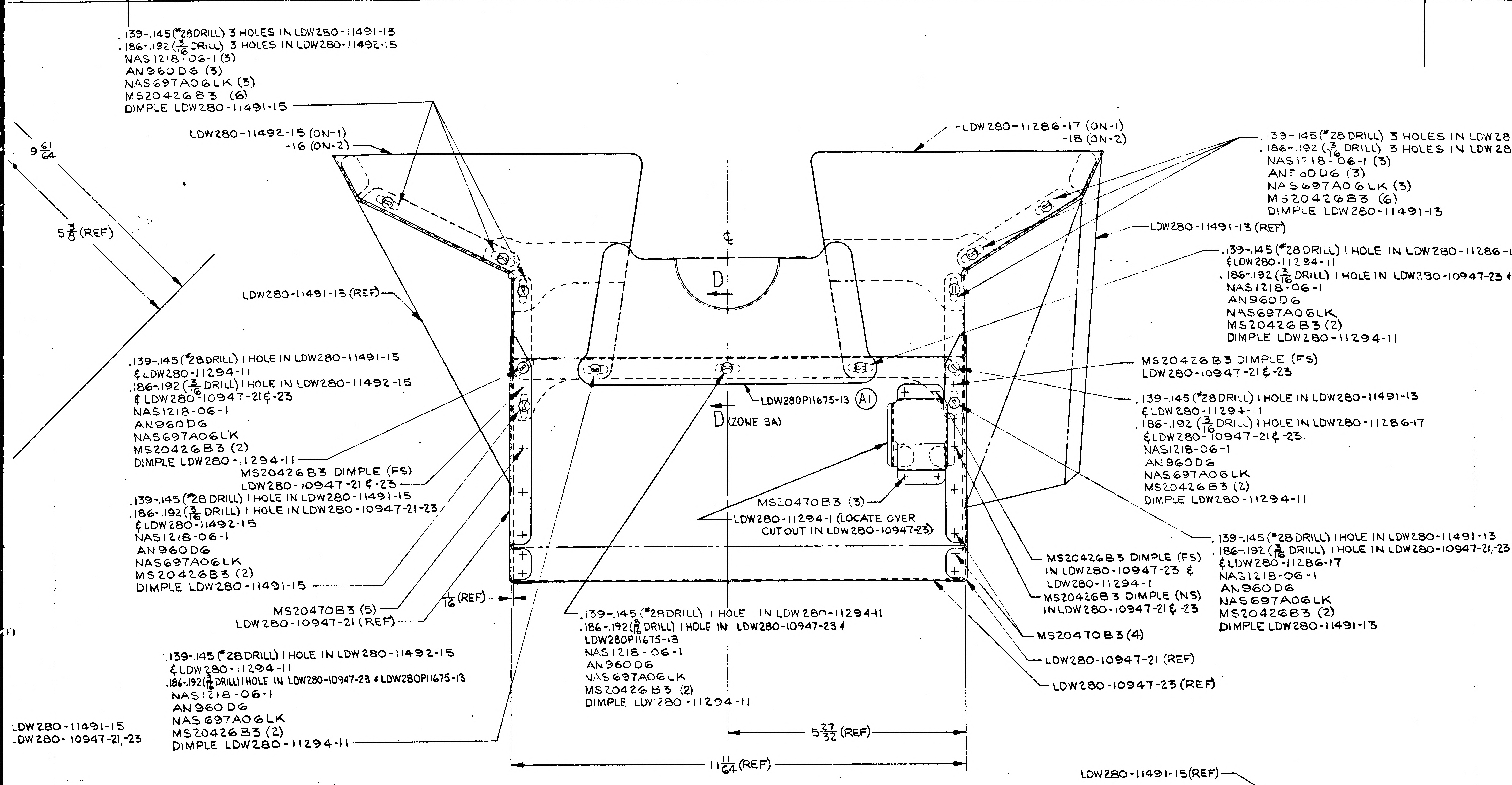
01/03 NAS 9-1100

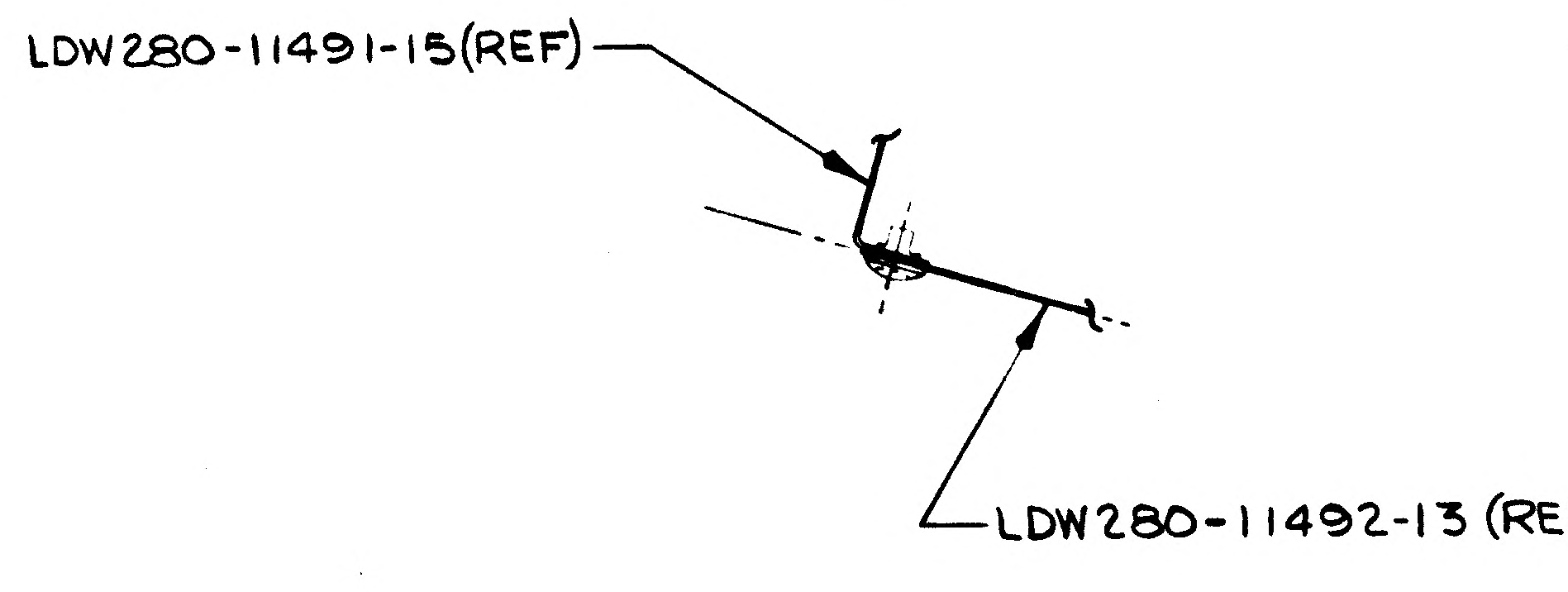


10
9
8
7
D
C
B
A
℄ SYM (EXCEPT AS NOTED)
11 3/16 (REF)
5 19/32 (REF)
9 61/64
5 3/8 (REF)
LDW280-11492-15(REF)
LDW280-11491-15 (REF)
LDW280P11675-13(REF)
LDW280-11294-11
C
C (ZONE 4A)
A1
LDW280-11294-1 (REF)
B
LDW280P11675-13(REF)
LDW280-11492-13(REF)
(ZONE 4 B) B
LDW280-11294-11
1 7/64
LDW280-11294-1 (REF)
LDW280-10947-23(REF)
LDW280-10947-21 (REF)
.139-.145(#28DRILL) 1 HOLE IN LDW280-11491-15
℄ LDW280-11294-11
.186-.192(3/16 DRILL) 1 HOLE IN LDW280-10947-21,-23 ℄
LDW280-11492-13
NAS1218-06-1
AN960D6
NAS697A06LK
MS20426B3 (2)
DIMPLE LDW280-11294-11
LDW280-11491-15(ON-1)
-16(ON-2)
.139-.145(#28DRILL) 1 HOLE IN LDW280-11491-15
.186-.192(3/16 DRILL) 1 HOLE IN LDW280-11492-13
NAS1218-06-1
AN960D6
NAS697A06LK
MS20426B3 (2)
DIMPLE LDW280-11491-15
.139-.145(#28DRILL) 1 HOLE IN LDW280-11491-15
.186-.192(3/16 DRILL) 1 HOLE IN LDW280-10947-21,-23
℄ LDW280-11492-13
NAS1218-06-1
AN960D6
NAS697A06LK
MS20426B3 (2)
DIMPLE LDW280-11491-15
MS20426B3 DIMPLE(NS)
IN LDW280-10947-21 ℄-23
MS20426B3 DIMPLE (FS)
IN LDW280-10947-21 ℄-23
MS20470B3 (2)
LDW280-10947-21 A1
MS20426B3 DIMPLE(FS) IN
LDW280-10947-23 ℄
LDW280-11294-1
(ZONE 6A)
A
LDW280-11294-1 (LOCATE OVER CUTOUT
IN LDW280-10947-23)
MS20470B3 (3)
.139-.145(#28DRILL) 1 HOLE IN
LDW280-11492-13 ℄ LDW280-11294-11
.186-.192(3/16 DRILL) 1 HOLE IN LDW280-10947-23 ℄ LDW280P11675-13
NAS1218-06-1
AN960D6
NAS697A06LK
MS20426B3 (2)
DIMPLE LDW280-11294-11
LDW280-11492-13(ON-1)
-14(ON-2)
.139-.145(#28DRILL) 1 HOLE IN
LDW280-11294-11
.186-.192(3/16 DRILL) 1 HOLE IN
LDW280-10947-23 ℄ LDW280P11675-13
NAS1218-06-1
AN960D6
MS20426B3 (2)
NAS697A06LK
DIMPLE LDW280-11294-11
℄
A1
LDW280P11675-13 A1
(ASSY)
.139-.145(#28DRILL) 1 HOLE IN
LDW280-11492-11 ℄ LDW280-11294-11
.186-.192(3/16 DRILL) 1 HOLE IN LDW280-10947-23 ℄ LDW280P11675-13
NAS1218-06-1
AN960D6
NAS697A06LK
MS20426B3 (2)
DIMPLE LDW280-11294-11
5 27/32
A
MS20426B3
DIMPLE FAR SIDE IN
LDW280-10947-21 ℄-23
1/16 (TYP)
LDW280-11492-11 (ON-1)
-12 (ON-2)
.139-.145(#28DRILL) 3 HOLES IN LDW280-11491-13
.186-.192(3/16 DRILL) 3 HOLES IN LDW280-11492-11
NAS1218-06-1 (3)
AN960D6 (3)
NAS697A06LK(3)
MS20426B3 (6)
DIMPLE LDW280-11491-13
MS20470B3 (3)
LDW280-10947-23
LDW280-10947-21 A1
LDW280-11491-13 (ON-1)
-14 (ON-2)
.139-.145(#28DRILL) 1 HOLE IN LDW280-11491-13 ℄ LDW280-11294-11
.186-.192(3/16 DRILL) 1 HOLE IN LDW280-10947-21,-23 ℄ LDW280-11492-11
NAS1218-06-1
AN960D6
NAS697A06LK
MS20426B3 (2)
DIMPLE LDW280-11294-11
.139-.145(#28DRILL) 1 HOLE IN LDW280-11491-13
.186-.192(3/16 DRILL) 1 HOLE IN LDW280-10947-21,-23 ℄
LDW280-11492-11
NAS1218-06-1
AN960D6
NAS697A06LK
MS20426B3 (2)
DIMPLE LDW280-11491-13

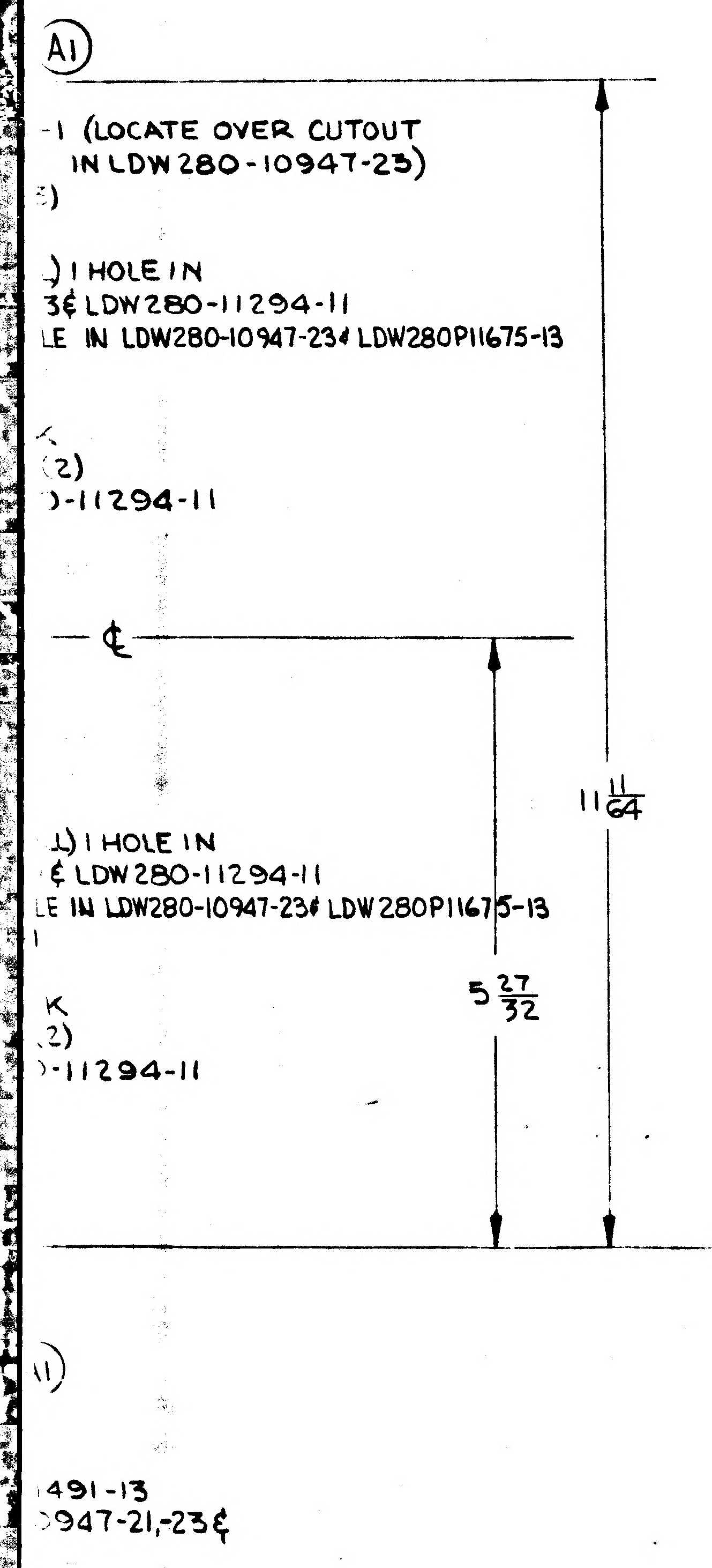
LDW280-28872-1 ASSY (SHOWN)
-2 ASSY (OPP)

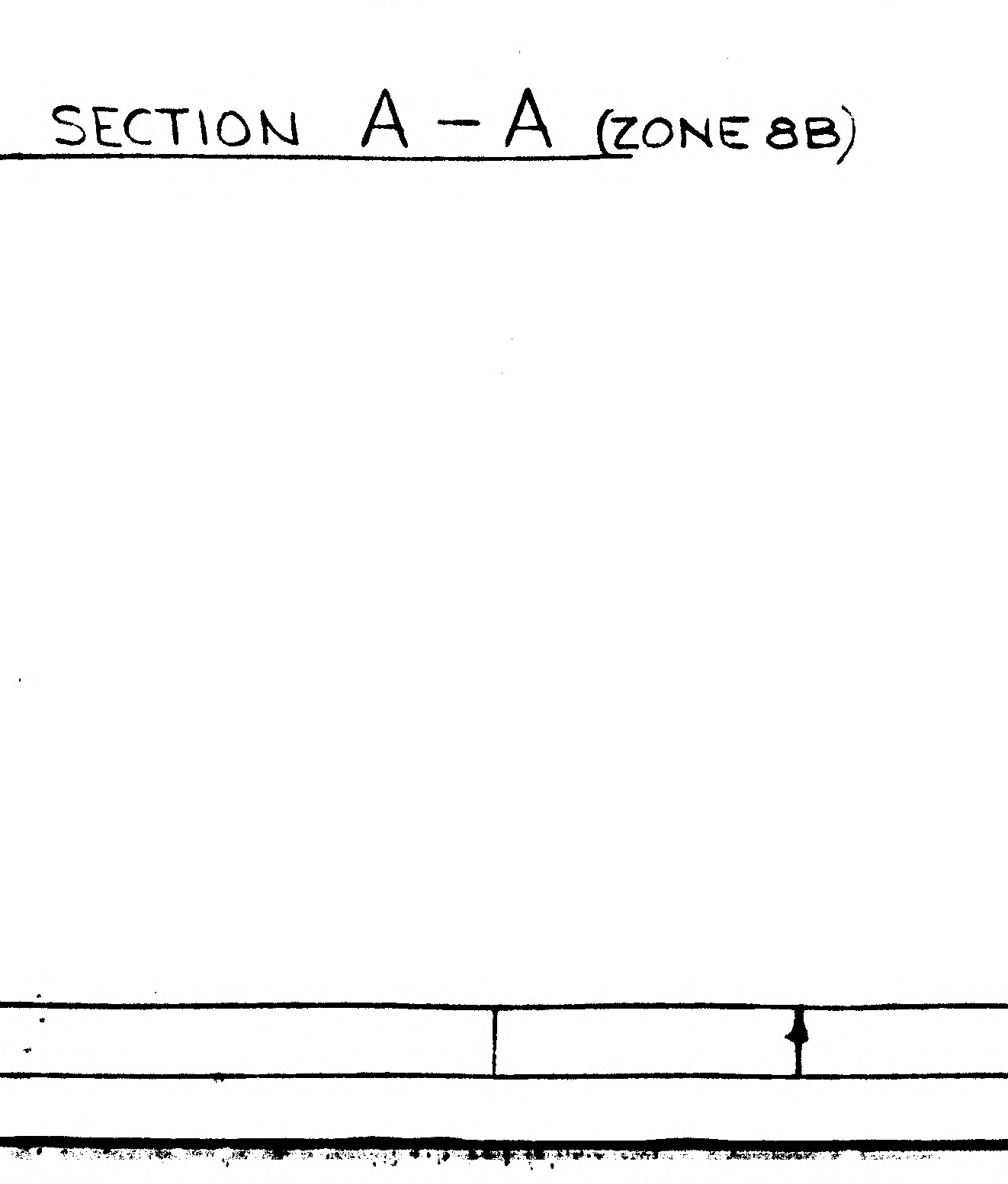
CODE IDENT NO 26512	
LDW280-28872	SH 3


.139-.145(#28DRILL) 3 HOLES IN LDW280-11491-15
.186-.192 (3/16 DRILL) 3 HOLES IN LDW280-11492-15
NAS 1218-06-1 (3)
AN960D6 (3)
NAS697A06LK (3)
MS20426B3 (6)
DIMPLE LDW280-11491-15
LDW280-11492-15 (ON-1)
-16 (ON-2)
9 61/64
5 3/8 (REF)
LDW280-11491-15 (REF)
.139-.145(#28DRILL) 1 HOLE IN LDW280-11491-15
& LDW280-11294-11
.186-.192 (3/16 DRILL) 1 HOLE IN LDW280-11492-15
& LDW280-10947-21 & -23
NAS1218-06-1
AN960D6
NAS697A06LK
MS20426B3 (2)
DIMPLE LDW280-11294-11
MS20426B3 DIMPLE (FS)
LDW280-10947-21 & -23
.139-.145(#28 DRILL) 1 HOLE IN LDW280-11491-15
.186-.192 (3/16 DRILL) 1 HOLE IN LDW280-10947-21-23
& LDW280-11492-15
NAS1218-06-1
AN960D6
NAS697A06LK
MS20426B3 (2)
DIMPLE LDW280-11491-15
MS20470B3 (5)
LDW280-10947-21 (REF)
1/16 (REF)
.139-.145 (#28 DRILL) 1 HOLE IN LDW280-11492-15
& LDW280-11294-11
.186-.192(3/16 DRILL) 1 HOLE IN LDW280-10947-23 & LDW280P11675-13
NAS1218-06-1
AN960D6
NAS697A06LK
MS20426B3 (2)
DIMPLE LDW280-11294-11
LDW280-11491-15
LDW280-10947-21,-23
℄
D
LDW280P11675-13 (A1)
D (ZONE 3A)
MS20470B3 (3)
LDW280-11294-1 (LOCATE OVER CUTOUT IN LDW280-10947-23)
.139-.145 (#28DRILL) 1 HOLE IN LDW280-11294-11
.186-.192(3/16 DRILL) 1 HOLE IN LDW280-10947-23 &
LDW280P11675-13
NAS1218-06-1
AN960D6
NAS697A06LK
MS20426B3 (2)
DIMPLE LDW280-11294-11
5 27/32 (REF)
11 11/64 (REF)
LDW280-11286-17 (ON-1)
-18 (ON-2)
.139-.145(#28 DRILL) 3 HOLES IN LDW28
.186-.192 (3/16 DRILL) 3 HOLES IN LDW28
NAS1218-06-1 (3)
AN960D6 (3)
NAS697A06LK (3)
MS20426B3 (6)
DIMPLE LDW280-11491-13
LDW280-11491-13 (REF)
.139-.145 (#28 DRILL) 1 HOLE IN LDW280-11286-1
& LDW280-11294-11
.186-.192 (3/16 DRILL) 1 HOLE IN LDW280-10947-23 &
NAS1218-06-1
AN960D6
NAS697A06LK
MS20426B3 (2)
DIMPLE LDW280-11294-11
MS20426B3 DIMPLE (FS)
LDW280-10947-21 & -23
.139-.145 (#28DRILL) 1 HOLE IN LDW280-11491-13
& LDW280-11294-11
.186-.192 (3/16 DRILL) 1 HOLE IN LDW280-11286-17
& LDW280-10947-21 & -23.
NAS1218-06-1
AN960D6
NAS697A06LK
MS20426B3 (2)
DIMPLE LDW280-11294-11
.139-.145 (#28 DRILL) 1 HOLE IN LDW280-11491-13
.186-.192 (3/16 DRILL) 1 HOLE IN LDW280-10947-21,-23
& LDW280-11286-17
NAS1218-06-1
AN960D6
NAS697A06LK
MS20426B3 (2)
DIMPLE LDW280-11491-13
MS20426B3 DIMPLE (FS)
IN LDW280-10947-23 &
LDW280-11294-1
MS20426B3 DIMPLE (NS)
IN LDW280-10947-21 & -23
MS20470B3 (4)
LDW280-10947-21 (REF)
LDW280-10947-23 (REF)


LDW280-11491-15(REF)
LDW280-11492-13 (REF)

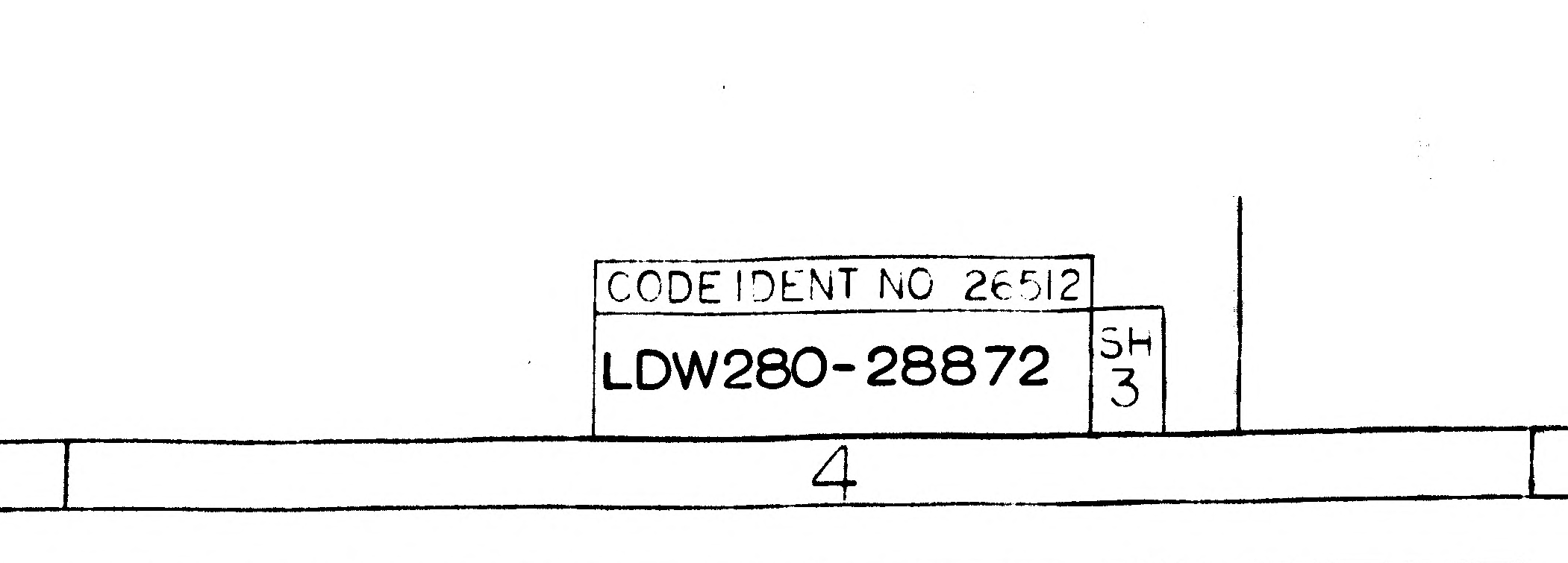
SECTION B-B (ZONE 8C)


(A1)
-1 (LOCATE OVER CUTOUT
IN LDW280-10947-23)
)
) 1 HOLE IN
3& LDW280-11294-11
LE IN LDW280-10947-23 & LDW280P11675-13
(2)
-11294-11
℄
11 11/64
) 1 HOLE IN
& LDW280-11294-11
LE IN LDW280-10947-23 & LDW280P11675-13
K
(2)
-11294-11
5 27/32


LDW280-11492-13(REF)
LDW280P11675-13(REF)
LDW280-11492-11(REF)

SECTION A-A (ZONE 8B)

02/03 NAS 9-1100


LDW280-10947-21 (REF)
1/16 (REF)
LDW280-11491-15(REF)
LDW280-11492-15 (REF)
LDW280-11294-11 (REF)
LDW280-1

SECTION C-C (ZONE 8C)

(1)

491-13
0947-21,-23&

NT NO 26512
0-28872 SH 3

CODE IDENT NO 26512
LDW280-28872 SH 3

.(#28 DRILL) 3 HOLES IN LDW280-11491-13
. ($\frac{3}{16}$ DRILL) 3 HOLES IN LDW280-11286-17
8-06-1 (3)
D6 (3)
07A06LK (3)
-26B3 (6)
LDW280-11491-13

RILL) 1 HOLE IN LDW280-11286-17
-11
L) 1 HOLE IN LDW280-10947-23 & LDW280P11675-13
-1

LK
5 (2)
30-11294-11

.DW280-11491-13

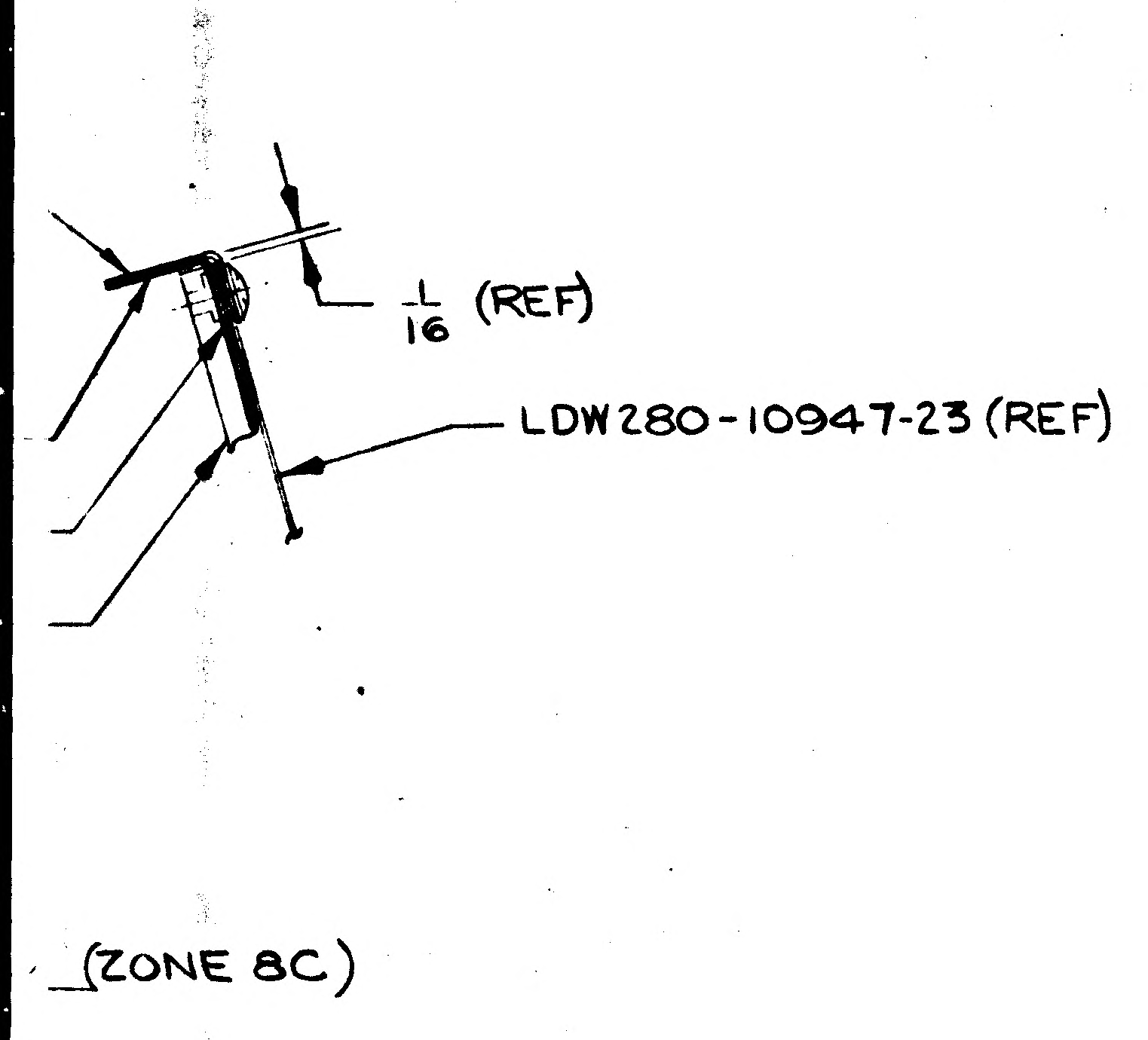
.DW280-11286-17

L) 1 HOLE IN LDW280-11491-13
.) 1 HOLE IN LDW280-10947-21,-23
6-17

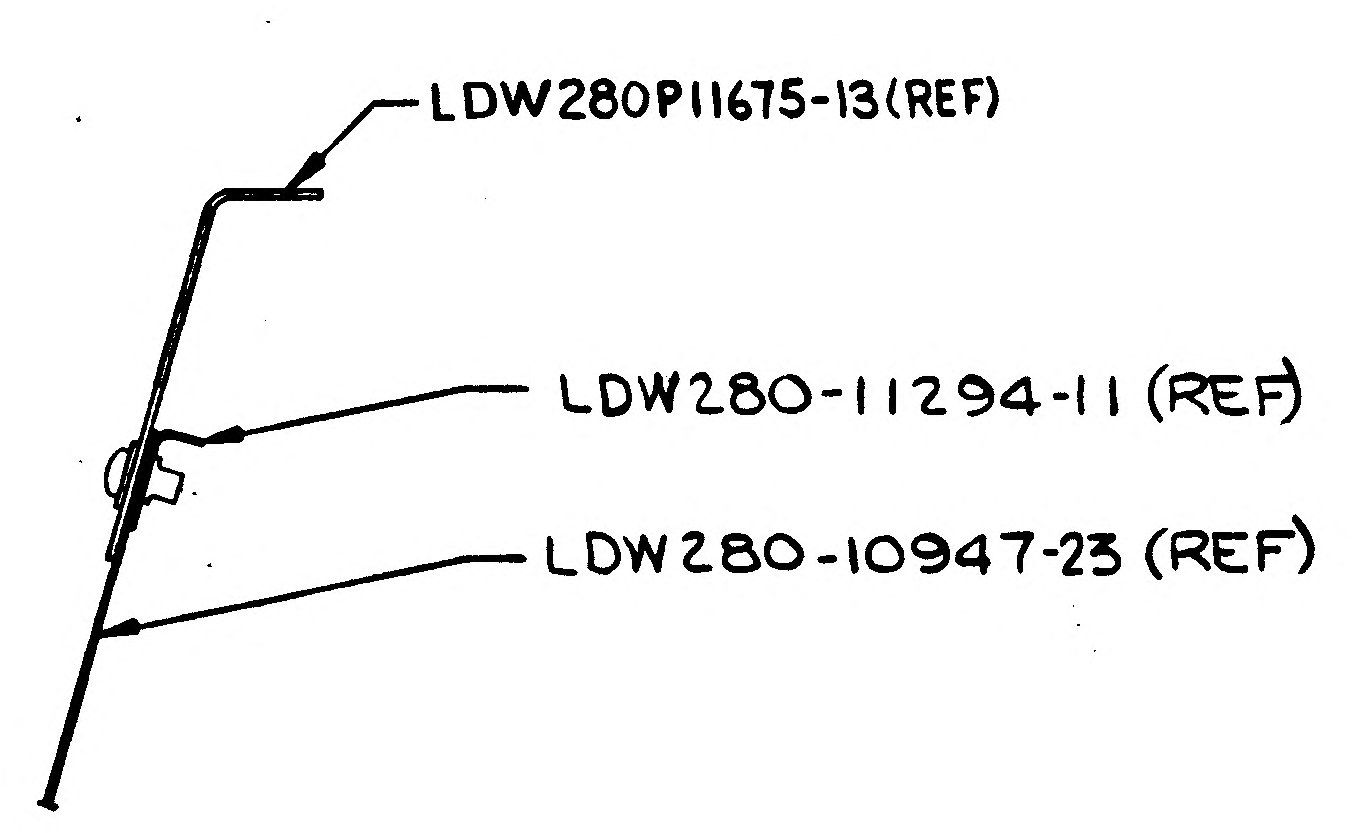
-K
(2)
-11491-13

-LDW280-11492-13 (REF)

NE 8C)



(ZONE 8C)



SECTION D-D (ZONE 5C)

NOTES:
1. INSTALL FASTENERS PER LSP-14-15302
2. NO TOOLING HOLES PERMITTED IN PARTS.

03/03

NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE ~~AVERAGE~~ EDGE DISTANCE ~~MARKED~~ IS 1 1/2 FASTENER DIA FROM FASTENER ℄	✓
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 40 X 96

PRINTING INFO ONLY
FULL SIZE SHEET AREA (42 X 98)= 28.6 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= 7.12 SQ. FT.

PRINT TRIM LINE

LDW280-28872 A

LDW280-28872 A

T NO 26512
-28872 SH 3

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	K	26512	LDW280-28872	A
	SCALE FULL		SHEET 3.00	

3FR

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28872
EO NO. B1
CONTROL INFO NO. LDW280A 4241

ON -1 & -2 INSTALL.
IN F/D & B/M LDW280-10947-21 S/B -27

3
TS

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: LIASION E.O. LM-3-4412 CREATES -21 & -22

DESCRIPTION OF EO: ON -1 & -2 IN F/D & B/M LDW280-10947-27 WAS -21 Ⓟ

GAEC EO RELEASE: FL [illegible]

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
LM	LM-1(31)	LM-2(32)	LM-3(33)

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
REVISE DWG	RECORD EO	REWORK	SCRAP
✓		✓	

APPROVED BY	JaP	V.J.J.		RVP ES				
DATE	12/9/66	12/9		12-9-66	12/9		12/9/66	12/10/66
#1	V.D.I	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~SUPV~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD ASSY - A/S - M/S - RCS CLUSTER - AFT	LDW280-28872	B1

ISSUED BY F. CURASI X1443 SECTION VEH DES INT. GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

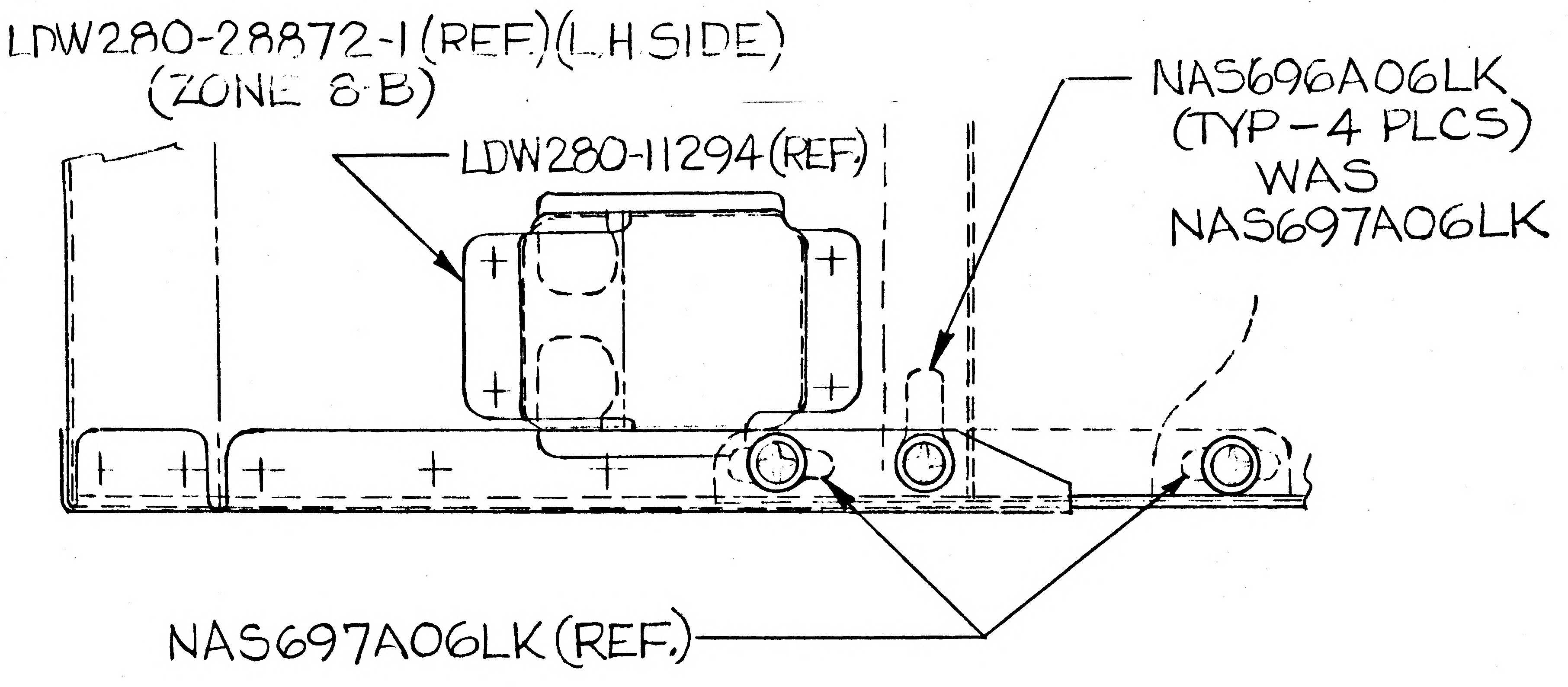
DWG NO. LDW280-28872	EO NO. 32
CONTROL INFO NO. LM-3-4651	

IN FLD ¢ B/M

1 OF LDW280-10947-23 (ON -1)
1 -24 (ON -2)
2 -27 (ON -1)
2 OF LDW280-10947-28 (ON -2)
2 OF LDW280-11294-1 (ON -1)
2 OF LDW280-11294-2 (ON -2)

WAS

1 OF LDW280-10947-23 (ON -1)
1 -23 (ON -2)
1 -27 (ON -1)
1 OF LDW280-10947-27 (ON -2)
2 OF LDW280-11294-1 (ON-1)
2 OF LDW280-11294-1 (ON -2)



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NAS 9-1100

3)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG											
REASON FOR EO: ENGRG. ERROR ADDED INFORMATION				DESCRIPTION OF EO: IN FLD ¢ B/M (-2) LDW280-10947-24,-28 ¢ LDW280-11294-2 WAS LDW280-10947 -23,-27 ¢ LDW280-11294-1 RESP; (FOR -1 ¢ -2), NAS696A06LK (TYP-4 PLCS) WAS NAS697A06LK.										GAEC C EO RELEASE	03025
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY				—	EM		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.					DATE				—	1-16-67	1-17-67	1/17/67
LM		LTA-8(18), LM-2(32),	LM-1(31), LM-3(33)	✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP	1		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
				PRIORITY C3	SHIELD ASSY A/S MIDSECT RCS CLUSTER AFT		DRAWING TITLE					DRAWING NO. LDW280-28872			EO NO. 32

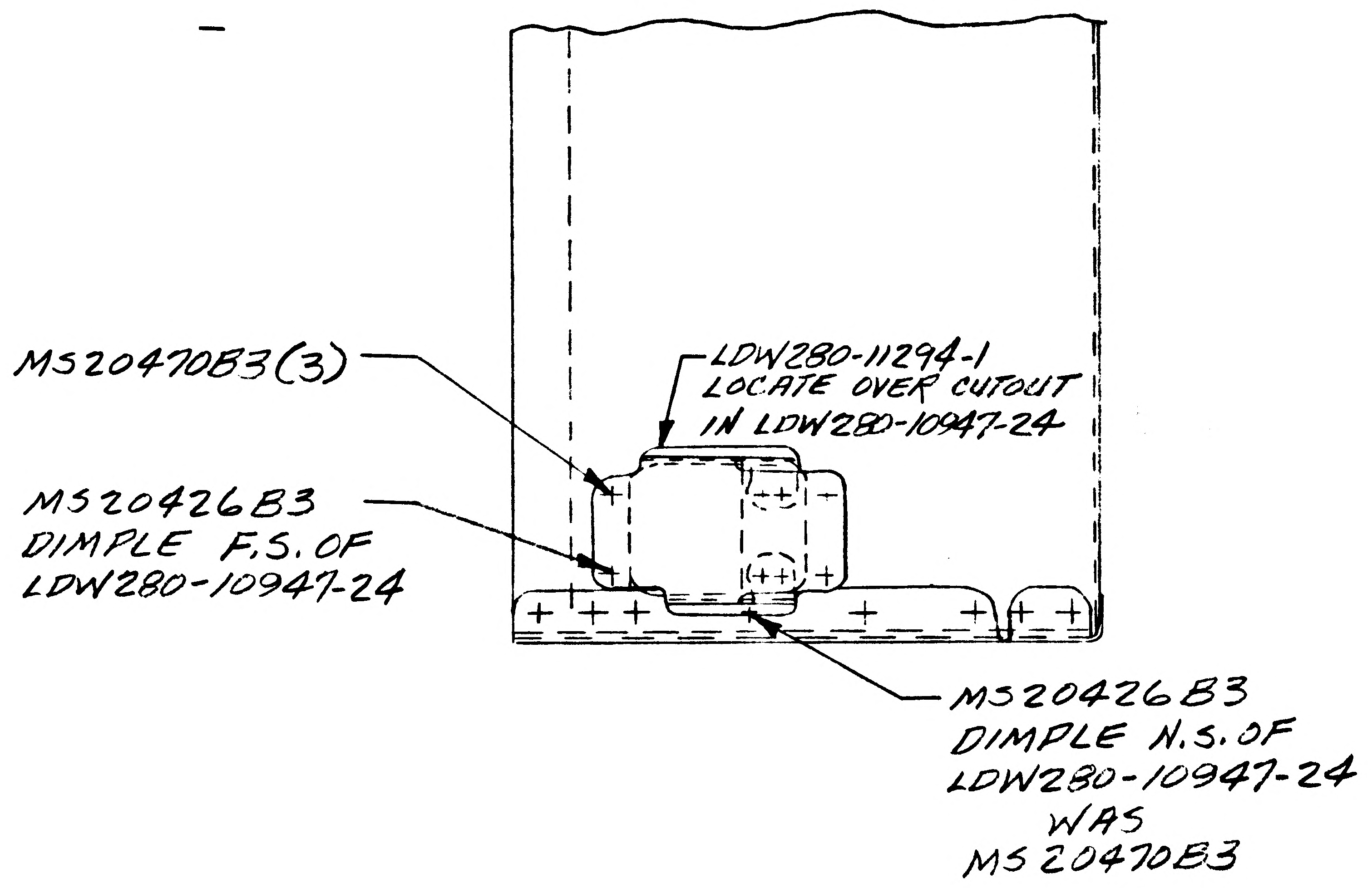
ISSUED BY LIAISON/ALEC HARVEY (X2151) 1-16-67 SECTION V.D.I. GROUP NO. 325 PL

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

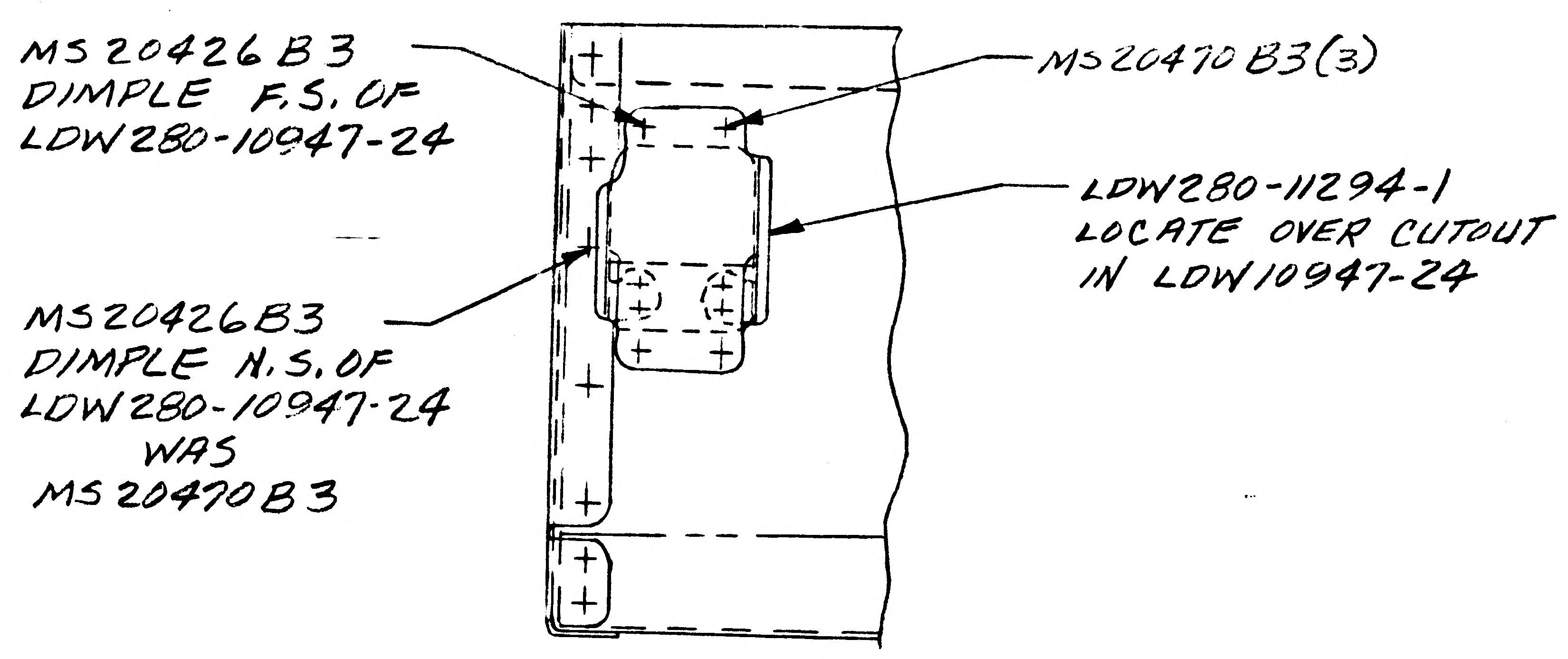
NG 32.2 REV 3-65

DWG. NO. LDW280-28872	EO NO. B3
CONTROL INFO NO. LM-5-12322	

ON-2 INSTL, IN F/D & B/M ADD LDW280-11294-1(2), MS20470B3(6), MS20426B3(2) WAS MS20470B3(2).


MS20470B3(3)
LDW280-11294-1
LOCATE OVER CUTOUT
IN LDW280-10947-24
MS20426B3
DIMPLE F.S. OF
LDW280-10947-24
MS20426B3
DIMPLE N.S. OF
LDW280-10947-24
WAS
MS20470B3

MAIN VIEW (ZONE 8A)


MS20426B3
DIMPLE F.S. OF
LDW280-10947-24
MS20470B3(3)
LDW280-11294-1
LOCATE OVER CUTOUT
IN LDW10947-24
MS20426B3
DIMPLE N.S. OF
LDW280-10947-24
WAS
MS20470B3

RIGHT END VIEW
(ZONE 6C)

RELEASED BY LIAISON

PARTIAL RECORD EO- NOT TO BE INCORPORATED ON LTA-8.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
TRANSDUCER COVERS REQ'D IN THESE AREAS.	ADDED EO TO RECORD BLOCK FOR LTA-8 ON-2 INSTL, ADDED LDW280-11294-1(2), MS20470B3 (6); MS20426B3(2) WAS MS20470B3(2).	

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM		LTA-8(18)	LM-3(33)
		LM-1(31)	
		LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP			SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
				APPROVED BY				—				
				DATE	2/13/62			—	2-4-67	2-4-67	2-9-67	2/9/67
✓	✓	✓		1								

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C.	SHIELD ASSY-A/S-M/S-RCS CLUSTER AFT	LDW280-28872	B3

ISSUED BY LIAISON - J. McGILL X-6226 SECTION YDI GROUP NO.____ PL 35

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LE0280
EO NO. 797
CONTROL INFO NO. LDW280A9764

ON THE FOLLOWING DRAWINGS REVISE EFFECTIVITIES FOR ALL DASH NO'S. ✳

	DWG. NO.	REMOVE ✳✳	EFFECTIVITY (WAS) ✳✳✳	CHG NO.
✓	LDW280-10947	LM-2 THRU LM-15	LTA-8(18), LM-1(31) THRU LM-15(45), PR-1	C6
✓	-11286	↕	LTA-8(18), LM-1(31) THRU LM-15(45), PR-1 & TEST-75	A10
✓	-11294	↕	↕	B6
✓	-11491	↕	↕	A5
✓	-11492	↕	↕	A4
✓	-P11675	LM-2 THRU LM-15	LTA-8(18) LM-1(31) THRU LM-15(45), PR-1 & TEST-75	A4
✓	-28495	LM-2	LTA-8(18), LM-1(31) & LM-2(32)	B5
✓	-28496	LM-2	LTA-8(18), LM-1(31) & LM-2(32)	C8
✓	-28871	LM-2 & LM-3	LTA-8(18), LM-1(31), LM-2(32) & LM-3(33)	B1
✓	-28872	LM-2 & LM-3	LTA-8(18), LM-1(31), LM-2(32) & LM-3(33)	B4
	-52180	LM-2 THRU LM-15	LM-1(31) THRU LM-15(45)	C1
	LDW280-52897	LM-2 THRU LM-15	LM-1(31) THRU LM-15(45)	C5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 2229

REASON FOR EO: REDESIGN OF REACTION CONTROL SYSTEM THRUSTER CLUSTER THERMAL SHIELD & BLANKET

DESCRIPTION OF EO: FOR ✳
REMOVED: EFFECTIVITY ✳✳
EFFECTIVITY (WAS) ✳✳✳

GAEC EO RELEASE: JK 11/21/67

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	NOTED ABOVE		

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

	APPROVED BY	DATE
R		
V.D.I.		11/1/67
SUPPORT		
RELIAB. GROUP		
GROUP LEADER	F.D.R.	11-10-67
STRESS GROUP		11/14/67
LIAISON ENGRG		
PROJ ENGRG		
		11/14/67

PRIORITY: C
DRAWING TITLE: "SEE DWG."
DRAWING NO.: LEO 280
EO NO.: 797

11-20
ISSUED BY: F. CURASI X7033 & G.M. GREEN X1392 SECTION: VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28873

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51852	LEM-2(32)	1 EA
LEM	LDW280-51852	LEM-1(31)	1 EA
LEM	LDW280-28852	LTA-8(18)	1 EA

PART NO. LDW280-28873-1 & -2

GAEC SCH NO. 30 —

3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00	3.00					
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	B	GRUMMAN REL & INFO	
		PRIM NO.	CE(001)
LAST DASH NO. USED	-4	215	MP 9-6-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/32 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM # 1
DOCUMENTATION TYPE II

DRAWN BY	J Gardella	RELIABILITY	
LAYOUT BY	P Gauthier	THERMAL	B FOR MT 9/19/66
CHECKED BY	SG 8-31-66		
GR LEADER	9-1		
VEH DES INT			
STRUCTURES	GJP 9/3 for	PROJ ENGR	R.M. Carbee (E) 9-3
STRUCTURES	E. HILDERMAN	REL GROUP	Botts 9-23-66
WEIGHTS	A Roland 9-12		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STANDOFF INSTL
ASCENT STAGE ~ MID SECTION + Z30-25
THERMAL SHIELD

SIZE	CODE IDENT NO.	
B	26512	LDW280-28873
SCALE NONE		SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 9-2-66.

01 NAS 9-1100

QTY PER ASSEMBLY							CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
			-4	-3	-2	-1											
								MS20470-B-3	E	RIVET	STD PART						
					4	4		GR500A-4F	E	RIVET, BLIND	GRUMMAN STD						
			1					LDW280P11489-12	E	BRACKET	SEE DWG						
				1				LDW280P11489-11	E	BRACKET	SEE DWG						
			1	1				LDW280-28399-1	E	STANDOFF ASSY	SEE DWG						
					1	1		LDW280-28873-4	E	STANDOFF ASSY					NONE	NONE	
					1	1		LDW280-28873-3	E	STANDOFF ASSY					NONE	NONE	
								LDW280-28873-2	E	STANDOFF INSTL					NONE	NONE	
								LDW280-28873-1	E	STANDOFF INSTL					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28873

SCALE NONE

SHEET 2.00

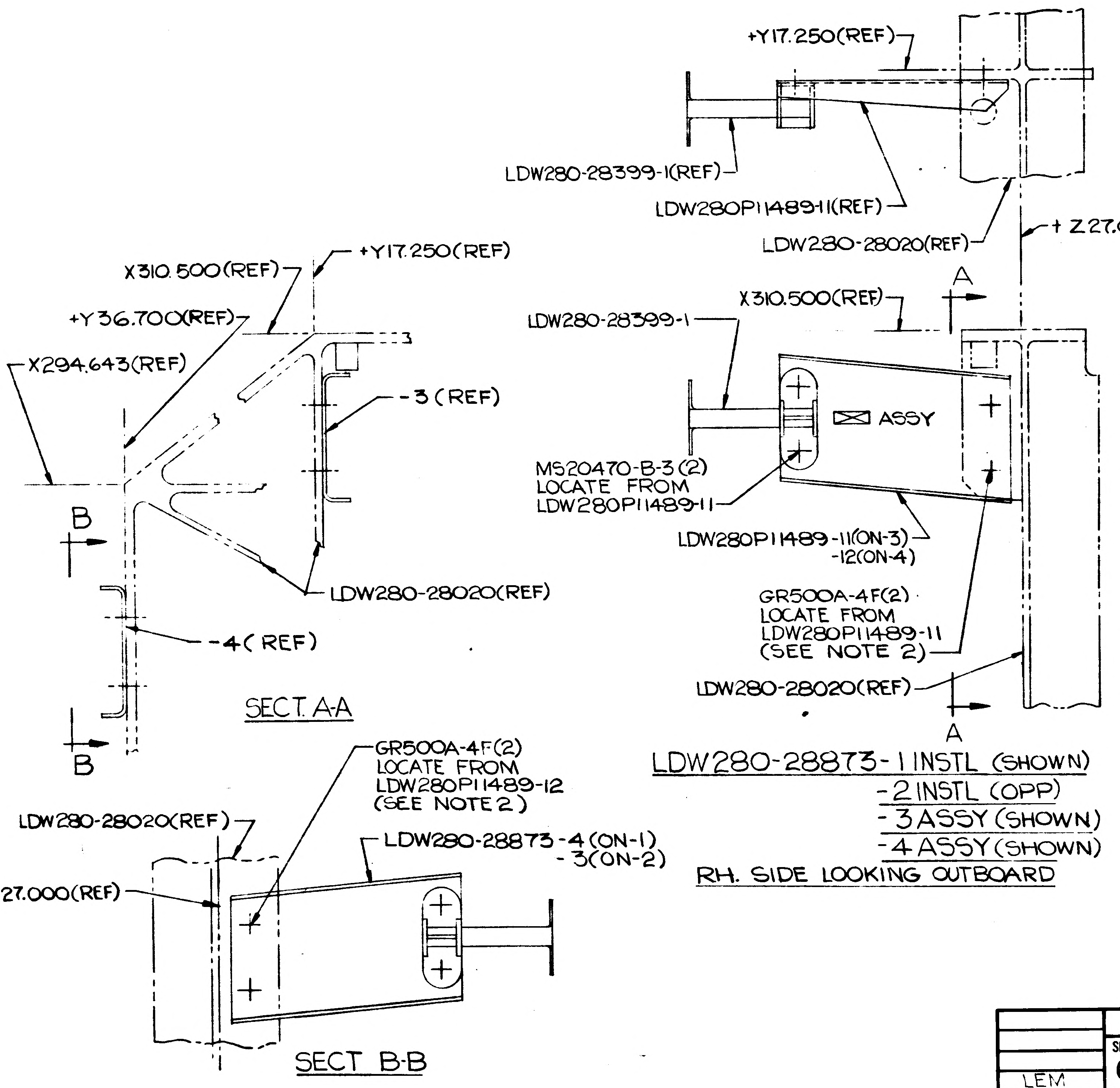
ENG 77.2 7-65

Q1

NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG

RUBBER STAMP PART NUMBER
AND ALL OTHER MARKINGS
IN REGION MARKED ⊠ ✓



+Y17.250(REF)
LDW280-28399-1(REF)
LDW280P11489-11(REF)
LDW280-28020(REF)
+Z27.000(REF)
X310.500(REF)
+Y17.250(REF)
+Y36.700(REF)
X294.643(REF)
-3 (REF)
B
LDW280-28020(REF)
-4 (REF)
B
SECT. A-A
A
X310.500(REF)
LDW280-28399-1
⊠ ASSY
MS20470-B-3(2)
LOCATE FROM
LDW280P11489-11
LDW280P11489-11(ON-3)
-12(ON-4)
GR500A-4F(2)
LOCATE FROM
LDW280P11489-11
(SEE NOTE 2)
LDW280-28020(REF)
A
LDW280-28873-1 INSTL (SHOWN)
-2 INSTL (OPP)
-3 ASSY (SHOWN)
-4 ASSY (SHOWN)
RH. SIDE LOOKING OUTBOARD
GR500A-4F(2)
LOCATE FROM
LDW280P11489-12
(SEE NOTE 2)
LDW280-28020(REF)
LDW280-28873-4 (ON-1)
-3(ON-2)
+Z27.000(REF)
SECT B-B

NOTES:

1. INSTALL FASTENERS PER LSP-14-15302 & LSP-14-15303.
2. COORDINATE ALIGNMENT OF LDW280-28873-1 & 2 WITH LDW280-28020

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LEM	SIZE C	CODE IDENT NO. 26512	LDW280-28873
MODEL OR END ITEM	SCALE FULL		SHEET 3.00

ENG 73-2 6-64

LDW280-28873

01

NAS 9-1100

NG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW 280 28873	EO NO.	A1
CONTROL INFO NO.	LDW 280 A 0248		

REMOVE THE FOLLOWING FOR -1,-2

MODEL	N/A	EFF	QTY
LEM	LDW 280-28852	LTA 8 (18)	1
LEM	LDW 280-51852	LEM 1 (31), LEM 2 (32)	1

ADD THE FOLLOWING FOR -1,-2

MODEL	N/A	EFF	QTY
LEM	LDW 280-28164	LTA-8 (18), LEM 1 (31) & LEM 2 (32)	1

DESCRIPTION OF EO

REMOVED THE FOLLOWING FOR -1,-2

MODEL	N/A	EFF	QTY
LEM	LDW 280-28852	LTA 8 (18)	1
LEM	LDW 280-51852	LEM 1 (31), LEM 2 (32)	1

ADDED THE FOLLOWING FOR -1,-2

MODEL	N/A	EFF	QTY
LEM	LDW 280-28164	LTA 8 (18), LEM 1 (31) & LEM 2 (32)	1

(3)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: THE ABOVE INFORMATION IS CHG'D BECAUSE OF A DESIGN ERROR

DESCRIPTION OF EO: NOTED ABOVE

GAEC EO RELEASE: LE 9-16

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
NOTED		NOTED	
ABOVE		ABOVE	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT RCQ'D	

APPROVED BY								RWC(E)	
DATE	8 SEP 66				9/8/66			9-15	9/13/66
	VD1	SUPPORT	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTL. A/S M/S +Z30.25 THERMAL SHIELD	LDW 280 28873	A1

ISSUED BY Pete Gauthier X7032 SECTION VDI. GROUP NO. 335 PL 35

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28873
EO NO. A2
CONTROL INFO NO. LDW280A-3572

IN M/B FOR-18-2

(ADD) N.A	EFF.	REQ'D /MOD
LDW280-53164	LM-3(33 THRU LM-15(45)	1 EA.

3

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO
TO UPDATE EFFECTIVITY & N/A

DESCRIPTION OF EO
IN M/B FOR-18-2
(ADD) NA. LDW280-5316.4 EFF. LM-3 THRU 15 1 REQ/MOD

GAEC C EO RELEASE
FR P/G/K

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU -15(45	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓		NOT REQ'D	
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY	JaP	VJd.		H.S. 11/19	CR		RMC(E)	Both
DATE	11/19/66	11/22			11/22		11-23-66	12-1-66
#6	VDI	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF INSTL ~ A/S - M/S - Z30.25 ~ THERMAL SHIELD	LDW280-28873	A2

ISSUED BY RALPH DURANTE X1441 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

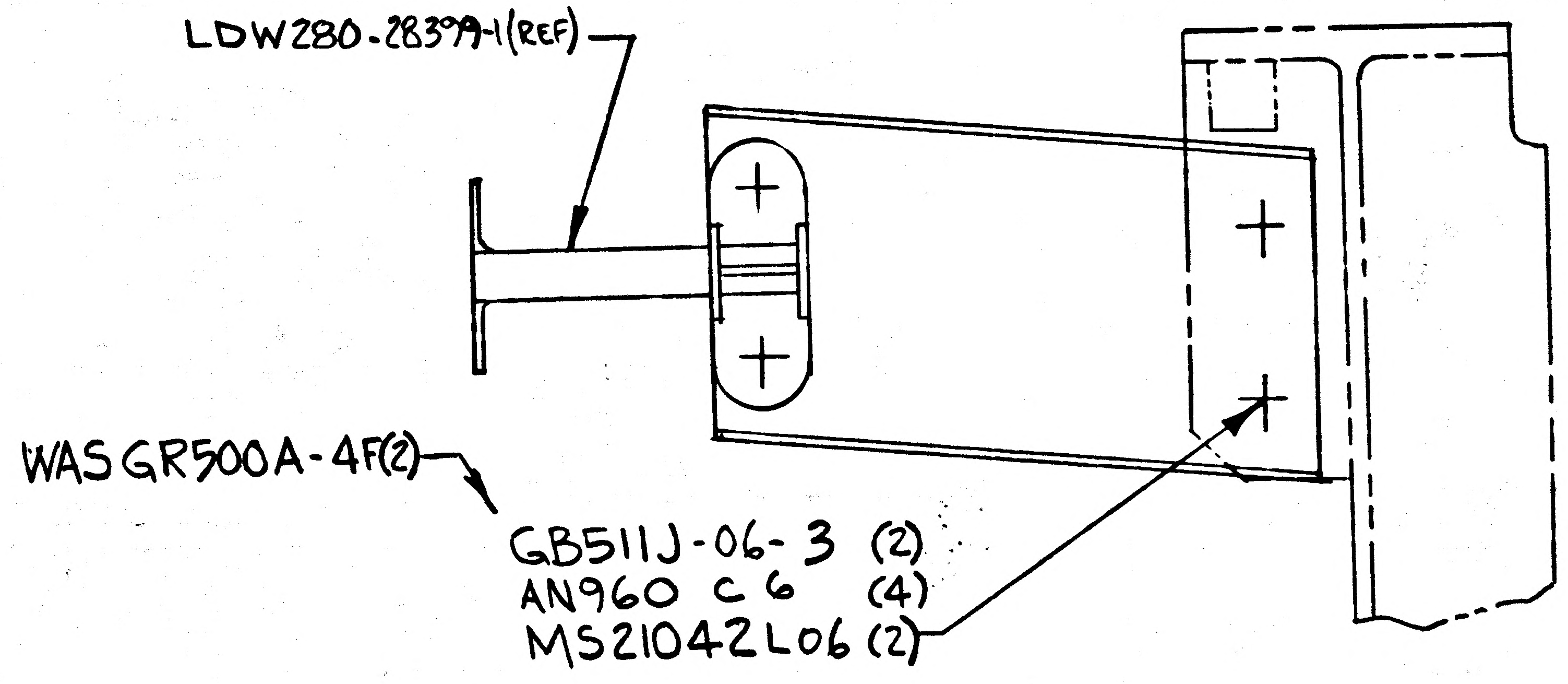
my B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28873
EO NO. A3
CONTROL INFO NO. LM-2-3700

ZONE 2C



DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: COULD NOT INSTALL FASTENERS

DESCRIPTION OF EO: ON-1 & -2
GB511J-06-3(2), AN960C6(4) & MS21042L06(2) WAS GR500A-4F(2)

GAEC EO RELEASE: ① ② C
SK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	JAP			—	PBS	CTF	WKB
DATE	7/21/67			—	6/30/67	6/30/67	7/21/67
	VDI						

PRIORITY: C2
DRAWING TITLE: STANDOFF INSTALLATION A/S-MID SECTION - THERMAL SHIELD
DRAWING NO. LDW280-28873
EO NO. A3

ISSUED BY LIAISON / R.B. MAIESKI (X3604) SECTION VDI GROUP NO. 335 PL 25

0-1 NAS 9-1100

THIS IS AN ORIGINAL EO

ENG 32 1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1515
CONTROL INFO NO. LDW280B8282

FOR THE FOLLOWING DWGS (✱) AND DASH NOS. (✱✱).
REMOVE LM-15(45).

DWG. NO. (✱)	DASH NO. (✱✱)		TITLE	NEXT ASSEMBLY.	CHANGE No.
LDW280-			SEE DWG.	LDW280-	
-11830	-11 -11, -13 & -15			-53155 -53156	B1
-53231	-5-1			-53156	C4
-53878	-7			-53156	B1
	-5			-53155	
M10898	-1			-53156	B4
M10899	-3			-53156	C3
-28873	-1 & -2			-53164	A4
LDW280-28880	-27		SEE DWG.	LDW280-53164	B4

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 3587 . PKG. 19 PG 188 (5)

REASON FOR EO: CONFIGURATION CHANGE TO LM-15

DESCRIPTION: FOR PARTS (✱-✱✱), REMOVE LM-15(45)

GAEC EO RELEASE: 7-25-69; 8/4/9

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO	GAEC UNIT NO	SUB CONTR UNIT NO
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				FDE				Bauman
DATE	7/1/69			7/16/69			7/22/69	8/4/69

PRIORITY	DRAWING TITLE	DRAWING NO	EO NO
C	SEE DRAWING	LEO 280	1515

8-20-69
ISSUED BY F. SHANLEY 7033 x86048 SECTION VEH. DESIGN INT. GROUP NO. 335 PL 25

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	2.00, 3.00						EO A-1	LDW280-28875-11 WAS LDW280-11511-11.	LTA-8	NOT	REQD.	SHANLEY 10-24-66		10-29-66
	2	1.00, 1.10 2.00, 3.00							ADDED SHEET 1.10. SHT 1 OF 4 WAS 1 OF 3. ADDED: VENT TO -11, AND TAPE LOCATIONS IN TRUE LENGTH VIEW. IN F/D & 1/M FOR -1 & -3 ADDED LDW280-10743-17 SPACER, 8 REQD. ADDED NOTES #8 THRU #15. IN 1/M ADDED GT835P-8 TAPE.	LM-1 LM-2	✓				

CHG APPROVED										
LTR	GROUP LDR									

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-28875 | A

SCALE NONE | SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

LDW280-28875 B

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 126	LDW280-28173	SEE NOTE 25	1
LDW280-28875-3-1			
LEM	LDW280-28173	SEE NOTE 25	1
PART NO. LDW280-28875-3		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-51173	LEM-2 (32)	1
LEM	LDW280-51173	LEM-1 (31)	1
PART NO. LDW280-28875-1		GAEC SCH NO. 30-	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	1.11	2.00	3.00				
REV	B	B	B	B	B				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED E

LAST DASH NO. USED -11-1

GRUMMAN REL^C INFO B

PRIM NO. K(001)

215 HP-16B-5/22/18

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
±1/32 ±.020 ±1°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100

LINE ITEM # 1

DOCUMENTATION TYPE II

DRAWN BY	F. SHANLEY	RELIABILITY	
LAYOUT BY	F. SHANLEY	THERMO	[illegible] 10/24
CHECKED BY			
GR. LEADER	J. Pusateri 9-14-66		
VEH. DES. INT	[illegible] 9/16		
STRUCT.	[illegible] 9/17	PROJ ENGR	R.M. Carbee 9-19
STRUCT.	H. Loelman 9/17	REL GROUP	[illegible]
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTL.
ASCENT STAGE CABIN
DRAG STRUT THERMAL

SIZE B | CODE IDENT NO. 26512 | LDW280-28875 B

SCALE NONE | SHEET 1.00 OF 6

ENG 77.1 12-65

REV "B" CDR 6-12-68 CDR 9-24-66

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	2.00, 3.00						EO A-1	LDW280-28875-11 WAS LDW280-11511-11.	LTA-8	NOT	REQD.	SHANLEY 10-24-66		10-29-66
	2	1.00, 1.10 2.00, 3.00							ADDED SHEET 1.10. SHT 1 OF 4 WAS 1 OF 3. ADDED: VENT TO -11, AND TAPE LOCATIONS IN TRUE LENGTH VIEW. IN F/D & I/M FOR -1 & -3 ADDED LDW280-10743-17 SPACER, 8 REQD. ADDED NOTES *8 THRU *15. IN I/M ADDED GT835P-8 TAPE.	LM-1 LM-2	✓				
B	1	2.00 3.00 1.10 1.00						LEO280-425	IN FIELD & B/M -1 WAS -3, -3 WAS -1 (MODEL BLOCK IS CORRECT)	LTA 8(18) LM 1(31) LM 2(32)	NOT	REQD	INGOGLIA 11-27-67		
	2	1.00, 2.00 3.00						EO B2	ON -3 ADDED LDW280-11504-21, MS20470A3(7) & SECT. C-C	LTA 8(18)	✓				
	3	1.00, 2.00 3.00						EO B3	ON -1 ADDED LDW280-11504-23, MS20470A3(8) & GR500-A4(2), ALSO ADD VIEW D-D	LM 1(31) LM 2(32)	✓				
	4	3.00 1.00 2.00						EO B4	REF EO B3 ADDED LDW280-28875-3 WAS -1, ALSO ADDED 17/64 HOLES (4) ON INSTL	LM 1(31) LM 2(32)	✓				
	5	3.00			✓			LEO280-490	ADDED NOTES 16 THRU 21	LTA 8(18) LM 1(31) LM 2(32)	✓				
	6	3.00			✓			LEO280-500	ADDED NOTE * (REF. B 10)	LTA 8(18) LM 1(31) LM 2(32)	✓				
	7	3.00					✓	LEO280-593	ADDED NOTE 22	LTA 8(18)	✓				
	8	1.00, 2.00 3.00					✓	LEO280-595	ON INCORP OF EO B4 -1 WAS -3	LM 1(31) LM 2(32)	NOT	REQD			
	9	3.00					✓	LEO280-717	ADDED NOTE 23	LM 2(32)	NOT	REQD	ES		

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS	RELIABILITY	THERMO				
A											

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28875	B
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	[redacted] APPD
B	10	3.00			✓				REF LEO280-500 (EO B6) NOTE PREVIOUSLY INCORP BY LEO280-490 (EOB5) ADDED SH 1.11	LTA-8, LM-1 LM-2	NOT	REQD	J. INGUGLIA 11-27-67	5/22/68	5-25-68
	11	1.00 2.00 3.00		LFM 126		✓		LCD 1021-33	ADDED -3-1 INSTL -11-1 BLANKET NOTE 24 & 25 & DETAIL "E" B10 & 11	NOTED			W. CONROY 4-4-68		

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCTURE	STRUCTURE	WEIGHTS	RELIABILITY	THERMO
B	5/17	5/17/68	5/21/68	FEB			5-20-68

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28875	B

SCALE NONE SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY -3-1	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1				LDW280-11504-13-1	E	CLIP	SEE DWG						
1				LDW280-11504-11-1	E	CLIP	SEE DWG						
1		1		LDW280-11504-23	E	CLIP	SEE DWG						
1	1			LDW280-11504-21	E	CLIP	SEE DWG						
✓	✓	✓		MS20470A3	E	RIVET	STD PART						
✓	✓	✓		MS20470AD4	E	RIVET	STD PART						
A/R	A/R	A/R		GR500-A4	E	RIVET	GRUMMAN STD						
A/R	A/R	A/R		GR11B-1	E	RETAINER	↕						
A/R	A/R	A/R		GW10H-3	E	WASHER	GRUMMAN STD						
	✓	✓		NAS1515H06L	E	WASHER	STD PART						
A/R	A/R	A/R		GT835P-8	E	TAPE	GRUMMAN ST'D						
1				LDW280-28875-11-1	E	BLANKET	(SEE NOTE	24)					
	1	1		LDW280-28875-11	E	BLANKET							
8	8	8		LDW280-10743-17	↑	SPACER	SEE DWG						
1	1	1		LDW280-11538-15		CLIP	↑						
1				LDW280-11538-13-1		SHIELD							
1				LDW280-11538-11-1		SHIELD							
	1	1		LDW280-11538-13		SHIELD							
	1	1		LDW280-11538-11		SHIELD							
		1		LDW280-11504-17		SHIELD							
		1		LDW280-11504-15		SHIELD							
	1			LDW280-11504-13		SHIELD	↓						
	1			LDW280-11504-11		SHIELD	SEE DWG						
				LDW280-28875-3-1		SHIELD INSTL.							
				LDW280-28875-3	↓	SHIELD INSTL.							
				LDW280-28875-1	E	SHIELD INSTL.							

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B | CODE IDENT NO. 26512 | LDW280-28875 | B

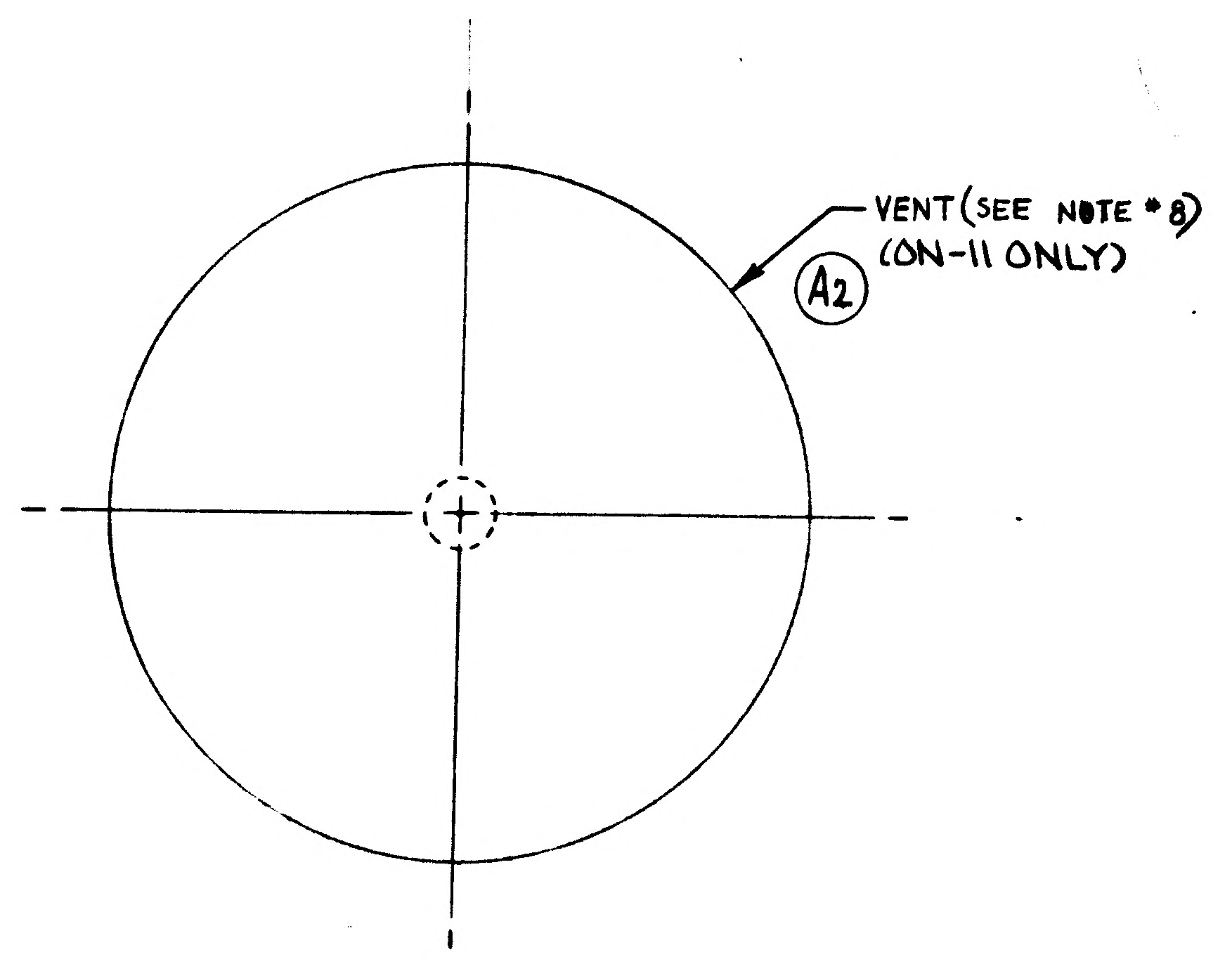
SCALE NONE | SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

01/04 NAS 9-1100

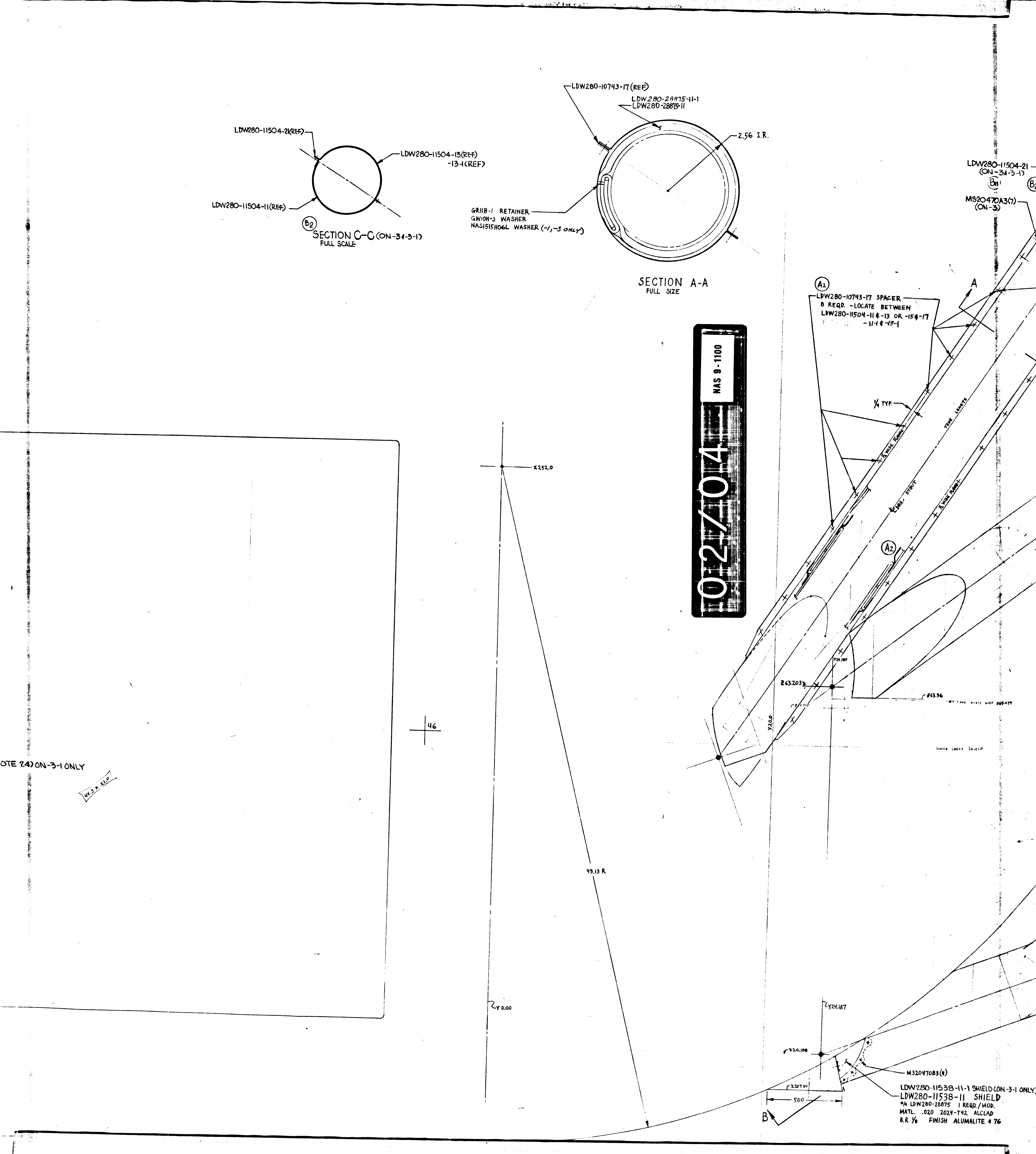


B11

LDW280-28875-11-1 (SAME AS -11 SEE NOTE 24) ON-3-1 ONLY
LDW280-28875-11 A1
N/A LDW280-28875 1 REQD./MOD.
MATL. 30 LAYER BLANKET MADE UP OF
4 LAYERS POLYIMIDE FILM (OUTSIDE)
25 LAYERS MYLAR
1 LAYER POLYIMIDE FILM (INSIDE)
SEE NOTES #9 THRU #15

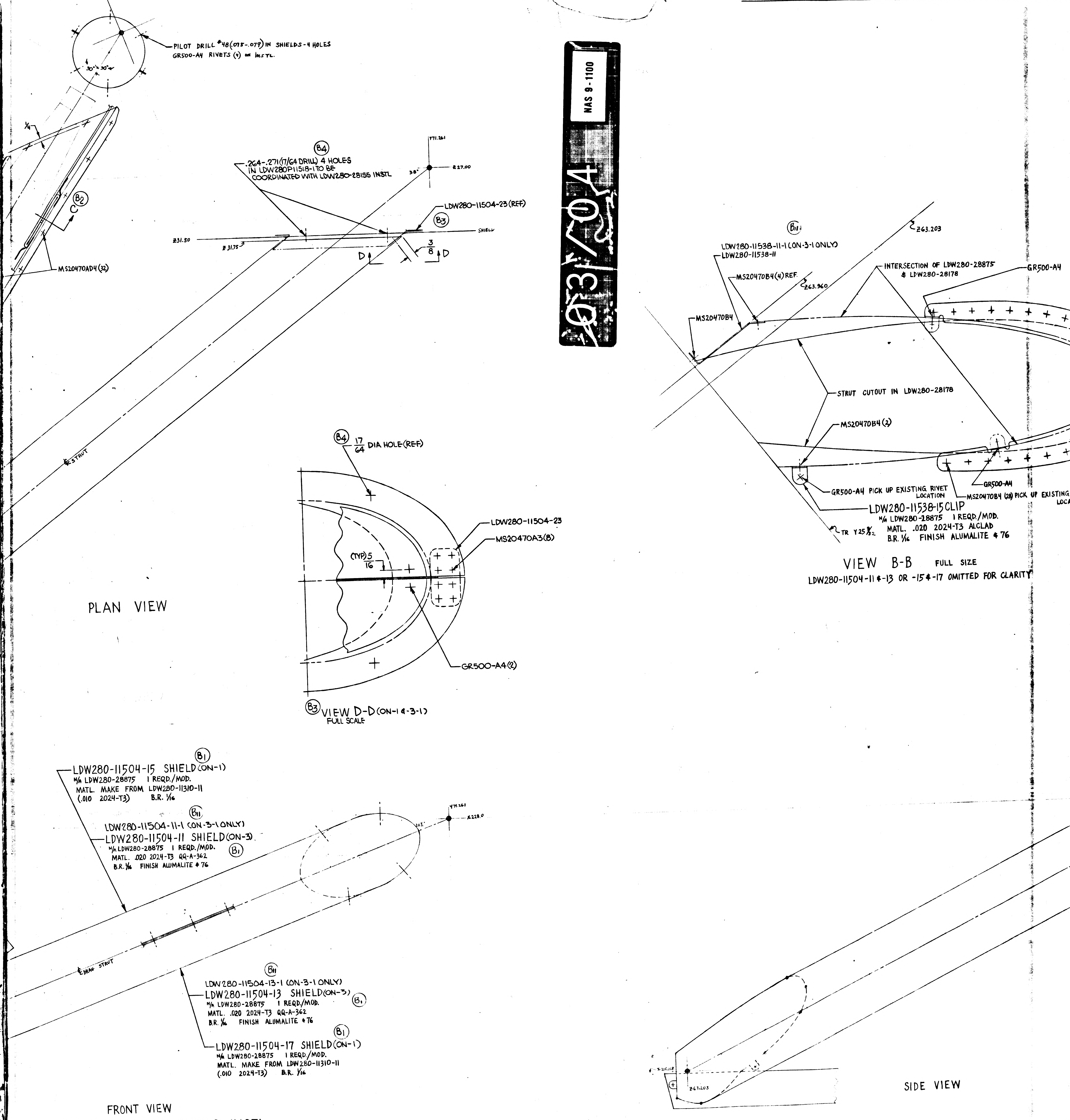
44.3 x 21.0

02/04 NAS 9-1100


LDW280-11504-21(REF)
LDW280-11504-13(REF)
-13-1(REF)
LDW280-11504-11(REF)
B2
SECTION C-C (ON-3&-3-1)
FULL SCALE
LDW280-10743-17(REF)
LDW280-28875-11-1
LDW280-28875-11
2.56 I.R.
GR11B-1 RETAINER
GW10H-3 WASHER
NAS1515H06L WASHER (-1,-3 ONLY)
SECTION A-A
FULL SIZE
LDW280-11504-21
(ON-3&-3-1)
B1
MS20470A3(7)
(ON-3)
A2
LDW280-10743-17 SPACER
8 REQD. -LOCATE BETWEEN
LDW280-11504-11 & -13 OR -15 & -17
-11-1 & -13-1
A
1/4 TYP.
1/2 WIDE FLANGE
TRUE LENGTH
℄ DRAG STRUT
1/2 WIDE FLANGE
A2
X252.0
46
OTE 24) ON-3-1 ONLY
44.3 x 21.0
49.13 R
Y0.00
Y24.187
Z63.203
Z64.745
Y20.0
Z63.96
AFT EDGE ACCESS DOOR Z64.079
LOWER CHEEK SHIELD
Y24.187
X210.108
X207.50
5.00
B
MS20470B3(4)
LDW280-11538-11-1 SHIELD (ON-3-1 ONLY
LDW280-11538-11 SHIELD
N/A LDW280-28875 1 REQD./MOD.
MATL. .020 2024-T42 ALCLAD
B.R. 1/8 FINISH ALUMALITE # 76

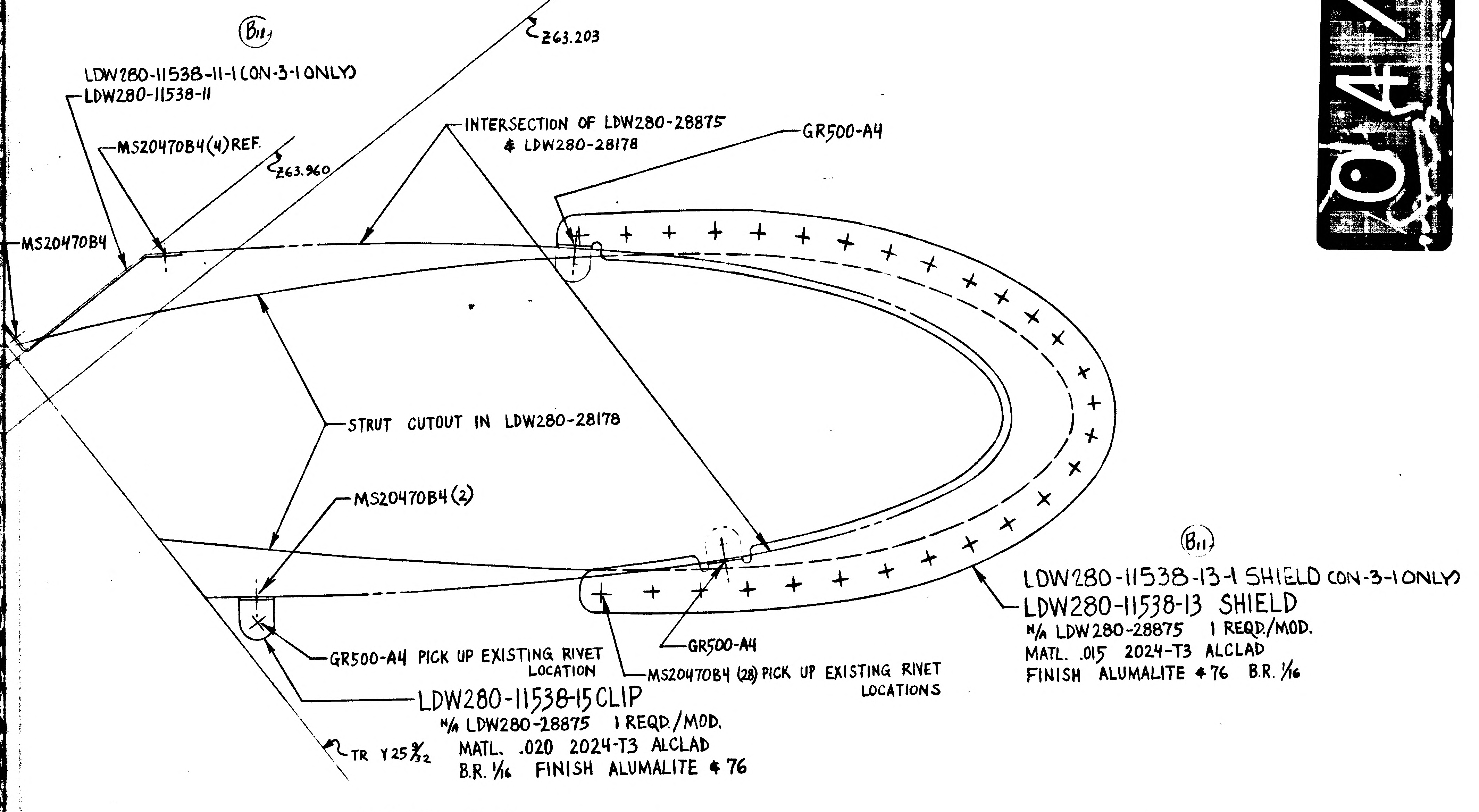
03/04

NAS 9-1100


PILOT DRILL #48(.075-.079) IN SHIELDS-4 HOLES
GR500-A4 RIVETS (4) ON INSTL.
30° 30°
1/4
B2
C
MS20470AD4(32)
B4
.264-.271(17/64 DRILL) 4 HOLES IN LDW280P11518-1 TO BE COORDINATED WITH LDW280-28155 INSTL
Y71.261
38°
Z27.00
LDW280-11504-23(REF)
B3
SHIELD
Z31.50
Z31.75
D
3/8
D
℄ STRUT
B4
17/64 DIA HOLE (REF)
LDW280-11504-23
MS20470A3(8)
(TYP) 5/16
GR500-A4(2)
PLAN VIEW
B3
VIEW D-D (ON-1 & -3-1)
FULL SCALE
B11
Z63.203
LDW280-11538-11-1 (ON-3-1 ONLY)
LDW280-11538-11
MS20470B4(4) REF.
Z63.960
MS20470B4
INTERSECTION OF LDW280-28875 & LDW280-28178
GR500-A4
STRUT CUTOUT IN LDW280-28178
MS20470B4(2)
GR500-A4 PICK UP EXISTING RIVET LOCATION
GR500-A4
MS20470B4 (28) PICK UP EXISTING LOCA
LDW280-11538-15 CLIP
N/A LDW280-28875 1 REQD./MOD.
MATL. .020 2024-T3 ALCLAD
B.R. 1/16 FINISH ALUMALITE # 76
TR Y25 9/32
VIEW B-B FULL SIZE
LDW280-11504-11 & -13 OR -15 & -17 OMITTED FOR CLARITY
B1
LDW280-11504-15 SHIELD (ON-1)
N/A LDW280-28875 1 REQD./MOD.
MATL. MAKE FROM LDW280-11310-11
(.010 2024-T3) B.R. 1/16
B11
LDW280-11504-11-1 (ON-3-1 ONLY)
LDW280-11504-11 SHIELD (ON-3)
N/A LDW280-28875 1 REQD./MOD.
MATL. .020 2024-T3 QQ-A-362
B.R. 1/16 FINISH ALUMALITE # 76
B1
Y71.261
X228.0
20%
℄ DRAG STRUT
B11
LDW280-11504-13-1 (ON-3-1 ONLY)
LDW280-11504-13 SHIELD (ON-3)
B1
N/A LDW280-28875 1 REQD./MOD.
MATL. .020 2024-T3 QQ-A-362
B.R. 1/16 FINISH ALUMALITE # 76
B1
LDW280-11504-17 SHIELD (ON-1)
N/A LDW280-28875 1 REQD./MOD.
MATL. MAKE FROM LDW280-11310-11
(.010 2024-T3) B.R. 1/16
Z63.203
SIDE VIEW

FRONT VIEW

LDW280-28875-1 SHIELD INSTL. (LEM-1, LEM-2)
-3 SHIELD INSTL. (LTA-8)
-3-1 SHIELD INSTL (SAME AS -3 EXCEPT AS NOTED)



(B11)
LDW280-11538-11-1 (ON-3-1 ONLY)
LDW280-11538-11
MS20470B4 (4) REF.
Z63.203
Z63.960
MS20470B4
INTERSECTION OF LDW280-28875 & LDW280-28178
GR500-A4
STRUT CUTOUT IN LDW280-28178
MS20470B4 (2)
GR500-A4 PICK UP EXISTING RIVET LOCATION
GR500-A4
MS20470B4 (28) PICK UP EXISTING RIVET LOCATIONS
LDW280-11538-15 CLIP
N/A LDW280-28875 1 REQD./MOD.
MATL. .020 2024-T3 ALCLAD
B.R. 1/16 FINISH ALUMALITE # 76
TR Y25 9/32
(B11)
LDW280-11538-13-1 SHIELD (ON-3-1 ONLY)
LDW280-11538-13 SHIELD
N/A LDW280-28875 1 REQD./MOD.
MATL. .015 2024-T3 ALCLAD
FINISH ALUMALITE # 76 B.R. 1/16

VIEW B-B FULL SIZE

LDW280-11504-11 & -13 OR -15 & -17 OMITTED FOR CLARITY

04/04

NAS 9-1100

NOTES CON'T

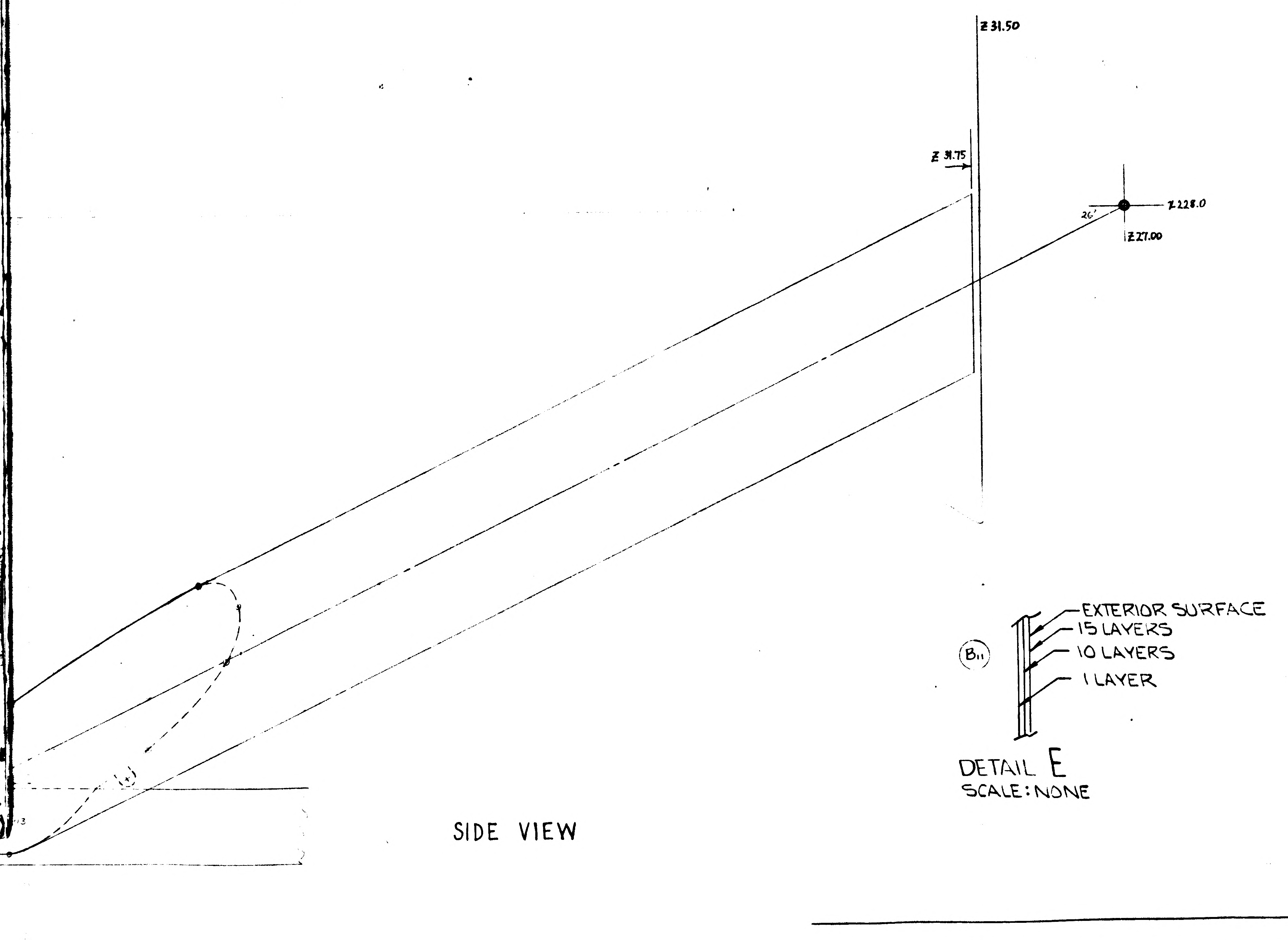
22. DURING -3 INSTL (OR ASSY OF THERMAL SHIELD SUB-ASSY'S OR DETAILS FOR LTA-8 ONLY), PARTS MAY BE TRIMMED OR SHIMMED AS NOTED TO INSURE PROPER FIT TO MATING PART OR ADJACENT STRUCTURE:
    a. MAX. PERMISSIBLE TRIM TO BE 1/16, PROVIDING A MIN. FASTENER EDGE DISTANCE IS HELD AFTER TRIMMING (1 1/2 FASTENER DIA).
    b. MAX. PERMISSIBLE SHIM TO BE .063 THICK, AND IF TAPERED, NOT TO EXCEED 5 INCHES IN LENGTH. SHIM STOCK TO BE 2024-T3 AL ALLOY QQ-A-250/4 FINISH 76, WIDTH AS REQD.
    A. WHERE NECESSARY, ON THERMAL SHIELD SUBSTRUCTURE, IT IS PERMISSIBLE TO FLUSH RIVETS TO INSURE PROPER FIT OF MATING PARTS, PROVIDING MATERIAL TO BE CSK IS THICK ENOUGH TO PREVENT "FEATHER EDGED" HOLES. (NAS1097 OR MS20426 RIVETS MAY BE USED)
    B. WHERE NECESSARY, DUE TO REDESIGN & REWORK, THE NEXT LARGER SIZE FASTER MAY BE USED IN LIEU OF EXISTING FASTENER, PROVIDING A MINIMUM EDGE DISTANCE OF 1-1/2 FASTENER DIA IS MAINTAINED. ALSO, EXTRANEOUS HOLES MAY BE PLUGGED AS REQD (NAS1097 OR MS20470 RIVETS PERMISSIBLE) AS LONG AS A MINIMUM SPACING OF 3 DIAMETERS EXISTS BETWEEN PLUG AND NEAREST FASTENER. (A INCH SQUARE OF GT835M8 TAPE MAY BE USED FOR HOLES UP TO 7/16 IN DIA IN THERMAL SKINS).
    C. WHERE NECESSARY, THE FOLLOWING NUT PLATES MAY BE REPLACEMENTS FOR ONE ANOTHER WITHIN THE GROUPS NOTED BELOW, PROVIDING THERE IS NO CHANGE IN DIAMETER OF SCREW:
        GROUP A: NAS680, NAS682, NAS684, NAS686, NAS687, NAS696, NAS697, NAS698, NAS1067 & NAS1068
        GROUP B: NAS681, NAS683 & NAS685
    IF THE INTERCHANGEABLE ANCHOR NUTS ARE USED, THERMAL SKINS OR SUBSTRUCTURE MAY BE DIMPLED OR CSK AS REQD. (SEE NOTE 22A)
23. INSTALLATION PROCEDURE LM THERMAL SHIELD STANDOFFS PER LPC-280-38. FOR LM 2(32)
24. BLANKET TO CONSIST OF THE FOLLOWING (OUTSIDE TO INSIDE SEE DETAIL "E")
    15 LAYERS OF .0005 ALUMINIZED POLYIMIDE FILM PER LSM 14-5301
    10 LAYERS OF .000125 ALUMINIZED MYLAR PER LSM 14-5302
    1 LAYER OF .0005 ALUMINIZED POLYIMIDE FILM PER LSM 14-5301
    LAYED UP PER LPC280-1 & LPC280-3
25. -3 INSTL IS TO BE USED FOR LTA-8/LM-3 THERMAL TEST. UPON COMPLETION OF LTA-8/LM-3 TEST -3 INSTL IS TO BE REPLACED BY -3-1 INSTL WHICH IS TO BE USED FOR LTA-8/LM-5 THERMAL TEST.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL f DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 40 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X) SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) SQ. FT.

PRINT TRIM LINE



Z 31.50
Z 31.75
20°
Z 228.0
Z 227.00
(B11)
EXTERIOR SURFACE
15 LAYERS
10 LAYERS
1 LAYER

DETAIL E
SCALE: NONE

SIDE VIEW

NOTES:

1. THIS DRAWING TO BE REDRAWN ON A PRODUCTION FORMAT.
2. ALL RIVETS TO BE SQUEEZED.
3. DRAWING MAY BE SCALED FOR DIMENSIONS NOT SHOWN.
4. ALL INFORMATION FOR MANUFACTURE OF DETAIL PARTS IS FOR REFERENCE PURPOSES ONLY.
5. INSTALL GR500 RIVETS PER LSP14-15303.
6. INSTALL MS20470 RIVETS PER LSP14-15306.
7. MANUFACTURED HEADS OF ALL RIVETS TO BE ON "EXTERIOR" SIDE OF SKIN, ETC.
8. VENT PER LPC 280-2.
9. SUPER INSULATION TO BE FABRICATED UNDER CONDITIONS THAT CONFORM TO LSP14-0011, LEVEL "C".
10. GT835P-8 TAPE TO BE USED.
11. BLANKET TO BE PRE-FITTED ON LSK280-10922, 103% SCALE MODEL.
12. ALUMINIZED MYLAR FILM & ALUMINIZED POLYIMIDE FILM TO BE LAID UP PER LPC 280-1.
13. ALUMINIZED MYLAR FILM & ALUMINIZED POLYIMIDE FILM MAY BE PURCHASED FROM McCORDI CORP., MAMARONECK, N.Y. CODE IDENT. # 24761
14. LDW280P10869-11 TO BE LAID UP PER LPC 280-1
15. ALL SEAMS PER LPC 280-3.
16. REPAIR PROCEDURE FOR LM THERMAL SHIELDING INSULATION BLANKETS PER LPC 280-8.
17. MATERIAL, FINISHES, HANDLING & PERMISSIBLE DEVIATIONS OF LM ASCENT STAGE THERMAL SHIELD SKINS PER LPC280-16.
18. PERMISSIBLE DEVIATIONS & REPAIR PROCEDURE FOR LM THERMAL INSULATION BLANKETS PER LPC 280-20.
19. FINAL CONFIGURATION OF THERMAL BLANKETS SHALL BE DETERMINED FROM ENGINEERING APPROVED MASTER TEMPLATES.
20. SUPER INSULATION SHALL BE HANDLED WITH LINT FREE NYLON GLOVES.
21. HOLES IN BLANKETS MAY BE PUNCHED OR SLIT ON INSTL.

NOTES CON'T ABOVE

LDW280-28875 B

LDW280-28875 B

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
	SIZE K	CODE IDENT NO. 26512	LDW280-28875	B
MODEL OR END ITEM LM	SCALE HALF		SHEET 3.00	

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28875
EO NO. A1
CONTROL INFO NO. LDW280A-0623

IN F/D & L/M: LDW280-28875-11 BLANKET, 1 REQD. ON -1 & -3, WAS CALLED OUT AS: LDW280-11511-11 BLANKET. N/A, NO. REQD., MATL. & FINISH REMAIN UNCHANGED.

3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: TO REMOVE REQUIREMENT FOR SEPARATE DETAIL DRAWING OF BLANKET

DESCRIPTION OF EO: ON -1 & -3 LDW280-28875-11 WAS LDW280-11511-11

GAEC EO RELEASE: C CE 10/5

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM -1 & -2	(31 THRU 32)
LM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG ✓ ; RECORD EO

DISPOSITION OF PARTS: REWORK NOT ; SCRAP REQD.

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
APPROVED BY				~			RME	
DATE	9-23-66			~	9/28		10-5-66	10/4/66
	VDI							

PRIORITY: C

DRAWING TITLE: SHIELD INSTL ASCENT STAGE CABIN DRAG STRUT THERMAL

DRAWING NO. LDW280-28875

EO NO. A1

ISSUED BY F. SHANLEY x1441

SECTION VEH. DES. INT.

GROUP NO. 335

PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LEO 280		EO NO. 425	
CONTROL INFO NO. LM-3-4562			

DRAWING NO.	E.O. CHG.	DESCRIPTION OF CORRECTION	EFFECT.
✓ LDW280-11648	A2	-14 IML OPEN 36 3/4° WAS -14 IML BUP OPEN 36 3/4°	LM-3 (33) THRU LM-15 (45)
✓ LDW280-28875	B1	IN FIELD & B/M -1 WAS -3, -3 WAS -1 (MODEL BLOCK IS CORRECT)	LTA-8 (18) LM-1 (31) LM-2 (32)
✓ LDW280-11654	A3	ON INCORP OF E.O. A1 REPLACE 6" WITH 4" REPLACE 4" WITH 6"	LM-3 (33) THRU LM-15 (45)
✓ LDW280-11751	A1	IN NOTE 2 LDW280-11751-11-13-15-17-19 WAS LDW 280-11624-11-13-15-17-19	LM-4 (34) THRU LM-15 (45)
✓ LDW 280-11398	B6	ON INCORPORATION OF E.O. B3 -21 WAS -17	LM-3 (33) THRU LM-15 (45)
LDW280-28164	C1	ON INCORP. OF E.O. A5 GS26A-1-14 FOR -3-4 ASSY 1 REQD WAS 4 REQD	LTA-8 (18) LM-1 (31) LM-2 (32)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		3

REASON FOR EO
TO PROVIDE MULTIPLE DRAWING CORRECTIONS.

DESCRIPTION OF EO
NOTED

GAEC C EO RELEASE
E

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT REQD		DATE	2/6/67			—	—	12-27-66	12/27	12.27.66
REVISE DWG	RECORD EO	REWORK	SCRAP	6	1/01	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	NOTED	LEO 280	425

ISSUED BY LIAISON / VIC BOLLO X2151 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.2 REV 3-65 A

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW [illegible] 6 [illegible]		EO NO. P2
CONTROL INFO NO. LM5-11774		

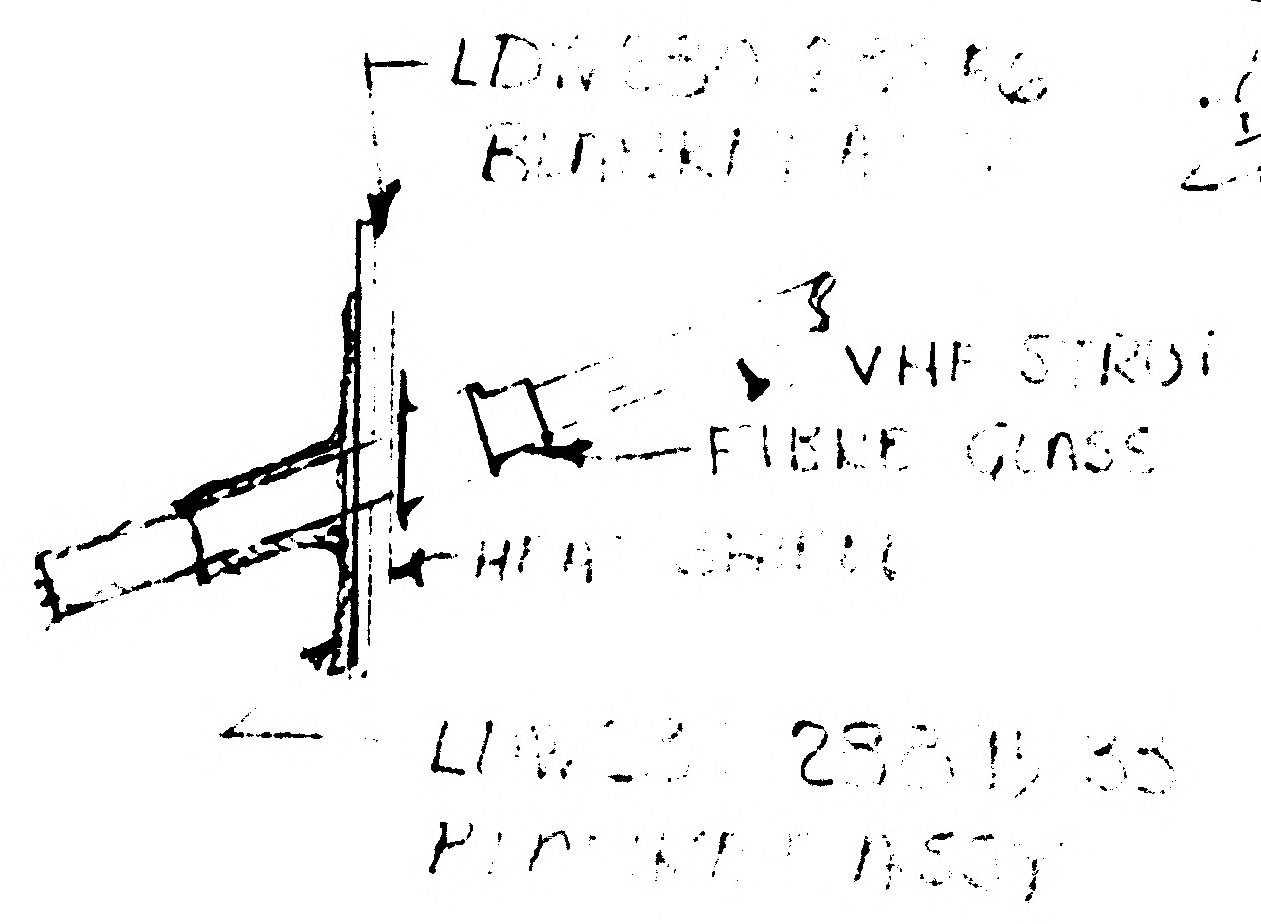
REVISE B/M & F/D AS FOLLOWS:

RELEASED BY LIAISON

-33 PATCH WAS CREATED BY [illegible] BUT WAS NEVER [illegible] INSTALLED ON DRAWING

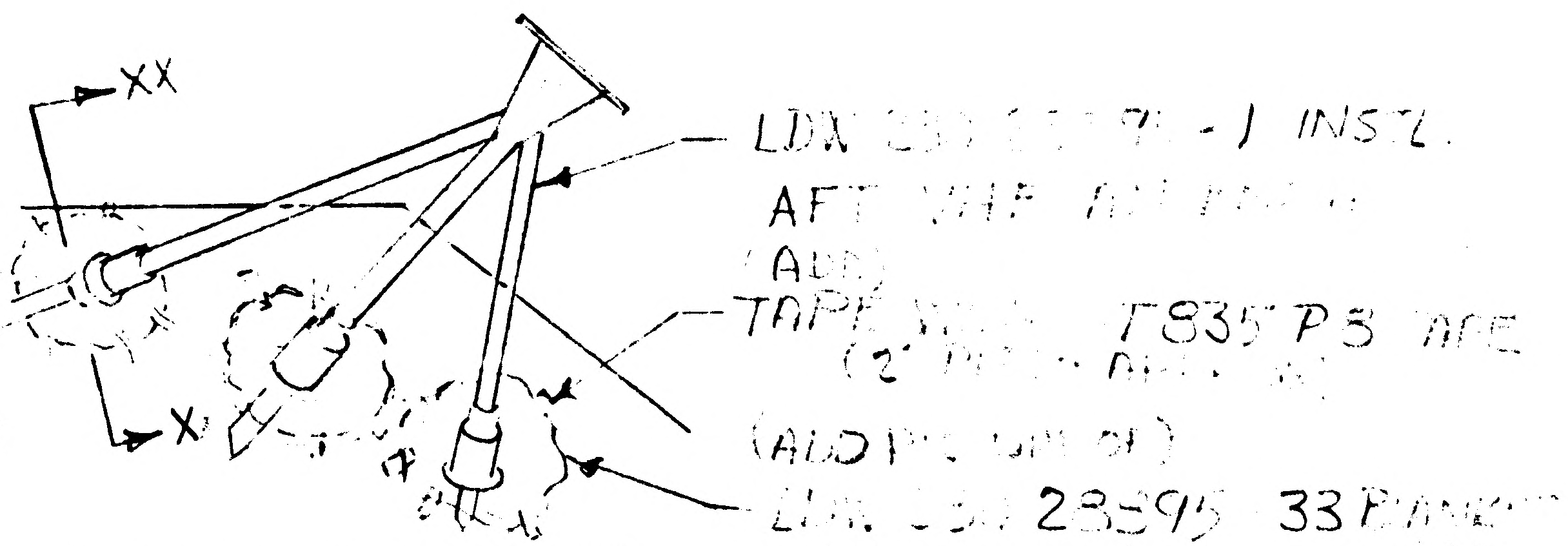
+Y →

1)



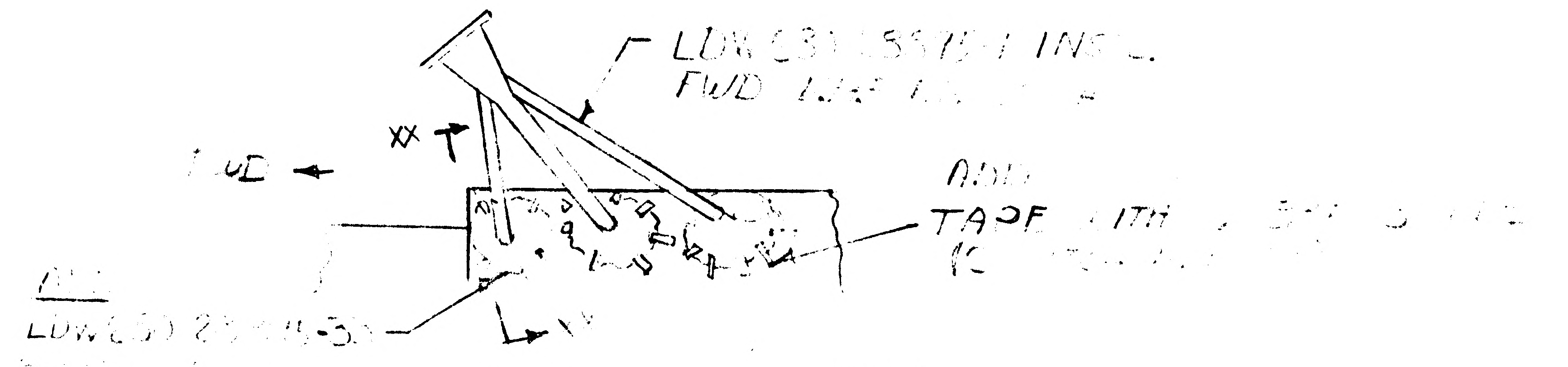
LDW 630 [illegible] BLANKET ASSY
VHF STRUT
FIBRE GLASS
HEAT SHIELD
LDW [illegible] 28315-35 BLANKET ASSY

SECT XX-XX



XX
X
LDW [illegible] -1 INSTL. AFT VHF ANTENNA (ADD)
TAPE WITH T835 P3 TAPE (2" [illegible])
(ADD [illegible])
LDW [illegible] 28595 -33 BLANKET ASSY (3 PLACES)

VIEW LOOKING FWD
[illegible] -33 [illegible] & LM-2)



LDW 631 [illegible] -1 INSTL. FWD VHF [illegible]
FWD ←
XX
ADD
TAPE WITH [illegible]
ADD
LDW 630 28[illegible]-35 [illegible]

VIEW [illegible] INSTL
[illegible] LM2)

2) IN B/M ADD -33 BLANKET [illegible] SAME AS [illegible] -15, -17, -19, 25, 27 & 21 BLANKETS WILL [illegible].

-33 [illegible]. EFF. LM2(31) [illegible] LDW 23 [illegible] 28150

3) ADD NOTE [illegible]

THE PORTION OF TUBE EXTENDING [illegible] IS TO BE WRAPPED WITH [illegible] TAPE (TYP 3 PLACES ON FWD & AFT VHF ANTENNA) EFF LM1 ONLY

[illegible] SHIELDING [illegible]
[illegible] TO BE WRAPPED WITH [illegible] T835P-3 TAPE

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG										(6)
REASON FOR EO [illegible] B/M				DESCRIPTION OF EO IN F/D ADDED PICTURE of -33 BLANKET INSTALL'G; ADDED -33 IN B/M SAME AS [illegible] 21 WRAP [illegible]										GAEC C EO RELEASE ✓
MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	W.T. ALW				CL	[illegible]
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP	DATE	2/2/67				2-2-67	2-2-67
LM		LTA3 (18)						1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG
LM		LM1 (31) THRU		PRIORITY C		DRAWING TITLE [illegible]					DRAWING NO. [illegible]			EO NO. P2

PROJ ENGRG	2-9-67	GOVT	2/3/67

ISSUED BY [illegible] SECTION ____ GROUP NO. ____ PL ____

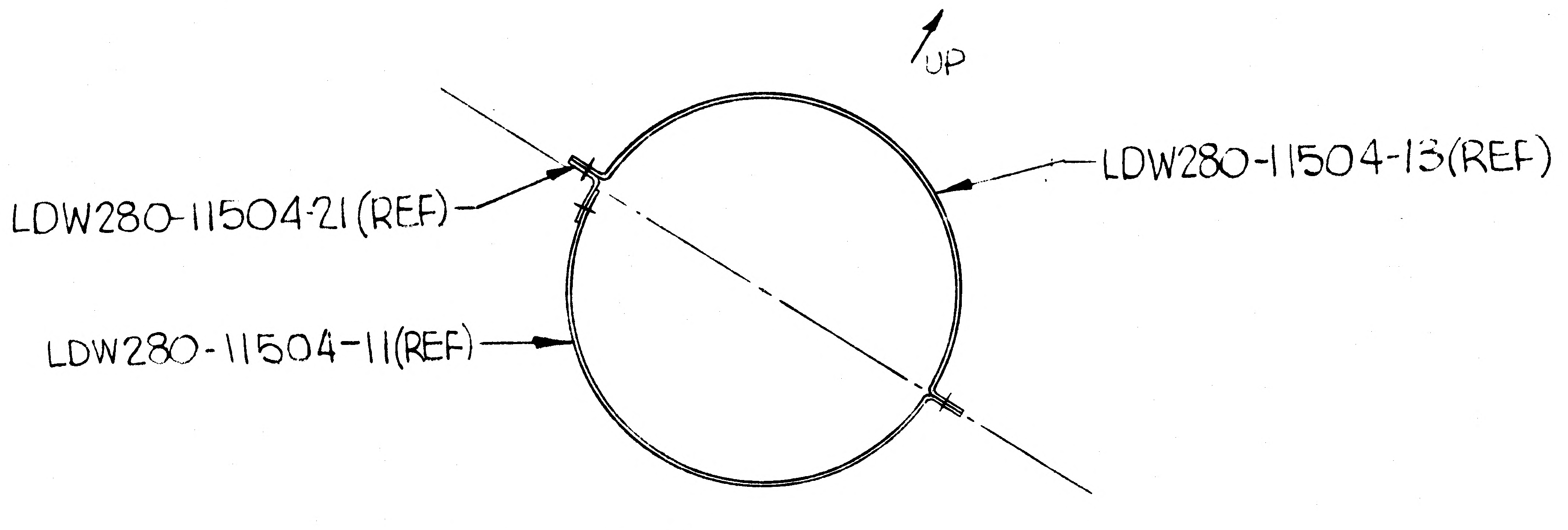
01
NAS 9-1100

NG 32.2 REV 3-65

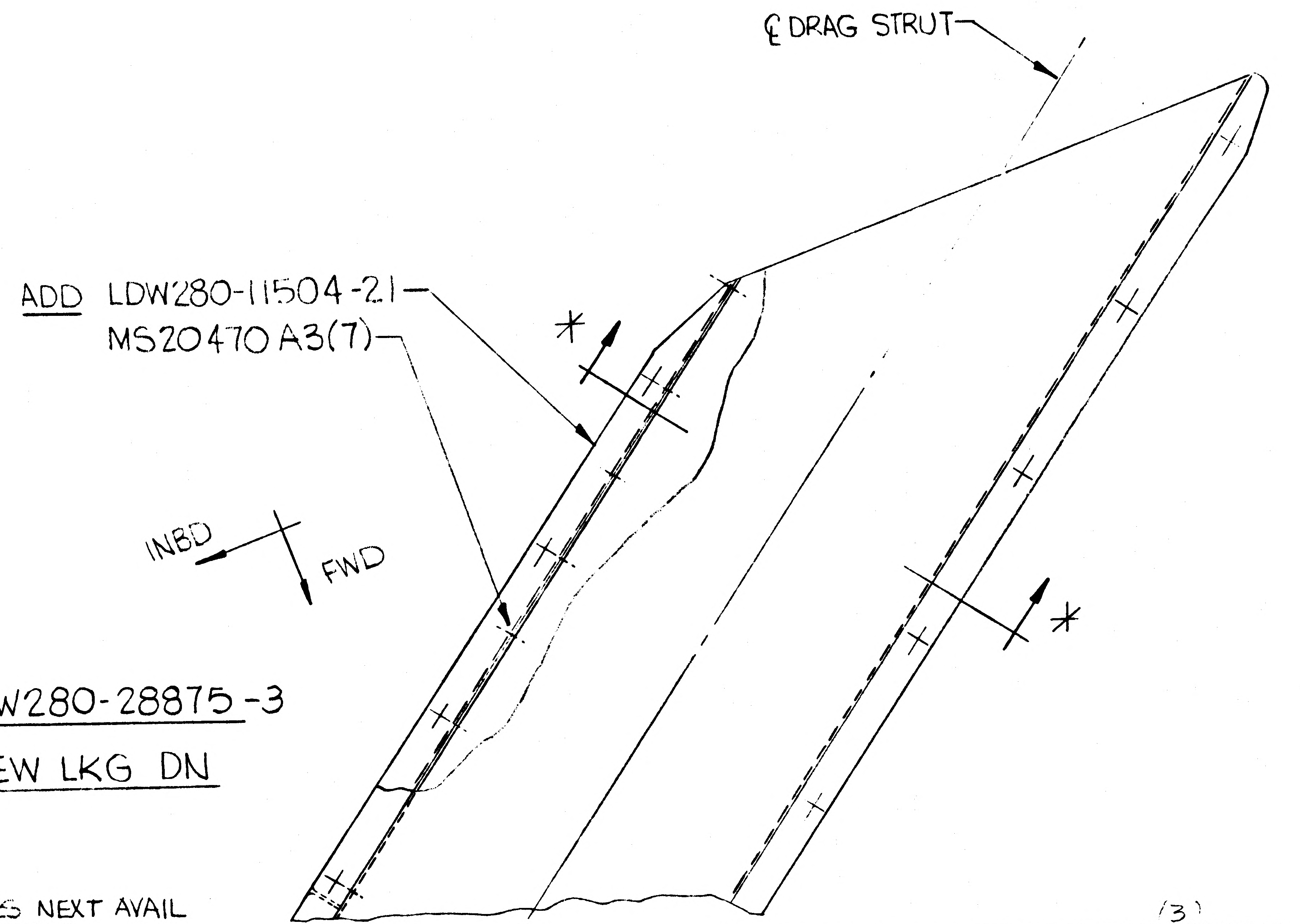
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28815		EO NO. B2
CONTROL INFO NO. LM5-11781			

RELEASED BY LIAISON


UP
LDW280-11504-13(REF)
LDW280-11504-21(REF)
LDW280-11504-11(REF)

ADD SECT. *-*


℄ DRAG STRUT
ADD LDW280-11504-21
MS20470A3(7)
*
*
INBD
FWD

LDW280-28875-3
VIEW LKG DN

* INDICATES NEXT AVAIL
SECT LETTER

(3)

DETAIL SPEC REQ		CL II ENGRG CH		CL I ENGRG CHG			

REASON FOR EO	DESCRIPTION OF EO	GAEC C EO RELEASE
TO MAINTAIN PROPER CONTOUR OF THERMAL SHIELD ON F.TK DRAG STRUT	ON -3 ADDED LDW280-11504-21 ,MS20470A3(7) & SECT *-*	6

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT			~	CW		RMC	
	PROCURING ACTIVITY NO.	GAEC UNIT NO	SUB CONTR UNIT NO.	✓		✓		DATE	2/1/67			~	2-1-67	2-1-67	2-3-67	2/2/67
		LTA-8(18)		REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDE	SUPPORT	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
				PRIORITY C	DRAWING TITLE SHIELD INSTL ~ A/S CABIN DRAG STRUT-THERMAL							DRAWING NO LDW280-28875				EO NO. B2

ISSUED BY ______ SECTION VOI ______ GROUP NO. 335 PL 5

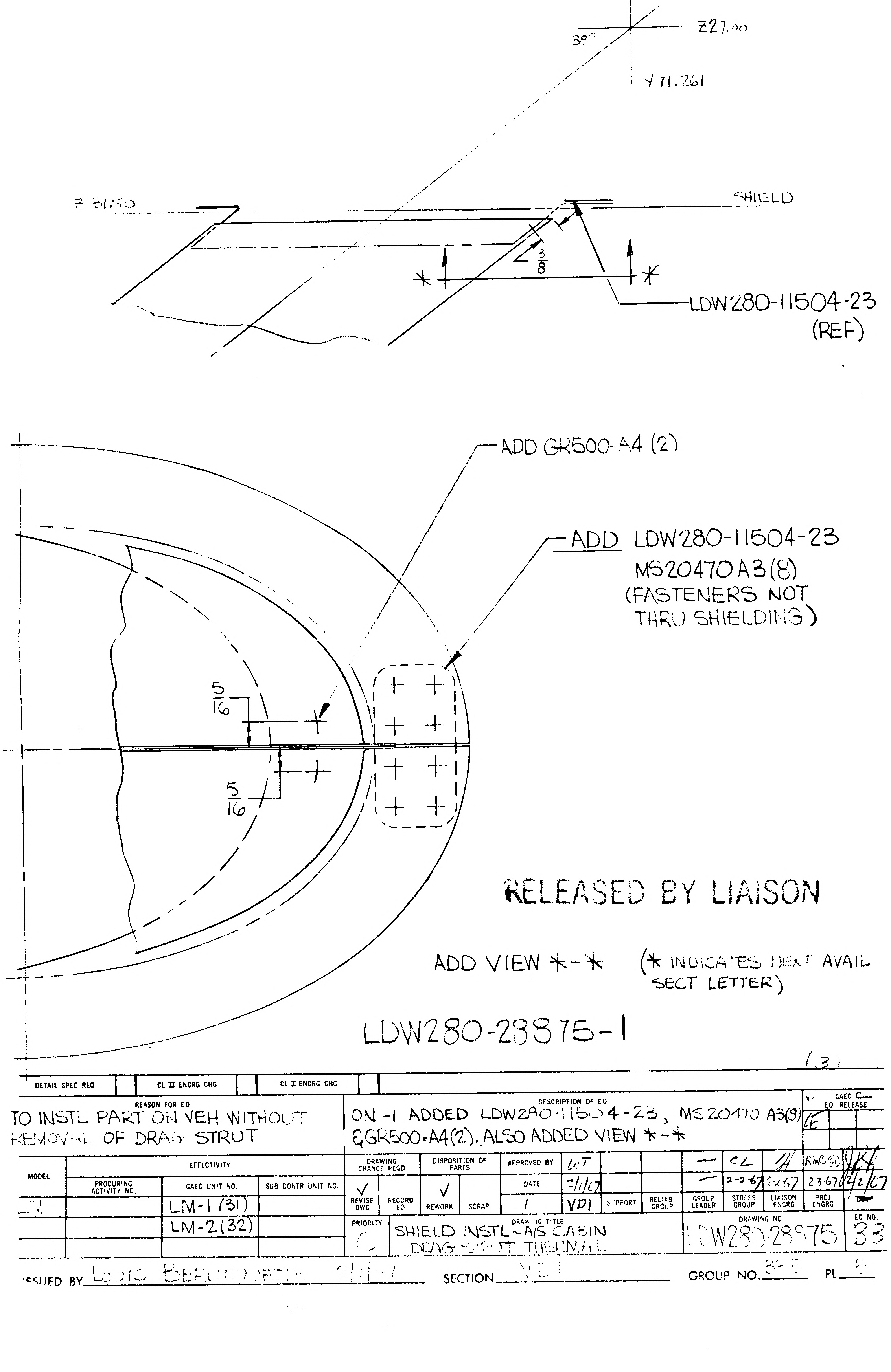
01
NAS 9-1100

01
NAS 9-1100

NG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28875 | EO NO. [illegible]
CONTROL INFO NO. LM 5-11786


38°
Z27.00
Y71.261
Z 61.50
SHIELD
3/8
*
*
LDW280-11504-23 (REF)
ADD GR500-A4 (2)
ADD LDW280-11504-23
MS20470A3(8)
(FASTENERS NOT THRU SHIELDING)
5/16
5/16

RELEASED BY LIAISON

ADD VIEW *-* (* INDICATES NEXT AVAIL SECT LETTER)

LDW280-28875-1

(3)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO	DESCRIPTION OF EO	GAEC C— EO RELEASE
TO INSTL PART ON VEH WITHOUT REMOVAL OF DRAG STRUT	ON -1 ADDED LDW280-11504-23, MS20470 A3(8) & GR500-A4(2). ALSO ADDED VIEW *-*	LE

MODEL	EFFECTIVITY			DRAWING CHANGE REQD		DISPOSITION OF PARTS										
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.					APPROVED BY	WT			—	CL	JH	RMC	JK
				✓		✓		DATE	2/1/67			—	2-2-67	2-2-67	2-3-67	2/2/67
[illegible]		LM-1 (31)		REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
		LM-2 (32)														

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL-A/S CABIN DRAG STRUT THERMAL	LDW280-28875	33

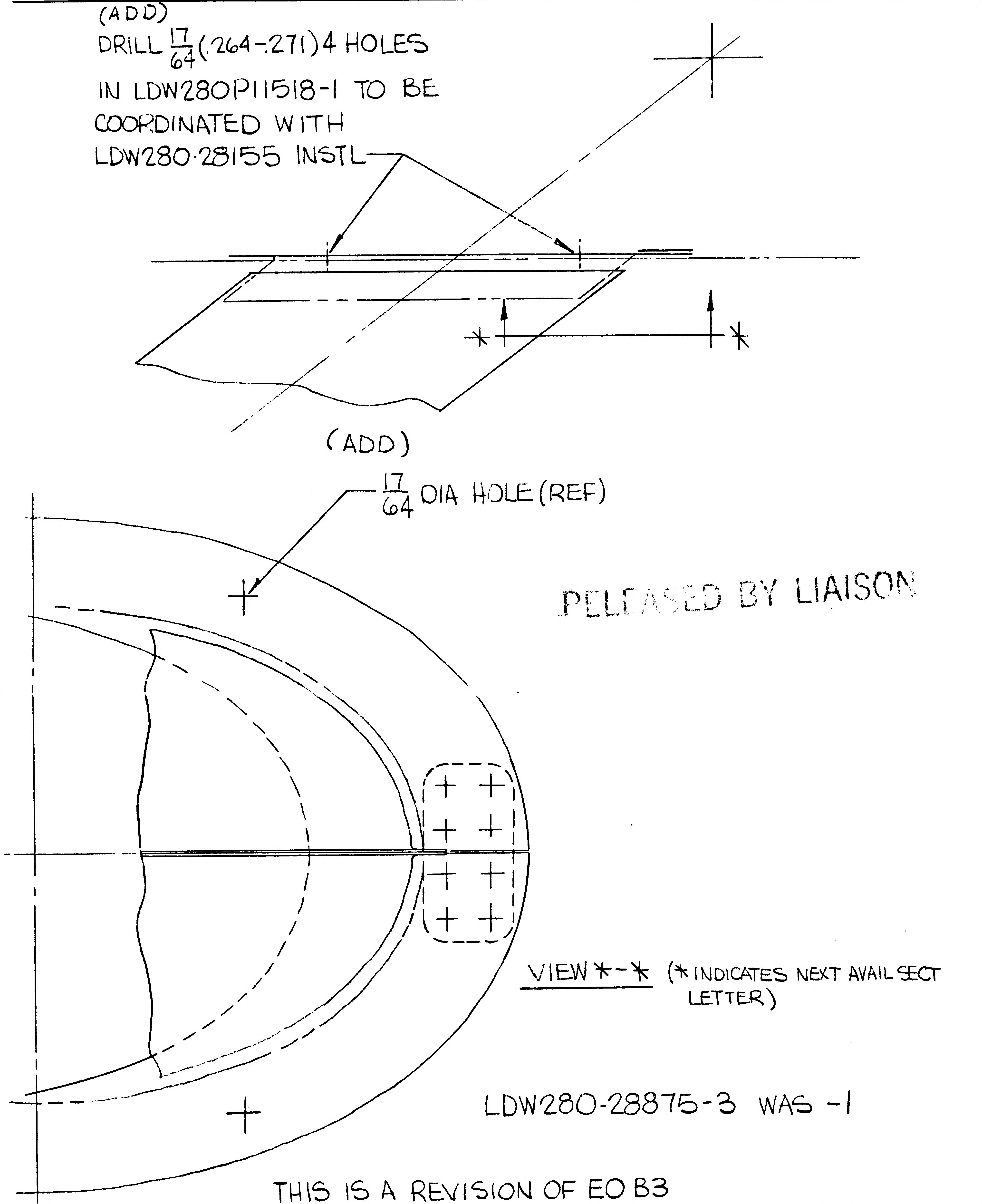
ISSUED BY Louis Bernadette 2/1/67 SECTION VEI GROUP NO. 3[illegible] PL [illegible]

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28875 EO NO. B4
CONTROL INFO NO. LM 5-11796



(ADD)
DRILL $\frac{17}{64}$ (.264-.271) 4 HOLES
IN LDW280P11518-1 TO BE
COORDINATED WITH
LDW280-28155 INSTL

(ADD)
$\frac{17}{64}$ DIA HOLE (REF)

RELEASED BY LIAISON

VIEW *-* (* INDICATES NEXT AVAIL SECT LETTER)

LDW280-28875-3 WAS -1

THIS IS A REVISION OF EO B3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

3

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO CORRECT EO B3	REF EO B3 ADDED LDW280-28875-3 WAS -1 ALSO ADDED $\frac{17}{64}$ HOLES (4) ON INSTL	C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
		LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		✓		APPROVED BY	WT			~			RMC	
				DATE	2/6/67			~	2-9	2-6-67	2-14-67	
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL - A/S CABIN DRAG STRUT THERMAL	LDW280-28875	B4

ISSUED BY Louis Berlinquette 2/3/67 SECTION VD1 GROUP NO. 335 PL 5

B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 490
CONTROL INFO NO. LDW280A5591

TO THE FOLLOWING DRAWINGS ADD THE APPLICABLE NOTES AS INDICATED BELOW, USING THE NEXT AVAILABLE NUMBERS :

DWG. NO. & TITLE	CHG. NO.	APPLICABLE NOTES *	EFF
LDW280-28294 BLANKET INSTL A/S UPPER DOCKING WINDOW	B2	⊕ ✯ ⌓ ● ⊠	LTA 8, LM 1 THRU LM 15
LDW280-28875 SHIELD INSTL A/S~CABIN~DRAG STRUT	B5	⊕ △ ✯ ⌓ ● ⊠	LTA 8, LM 1 & 2
LDW280-28882 EXTERNAL SHIELD & BLANKET INSTL. A/S~CABIN~FITH	B4	✱✱ ⊕ △ ✯ ⌓	LTA 8
LDW280-53173 THERMAL SHIELD INSTL A/S~CABIN	A6	⊕ △ ✯	LM 3 THRU LM 15
LDW280-53875 SHIELD INSTL A/S~CABIN~DRAG STRUT	A1	⊕ △ ✯ ⌓ ⊠	LM 3 THRU LM 15

NOTES:

✱✱ - "CUTTING & PATCHING PROCEDURE FOR LM THERMAL SHIELDING INSULATION BLANKETS PER LPC 280-6".

⊕ - "REPAIR PROCEDURE FOR LM THERMAL SHIELDING INSULATION BLANKETS PER LPC 280-8".

△ - "MATERIAL, FINISHES, HANDLING & PERMISSIBLE DEVIATIONS OF LM ASCENT STAGE THERMAL SHIELD SKINS PER LPC 280-16".

✯ - "PERMISSIBLE DEVIATIONS & REPAIR PROCEDURE FOR LM THERMAL INSULATION BLANKETS PER LPC 280-20".

⌓ - "FINAL CONFIGURATION OF THERMAL BLANKETS SHALL BE DETERMINED FROM ENGINEERING APPROVED MASTER TEMPLATES".

● - "SUPER INSULATION SHALL BE HANDLED WITH LINT FREE NYLON GLOVES".

⊠ - "HOLES IN BLANKETS MAY BE PUNCHED OR SLIT ON INSTL".

DETAIL SPEC REQ ✓ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☐ | 3

REASON FOR EO: LPC'S OMITTED ON DWG

DESCRIPTION OF EO: ADDED NOTES *

(R) GAEC C EO RELEASE: JK 3/3/7

MODEL:
EFFECTIVITY: PROCURING ACTIVITY NO. | GAEC UNIT NO.: NOTED | SUB CONTR UNIT NO.

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY	JaP	VJJ		FNR				
DATE	2/20/67	2/23/67		2/20/67	2/27		2/28	3/2/67
/	VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: NOTED ABOVE

DRAWING NO.: LEO 280

EO NO.: 490

ISSUED BY D. KLINGENER X1392

SECTION VDI

GROUP NO. 335 PL 35

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NAS 9-1100

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ENG 322 REV 3 65 * B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280
EO NO. 500
CONTROL INFO NO LDW 280A-5771

(ADD) NOTE, "*. MATERIAL, FINISHES, HANDLING AND PERMISSIBLE DEVIATIONS PER LPC-280-16!", TO THE FOLLOWING DRAWINGS:

DRAWING NUMBER	TITLE	EFFECTIVITY	CHANGE NUMBER
LDW280-10928 ✓	SEE DWG	LTA-8	B2
-11345 ✓			B2
-28174 ✓			G6 3/8 C3
-28182			B6
-28392		LTA-8	A9
-10631		LTA-8, LM-1 & -2	C3
-10645			B3
-10773			A3
-10774			C5
-11294			B1
-11308			A3
-28096			D4
-28178			G6
-28179			A3
-28279			D8
-28495			B2
-28496			C7
-28347			D6
-28499			A10
-28875			B6
-28241		LTA-8, LM-1 & -2	D1
LDW280-28176	SEE DWG	LTA-8, LM-1, -2 & -3	C1

NOTE:
* = USE NEXT AVAILABLE №.

DETAIL SPEC REQ ✓ | CL II ENGRG CHG | CL I ENGRG CHG

REASON FOR EO: LPC'S OMITTED ON DWG

DESCRIPTION OF EO: ADDED NOTE *

GAEC EO RELEASE: JK 3/8/67

MODEL: LM
EFFECTIVITY — PROCURING ACTIVITY NO.: | GAEC UNIT NO.: NOTED | SUB CONTR UNIT NO.:

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY							
	Jaf			ZW		Dam	
DATE	3/2/67			3/2/67	3/3/67	3/6/67	3/7/67
1	VDI	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO-280
EO NO.: 500

ISSUED BY JOHN K LEE
SECTION VEH. DES. INT.
GROUP NO. 335 35

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

LEO 280 | EO NO. 593
CONTR. INFO NO. LMS-13352

TO THE DWGS LISTED BELOW, ADD NOTE ✱ AS SHOWN
(✱ = NEXT AVAILABLE NOTE NUMBER)

DWG NO.	▲ INSTL	EFF.	CHG NO.	TITLE
LDW280-28153	-1	LTA-8(18)	C6	SEE DWG
28154	-1		B5	
28160	-1		A9	
28161	-1		B2	
28163	-1 & -2		A6	
28851	-5		A9	
28852	-1		A7	
28861	-1		A7	
28096	-3 & -4		D6	
28174	-3		C5	
28175	-3		C6	
28176	-3		D1	
28875	-3		B7	
28178	-3 & -4		J7	
28392	-1 & -2		A10	
28241	-3 & -4		D2	
28242	-1 & -2		C1	
28243	-3 & -4		C7	
28244	-3 & -4		B2	
28279	-3		D10	
28347	-1 & -2		D7	
28882	-1		B6	
28499	-3 & -4		B1	
28179	-3 & -4		A4	
28495	-1 & -2		B3	
LDW280-28453	-3	LTA-8(18)	B7	SEE DWG

✱ DURING ▲ INSTL (OR ASSY OF THERMAL SHIELD SUB-ASSY'S OR DETAILS FOR LTA-8 ONLY), PARTS MAY BE TRIMMED OR SHIMMED AS NOTED TO INSURE PROPER FIT TO MATING PART OR ADJACENT STRUCTURE:

a. MAX. PERMISSIBLE TRIM TO BE 1/16, PROVIDING A MIN. FASTENER EDGE DISTANCE IS HELD AFTER TRIMMING (1 1/2 FASTENER DIA).
b. MAX PERMISSIBLE SHIM TO BE .063 THICK AND IF TAPERED, NOT TO EXCEED 5 INCHES IN LENGTH. SHIM STOCK TO BE 2024-T3 AL ALLOY QQ-A-250/4 FINISH 76, WIDTH AS REQD.

✱ A. WHERE NECESSARY, ON THERMAL SHIELD SUB-STRUCTURE IT IS PERMISSIBLE TO FLUSH RIVETS TO INSURE PROPER FIT OF MATING PARTS, PROVIDING MATERIAL TO BE CSK IS THICK ENOUGH TO PREVENT "FEATHER EDGED" HOLES. (NAS1097 OR MS20426 RIVETS MAY BE USED.)

✱ B. WHERE NECESSARY, DUE TO REDESIGN AND REWORK, THE NEXT LARGER SIZE FASTENER MAY BE USED IN LIEU OF EXISTING FASTENER, PROVIDING A MINIMUM EDGE DISTANCE OF 1 1/2 FASTENER DIA IS MAINTAINED. ALSO, EXTRANEOUS HOLES MAY BE PLUGGED AS REQD (NAS1097 OR MS20470 RIVETS PERMISSIBLE) AS LONG AS A MINIMUM SPACING OF 3 DIAMETERS EXISTS BETWEEN PLUG AND NEAREST FASTENER. (A 1 INCH SQUARE OF GT835M8 TAPE MAY BE USED FOR HOLES UP TO 7/16 IN DIA IN THERMAL SKINS.)

✱ C. WHERE NECESSARY, THE FOLLOWING NUT PLATES MAY BE REPLACEMENTS FOR ONE ANOTHER WITHIN THE GROUPS NOTED BELOW, PROVIDING THERE IS NO CHANGE IN DIAMETER OF SCREW:

GROUP A: NAS680, NAS682, NAS684, NAS686, NAS687, NAS696, NAS697, NAS698, NAS1067 & NAS1068

GROUP B: NAS681, NAS683 & NAS685

IF THE INTERCHANGEABLE ANCHOR NUTS ARE USED, THERMAL SKINS OR SUB-STRUCTURE MAY BE DIMPLED OR CSK AS REQD. (SEE NOTE ✱ A. ABOVE.)

RELEASED BY LIAISON

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ | CL II ENGRG CHG ✓ | CL I ENGRG CHG ☐

REASON FOR EO: TO INSURE PROPER FIT WITH MATING PARTS
DESCRIPTION OF EO: ADDED NOTE ✱
GAEC EO RELEASE: C 18 05 025

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP
APPROVED BY: ALW
DATE: 5/11
1 | VD1
SUPPORT | RELIAB. GROUP | GROUP LEADER | STRESS GROUP 5-11 | LIAISON ENGRG | PROJ ENGRG DAM 5-16-67 | ASMP
PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO: LEO 280
EO NO. 593

ISSUED BY ART WILSON X6510   SECTION VD1   GROUP NO. 335   PL. 5

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NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A *

DWG. NO. LEO 280 | EO NO. 595
CONTROL INFO NO. LM-3-5078

DRAWING NO.	CHG.	DESCRIPTION OF CORRECTION	EFFECT.
✓ LDW280-10488	D1	ON INCORP. OF E.O. C6 -11 & -21 WAS -11, -21, -13, -15 & -17	LM-3 (33) THRU LM-15 (45)
✓ LDW280-54424	D4	ON INCORP. OF CHG D3 E.O. D2 WAS E.O. B3 (IN ERROR)	LM-4 (34) THRU LM-15 (45)
✓ LDW280-11522	B1	FOR -11, -13, -15 ADD LM-3 SAME QUANT. & N/A	LM-3 (33)
✓ LDW280-28176	D2	IN FIELD & B/M REMOVE LDW280-10611-13-14	LTA-8 (18) LM-1 (31) LM-2 (32) LM-3 (33)
✓ LDW280-28875	B8	ON INCORP. OF E.O. B4 -1 WAS -3	LM-1 (31) LM-2 (32)
LDW280-52010	E6	ON INCORP. OF E.O. E5 -3 WAS -1	LM-2 (32)

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐ 3

REASON FOR EO: PROVIDE MULTIPLE DRAWING CORRECTIONS.

DESCRIPTION OF EO: NOTED

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓ REVISE DWG	RECORD EO	NOT REQD REWORK	SCRAP	APPROVED BY				~	—		DAM (EW)	
				DATE	7/6/67			~	—	5-15-67	5-16-67	5-15-67
				6	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 595

ISSUED BY LIAISON / VIC BOLLO X2151 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

C

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280		EO NO. 717
CONTROL INFO NO. LM5-16329		

(ADD) NOTE * "INSTALLATION PROCEDURE LM THERMAL SHIELD STANDOFFS PER LPC-280-38" TO THE FOLLOWING DRAWINGS

DRAWING NO **	TITLE	CHANGE NO
✓ LDW 280-28178	SEE DWG	L5
✓ 28179		A5
✓ 28279		F1
✓ 28347		D10
✓ 51392		B1
✓ 28495		B4
✓ 28499		B5
✓ LDW 280-28875	SEE DWG	B9

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☒	CL I ENGRG CHG	☐

REASON FOR EO: LPC ADDED TO UPDATE DRAWINGS AND TO FACILITATE INSTL.

DESCRIPTION OF EO: ADDED NOTE * FOR **

GAEC EO RELEASE: 5 JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQD	

	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~COVT~~
APPROVED BY	JaP			—	JFJ	CH		
DATE	9/28/67			—	9-25-67	9-25-67	9/28/67	9/26/67
9-25-67	VDI							

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO-280
EO NO.: 717

ISSUED BY LIAISON J.GRASSIANO X6216 SECTION YDI GROUP NO. 280 PL 25

01 NAS 9-1100

LDW280-28877 A

SWIP

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11235	QUAL TEST (72)	1
LM	LDW280-53153	LM-15 (45)	1
↑	↑	LM-14 (44)	1
		LM-13 (43)	1
		LM-12 (42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
↓	↓	LM-7 (37)	1
LM	LDW280-53153	LM-6 (36)	1
PART NO. LDW280-28877-5		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53153	QUAL TEST (70)	1
LM	LDW280-53153	LM-5 (35)	1
↑	LDW280-53153	LM-4 (34)	1
↓	LDW280-53153	LM-3 (33)	1
	LDW280-51153	LM-2 (32)	1
LM	LDW280-51153	LM-1 (31)	1
PART NO. LDW280-28877-3		GAEC SCH NO. 30 —	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	[illegible]	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED		GRUMMAN REL INFO.	A
LAST DASH NO. USED	-5	PRIM NO. 215	SK(001) MP-16 9-7-66

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.010 ~
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	MELMED 9-1-66	RELIABILITY	
LAYOUT BY	R.GORTLER		
CHECKED BY	J Hartzman 9-2-66		
GR LEADER	9/2		
VEH DES INT	9/2		
STRUCTURES	9/3	PROJ ENGR	R.m. Carbee 9-3
STRUCTURES	R. HILDERMAN	REL GROUP	B.A. 9.12.66
WEIGHTS	L. Garcia 9/12/66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRUT ASSY
ASCENT STAGE- MIDSECT ENGINE BAY
SHIELD X205 TO X210, -Y21 TO -Y22, +Z30 TO +Z36

SIZE	CODE IDENT NO.		
B	26512	LDW280-28877	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

"KEVA" CDR 6-25-63

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REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS		CHANGED BY AND DATE	ENGRG APPD	APPD
											REWORK	SCRAP			
A	1	1,1.10,2					✓	LEO-384 LAV250-844	FOR -1 ADDED LM-3 THRU LM-15 EFF. ADDED SH 1.10	LM-3(33) THRU LM-15(45)	NOT REQD		R. COPPOLA 6-12-68		
	2	1,1.10						LEO280-409	FOR-1 REMOVED LTA-8 REQUIREMENTS	LTA-8(18)		✓			
	3	1,1.10,2&3					✓	EO A3 LCD19-1244	ADDED -3, ON-1 REMOVED LM-1 & LM-2 REQUIREMENTS -1 MAY BE REWORKED INTO -3	LM-1(31) LM-2(32)	NOTED				
	4	1.1.10				✓		EO A4 LCD-1244	REMOVED-1 REQUIREMENTS REVISED EFF OF-3 WAS LM-1(31) & LM-2(32) ADDED N/A LDW280-53153 FOR-3. -1 MAY BE REWORKED INTO -3	LM-3(33) THRU LM-15(45)	NOTED				
	5	1,1.10					✓	LEO280-733 LCD-2104	FOR-3 ADDED QUAL TEST REQUIREMENTS	QUAL TEST(70)	NOT REQD				
	6	1,1.10&3					✓	LEO280-846	ADDED NOTE 2	QUALTEST(70) LM-3(30)THRU LM-15(45)	✓				
	7	1,1.10,2&3				✓		LCD 2838	ADDED-5. RESTRICTED -3 TO LM-1 THRU LM-5 & QUAL TEST(70). ADDED NOTE 3	QUAL TEST(72) LM-5 THRU LM-15		-3			

CHG APPROVED

LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS
A	6-24	6/25/68	6/26/68	6/27/68	

ENG 77.16 3-66

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28877	A

SCALE NONE

SHEET 1.10

01

NAS 9-1100

QTY PER ASSEMBLY -5	QTY PER ASSEMBLY -3	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
8	8		GR500C-6-4	E	RIVET	GRUMMAN STD						
1			LDW280P11519-13	E	STRUT	SEE DWG						
	1		LDW280P11519-11	E	STRUT	SEE DWG						
1			LDW280M11465-13	E	FITTING	SEE DWG						
	1		LDW280M11175-7	E	FITTING	SEE DWG						
	1		LDW280M11175-5	E	FITTING	SEE DWG						
1			LDW280M11465-11	E	FITTING	SEE DWG				NONE	NONE	
			LDW280-28877-5	E	STRUT ASSY					NONE	NONE	
			LDW280-28877-3	E	STRUT ASSY							

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B

CODE IDENT NO. 26512

LDW280-28877 A

SCALE NONE

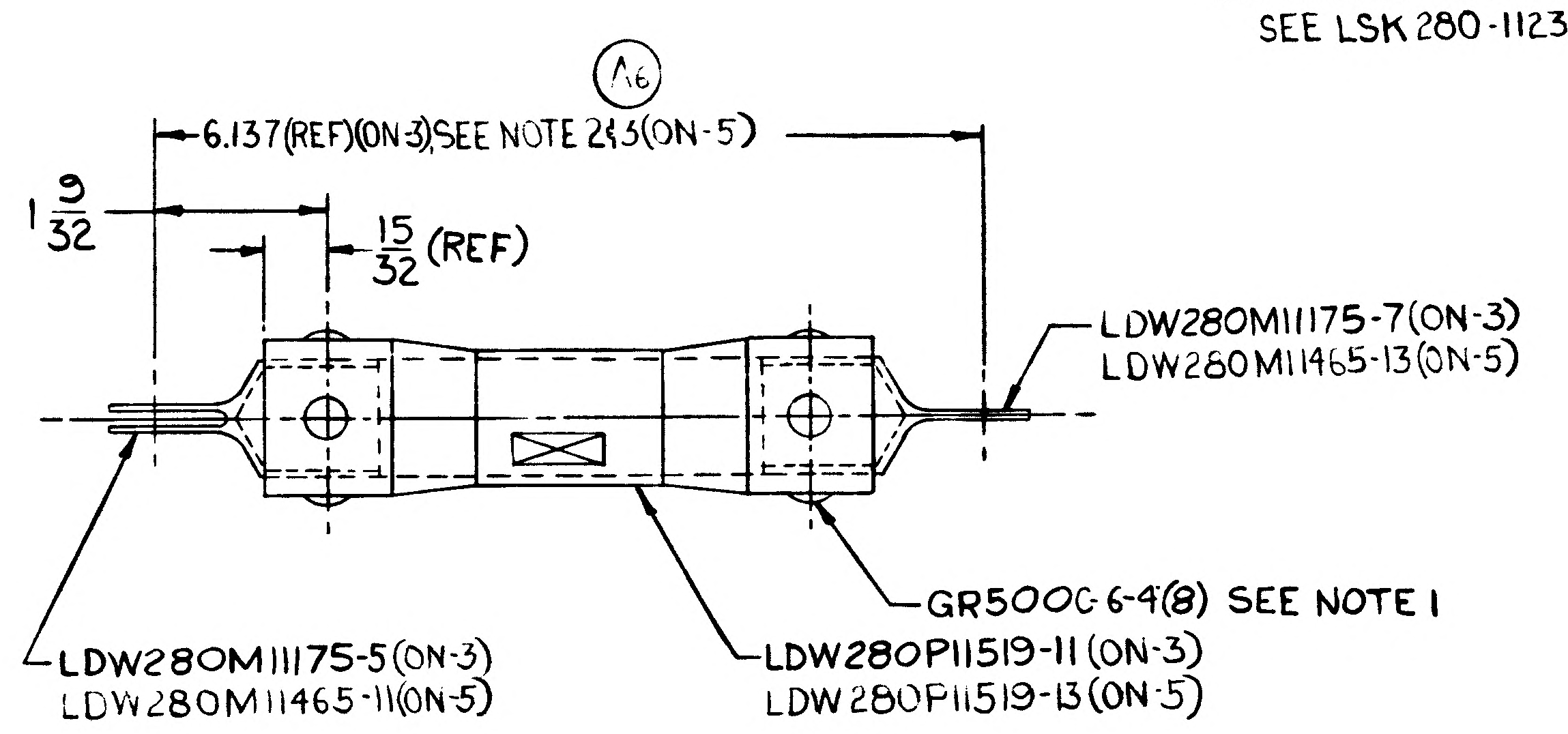
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

NOTES:
1. INSTALL FASTENERS PER LSP-14-15303
2. STRUT LENGTH TO BE DETERMINED ON INSTL ON NEXT ASSY LDW280-53153. MAINTAIN MIN EDGE DISTANCE ON ROD END FASTENERS OF 1½ D.
3. FOR STRUT LENGTH OF -5 (QUAL TEST (72)) SEE LSK 280-11235.



LDW280-28877-3 ASSY (A3)
-5 ASSY (A7)

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	C	26512	LDW280-28877	A
	SCALE FULL			SHEET

LDW280-28877A

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 409
CONTROL INFO NO. LM-5-11407

IN MODEL BLOCK: REMOVE VEHICLE REQUIREMENTS FOR THE FOLLOWING DASH NUMBERS AND NEXT ASSEMBLIES AS SHN.

DWG NO.	* DASH NO	CHANGE NO	** EFF-REMOVED	N/A	REQ'D/MOD
LDW280-28877 ✓	-1	A2	LTA-8 (18)	LDW280-28153	1
LDW280M11175 ✓	-1, -3	A2	LTA-8 (18)	LDW280-28877	1EA
LDW280P11519 ✓	-11	A2	LTA-8 (18)	LDW280-28877	1
LDW280-11686 ✓	-11, -12, -13, -14 -15, -16	A1	LM-1 (31)	LDW280-51317	1EA
LDW340-10012 ✓	-13, -14	B2	LM-1 (31)	LDW280-51317	1EA

RELEASED BY LIAISON

5

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO
FLOODLIGHT NOT REQ'D ON LM-1
PARTS REMOVED DUE TO SHIELD INTERFERENCE ON LTA-8

DESCRIPTION OF EO
FOR *: REMOVED ** REQUIREMENTS

GAEC C EO RELEASE
E

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		NOTED	
		ABOVE	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓			✓

				GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~
APPROVED BY	WT			~	WB	CH		
DATE	12/14/66			~	12/14/66	12-15	12-20	12/1966
#1	VDI	SUPPORT	RELIAB. GROUP					

PRIORITY: C
DRAWING TITLE: SEE DWG.
DRAWING NO.: LEO 280
EO NO.: 409

ISSUED BY M. SHAPIRO X6456
SECTION VDI
GROUP NO. 335
PL 5

01 NAS 9-1100

A

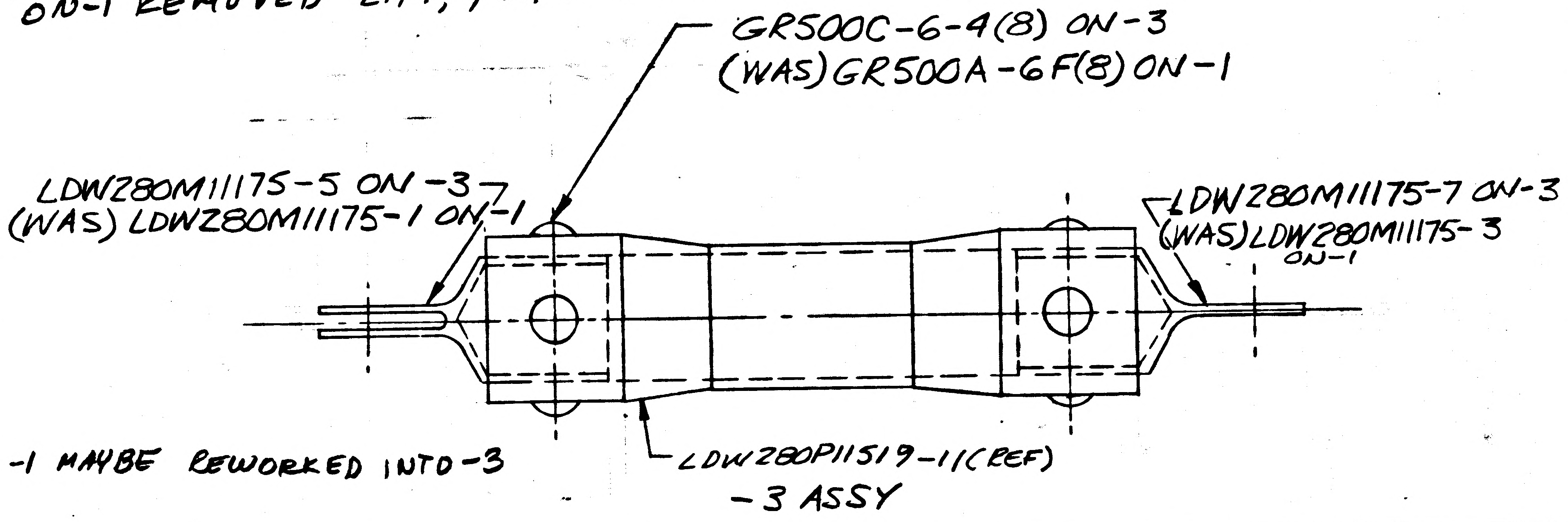
ENG 32.1 REV 3-65

FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28877 EO NO. A3
CONTROL INFO NO. LDW280A6530

IN F/D, B/M & M/B CREATE -3 ASSY - IDENTICAL TO -1 ASSY EXCEPT AS SHOWN
-3ASSY EFF LM1(31) & LM2(32) N/A AND QTY. SAME AS -1
ON-1 REMOVED LM-1, & LM-2 REQUIREMENTS.


GR500C-6-4(8) ON-3
(WAS) GR500A-6F(8) ON-1
LDW280M11175-5 ON -3
(WAS) LDW280M11175-1 ON-1
LDW280M11175-7 ON-3
(WAS) LDW280M11175-3 ON-1
LDW280P11519-11(REF)
-3 ASSY

-1 MAYBE REWORKED INTO -3

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		LCD19-1244	5

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC EO RELEASE
INCREASED FITH LOADS	ADDED -3, ON-1 REMOVED LM-1 & LM-2 REQUIREMENTS,	JK 4/24/7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM1(31)	
LM		LM2(32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓		DATE	4/20/67	4/24			4/23/67	4/24		4/10/67	4/24/67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONF.~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRUT ASSY A/S, M/S ENGINE BAY SHIELD X205 TO 210 -Y21 TO -Y22 +Z30 +Z36	LDW280-28877	A3

ISSUED BY G. GREEN / FRANK DERESPINIS X7036 SECTION V.D.I. GROUP NO. 335 PL 25

A

ENG 32.1 REV 3-65

FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-28877		EO NO. A4
CONTROL INFO NO. LDW280A6988		

FOR-1

REMOVE N/A LDW280-53153 1 REQ'D/MOD EFF. LM-3(33) THRU LM-15(45)
(-3 REPLACES -1)

IN M/B FOR-3

N/A LDW280-51153 1 REQ'D/MOD EFF. LM-1(31) & LM-2(32)
(ADD) N/A LDW 280-53153 1 REQ'D/MOD EFF. LM-3(33) THRU LM-15(45)
(WAS)
N/A LDW280-51153 1 REQ'D/MOD EFF. LM-1(31) & LM-2(32)

-1 MAY BE REWORKED INTO -3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD-1244 5

REASON FOR EO	DESCRIPTION OF EO	Ⓡ GAEC EO RELEASE C
INCREASED FITH LOADS	REMOVED -1 REQUIREMENTS REVISED EFF. OF -3 WAS LM-1(31) & LM-2(32) ADDED N/A LDW280-53153 FOR-3	JL 6-2-7

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY							
				DATE	5/25/67			5/25/67	5/26/67		5/26/67	6/1/67
✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	CONTR

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STRUT ASSY.-A/S-MID SECTION ENG. BAY-SHIELD	LDW280-28877	A4

ISSUED BY A. PROKOPETZ x7036 SECTION V.D.I GROUP NO. 335 PL 25

01

NAS 9-1100

RELEASED BY LIAISON

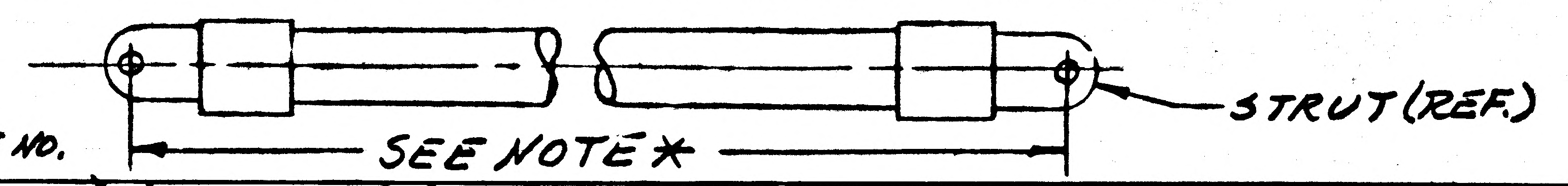
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-63

DWG. NO. LEO 280
EO NO. 846
CONTROL INFO NO. LM-5-17875

DWG NO.	CHG. NO.	TITLE
✓ LDW280-28481-9	B2	STRUT ASSY.
✓ LDW280-28866-11, 21, 23, -25 & -5	A10	STRUT ASSY.
✓ LDW280-28867-19 & -23	A7	STRUT ASSY.
✓ LDW280-28877-3	A6	STRUT ASSY.
LDW280-28879-5	A6	STRUT ASSY.
LDW280-28483-1 & -9	B6	STRUT ASSY.
LDW280-53867-9-11 & -13	A6	STRUT ASSY.
LDW280-53483-5 & -7	A5	STRUT ASSY.

ON THE ABOVE DWGS. ADD NOTE *. STRUT LENGTH TO BE DETERMINED ON INSTL. ON NEXT ASSY. LDW280-53153.
MAINTAIN MIN. EDGE DISTANCE ON ROD END FASTENER OF 1½D.



*USE NEXT AVAILABLE NO.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ✓ CL I ENGRG CHG ☐ (5)

REASON FOR EO: TO PERMIT ADJUSTMENT OF STRUT ON INSTL. R.T.E. 02-855-8001

DESCRIPTION OF EO: ADDED NOTE *.

GAEC C EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		QUAL TL 5T(70) LM-3 (33)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY				—	JFJ	JFJ		
DATE	1/22/68				1-22-68	1-22-68	1/27/68	1/23/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 846

ISSUED BY LIAISON J. JARVIS SECTION V.D.I. GROUP NO. 280 PL 25

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 1289
CONTROL INFO NO. LDW280B7233

ON DWGS LISTED BELOW, RESTRICT EFF TO
QUAL TEST (72) WAS QUAL TEST (72), LM-6(36)
THRU LM-15 (45)

DRAWING NO.	DASH NO. *	CHG NO.	TITLE
LDW280-56867	-1 & -3	A2	STRUT ASSY - A/S - M/S
-56866	-5 & -7	A2	STRUT ASSY - A/S - M/S
-28877	-5	B1	STRUT ASSY - A/S - M/S
P11258	-21	B1	STRUT - A/S - M/S
P12088	-15	A1	STRUT - A/S - M/S
P12087	-19 & -17	A2	STRUT - A/S - M/S
P11519	-13	B1	STRUT - A/S - M/S
M11463	-11 & -13	A2	FORK - A/S - M/S
M11461	-11	A1	FORK - A/S - M/S
M11459	-11, -13 & -19	A3	FORK - A/S - M/S
LDW280M11465	-11 & -13	A1	FORK - A/S - M/S

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NAS 9-1100

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD-3803 PKG #11 (5)

REASON FOR EO: REDESIGN LH TORUS RING & TUB SPT STRUTS FOR INCREASED FITH LOADS
L76 RE 2/27/69

DESCRIPTION OF EO: ON DASH * RESTRICTED EFF TO QUAL TEST (72) BY REMOVING LM-6(36) THRU LM-15(45) EFF.

EO RELEASE 2/26/69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
APPROVED BY	JaP			TDR	CL		Jm
DATE	2/25/69			2/26/69	2/26/69		2/26/69

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO-280
EO NO.: 1289

ISSUED BY JOHN K. LEE 2-24-68 SECTION VDI GROUP NO. 280 PL -5
CDR 022869

ENG 32.2 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO-280
EO NO. 1290
CONTROL INFO NO. LDW280B7234

ON DWGS LISTED BELOW, ADD LM-6(36) THRU LM-15(45) EFF.

DRAWING NO.	DASH NO *	CHG NO	TITLE	N/A
LDW280-53867	-13∅-9	B1	STRUT ASSY-A/S-M/S	LDW280-53153
-28866	-25∅-23	C1	STRUT ASSY- A/S-M/S	LDW280-53153
-28877	-3	B2	STRUT ASSY- A/S-M/S	LDW280-53153
P11258	-19	B2	STRUT-A/S-M/S	LDW280-53867
P11080	-27	C1	STRUT- A/S-M/S	LDW280-53867
P11081	-33∅-31	C1	STRUT-A/S-M/S	LDW280-28866
P11519	-11	B2	STRUT-A/S-M/S	LDW280-28877
M11146	-1∅-3	C1	FORK-A/S-M/S	LDW280-53867
M11036	-11	B1	FORK-A/S-M/S	LDW280-53867
M11147	-19,7∅-9	D1	FORK- A/S-M/S	~~LDW280-28866~~
LDW280 M11175	-5∅-7	B1	FORK-A/S-M/S	LDW280-28877

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD-3803 PKG #11 *

(6)

REASON FOR EO: REDESIGN LH TORUS RING ∅ TUB SPT STRUTS FOR INCREASED FITH LOADS
LM6 ZZE 2-27-69

DESCRIPTION OF EO: FOR DASH * ADDED LM-6(36) THRU LM-15(45) EFF.

RELEASE 2-26
2-27-69

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-6(36)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: ✓ REVISE DWG | RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK | SCRAP)

APPROVED BY					CL			
DATE	2/25/69			2/25/69	2/26/69		2/26/69	2-27-69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO-280
EO NO.: 1290

ISSUED BY JOHN K LEE 87222 2-24-69
CDR C22869
SECTION VDI
GROUP NO. 280 PL 25

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO280
EO NO. 1628
CONTROL INFO NO. LDW280 B8198

FOR DASH(*) REMOVE LM-15(45) EFF.

DRAWING NUMBER	DASH NUMBER *	TITLE	NEXT ASSEMBLY	CHANGE No
LDW280-28866	-23 & -25	SEE DWG	LDW 280-53153	C2
-28877	-3			B3
-28879	-7			B1
-53867	-9 & -15			B4
-56867	-5, -7 & -9			A3
-56866	-1, -3 & -9			A3
-56481	-1			A1
-28898	-1			B1
-53203	-1			D2
LDW280-53225	-1	SEE DWG	LDW280-53153	D3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD # 3587 PKG 13 Pg. 1 (5)

REASON FOR EO
CONFIGURATION CHANGE TO LM-15

DESCRIPTION OF EO
FOR DASH(*) REMOVE LM-15(45) EFF.

(P) GAEC EO RELEASE
LK 8-26-69
VK 8/27/69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓
APPROVED BY
DATE 7/23/69
VDI
SUPPORT
RELIAB. GROUP
GROUP LEADER FDR/9N 1-22-69
STRESS GROUP
LIAISON ENGRG
PROJ ENGRG 8/27/69
CONTROL 8-27-69

PRIORITY C
DRAWING TITLE SEE DRAWING
DRAWING NO. LEO-280
EO NO. 1628

8-15-69
ISSUED BY GEO. W. ROCKLEIN X86048 (MH) SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28878

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28155	LEM-2(32)	1
LEM	LDW280-28155	LEM-1(31)	1
LEM	LDW280-28155	LTA-8(18)	1
PART NO. LDW280-28878-3		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LEM	LDW280-28156	LEM-2(32)	1
LEM	LDW280-28156	LEM-1(31)	1
LEM	LDW280-28156	LTA-8(18)	1
PART NO. LDW280-28878-1		GAEC SCH NO. 30—	

3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00		2.00		3.00				
REV									
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED	—	GRUMMAN REL INFO	
LAST DASH NO. USED	-3	PRIM NO. 215	(E001) MP-4 12-6

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.020 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	M.H.MULLER 9/3/66	RELIABILITY	
LAYOUT BY	J. CALIGIURI		
CHECKED BY	J. Kartzman 9-7-66		
GR LEADER	HENTON 9-9-66		
VEH DES INT			
STRUCTURES	9/10/66	PROJ ENGR	R.M. Carbee 9-12
STRUCTURES	L. HILDERMAN	REL GROUP	Botts 9-20-66
WEIGHTS	L. Garcia 9/16/66		

®
GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

TUBE ASSEMBLY
ASCENT STAGE MID SECTION THERMAL SHIELD
LEFT HAND & RIGHT HAND TANK

SIZE	CODE IDENT NO.	
B	26512	LDW280-28878
SCALE	NONE	SHEET 1.00 OF 3

ENG 77.1 12-65

CDR 9/19/66

01

NAS 9-1100

QTY PER ASSEMBLY -3	QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1	1		LDW280-10865-25	E	LUG	SEE DWG						
1			LDW280-10864-17	↑	TUBE	SEE DWG						
	1		LDW280-10860-31		TUBE	SEE DWG						
			LDW280-28878-3	↓	TUBE ASSY					AW & FP	76	
			LDW280-28878-1	E	TUBE ASSY					AW & FP	76	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC
AW	FUSION WELDING	LSP-14-6201
76	ALODINE	LSP14-9010
FP	ZYGLO	MIL-I-6866

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28878
SCALE NONE
SHEET 2.00

ENG 77.2 7-65

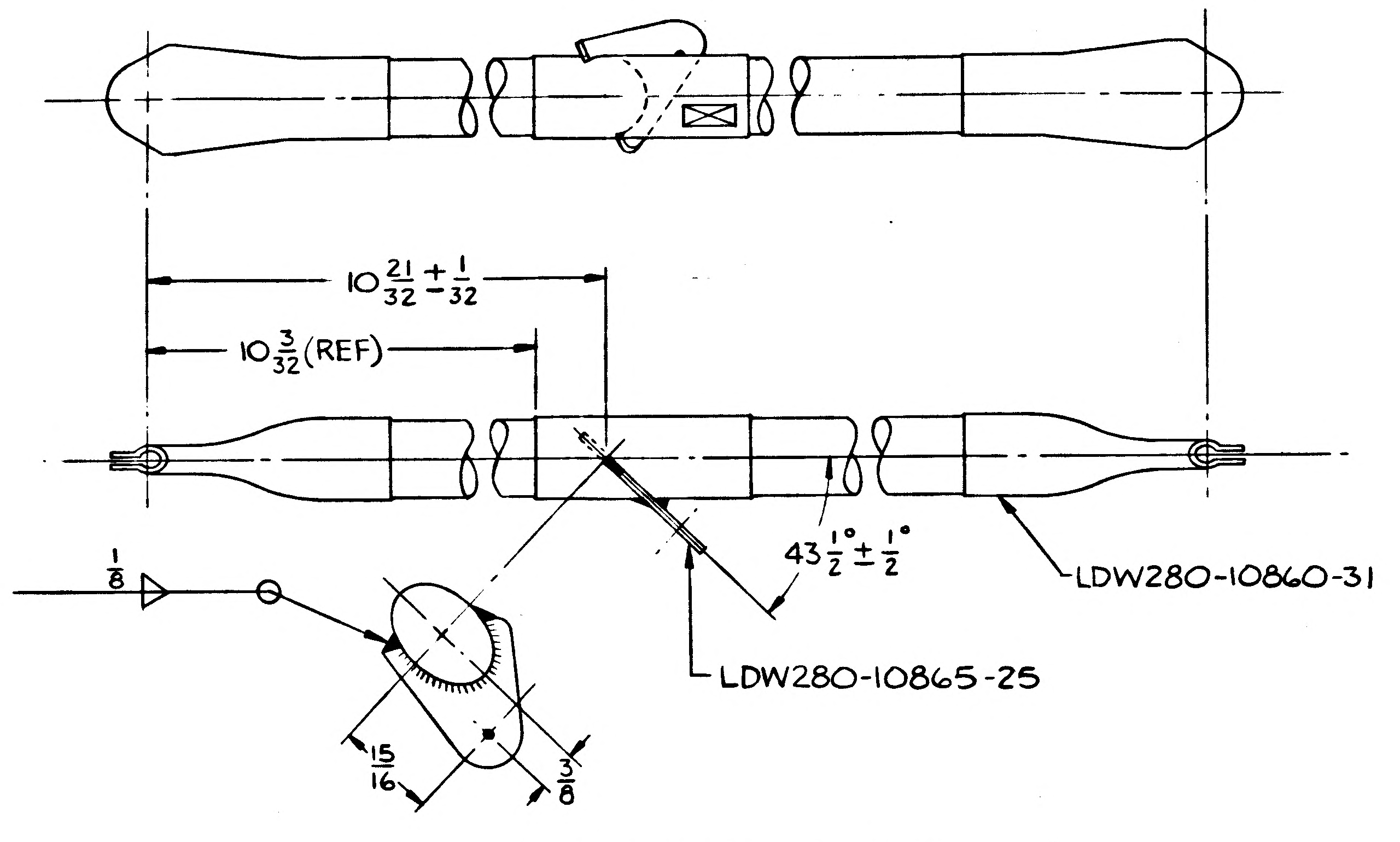
01

NAS 9-1100

LDW280-28878

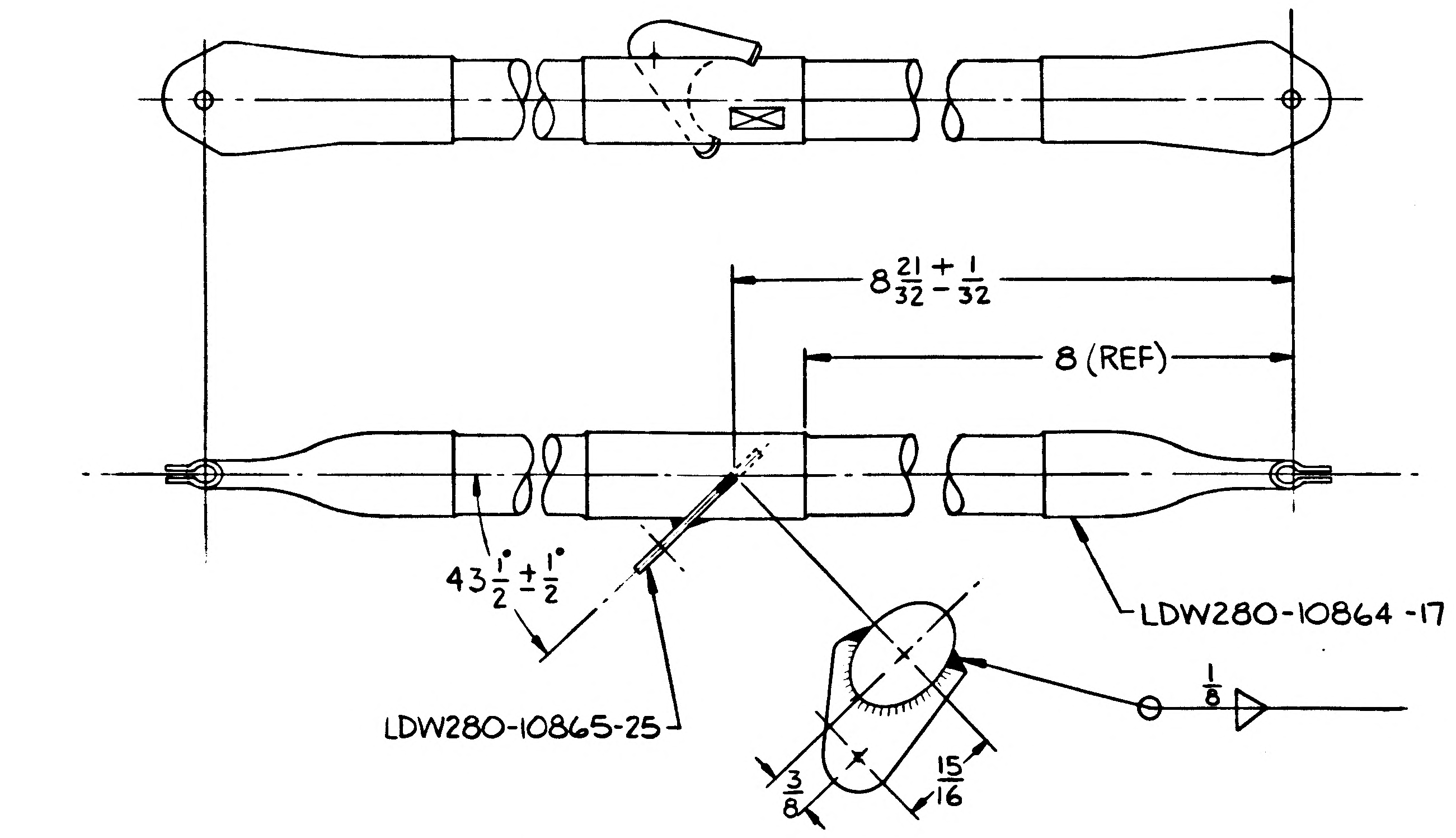
NOTES:

1. WELD STD #3 PER SPEC LSP-14-6201
   DIE PENETRANT CHECK ONLY
   NO RADIOGRAPHIC INSPECTION REQD
2. ANNEALED MATERIAL PERMITTED IN AREA OF WELD.



$10\frac{21}{32}{}^{+\frac{1}{32}}_{-}$
$10\frac{3}{32}$(REF)
$43\frac{1}{2}° \pm \frac{1}{2}°$
LDW280-10860-31
$\frac{1}{8}$
LDW280-10865-25
$\frac{15}{16}$
$\frac{3}{8}$

LDW280-28878-1 ASSY



$8\frac{21}{32}{}^{+\frac{1}{32}}_{-}$
8 (REF)
$43\frac{1}{2}° \pm \frac{1}{2}°$
LDW280-10864 -17
LDW280-10865-25
$\frac{1}{8}$
$\frac{3}{8}$
$\frac{15}{16}$

LDW280-28878-3 ASSY

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL f DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

LDW280-28878

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.	
LEM	D	26512	LDW280-28878
	SCALE FULL		SHEET 3.00

01 NAS 9-1100

ENG 32.1 REV 3-65 *

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28878
EO NO. A1
CONTROL INFO NO. LDW280A0792

IN FIELD OF DWG & B/M;

CREATE -3-1, IDENTICAL TO -3, EXCEPT
REMOVE LDW 280-10864-17,
ADD LDW 280-10864-21

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		3

REASON FOR EO: TO ALLOW THE USE OF NON-CHEM MILLED TUBES IN ASSY. & INSTL.

DESCRIPTION OF EO: ADDED -3-1, REMOVED -3

GAEC C EO RELEASE: FR 10/6

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-2 (32)	
LM		LM-1 (31)	
LM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓			✓

APPROVED BY								
DATE	9/28	10 4		9/28	9/08		9-30-66	9/30/66
9/28/66	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CORP~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	TUBE ASSY. A/S, M/S, THERMAL SHIELD L.H. & R.H. TANK	LDW280-28878	A1

ISSUED BY P. FRANZESE x1804 SECTION VDI GROUP NO. 335 PL 35

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NAS 9-1100

ENG 32.1 REV 3-65

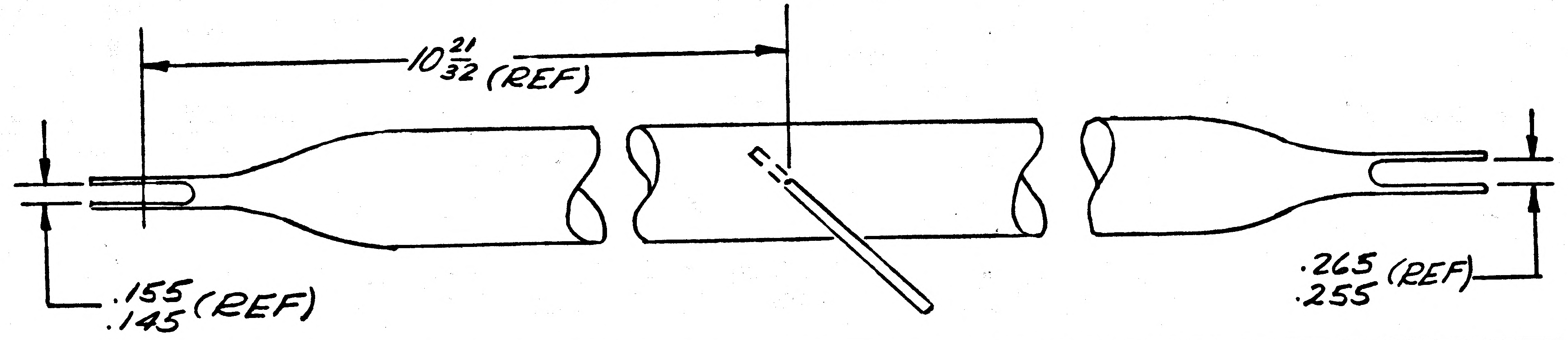
FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28878
EO NO. A3
CONTROL INFO NO. LDW280A-6582

RESTRICT LDW280-28878-5 TO LTA-8 (18)

CREATE -9 IDENTICAL TO -5 EXCEPT THAT LDW280-10860-49 REPLACES LDW280-10860-45 FOR LM-1 (31) & LM-2 (32)



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	LCD 19-1244

REASON FOR EO: INCREASED FITH LOADS

DESCRIPTION OF EO: RESTRICTED LDW280-28878-5 TO LTA-8. CREATED -9 FOR LM-1 & LM-2

GAEC EO RELEASE: C JK 4/26/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY / DATE								
✓			✓	4/25/67							4/21/67	4-27-67
REVISE DWG	RECORD EO	REWORK	SCRAP	5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: TUBE ASSY A/S-M/S THERMAL SHLD L.H & R.H
DRAWING NO.: LDW280-28878
EO NO.: A3

ISSUED BY R. TEGNER X 7033 SECTION A/S GROUP NO. 335 PL 25

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NAS 9-1100

ENG 32.1 REV 3-65

FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW 280-28878	EO NO.	A4
CONTROL INFO NO.	LDW 280A-6608		

CREATE -11 IDENTICAL TO -7 EXCEPT THAT LDW 280-10864-25 WAS LDW 280-10864-21.

N/A = LDW 280-28155
EFF : LM-1 (31) & LM-2 (32)
QTY = 1 EA. REQ'D

REMOVE LM-1 (31) AND LM-2 (32) EFFECTIVITY FROM -7

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

LCD # 1244

5

REASON FOR EO: INCREASED FITH LOADS

DESCRIPTION OF EO:
ADDED -11
REMOVED -7

GAEC EO RELEASE: JK 4/27/7

MODEL	EFFECTIVITY		
	~~PROCURING ACTIVITY NO.~~	GAEC UNIT NO.	~~SUB-CONTR UNIT NO.~~
LM	LM-1 (31)	LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			-7
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				FDL	JV			Bott
DATE	4/27/67			4/27/67	4/27/67		4/27/67	4-28-67
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CGF~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	TUBE ASS'Y - A/S, M/S, THERMAL SHIELD, L.H. & R.H. TANK	LDW 280-28878	A4

ISSUED BY Geo. W. Rocklein x 7033 4/27/67 SECTION Veh. Des. INT GROUP NO. 335 PL 25

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NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28878	EO NO. A5
CONTROL INFO NO. LM-3-5130	

IN FLD & B/M (FOR-9 & -11)

LDW280-10865-27
WAS
LDW280-10865-25

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	3

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
INCREASED FITH LOADS	IN FLD & B/M (FOR -9 & -11), LDW280-10865-27 WAS LDW280-10865-25.	VK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1(31)	
		LM-2(32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	F.D.R.		
✓		✓		DATE	5/31/67		
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP

	BM		DAM (EW)	
	5-15-67	5-16-67	5-18-67	5/16/67
GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C3	TUBE ASSY. A/S M/S THERMAL SHIELD, L.H. & R.H. TANK	LDW280-28878	A5

ISSUED BY LIAISON/ALEC HARVEY (X2151) 5-15-67 SECTION V.D.I. GROUP NO. 335 PL 25

01

NAS 9-1100

LDW280-28879 A

SHIP

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LSK280-11235	QUAL TEST(72)	1
LM	LDW280-53153	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
LM	LDW280-53153	LM-6(36)	1

PART NO. LDW280-28879-7

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53153	QUALTEST(70)	1
LM	LTM280-26876	PA-1(47)	1
	LDW280-53153	LM-5(35)	1
	LDW280-53153	LM-4(34)	1
LM	LDW280-53153	LM-3(33)	1

PART NO. LDW280-28879-5

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO. / GAEC SCH NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51153	LM-2(32)	1
LM	LDW280-51153	LM-1(31)	1
LDW280-28879-3			
LM	LDW280-28153	LTA 8 (18)	1

PART NO. LDW280-28879-1

GAEC SCH NO. 30-

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED

LAST DASH NO. USED -7

GRUMMAN REL INFO.

PRIM NO.	JK(001)
215	MP-16A-6/28/68

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH

DETAIL SPEC REQUIREMENT

CLASS II ENGRG CHANGE

CLASS I ENGRG CHANGE

CONTRACT NO. NAS 9 1100

LINE ITEM I

DOCUMENTATION TYPE II

DRAWN BY	C.CASTELLANO 8-29-66	RELIABILITY	
LAYOUT BY	H.TONER		
CHECKED BY	H. RODALEWICZ 8/31/6		
CR LEADER	9-1-66		
VEH DES INT	9/1		
STRUCTURES	9/1	PROJ ENGR	R McCarber (E) 9-2
STRUCTURES	9/2	REL GROUP	Both 9-12-66
WEIGHTS	9-12		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STRUT ASSY
ASCENT STAGE-MID SECTION ENGINE
BAY THERMAL SHIELD SUPPORT

SIZE	CODE IDENT NO.		
B	26512	LDW280-28879	A
SCALE	NONE	SHEET 1.00 OF 4	

ENG 77.1 12-65

REV "A" CDR 6-25-68

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NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
A	1	1,1.10					✓	LEO280-384 LAV 250-844	FOR-1 ADDED LM-3 THRU LM-15 EFF. ADDED SH 1.10	LM-3 THRU LM-15	NOT REQD		R. COPPOLA 6-13-68		
	2	1,1.10					✓	LEO280-510 LCR19-1124	ON-1 ADDED PA-1(47) REQ	PA-1(47)	NOT REQD				
	3	1,1.10,2&3					✓	EO A3 LCD-1244	ADDED-3 REVISED EFF OF -1, LTA-8(18) WAS LTA-8(18), LM-1 THRU LM-15 & PA-1.	LM-1(31) LM-2(32)		✓			
	4	1,1.10,2&3				✓		EO A4 LCD-1244	ADDED-5 ASSY	LM-3 THRU LM-15, PA-1	NOT REQD				
	5	1,1.10					✓	LEO280-733 LCD 2104	FOR-5 ADDED QUAL TEST REQUIREMENTS	QUAL TEST(70)	NOT REQD				
	6	1.10&3					✓	LEO280-846	ADDED NOTE 3	QUAL TEST LM3 THRU LM-15	✓				
	7	1,1.10,2&3				✓		LCD 2838	ADDED -7. RESTRICTED-5 TO LM-3;4;5, PA-1 & QUAL TEST(70) ADDED NOTE 3	LM-6 THRU LM-15 QUAL TEST		-5		7.R.K. 6/27/68	6-28-68
	8						✓	LCD 1244	REF EO A3 EFF LM-1 & LM-2 SHOULD BE LM-1 THRU ① LM-15 & PA-1 8.7. 898	NOTED	NOT	REQD			

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS
	A	7.R.K. 6/25	6/26/68	6/26/68	6/27/68	

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28879	A

SCALE NONE

SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

		-7	-5	-3	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
				4			GR500A-6E	E	RIVET	STD PART						
		4	4		4		GR500A-6D		RIVET	STD PART						
		1					LDW280P11512-15		STRUT	SEE DWG						
			1	1			LDW280P11512-13									
					1		LDW280P11512-11									
		1	1				LDW280M11119-7									
				1	1		LDW280M11119-1		STRUT	SEE DWG						
							LDW280-28879-7		STRUT ASSY					NONE	NONE	
							-5									
							-3									
							LDW280-28879-1	E	STRUT ASSY					NONE	NONE	

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28879	A Ⓐ
SCALE NONE		SHEET 2.00	

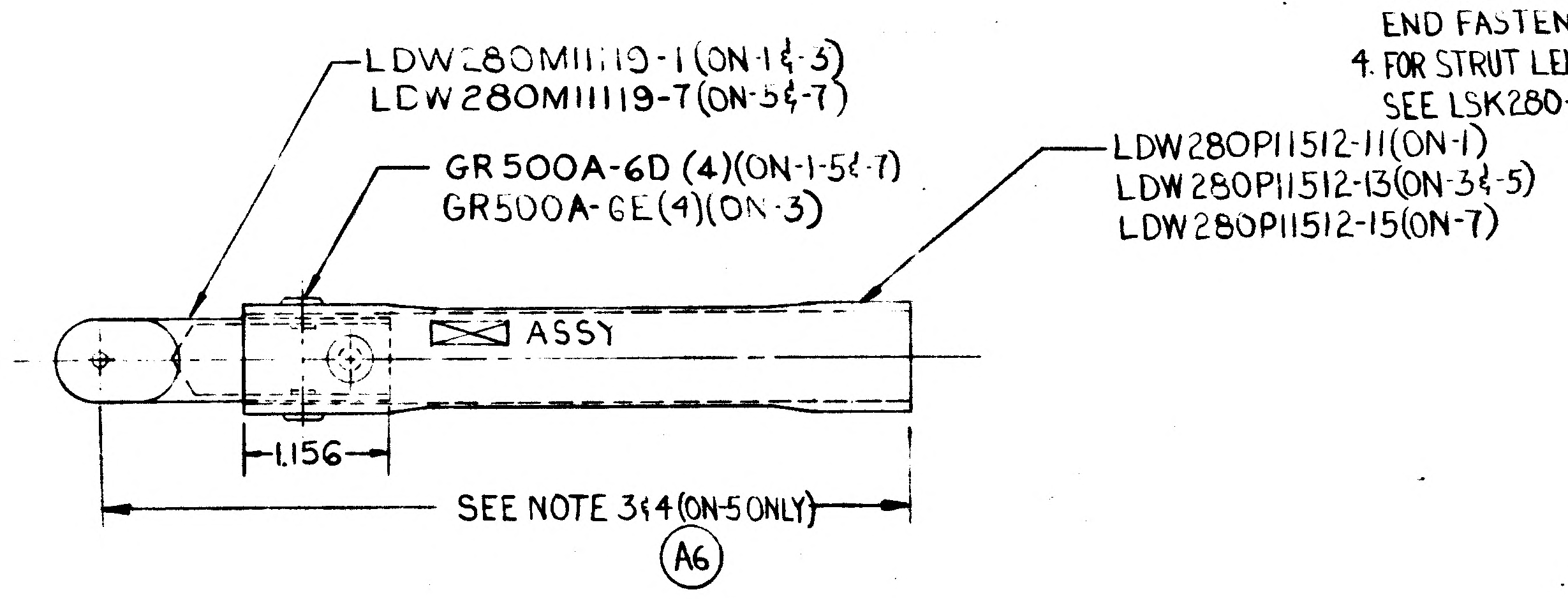
ENG 77.2 7-65

01

NAS 9-1100

LDW280-28879 A

NOTES;
1. NO TOOLING HOLES PERMITTED IN PARTS
2. INSTALL FASTENERS PER LSP-14-15303
3. STRUT LENGTH TO BE DETERMINED ON INSTL ON NEXT ASSY LDW280-53153. MAINTAIN MIN. EDGE DISTANCE ON ROD END FASTENER OF 1½D
4. FOR STRUT LENGTH OF -5 (QUAL TEST(2) SEE LSK280-11235.


LDW280M11119-1 (ON-1 & -3)
LDW280M11119-7 (ON-5 & -7)
GR500A-6D (4)(ON-1-5 & -7)
GR500A-6E (4)(ON-3)
LDW280P11512-11 (ON-1)
LDW280P11512-13 (ON-3 & -5)
LDW280P11512-15 (ON-7)
☒ ASSY
1.156
SEE NOTE 3 & 4 (ON-5 ONLY)
A6

LDW280-28879-1 ASSY
-3 ASSY Ⓐ3
-5 ASSY Ⓐ4
-7 ASSY Ⓐ7

01

NAS 9-1100

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

[illegible] AND PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE C	CODE IDENT NO. 26512	LDW280-28879	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

ENG 73-0 11-64

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 510
CONTROL INFO NO. LDW280A-5720

FOR THE FOLLOWING DWG'S LISTED BELOW, ADD PA-1(W5) EFFECTIVITY

DWG Nº	DASH Nº **	REQ'D/MOD	DWG TITLE	N/A	CHANGE Nº
LDW280-28879	-1	1	SEE DWG	LTM280-26876	A2
LDW280-28898	-1	1		LTM280-26876	A4
LDW280-28481	-5	1		LTM280-26876	A5
P11512	-11	1		LDW280-28879	A3
M11119	-1	1		LDW280-28879	A3
	-14-3	1 EA		LDW280-28481	
	-1	2		LTM280-26876	
M11199	-11	2		LDW280 28898	A2
M11200	-11	1			A3
M11201	-11	1			A2
P11579	-11	1			A3
P11580	-11	1			A5
P11581	-11	1			A2
P11582	-11	1			A3
P11589	-11	2		LDW280-28898	A6
P11013	-13	1		LDW280-28481	B2
53224	-1	1		LTM280-26876	A4
10681	-13	1		LDW280-53224	B1
10682	-13, -17, -19, -20	1 EA			B4
10683	-13, -15	2 EA			B3
11256	-11, -15 -13	1 EA 2			A1
11530	-11, -13	1 EA			A4
11777	-11	1			B2
M11149	-5, -7	1 EA			B4
P11494	-3	1		LDW280-53224	A2
53225	-1	1		LTM280-26876	A5
10685	-23, -27, -29	1 EA		LDW280-53225	A6
11257	-11, -13, -15, -17	1 EA			A2
11278	-11, -13	1 EA			A1
11527	-3	1			B1
11680	-11, -13, -15, -17	1 EA			A2
M11259	-11, -13	1 EA		LDW280-53225	B1
28866	-3, -5, -7, -9, -11	1 EA		LTM280-26876	A3
M11147	-11, -13, -7, -9 -5	1 EA 2		LDW280-28866	B4
M11153	-1, -3	2 EA			B1
P11081	-13, -15, -17, -19, -21	1 EA		LDW280-28866	B1
28867	-3, -11	1 EA		LTM280-26876	A3
M11146	-1, -3 -5, -7 -1, -3	1 EA 2 EA 1 EA		LDW280-28867 LDW280-28867 LDW280-53867	B1
M11152	-1, -3	2 EA		LDW280-28867	B2
P11080	-11, -13, -15, -19, -21	1 EA		LDW280-28867	A2
53867	-1, -3, -5	1 EA		LTM280-26876	A1
P11258	-11, -13, -15	1 EA		LDW280-53967	A1
M11036	-11	2		LDW280-53867	A3
LDW280M11037	-11	2	SEE DWG	LDW280-53867	A3

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

LCR 19-1124 5

REASON FOR EO: UPDATE DWG REQ'TS FOR PA-1

DESCRIPTION OF EO: ON ** ADDED PA-1(W5) REQ'TS

GAEC EO RELEASE: JK 3/11/

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	EFFECTIVITY GAEC UNIT NO.	EFFECTIVITY SUB CONTR UNIT NO.
LM		PA-1(W5)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY								
DATE	3/7/67	3/7/67		3/7/67	3/		3/8/67	3-11-67
5	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED ABOVE
DRAWING NO.: LEO 280
EO NO.: 510

ISSUED BY M. SHAPIRO X1153 SECTION VD1 GROUP NO. 335 PL 35 / 1

01 NAS 9-1100

ENG 32.1 REV 3-65 **FITH** A

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *

DWG. NO. LDW280-28879 | EO NO. A3
CONTROL INFO NO. LDW280A6806

ADD -3 ASSY. IDENTICAL TO -1 EXCEPT AS NOTED N/A { LDW280-51153 { LM-1 LM-2
LDW280-P11512-13 ON -3 REPLACES LDW280P11512-11 ON -1 AND
GR500A-6E (4 REQ'D.) ON -3 REPLACE GR500A-6D (4 REQ'D.) ON -1.

REVISE EFF. OF -1 TO READ
LTA8 (18) 1 REQ'D/VEH
* DELETE LM-1 (31) THRU LM-15 & PA-1 (47) FROM -1

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	LCD 1244 5

REASON FOR EO: INCREASED FITH REQUIREMENTS

DESCRIPTION OF EO:
ADDED -3
REVISED EFF. OF -1 { LTA8 (18) (WAS LTA-8, LM-1 THRU LM-15 & PA-1)

Ⓡ GAEC EO RELEASE C
JK 5/10/67

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓			*
REVISE DWG	RECORD EO	REWORK	SCRAP

APPROVED BY				ZHK					
DATE	5/5/67			5/5/67	5/ /67		5/10/67	5/10/67
5	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: STRUT ASSY. ~ A/S, M/S ENG. BAY THERMAL SHIELD SUPRT
DRAWING NO.: LDW280-28879
EO NO.: A3

ISSUED BY GM GREEN X7036 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01 NAS 9-1100

A

ENG 32.1 REV 3-65

FITH

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28879
EO NO. A4
CONTROL INFO NO. LDW280A6982

IN F/D, B/M & M/B: ADD -5 ASSY IDENTICAL TO -1. EXCEPT AS NOTED BELOW:

FOR -5 ASSY.
(a) REMOVE ~LDW280M11119-1 (1. REQ'D./VEH)
ADD ~ LDW280M11119-7 1 REQ'D./VEH.

(b) N/A LDW280-53153 FOR LM-3 THRU LM-15
LTM280-26876 FOR PA-1

(c) REMOVE ~ LDW280P11512-11
ADD ~ LDW280P11512-13

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD-1244	5

REASON FOR EO: INCREASED FITH LOADS

DESCRIPTION OF EO: ADDED -5 ASSY.

GAEC EO RELEASE: JL 6-2-7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
LM		THRU LM-15(45)	
		PA1(47)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY / DATE	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓		NOT	REQ'D	5/22/67				5/22/67			5/26/67	6/1/67
				5								

PRIORITY: C

DRAWING TITLE: STRUT ASSY ~ A/S, M/S ENG. BAY THERMAL SHIELD SUPPT.

DRAWING NO.: LDW280-28879

EO NO.: A4

ISSUED BY CM GREEN X7036 SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

RELEASED BY LIAISON

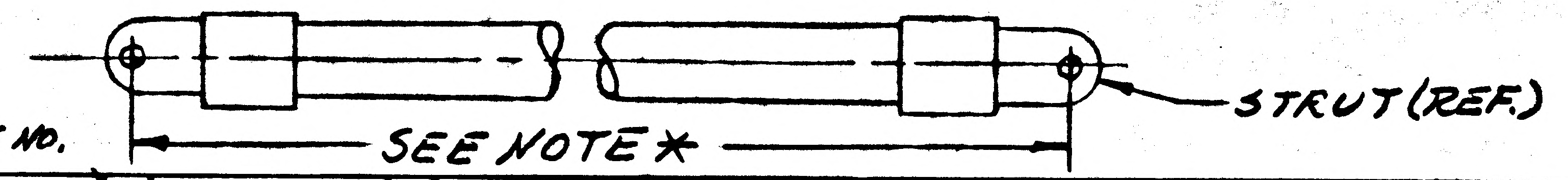
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-63

DWG. NO. LEO 280
EO NO. 846
CONTROL INFO NO. LM-5-17875

DWG NO.	CHG. NO.	TITLE
✓ LDW280-28481-9	B2	STRUT ASSY.
✓ LDW280-28866-11, 21, 23, -25 & -5	A10	STRUT ASSY.
✓ LDW280-28867-19 & -23	A7	STRUT ASSY.
✓ LDW280-28877-3	A6	STRUT ASSY.
✓ LDW280-28879-5	A6	STRUT ASSY.
LDW280-28483-1 & -9	B6	STRUT ASSY.
LDW280-53867-9-11 & -13	A6	STRUT ASSY.
LDW280-53483-5 & -7	A5	STRUT ASSY.

ON THE ABOVE DWGS. ADD NOTE*. STRUT LENGTH TO BE DETERMINED ON INSTL. ON NEXT ASSY. LDW280-53153. MAINTAIN MIN. EDGE DISTANCE ON ROD END FASTENER OF 1½D.



*USE NEXT AVAILABLE NO.

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG		(5)

REASON FOR EO: TO PERMIT ADJUSTMENT OF STRUT ON INSTL. R.T.E. 02-855-8001

DESCRIPTION OF EO: ADDED NOTE*.

GAEC C EO RELEASE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		QUAL TEST (70) LM-3 (33)	
		THRU	
		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY									
DATE	1/22/68				1-22-68	1-22-68	1/27/68	1/29/68
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LEO 280
EO NO.: 846

ISSUED BY LIAISON J. JARVIS
SECTION V.D.I.
GROUP NO. 280 PL. 25

01
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.1 REV 3-65

DWG. NO. LEO280
EO NO. 1628
CONTROL INFO NO. LDW280 B8198

FOR DASH (*) REMOVE LM-15 (45) EFF.

	DRAWING NUMBER	DASH NUMBER *	TITLE	NEXT ASSEMBLY	CHANGE No
✓	LDW280-28866	-23 & -25	SEE DWG	LDW 280-53153	C2
✓	-28877	-3			B3
✓	-28879	-7			B1
	-53867	-9 & -15			B4
	-56867	-5, -7 & -9			A3
	-56866	-1, -3 & -9			A3
	-56481	-1			A1
	-28898	-1			B1
	-53203	-1			D2
	LDW280-53225	-1	SEE DWG	LDW280-53153	D3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD # 3587 PKG 13 PG. 1 (5)

REASON FOR EO: CONFIGURATION CHANGE TO LM-15

DESCRIPTION OF EO: FOR DASH (*) REMOVE LM-15 (45) EFF.

(P) GAEC EO RELEASE: 8-26-69; 8-27-69

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15 (45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	7/23/69			7-22-69			8-27-69	
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	REL

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO-280
EO NO.: 1628

8-15-69
ISSUED BY GEO. W. ROCKLEIN X86048 4/25/69 (ML) SECTION VEH. DES. INT. GROUP NO. 335 PL 25

01

NAS 9-1100

PART NO: LDW280-28880-17

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53164	LM-15(45)	4
		LM-14(44)	4
		LM-13(43)	4
		LM-12(42)	4
		LM-11(41)	4
		LM-10(40)	4
		LM-9(39)	4
		LM-8(38)	4
		LM-7(37)	4
		LM-6(36)	4
		LM-5(35)	4
		LM-4(34)	4
	LDW280-53164	LM-3(33)	4
	LDW280-28164	LM-2(32)	4
LM	LDW280-28164	LM-1(31)	4

PART NO. LDW280-28880-7 | GAEC SCH NO. 30

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28164	LTA-8(18)	4

LDW280-28880 A

PART NO. LDW280-28880-13,-14,-15,&-16 | GAEC SCH NO. 30

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53862	LM-15(45)	1EA
		LM-14(44)	1EA
		LM-13(43)	1EA
		LM-12(42)	1EA
		LM-11(41)	1EA
		LM-10(40)	1EA
		LM-9(39)	1EA
		LM-8(38)	1EA
		LM-7(37)	1EA
		LM-6(36)	1EA
		LM-5(35)	1EA
		LM-4(34)	1EA
	LDW280-53862	LM-3(33)	1EA
	LDW280-28862	LM-2(32)	1EA
LM	LDW280-28862	LM-1(31)	1EA

PART NO: LDW280-28880-5

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53862	LM-15(45)	3
		LM-14(44)	3
		LM-13(43)	3
		LM-12(42)	3
		LM-11(41)	3
		LM-10(40)	3
		LM-9(39)	3
		LM-8(38)	3
		LM-7(37)	3
		LM-6(36)	3
		LM-5(35)	3
		LM-4(34)	3
	LDW280-53862	LM-3(33)	3
	LDW280-28862	LM-2(32)	3
	LDW280-28862	LM-1(31)	3
LM	LDW280-28862	LTA-8(18)	3

PART NO. LDW280-28880-1,-2,-3&-4 | GAEC SCH NO. 30

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28862	LTA-8(18)	1EA

3

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00		3.00				
REV	A	A	A		A				
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED: A

LAST DASH NO. USED: -17

GRUMMAN REL INFO A

PRIM NO.	VE(001)	
215	MP-5	A-130-7

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS – ANGLES
± 1/32 ±.010 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM 1
DOCUMENTATION TYPE II

DRAWN BY	BELEV		
LAYOUT BY			
CHECKED BY			
GR LDR	HENTON 9/8/66		
VEH.DES.INT.	W. BISCHOFF 9/9/66		
STRUCTURES	G.A.P. 9/10/66	PROJ ENGR	R.N. CARBEE 9/13/66
STRUCTURES	R.HILDERNAN	REL GROUP	BOTTI 9/22/66
WEIGHTS	D. ROBESCH 9/20/66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

STANDOFF ASSY
ASCENT STAGE - MID SECTION
THERMAL BLANKET & SHIELD

SIZE	CODE IDENT NO.		
B	26512	LDW280-28880	A

SCALE NONE
SHEET 1.0 OF 4

ENG 77.1 12-65

SUPERSEDES LDW280-28880-NO CHG - 9/22/66

01 NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
									RETRACED- NO CHG- LAST REV. NC.- ADDED SH. 1.10- G. KORDES- 1-17-67						
A	1	1,1.10,2,3						EO A1	ON -1,-2,-3, & -4 ASSY REMOVED LM-1(31) & LM-2(32) EFF. ADDED -9,-10,-11, & -12 ASSY.	LM-1 LM-2	✓		G. KORDES 1-17-67		
	2	1.10, 3						EO A2	ADDED LOCATION DIM. 3.55 FOR -5 & 4.00 FOR -7	LTA-8, LM-1, LM-2	✓				
	3	1.10, 3					✓	EO A3	IN FLD ADDED NOTE 3.	LTA-8, LM-1, LM-2	NOT	REQ'D			
	4	1.10					✓	EO A4	REF EOA3 LTA-8(18) ONLY WAS LTA-8 (18), LM-1 (31) & LM-2 (32)	LTA-8, LM-1, LM-2	NOT	REQ'D			
	5	1,1.10,2,3					✓	EO A5	ON-7 ASSY REMOVED LM-1 & -2 EFF. REMOVED -9,-10,-11, & -12 REQ'D FROM DWG. ON-5 ASSY ADDED LM-3 THRU LM-15 EFF NEXT ASSY LDW280-53862 (3 REQ'D/VEH). ADDED -17 NEXT ASSY LDW280-28164 LM-1 & -2 (4 REQ'D/VEH) & NEXT ASSY LDW280-53164 LM-3 THRU LM-15 (4 REQ'D/VEH). ADDED -13,-14,-15, & -16 NEXT ASSY LDW280-28862, LM-1 & -2 (1 REQ'D/VEH) & NEXT ASSY LDW280-53862, LM-3 THRU LM-15 (1 REQ'D/VEH) GB	LM-1 THRU LM-15		-9, -10, -11, & 12	7A.		

CHG APPROVED	LTR	GROUP LDR	VEH.DES.INT	STRUCTURES	STRUCTURES	WEIGHTS
	A					

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28880	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01 NAS 9-1100

QTY PER ASSEMBLY -17	-16	-15	-14	-13	-7	-5	-4	-3	-2	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
AR					AR	AR						MS20470B3	E	RIVET	STD PART						
	1	1	1	1								GT12E-2-31	↑	TUBE	GRUMMAN STD						
1	1	1	1	1	1	1	1	1	1	1		GB540C-04		INSERT	GRUMMAN STD						
1					1	1						GB511J-06-1		SCREW	GRUMMAN STD						
							1	1	1	1		LDW280P14378-21		TUBE	SEE DWG						
						1						LDW280P11514-7		BASE	↑						
1					1							-5		↑							
	1						1					-4									
		1						1				-3									
			1						1			-2		↓							
				1						1		LDW280P11514-1		BASE							
1					1							LDW280-28377-9		TUBE							
						1						LDW280-28377-7		TUBE							
1												LDW280-11515-15		CLIP							
					1							LDW280-11515-13		CLIP	↓						
						1						LDW280-11515-11		CLIP	SEE DWG						
												LDW280-28880-17		STANDOFF ASSY					NONE	NONE	
												-16		↑					↑	↑	
												-15									
												-14									
												-13									
												-7									
												-5									
												-4									
												-3									
												-2	↓	↓					↓	↓	
												LDW280-28880-1	E	STANDOFF ASSY					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I&T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28880	A
SCALE NONE			SHEET 2.00

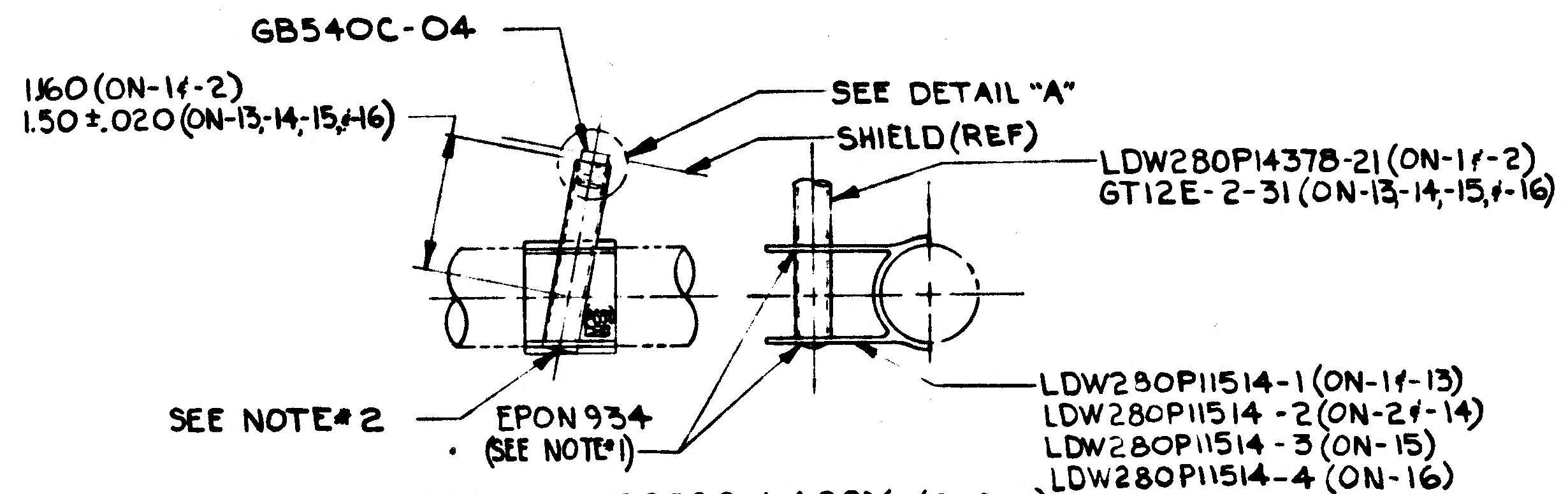
ENG 77.2 7-65

01

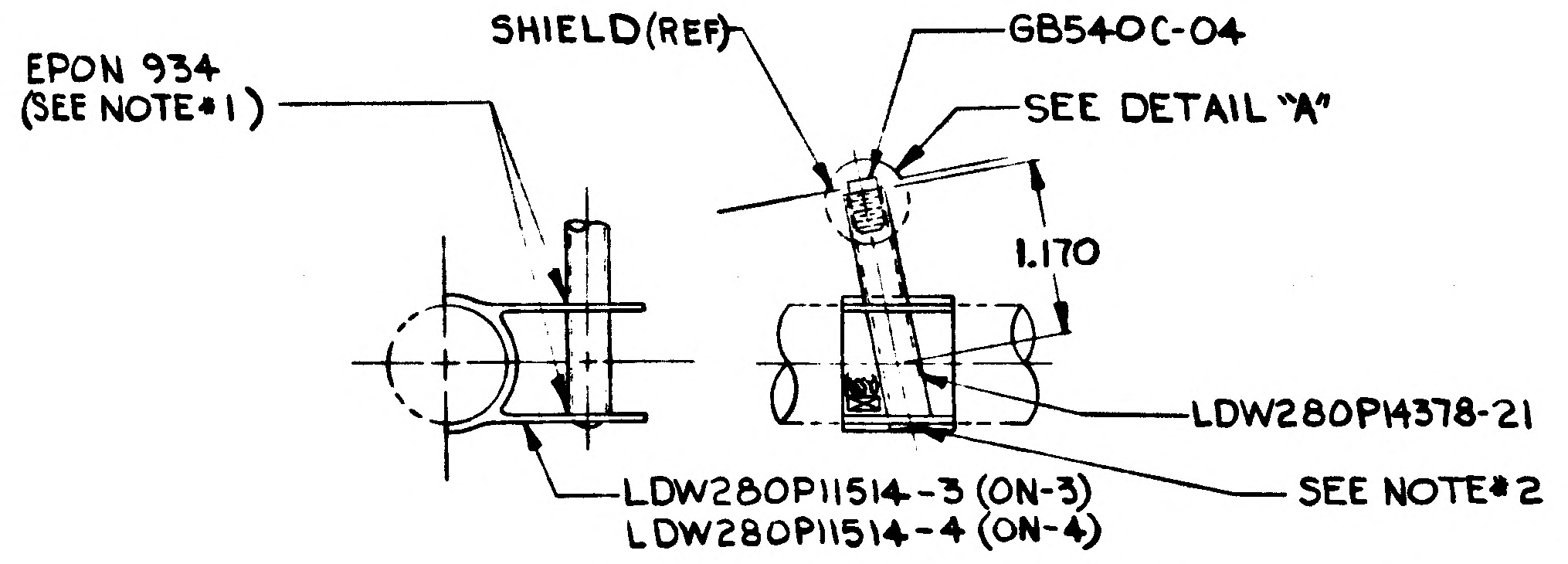
NAS 9-1100

LDW280-28880 A

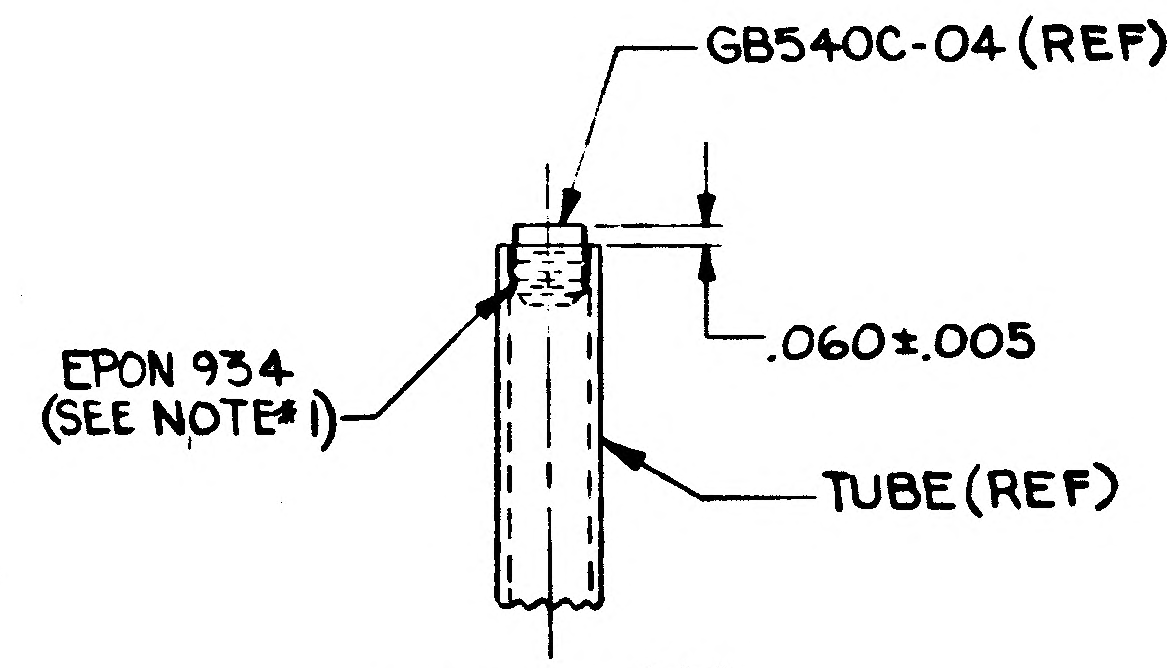
NOTES:
1. BOND IN ACCORDANCE WITH LSP-14-2250 USING EPON 934, CURE RANGE I
2. PLUG WITH EPON 934
3. AS AN ALTERNATE FOR ALL ASSY'S, NAS1218 -06C-1 & AN960D6 (2 REQ'D) MAY BE SUBSTITUTED FOR GB511J-06-1.


GB540C-04
1.160 (ON-1 & -2)
1.50 ±.020 (ON-13, -14, -15, & -16)
SEE DETAIL "A"
SHIELD (REF)
LDW280P14378-21 (ON-1 & -2)
GT12E-2-31 (ON-13, -14, -15, & -16)
SEE NOTE # 2
EPON 934 (SEE NOTE # 1)
LDW280P11514-1 (ON-1 & -13)
LDW280P11514-2 (ON-2 & -14)
LDW280P11514-3 (ON-15)
LDW280P11514-4 (ON-16)

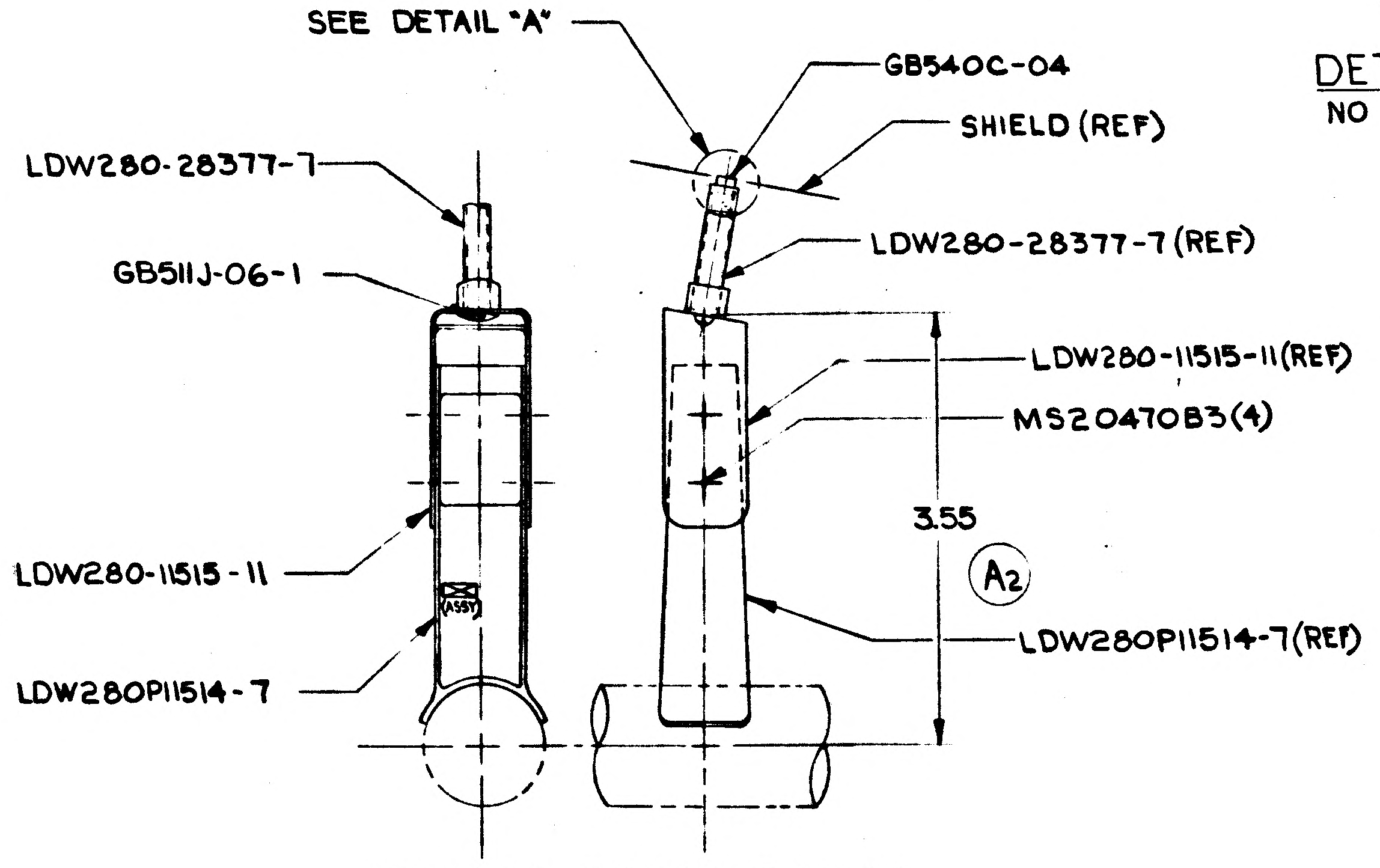
LDW280-28880-1 ASSY (SHOWN)
-2 ASSY (OPP)
-13 ASSY (SHOWN)
-14 ASSY (OPP)
-15 ASSY (SHOWN) Ⓐ5
-16 ASSY (OPP)
Ⓐ1


EPON 934 (SEE NOTE # 1)
SHIELD (REF)
GB540C-04
SEE DETAIL "A"
1.170
LDW280P14378-21
LDW280P11514-3 (ON-3)
LDW280P11514-4 (ON-4)
SEE NOTE # 2

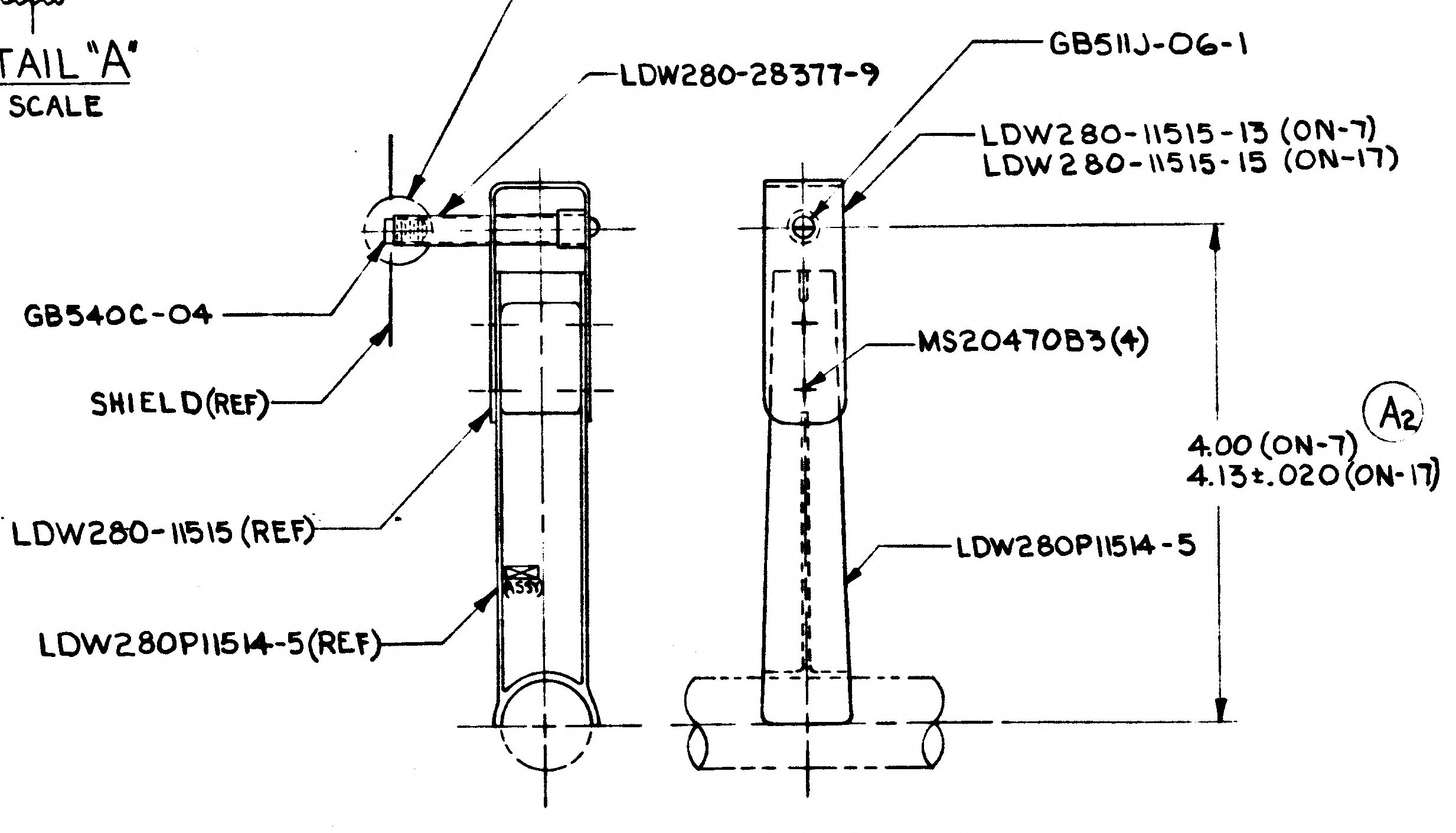
LDW280-28880-3 ASSY (SHOWN)
-4 ASSY (OPP)
Ⓐ1
Ⓐ5


GB540C-04 (REF)
EPON 934 (SEE NOTE # 1)
.060±.005
TUBE (REF)

DETAIL "A"
NO SCALE


SEE DETAIL "A"
GB540C-04
SHIELD (REF)
LDW280-28377-7
GB511J-06-1
LDW280-28377-7 (REF)
LDW280-11515-11 (REF)
MS20470B3 (4)
3.55
Ⓐ2
LDW280-11515-11
LDW280P11514-7
LDW280P11514-7 (REF)

LDW280-28880-5 ASSY


SEE DETAIL "A"
LDW280-28377-9
GB511J-06-1
LDW280-11515-13 (ON-7)
LDW280-11515-15 (ON-17)
GB540C-04
SHIELD (REF)
MS20470B3 (4)
4.00 (ON-7)
4.13±.020 (ON-17)
Ⓐ2
LDW280-11515 (REF)
LDW280P11514-5
LDW280P11514-5 (REF)

LDW280-28880-7 ASSY
-17 ASSY (IDENTICAL TO -7 EXCEPT AS NOTED)
Ⓐ5

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ ~~USE BOTH SIDES IF NECESSARY.~~	✓
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP. THDS. BEYOND PERMISSIBLE	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCES FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ✓ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED	
TOLERANCE ON LOFTED DELINEATIONS IS	

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK

LM	SIZE D	CODE IDENT NO. 26512	LDW280-28880	A
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	

01 NAS 9-1100

1

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-28880
EO NO. A1
CONTROL INFO NO. LDW 280A-2100

1.) IN B/M FOR -1, -2, -3 & -4 ASSY'S REMOVE LM-1(31) & LM-2(32) EFF.

2.) TO B/M & F/D:
ADD LDW 280-28880 -9, -10, -11 & -12 ASSY'S. IDENT TO -1, -2, -3 & -4 RESPECTIVELY EXCEPT AS NOTED BELOW. (1) REQ'D/VEH.

IS: FOR -9, -10, -11 & -12 LM-1 (31) & LM-2 (32)	No. REQ'D ASSY.	WAS: FOR -1, -2, -3 & -4 LM-1(31) & LM-2(32)	No. REQ'D ASSY
GT12E-2-25	1	LDW 280P14378-21	1
N/A LDW 280-28862		N/A LDW 280-28862	

3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: REPLACED BY 'G' STD.

DESCRIPTION OF EO: ON -1, -2, -3 & -4 ASSY REMOVED LM-1(31) & LM-2(32) EFF.
ADDED -9, -10, -11 & -12 ASSY

GAEC EO RELEASE: C 10/14

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
LM		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG ✓ · RECORD EO
DISPOSITION OF PARTS: REWORK ✓ · SCRAP

APPROVED BY									
✓ DATE	10/14	10-16		10/14	10/14		10-14-66	10/14/66
10/12/66	VDI	~~SUPPORT~~ Thermo	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C
DRAWING TITLE: STAND OFF ASSY. A/S M/S THERMAL BLKT
DRAWING NO.: LDW 280-28880
EO NO.: A1

ISSUED BY FRANK CHRISTINA x7033 FC SECTION VDI GROUP NO. 335 PL 35

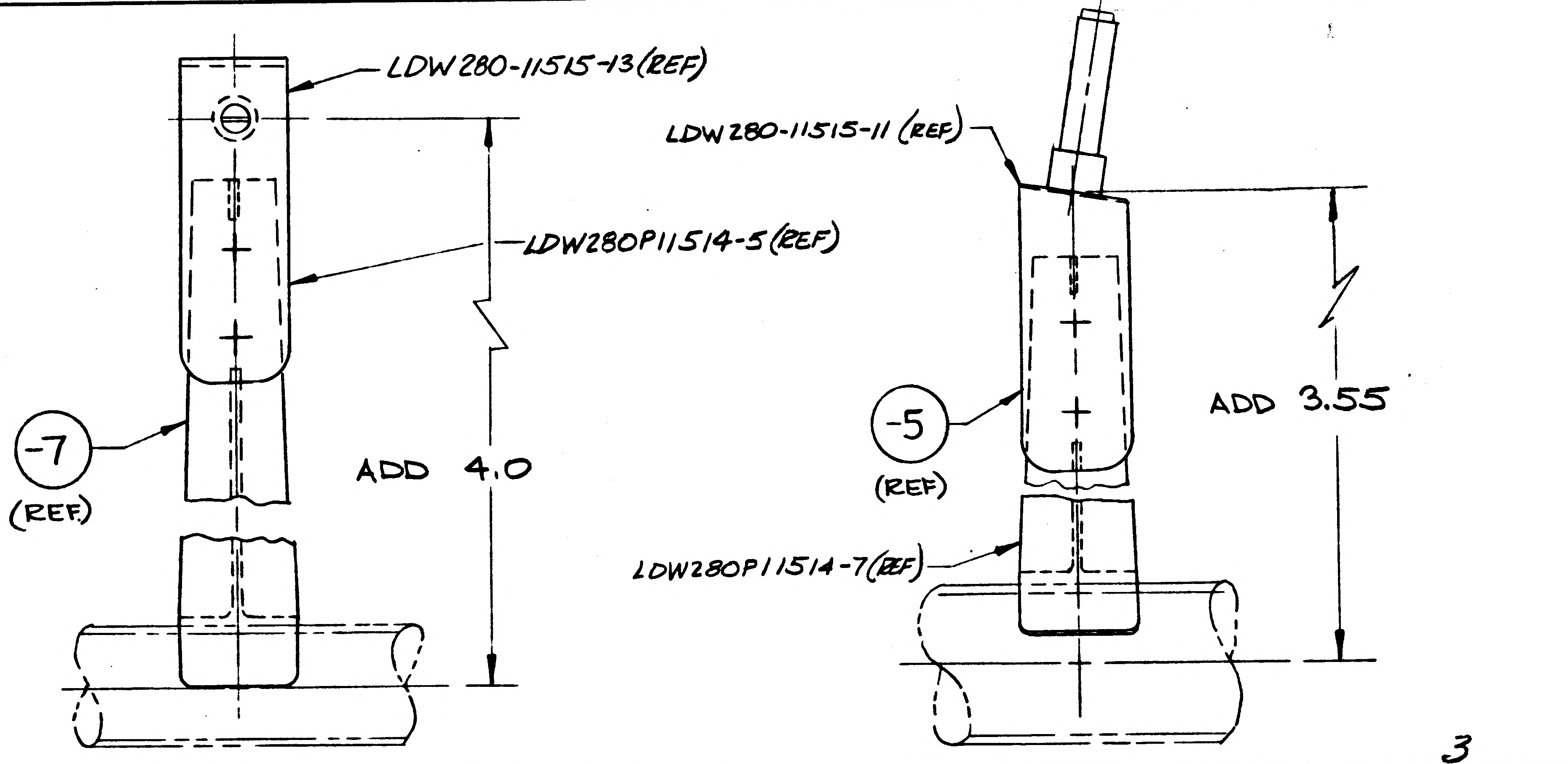
01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28880	EO NO. A2
CONTROL INFO NO. LDW 280A-2848	



LDW280-11515-13(REF)
LDW280P11514-5(REF)
-7
(REF)
ADD 4.0
LDW280-11515-11 (REF)
-5
(REF)
ADD 3.55
LDW280P11514-7(REF)

3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO
ADDED INFORMATION FOR MANUFACTURING

DESCRIPTION OF EO
ADDED LOCATION DIM 3.55 FOR -5 & 4.0 FOR -7

GAEC EO RELEASE: K 10/31

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
LM		LM-1(31)	
LM		LM-2(32)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP

APPROVED BY	JAP	MT			—			RMC WR	
DATE	10/29/66	10/31			—	10/31		10-31-66	10-31-66
	3	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	STANDOFF ASSEMBLY A/S M/S THERMAL SHIELD	LDW280-28880	A2

ISSUED BY FRANK CHRISTINA x7033 FC/ 10/29/66 SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28880 | EO NO. A3
CONTROL INFO NO. LM-27-267

IN FLD

ADD - NOTE *
AS AN ALTERNATE FOR ALL ASSY'S.
NAS1218-06C-1 & AN960-D6 (2 REQ'D) MAY BE
SUBSTITUTED FOR GB511J-06-1

* - USE NEXT AVAILABLE NOTE NUMBER

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	27

REASON FOR EO: TO SIMPLIFY MANUFACTURE

DESCRIPTION OF EO: IN FLD, ADDED NOTE *.

GAEC EO RELEASE: FR; 27-020

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	LM-1 (31)
		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP — NOT REQ'D

APPROVED BY		V.				J.	RMC	
DATE	11/15/66	11/17		11/14	11-2-66	11-2-66	11-7-66	11/3/66
3	VDI	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: STANDOFF ASSEMBLY A/S MID-SECTION THERMAL SHIELD

DRAWING NO. LDW280-28880

EO NO. A3

ISSUED BY LIAISON B. WALLACE 1921 E. CHRISTINA 4043 11-2-66 SECTION VDI - PAUL HENTON 1641 GROUP NO. 335 PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

*

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28880
EO NO. A4
CONTROL INFO NO. LDW 280A 3344

THIS EO REVISES E.O. A3
DESCRIPTION OF E.O.
EFFECTIVITY s/b LTA-8 (18) ONLY
WAS LTA-8 (18), LM-1 (31) & LM-2 (32)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	3

REASON FOR EO: REVISION OF EO A3

DESCRIPTION OF EO: REFERENCE EO A3 NOTED ABOVE

GAEC C EO RELEASE: FR 11/17/6

MODEL	EFFECTIVITY PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOTED ABOVE	

DRAWING CHANGE REQD REVISE DWG	RECORD EO	DISPOSITION OF PARTS REWORK	SCRAP
✓		NOT REQ'D	

APPROVED BY		V.J.J.						RMC WR	
DATE	11/16/66	11/16			11/14	11/14		11-16-66	11/16/66
#6	VDI	~~SUPPORT~~ THERMAL	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C.	STANDOFF ASSEMBLY A/S M/S THERMAL SHIELD	LDW280-28880	A4

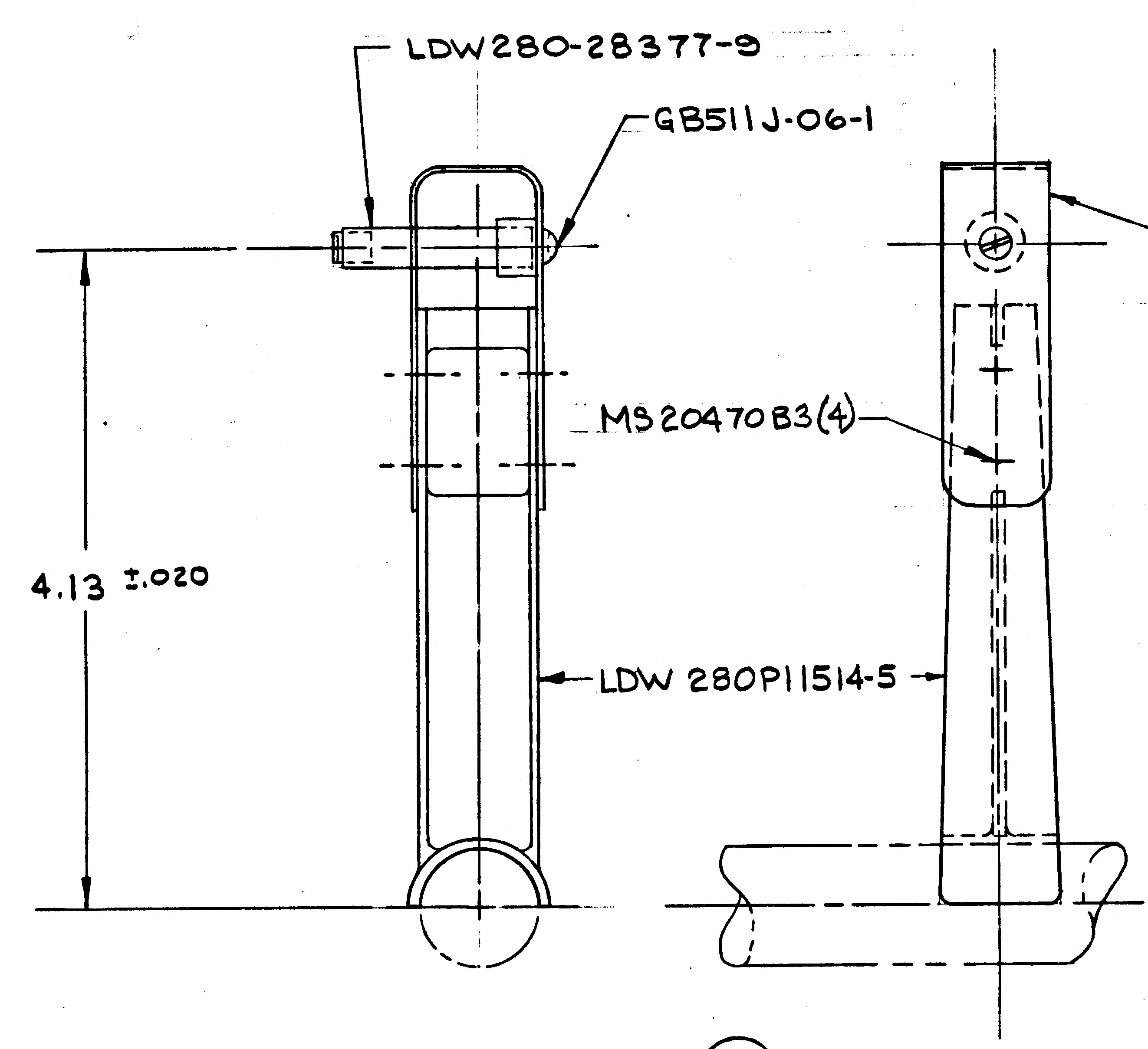
ISSUED BY FRANK CHRISTINA x7033 FC SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28880		EO NO. A5
CONTROL INFO NO. LDW 280A-3396		



LDW280-28377-9
GB511J-06-1
LDW 280-11515-15
MS20470B3(4)
4.13 ±.020
LDW 280P11514-5

ADD (-17)

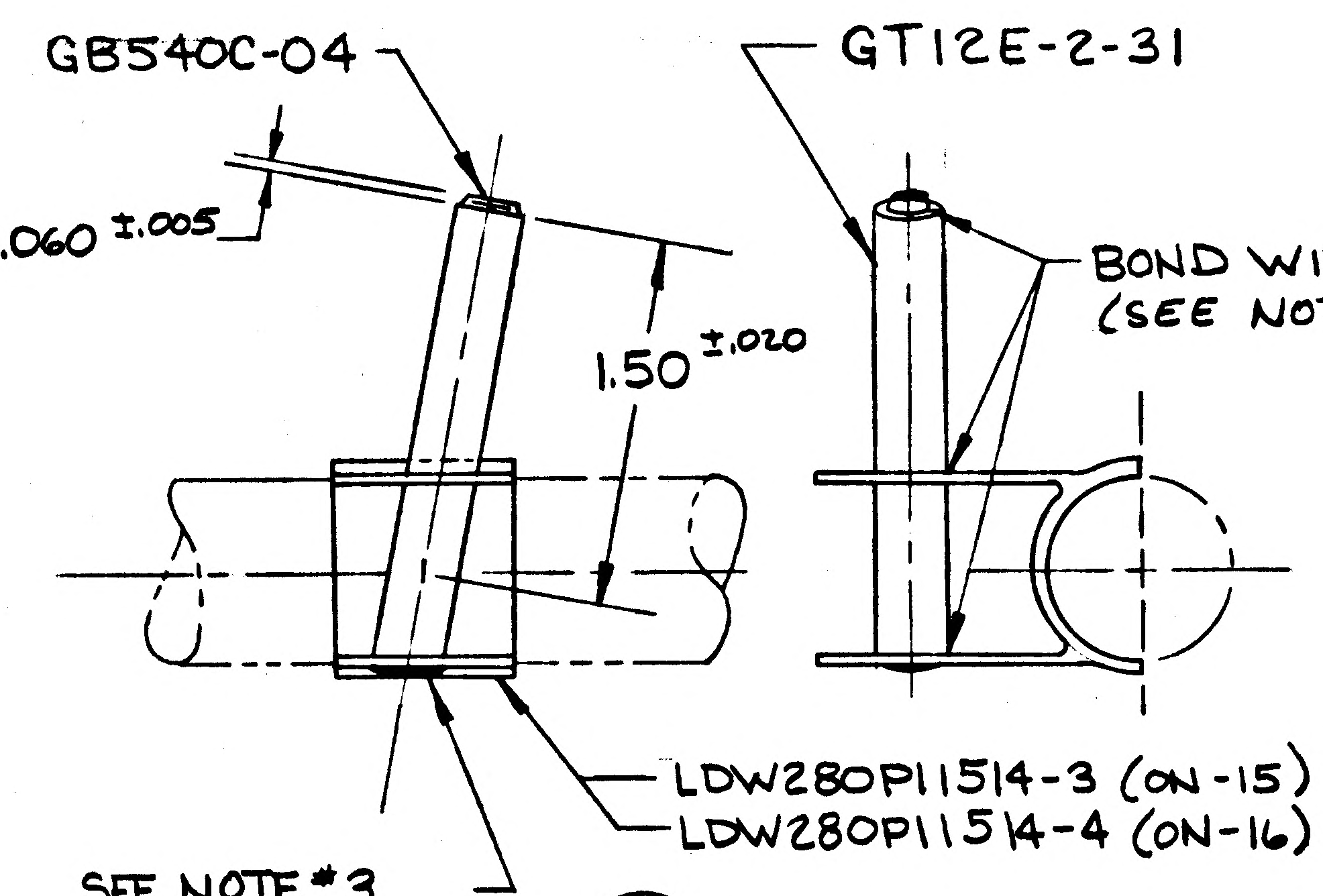
ON -7 ASSY REMOVE LM-1 & -2 EFF, N/A LDW280-28164 (4 REQ/VEH)

REMOVE -9, -10, -11 & -12 ASSY, N/A LDW 280-28862, LM-1 & -2 (1 REQ/VEH)

ON -5 ASSY ADD LM-3(33) THRU LM-15 (45), N/A LDW280-53862 (3 REQ'D/VEH)

ADD -17 ASSY N/A LDW280-28164, LM-1(31) & LM-2(32) (4 REQ'D/VEH) & N/A LDW 280-53164, LM-3(33) THRU LM-15 (45) (4 REQ'D/VEH)

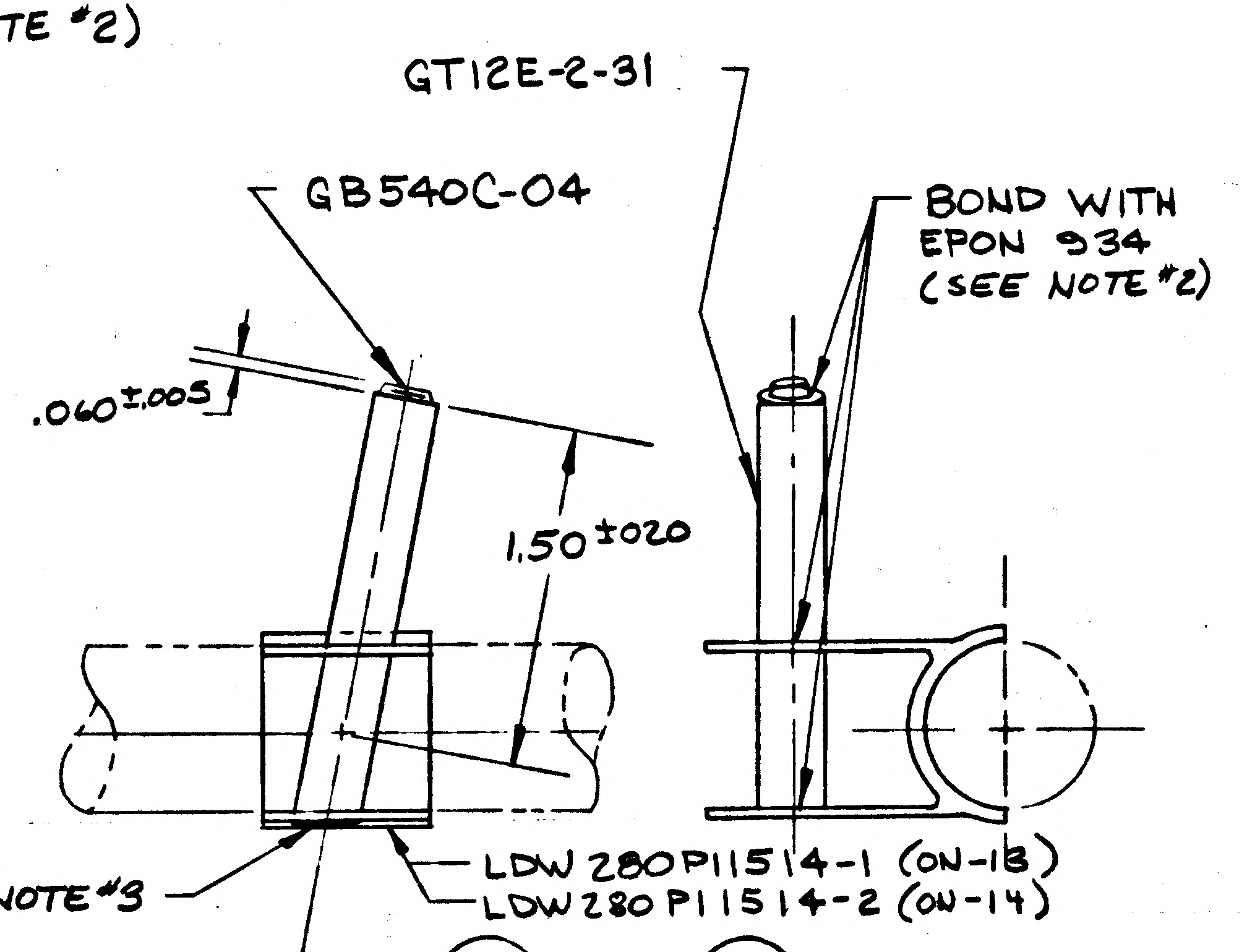
ADD -13, -14, -15 & -16 N/A LDW280-28862, LM-1 & LM-2 (1 REQ'D/VEH) & N/A LDW 280-53862, LM-3(33) THRU LM-15 (45) (1 REQ'D/VEH)



GB540C-04
GT12E-2-31
.060 ±.005
1.50 ±.020
BOND WITH EPON 934 (SEE NOTE #2)
LDW280P11514-3 (ON-15)
LDW280P11514-4 (ON-16)
SEE NOTE #3

ADD (-15) SHN

ADD (-16) OPP



GT12E-2-31
GB540C-04
BOND WITH EPON 934 (SEE NOTE #2)
.060 ±.005
1.50 ±.020
SEE NOTE #3
LDW 280P11514-1 (ON-13)
LDW 280P11514-2 (ON-14)

ADD (-13) SHN & (-14) OPP

CONT DESC OF EO:
N/A LDW 280-28862, LM-1 & LM-2 (1 REQ'D/VEH) &
N/A LDW 280-53862, LM-3 THRU LM-15 (1 REQ'D/VEH).

DETAIL SPEC REQ		CL II ENGRG CHG ✓	CL I ENGRG CHG	3

REASON FOR EO: UPDATE DWG REQMNTS & REDESIGN OF STANDOFFS

DESCRIPTION OF EO: ON -7 ASSY REMOVED LM-1 & -2 EFF. REMOVED -9, -10, -11 & -12 REQ'D FROM DWG. ON -5 ASSY ADDED LM-3 THRU LM-15 EFF N/A LDW280-53862 (3 REQ'D/VEH). ADDED -17 N/A LDW 280-28164, LM-1 & -2 (4 REQ'D/VEH) & N/A LDW280-53164, LM-3 THRU LM-15 (4 REQ'D/VEH). ADDED -13, -14, -15 & -16 CONT

GAEC C EO RELEASE: FR 11/17/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-1 (31)	
LM		THRU LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
REVISE DWG ✓	RECORD EO	REWORK	SCRAP -9, -10, -11, -12 & -7	DATE	11/16/66	11/16		11/16	11/16		11-16-66	11/16/66
				#1	VDI	SUPPORT THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: STANDOFF ASSEMBLY A/S M/S THERMAL BLANKET

DRAWING NO. LDW 280-28880

EO NO. A5

ISSUED BY FRANK CHRISTINA x7033 SECTION VDI - P. HENTON GROUP NO. 335 PL 35

01
NAS 9-1100

ENG 32.1 REV 3-65

B

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28880
EO NO. B1
CONTROL INFO NO. LM-27-334

ADD ALTERNATE NOTE *
AS AN ALTERNATE FOR LDW 280-28377-9 ASSEMBLY- THE GS26B-9 MAY BE USED.

AS AN ALTERNATE FOR LDW 280-28377-7 ASSEMBLY-THE GS 26B-7 MAYBE USED.

ADD TO B/M SHEET 2.00
CLEANING LEVEL

CLEANING LEVEL "C" AS PER LSP-[illegible].
FOR LDW280-28880-5 & -17 ASSY.

*USE NEXT AVAILABLE NOTE NUMBER

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

3

REASON FOR EO: TO SIMPLIFY MANUFACTURE & ESTABLISH A CLEANING LEVEL FOR THE ASSY OF DETAILS.

DESCRIPTION OF EO: ADDED ALTERNATE NOTE *USING GS26B-7-9 AS AN ALTERNATE FOR LDW280-28377-7-9 ASSY. ADDED CALLOUT FOR CLEANING LEVEL ASC "-5-17 ASSY.

GAEC C EO RELEASE
27-020

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	LMI(31)
		THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK NOT SCRAP REQD.

APPROVED BY								
				—		J.Tobey		R.P.
DATE	2/1/67			—	1-19-67	1-19-67	2-6-67	2/3/67
3	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C 27
DRAWING TITLE: STANDOFF ASSY THERMAL SHIELD SUPPORT.
DRAWING NO.: LDW280-28880
EO NO.: B1

ISSUED BY LIAISON B WALLACE 1921 4043 1-17-67 SECTION V.D.I. GROUP NO. 335 PL 35

01 NAS 9-1100

A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER *EMF-A

DWG. NO. LDW280-28880
EO NO. B2
CONTROL INFO NO. LM-3-4843

IN FLD & BM ADD -27 ASSY SAME AS -17 EXCEPT
GS26B-15 REPLACES LDW280-28377-9
-27 EFF LM-3(33) THRU LM-15(45) N/A LDW280-53164
REMOVE EFF LM-3(33) THRU LM-15(45) N/A L280-53164
FROM -17.

(-27 MAY BE MADE BY REWORKING -17)

3

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐

GAEC EO RELEASE C (R) JK

REASON FOR EO: PROVIDE FOR PROPER INSTL OF STANDOFF.

DESCRIPTION OF EO: ADDED -27 REMOVE LM-3(33) THRU LM-15(45) EFF FROM -17.

EFFECTIVITY

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY	FDR			—	BM		RMC	
DATE	4-11-67			—	3-9-67	3-9-67	3-10-6?	3-9-67
1	V.D.I.	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C3
DRAWING TITLE: STAND OFF ASSY A/S~M/S~THERMAL BLANKET
DRAWING NO.: LDW280-28880
EO NO.: B2

ISSUED BY LIAISON~J. KOSLOSKI X2151 SECTION V.D.I. GROUP NO. 335 PL 35

01
NAS 9-1100

14 THIS IS AN ORIGINAL EO

GMG 33 1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1511
CONTROL INFO NO. LDW280B8285

FOR THE FOLLOWING DWGS (✱) AND DASH NOS. (✱✱).
REMOVE LM-15(45).

DWG. NO. (✱)	DASH NO. (✱✱)		TITLE	NEXT ASSEMBLY	CHANGE NO.
✓ LDW280P11988	-11		SEE DWG.	LDW280-59896	B4
✓ -28399	-3 -9 & -11			-53862	B1
	-23 & -25				
✓ -28880	-5 -13, -14, -15 & -16				B3
P11521	-11 -13			-53862	B4
	-13 -13			-53863 -53864	
P11599	-13-1, -15-1, -17, -18-1, -19-1			-54885	B3
	-21 & -22				
	-11, -12, -13, -14, -16				A6
LDW280P11600	-17, -18 & -22		SEE DWG.	LDW280-54885	

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG. 19 (5)

REASON FOR EO: CONFIGURATION CHANGE TO LM-15

DESCRIPTION OF EO: FOR PARTS (✱-✱✱), REMOVE LM-15(45)

GAEC EO RELEASE: 7-25-69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO	GAEC UNIT NO	SUB CONTR UNIT NO
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO ☐
DISPOSITION OF PARTS: REWORK ☐ SCRAP ✓
APPROVED BY / DATE: 7/17/69 VDI; SUPPORT; RELIAB GROUP; GROUP LEADER FDK 7-16-69; STRESS GROUP 7/16/69; LIAISON ENGRG; PROJ ENGRG 7/17/69; 7/31/69

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO: LEO 280
EO NO.: 1511

8-20-69
ISSUED BY F. SHANLEY 7033 SECTION VEH. DESIGN INT. GROUP NO. 335 PL 25

01

NAS 9-1100

THIS IS AN ORIGINAL EO

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO	LEO 280
EO NO.	1515
CONTROL INFO NO	LDW280B8282

FOR THE FOLLOWING DWGS (✱) AND DASH NOS. (✱✱).
REMOVE LM-15(45).

DWG. NO. (✱)	DASH NO. (✱✱)		TITLE	NEXT ASSEMBLY	CHANGE No.
LDW280-			SEE DWG.	LDW280-	
-11830	-11 -11, -13 & -15			-53155 -53156	B1
-53231	-5-1			-53156	C4
-53878	-7			-53156	B1
	-5			-53155	
M10898	-1			-53156	B4
M10899	-3			-53156	C3
-28873	-1 & -2			-53164	A4
LDW280-28880	-27		SEE DWG.	LDW280-53164	B4

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG. 19 PG 7 & 8 (5)

REASON FOR EO: CONFIGURATION CHANGE TO LM-15

DESCRIPTION: FOR PARTS (✱-✱✱), REMOVE LM-15(45)

GAEC EO RELEASE: 7-25-69 8/4/69

MODEL	PROCURING ACTIVITY NO	GAEC UNIT NO	SUB CONTR UNIT NO
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓
DISPOSITION OF PARTS: SCRAP ✓
APPROVED BY: VDI 7/7/69; GROUP LEADER FDR 7/16/69; PROJ. ENGRG 7/22/69; Baumann 8/4/69

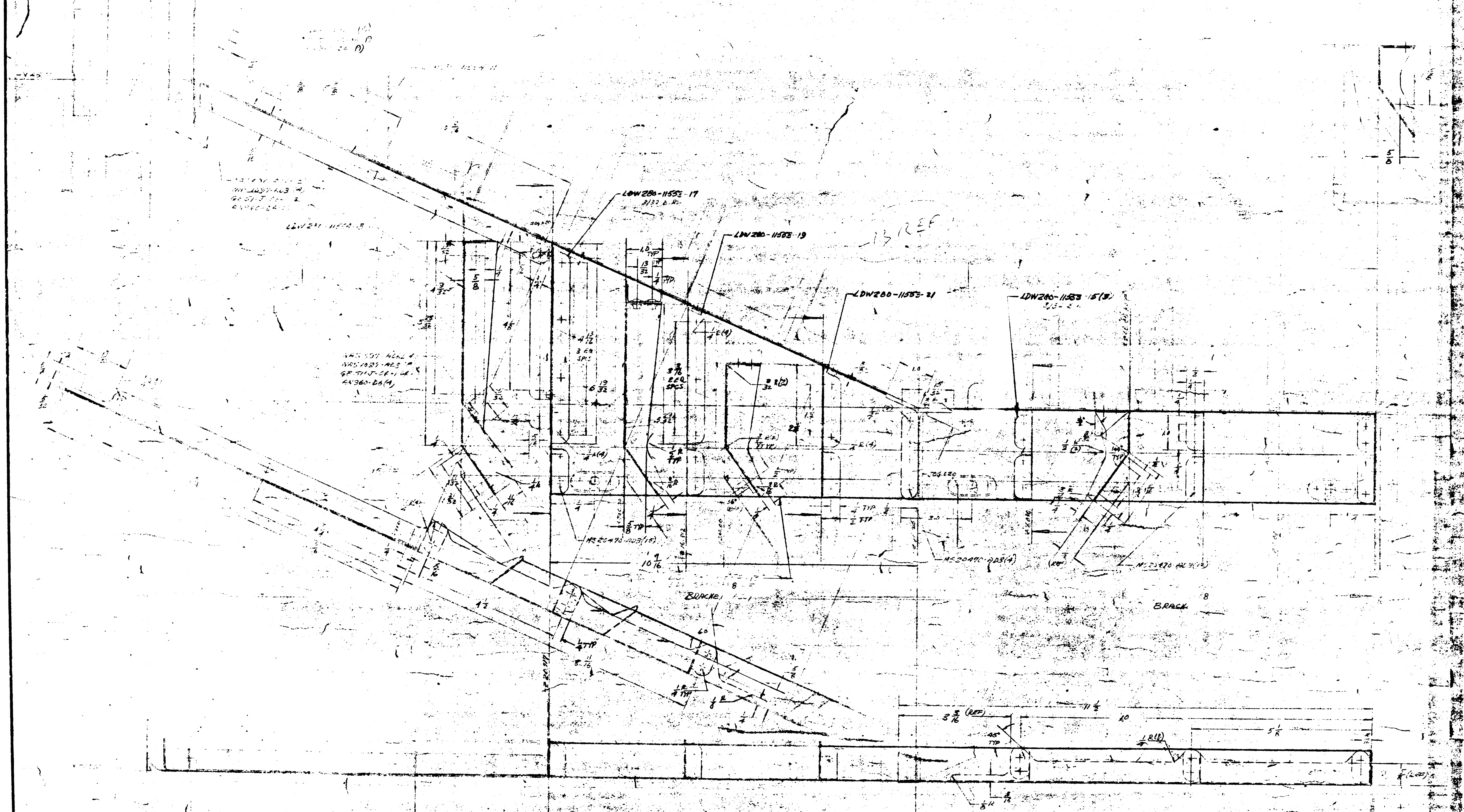
PRIORITY	DRAWING TITLE	DRAWING NO	EO NO
C	SEE DRAWING	LEO 280	1515

8-20-69
ISSUED BY F. SHANLEY 7033 x86048 SECTION VEH. DESIGN INT. GROUP NO. 335 PL 25

01

NAS 9-1100

NOTES-
1. ALL INFORMATION FOR THE MANUFACTURE OF LDW280-11553 [illegible]
2. NO TOOLING HOLES PERMITTED IN PARTS.



LDW280-11553-17
3/32 E.R.
LDW280-11553-19
LDW280-11553-21
LDW280-11553-15(3)
13 REF
1.0 TYP
13/32
1/4 TYP
1/4 E(4)
4 13/16
3 EQ SPCS
3 3/16 2 EQ SPCS
19/32
5/8
4 1/2
10 9/16
MS20470-AD3(15)
MS20470-AD5(4)
BRACKET
BRACK
3 5/16 (REF)
11 1/2
40
5 1/8
45° TYP
1/8 R(2)

NO.	FINISHES	GRUMMAN STD SPEC	MILITARY SPEC NO.
2	CADMIUM PLATE	G. S. S.	
10	ZINC CHROMATE PRIMER	G. S. S.	
15	TINTED PRIMER: 1 COAT	G. S. S.	
76	ALODINE	G. S. S.	
80	ANODIZE	G. S. S.	

SYM	PROCESSES	GRUMMAN STD SPEC	MILITARY SPEC NO.
	AL HEAT TREAT		MIL-H-6088
	MAGNAFLUX		MIL-I-6868
	PENETRANT INSPECTION (ZYGLO)		MIL-I-6866
	THREADING		MIL-S-7742
	STEEL HEAT TREAT PSI ROCKWELL C TO C		

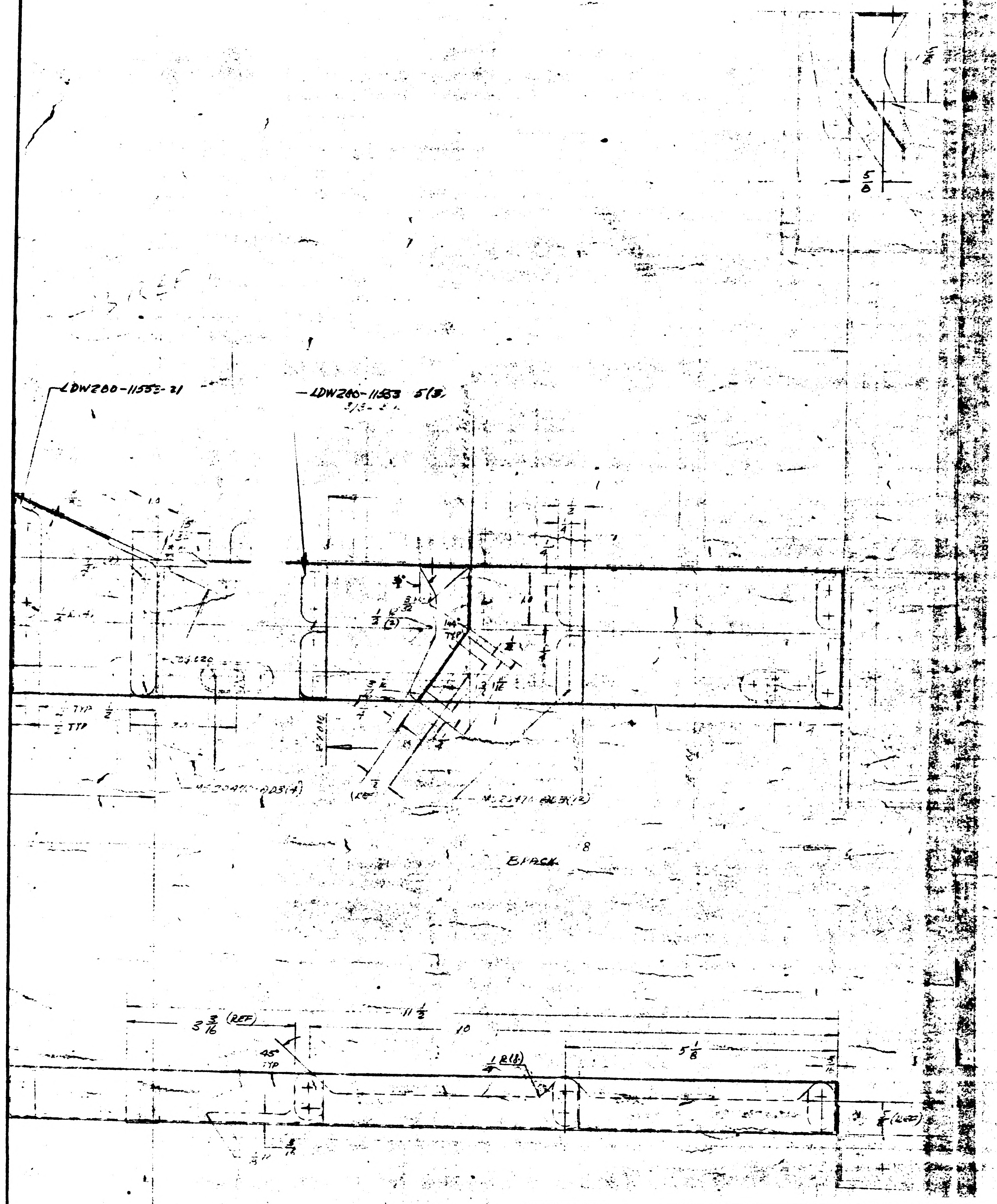
MANUFACTURING OPERATIONS

NOTES CHECKED ✓ APPLY TO THIS DWG.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES EXCEPT AS NOTED.	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031 EXCEPT AS NOTED.	✓
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10 EXCEPT AS NOTED.	
250 FOR ALL DRILLED HOLES UNLESS OTHERWISE SPECIFIED.	✓
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ∱ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	

MODEL	NEXT ASSY	MODULE NO.
PART NO.		GRUMMAN SCH INFO

01/02 NAS 9-1100

NOTES-
1. ALL INFORMATION FOR THE MANUFACTURE OF LDW280-1155[illegible]
2. NO TOOLING HOLES PERMITTED IN PARTS.



NO.	FINISHES	GRUMMAN STD SPEC	MILITARY SPEC NO.
2	CADMIUM PLATE	G. S. S.	
10	ZINC CHROMATE PRIMER	G. S. S.	
15	TINTED PRIMER: 1 COAT	G. S. S.	
76	ALODINE	G. S. S.	
88	ANODIZE	G. S. S.	

SYM	PROCESSES	GRUMMAN STD SPEC	MILITARY SPEC NO.
	AL HEAT TREAT		MIL-H-6088
	MAGNAFLUX		MIL-I-6868
	PENETRANT INSPECTION (ZYGLO)		MIL-I-6866
	THREADING		MIL-S-7742
	STEEL HEAT TREAT PSI ROCKWELL C TO C		

RECORD E. O.'s		
MODEL	E O NUMBER	MODULE NO.

MANUFACTURING OPERATIONS

NOTES CHECKED ✓ APPLY TO THIS DWG.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES EXCEPT AS NOTED.	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031 EXCEPT AS NOTED.	✓
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10 EXCEPT AS NOTED.	
250 FOR ALL DRILLED HOLES UNLESS OTHERWISE SPECIFIED.	✓
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL ƒ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	

REVISIONS														
REVISION LETTER	ITEM NO.	ZONE	AUTHORITY FOR REVISION					DESCRIPTION	REVISED BY AND DATE	EFFECTIVE ON MODULE NUMBER	DISPOSITION OF EXIST PARTS		ENGRG APPD	GOVT APPD
			GRUMMAN INFO ONLY DCRF OR ECP	CLASS II	CLASS I	DET SPEC REQ	ENGRG ORDER				RE-WORK	SCRAP		

DWG. SIZE 28 X

QTY REQ'D PER ASSY -3	-1	PART OR IDENTIFYING NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE (EA)	PROCESS SYMBOL	FINISH NO.	UNIT WT	ZONE
		MS20470-AD3	E		RIVET								
1		LDW280-11553-21	E		ANGLE								
1		-19			ANGLE								
1		-17			ANGLE								
	3	-15			ANGLE								
1		-13			BRACKET								
	1	LDW280-11553-11	E		BRACKET								
		LDW280-28881-3	E		BRACKET ASSY								
		LDW280-28881-1	E		BRACKET ASSY								

MODEL	NEXT ASSY	MODULE NO.	REQ'D PER MODULE	MODEL	NEXT ASSY	MODULE NO.	REQ'D PER MODULE
				LEM	LDW280-28891	LTA-8, LEM-1(B1), LEM-2(B2)	
PART NO.		GRUMMAN SCH INFO		PART NO.		GRUMMAN SCH INFO	

TO BE REDRAWN ON A PRODUCTION FORMAT

(3)

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ± 1/32 ± .030 ± 1/2°			
DRAWN BY	T. THOMPSON	1-66	
CHECKED BY			
LAYOUT BY			
GRP LEADER	[illegible]	9/7	
VEH DES INT	[illegible]	9/	
STRUCTURES	[illegible]	9/6	
STRUCTURES	[illegible]	9/6	
WEIGHTS	L. Garcia	9/2	
RELIABILITY			
PROJ ENGR	R. McCarthy	9-26	
REL. GROUP	Britt	10-5	

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE
GRUMMAN REL INFO
PRRL NO. [illegible]
[illegible] MP 7246

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., N. Y.
LINE ITEM #1

BRACKET ASSY
4/5 MID SECTION - FH [illegible]

CONTRACT NO. NAS 9-1100 DOCUMENTATION TYPE I

CODE IDENT NO.	SIZE	
26512	H	LDW280-28881

SCALE FULL SHEET 1 OF 1

CDR 9-30-66

THIS IS AN ORIGINAL DRAWING

02/02 NAS 9-1100

LDW280-28882 B

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM126	LDW280-28173	LTA-8(18)	1
LDW280-28882-1-1			
LM	LDW280-28173	NOTE 21	1
PART NO. LDW280-28882-1		GAEC SCH NO. 30—	

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	2.01	3.00	4.00	5.00		
REV	B	B	B	B	B	B	B		
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED B

LAST DASH NO. USED -11

GRUMMAN REL INFO B
PRIM NO. 215 JK(001) MP-168 6/17/8

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS - ANGLES ±1/32 ±.020 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM NO. 1
DOCUMENTATION TYPE II

DRAWN BY	VARGA/KRAMEISEN 9-16-66	RELIABILITY	
LAYOUT BY	VARGA/KRAMEISEN 9-16-66	THERM C	V. J. Iacono 10/19
CHECKED BY			
GRP. LDR	J. Pusateri 9-17-66		
VEN. DES INT	9/19		
STRUCTURES	9/19	PROJ ENGR	R. M. Carbee 9-20
STRUCTURES	HILDERMAN 9/20	REL GROUP	
WEIGHTS	R. Albano 9/21/66		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD & BLANKET INSTL
A/S-CABIN-FITH SKIN-THERMAL

SIZE B
CODE IDENT NO. 26512
LDW280-28882 B
SCALE NONE
SHEET 1.00 OF 7

77.1 12-65

REV B CDK 6-19-68

CRD 9-24-66

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	~~GOVT~~ APPD
A	1	1.00,2.00, 2.01,3.00, 4.00 & 5.00							REMOVED LDW280-28882-3, & -13. ADDED MS20470 B3; LDW280-11617-11,-13,-15,-17 & -19; LDW280-10827-21 & -23; NOTES 8 & 9. GS577A-1 & LDW280-28882-11 WERE ON -3.	LTA-8		✓	VARGA 10/15/66	10-20	10-21-66
	2	3.00							ADDED CUTOUT & REVISED EDGE TRIM OF LDW280-10645 -13 & -14. ADDED MS20470-B3		✓				
	3								ADDED SH.1.10 & 2.01. SH.1 OF 7: WAS 1 OF 5.						
	4								GB511J-06-2, NAS1329S-06-120, LDW280P11321-17 & LDW280-10743-23 WERE 39 EACH REQD.						
B	1	1.00 1.10 2.00 3.00 4.00 5.00						EO B1	ADD ADDITIONAL WASHER LDW280P11321-17 (78 WAS 39)	LTA-8	✓		W. CONROY 4-5-68		
	2	5.00						EO B2	FOR -11 INSTL: LOCATING DIM. FOR LDW280-10827-21 1" WAS 1 1/2"						
	3	5.00						EOB3 LCR923	ADDED CUTOUT TO -1 INSTL						
	4	3.00			✓			LEO280-490	ADDED NOTES 10, 11, 12, 13 & 14						
	5	3.00					✓	EO B5	ADDED NOTE 15						
	6	3.00					✓	LEO280-593	ADDED NOTE 16, 17, 18 & 19						
	7						✓	EO B7	CANCELLED BY EO B8						
	8						✓	EO B8	CANCELLED EO B7						
	9	2.01					✓		IN B/M, LDW280-10827-21(4) WAS (1); -23(2) WAS (1) (DWG ERROR CORRECTION)	NOT REQD	NOT	REQD	R. GIORDANO 5-21-68	J. Puntier 6/12/68	6-17-68
	10	2.01, 5.00					✓		IN FLD & B/M LDW280-11143-31 WAS -21. (REF EO B2 OF LDW280-11143)	LTA-8(18)					
	11	1.00, 2.00 2.01, 3.00, 4.5		LFM 126		✓		LCD1021-33 CCA498	ADDED -1-1 INSTL., DETAIL "A". NOTES 20 & 21						

CHG APPROVED

LTR	GROUP LDR	VDI	STRUCT	WEIGHTS	THERMO
A	—	10/17	10/18	—	10/17
B	6/12/68	6/12/68	6/17/68		6-12-68

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28882	B

SCALE NONE SHEET 1.10

ENG 77.16 3-66

0 1

NAS 9-1100

					AS REQ'D	AS REQ		GT835P-8	E	TAPE	GRUMMAN STD						
					AS REQ'D	AS REQ		GS577A-1		STAPLE	GRUMMAN STD						
					18	39		GB511J-06-2		BOLT	GRUMMAN STD						
					4	39		NAS1329S-06-120		RIVNUT	STD. PART						
								MS20470B-4		RIVET	STD. PART						
								MS20470B3		RIVET	STD PART						
					8	78		LDW280P11321-17		WASHER	SEE DWG.						
					4	9		LDW280-10743-23		WASHER							
						1		LDW280-11143-29		SHIELD							
						1		LDW280-11143-27		SHIELD							
						1		LDW280-11143-26		SHIELD							
						1		LDW280-11143-31		SHIELD							
						1		LDW280-10824-23		SHIELD							
						1		LDW280-10824-17		SHIELD							
						1		LDW280-10645-14		SHIELD							
						1		LDW280-10645-13		SHIELD							
						1		LDW280-10631-15		SHIELD							
						1		LDW280-10630-16		SHIELD							
						1		LDW280-10630-15		SHIELD	SEE DWG						
C					1			LDW280-28882-11-1		BLANKET	SEE NOTES	1,2& 20					
C						1		LDW280-28882-11		BLANKET	ALUMINIZED POLYIMIDE FILM (5 LAYERS) SEE NOTES 1,2&20						
								LDW280-28882-1-1		SHIELD&BLANKET INSTL	(SEE NOTE 20)						
C					1			LDW280-28882-1	E	SHIELD&BLANKET INSTL							
CL					-1-1	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE

QTY PER ASSEMBLY

CLEANLINESS LEVEL PER LSP-14-0011

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28882	B

SCALE NONE
SHEET 2.00

ENG 77.2 7-65

01

NAS 9-1100

QTY PER ASSEMBLY -1-1	QTY PER ASSEMBLY -1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1			LDW280-11143-29-1	E	SHIELD	SEE DWG						
1			LDW280-11143-27-1									
1			LDW280-11143-26-1									
1			LDW280-10824-17-1									
1			LDW280-10631-15-1									
1			LDW280-10630-16-1									
1			LDW280-10630-15-1		SHIELD							
2	2		LDW280-10827-23		ANGLE							
	4		LDW280-10827-21									
4	4		LDW280-11617-19									
1	1		LDW280-11617-17									
1	1		LDW280-11617-15									
1	1		LDW280-11617-13									
	4		LDW280-11617-11	E	ANGLE	SEE DWG						

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28882	B

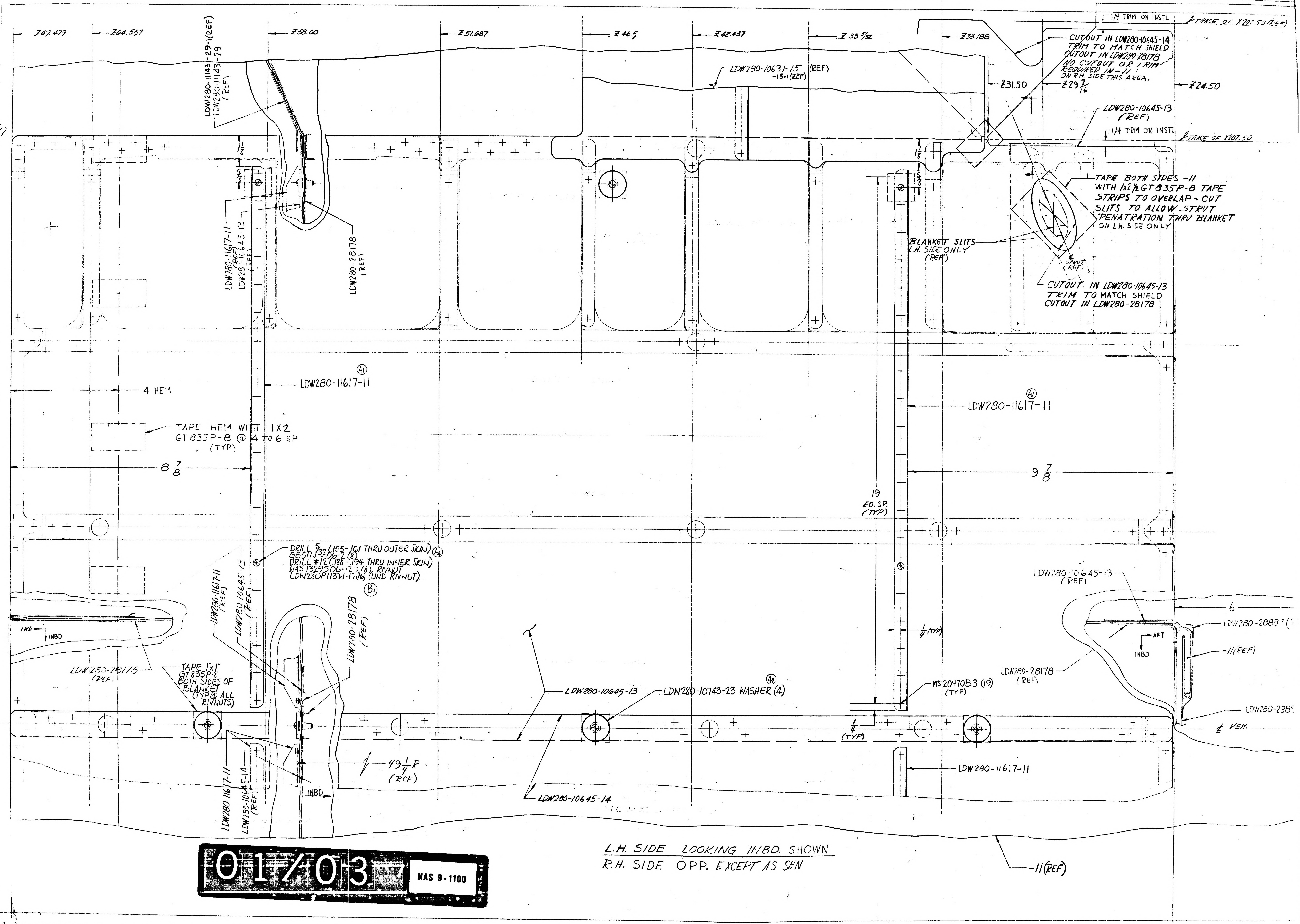
SCALE NONE

SHEET 2.01

ENG 77.2 7-66

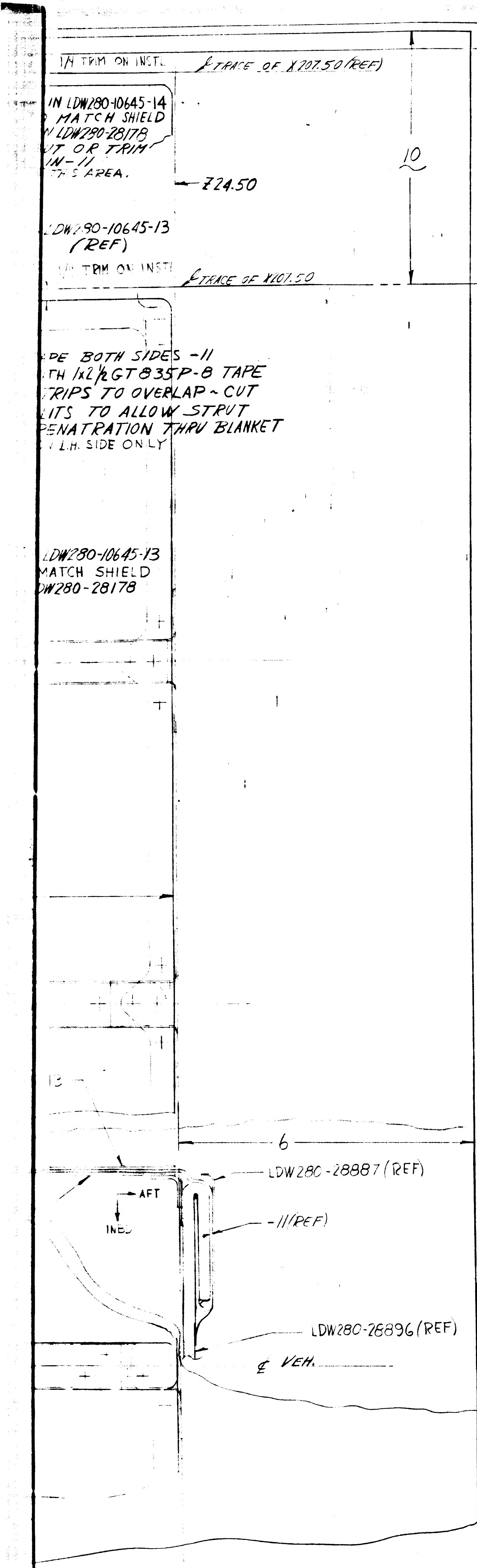
01

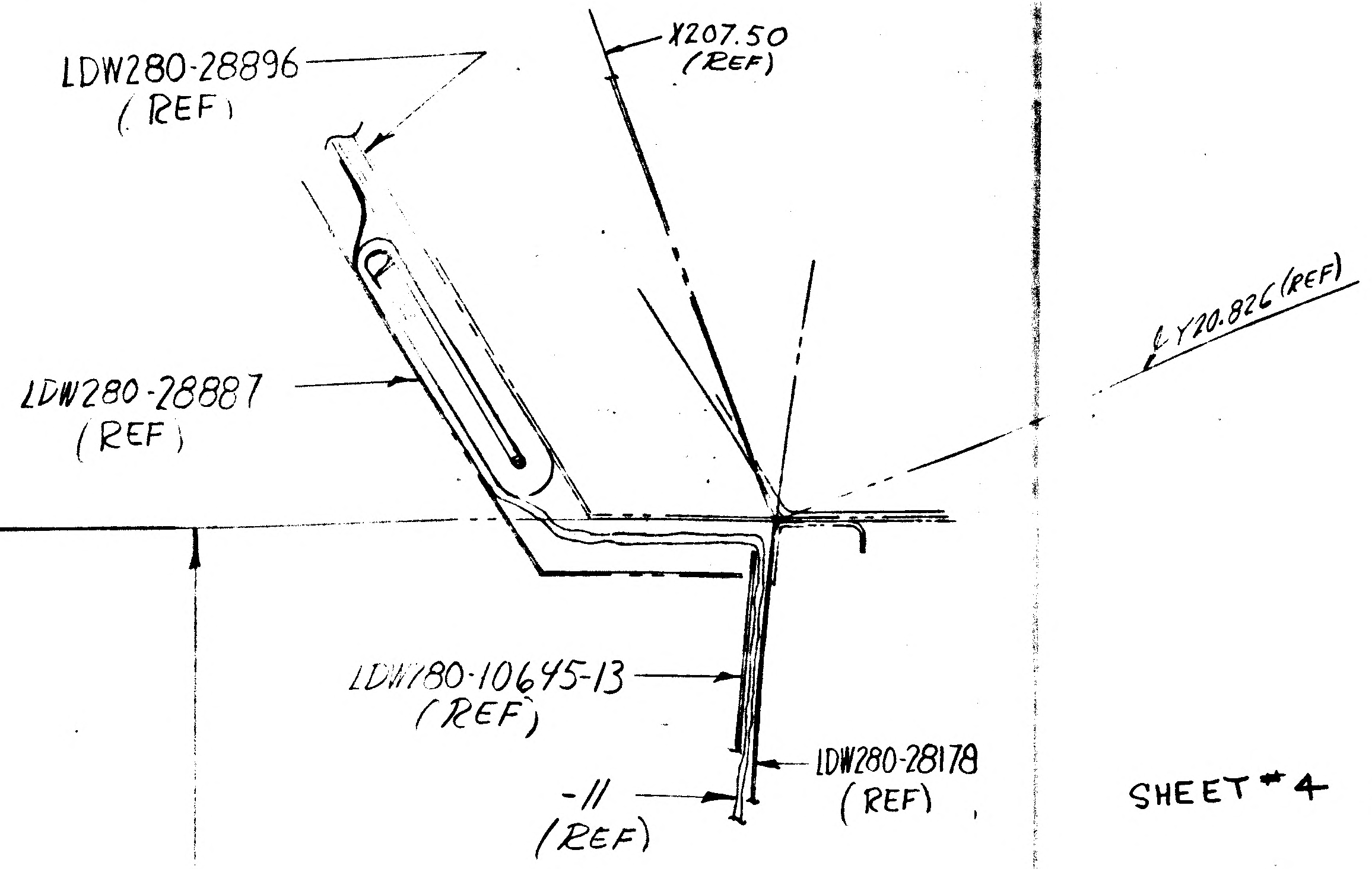
NAS 9-1100

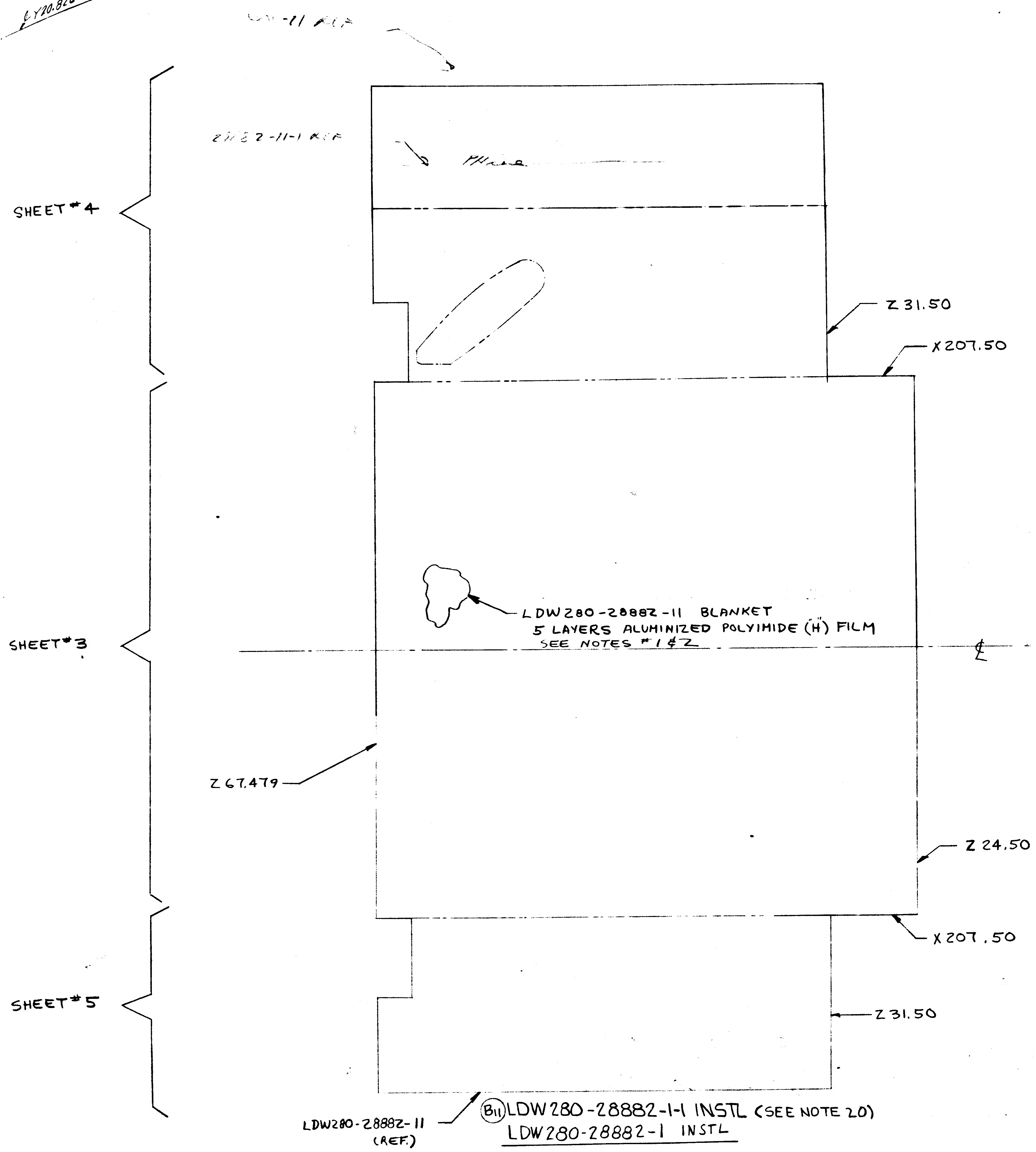

Z67.479
Z64.557
Z58.00
Z51.687
Z46.5
Z42.437
Z38 5/32
Z33.188
Z31.50
Z29 7/16
Z24.50
1/4 TRIM ON INSTL
℄ TRACE OF X207.50 (REF)
TRACE 207.50 (REF)
CUTOUT IN LDW280-10645-14 TRIM TO MATCH SHIELD CUTOUT IN LDW280-28178 NO CUTOUT OR TRIM REQUIRED IN -11 ON R.H. SIDE THIS AREA.
LDW280-10645-13 (REF)
1/4 TRIM ON INSTL
℄ TRACE OF X207.50
LDW280-11143-29-1 (REF)
LDW280-11143-29 (REF)
LDW280-10631-15 (REF)
-15-1 (REF)
1 1/8
5/8
TAPE BOTH SIDES -11 WITH 1x2 1/2 GT835P-8 TAPE STRIPS TO OVERLAP ~ CUT SLITS TO ALLOW STRUT PENATRATION THRU BLANKET ON L.H. SIDE ONLY
BLANKET SLITS L.H. SIDE ONLY (REF)
℄ STRUT (REF)
CUTOUT IN LDW280-10645-13 TRIM TO MATCH SHIELD CUTOUT IN LDW280-28178
LDW280-11617-11 (REF)
LDW280-10645-13 (REF)
LDW280-28178 (REF)
Ⓐ1
LDW280-11617-11
4 HEM
TAPE HEM WITH 1X2 GT835P-8 @ 4 TO 6 SP (TYP)
8 7/8
9 7/8
19 EQ. SP. (TYP)
DRILL 5/32 (.155-.161 THRU OUTER SKIN) Ⓐ4
GB511J-06-2 (8)
DRILL #12 (.188-.194 THRU INNER SKIN)
NAS1329S06-12? (8) RIVNUT
LDW280P11321-1? (16) (UND RIVNUT)
Ⓑ1
LDW280-11617-11 (REF)
LDW280-10645-13 (REF)
LDW280-28178 (REF)
FWD
INBD
LDW280-28178 (REF)
TAPE 1"x1" GT835P-8 BOTH SIDES OF BLANKET (TYP @ ALL RIVNUTS)
LDW280-11617-11
LDW280-10645-14 (REF)
49 1/4 R (REF)
INBD
LDW280-10645-13
LDW280-10743-23 WASHER (4)
Ⓐ4
LDW280-10645-14
1/4 (TYP)
1/4 (TYP)
MS20470B3 (19) (TYP)
LDW280-11617-11
LDW280-10645-13 (REF)
6
LDW280-2889
-11 (REF)
AFT
INBD
LDW280-28178 (REF)
LDW280-2389
℄ VEH.
-11 (REF)

L.H. SIDE LOOKING INBD. SHOWN
R.H. SIDE OPP. EXCEPT AS SHN

01/03 NAS 9-1100


1/4 TRIM ON INSTL
℄ TRACE OF X207.50 (REF)
IN LDW280-10645-14
MATCH SHIELD
N LDW280-28178
UT OR TRIM
IN -11
THIS AREA.
Z24.50
10
LDW280-10645-13
(REF)
1/4 TRIM ON INSTL
℄ TRACE OF X207.50
DE BOTH SIDES -11
TH 1x2 1/2 GT835P-8 TAPE
TRIPS TO OVERLAP ~ CUT
LITS TO ALLOW STRUT
PENATRATION THRU BLANKET
L.H. SIDE ONLY
LDW280-10645-13
MATCH SHIELD
DW280-28178
13
6
LDW280-28887 (REF)
AFT
INBD
-11 (REF)
LDW280-28896 (REF)
℄ VEH.

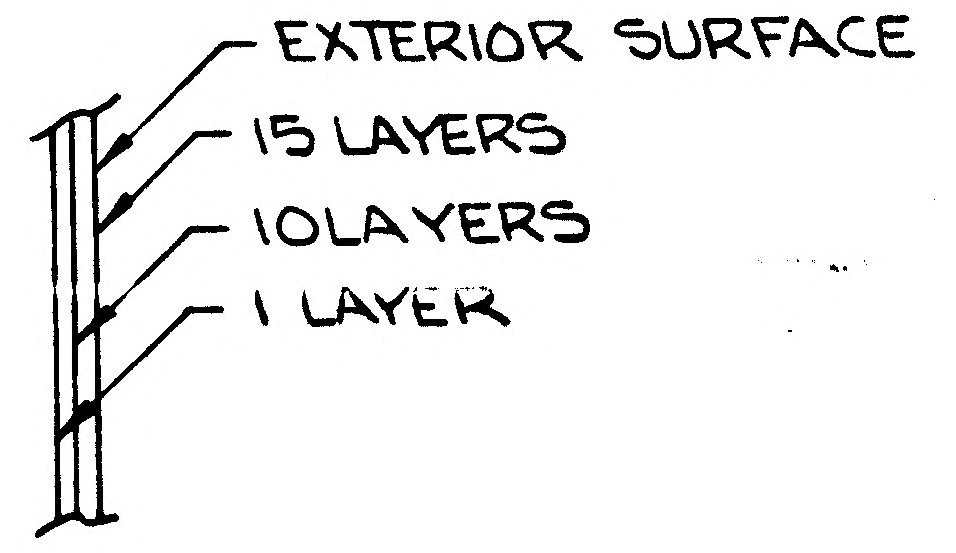

LDW280-28896
(REF)
X207.50
(REF)
℄ Y20.826 (REF)
LDW280-28887
(REF)
LDW280-10645-13
(REF)
-11
(REF)
LDW280-28178
(REF)


ROLL DN
$49\frac{1}{4}R \pm \frac{1}{8}$
-11 REF
28882-11-1 REF
SHEET #4
Z31.50
X207.50
SHEET #3
LDW280-28882-11 BLANKET
5 LAYERS ALUMINIZED POLYIMIDE (H) FILM
SEE NOTES #1 & 2
℄
Z67.479
Z24.50
SHEET #5
X207.50
Z31.50
LDW280-28882-11
(REF.)

(B11) LDW280-28882-1-1 INSTL (SEE NOTE 20)

LDW280-28882-1 INSTL

VIEW LOOKING UP


EXTERIOR SURFACE
15 LAYERS
10 LAYERS
1 LAYER

(B9) DETAIL A

SCALE: NONE

02703 NAS 9-1100

NOTES:

1 BLANKETS TO BE LAID UP PER LPC 280-1.

2 ALUMINIZED MYLAR FILM & ALUMINIZED POLYIMIDE FILM MAY BE PURCHASED FROM Mc CORD CORP., MAMARONECK, N.Y., CODE IDENT 24761.

3 ALL SEAMS PER LPC 280-3.

4 SUPER INSULATION SHALL BE HANDLED WITH LINT FREE NYLON GLOVES.

5 INSPECTION ON END ITEM ONLY. HOLES MAY BE PUNCHED ON ASSEMBLY.

6 TAPE B-GT835P-8 TO BE USED ON EXTERNAL SIDE OF BLANKE
BUT INSIDE OF HARD SHIELDING.

7 BLANKETS TO BE PRE-FITTED ON LSK280-0922, 103% SCALE MODEL.

8. RIVNUT LOCATION TOLERANCE ± 1/2.

9. DWG MAY BE SCALED FOR DIMENSIONS NOT SHOWN.

10. CUTTING & PATCHING PROCEDURE FOR LM THERMAL SHIELDING INSUL
BLANKETS PER LPC 280-6.

11. REPAIR PROCEDURE FOR LM THERMAL SHIELDING INSULATION BLA
PER LPC 280-8.

12. MATERIAL FINISHES HANDLING & PERMISSIBLE DEVIATIONS OF LM
ASCENT STAGE THERMAL SHIELD SKINS PER LPC 280-16.

13. PERMISSIBLE DEVIATIONS & REPAIR PROCEDURE FOR LM THERMAL
INSULATION BLANKETS PER LPC 280-20.

14. FINAL CONFIGURATION OF THERMAL BLANKETS SHALL BE DETER
FROM ENGINEERING APPROVED MASTER TEMPLATES.

15. A 1/2 INCH GAP IS PERMISSIBLE BETWEEN ADJACENT THERMAL
PANELS. GT835P8 TAPE MAY BE USED TO HELP REDUCE THESE

16. DURING -1 INSTL (OR ASSY OF THERMAL SHIELD SUB-ASSY'S OR D
FOR LTA-8 ONLY) PARTS MAY BE TRIMMED OR SHIMMED AS NO
TO INSURE PROPER FIT TO MATING PART OR ADJACENT STRU
  A. MAX PERMISSIBLE TRIM TO BE 1/16, PROVIDING A MIN.
  FASTENER EDGE DISTANCE IS HELD AFTER TRIMMING
  (1 1/2 FASTENER DIA.)
  B. MAX PERMISSIBLE SHIM TO BE .063 THICK, AND, IF TA
  NOT TO EXCEED 5 INCHES IN LENGTH. SHIM STOCK TO
  2024-T3 AL ALLOY, QQ-A-250/4, FINISH 76, WIDTH AS R

17. WHERE NECESSARY, ON THERMAL SHIELD SUB STRUCTURE, IT IS
RIVETS TO INSURE PROPER FIT OF MATING PARTS, PROVIDING
THICK ENOUGH TO PREVENT "FEATHER EDGED" HOLES. NAS1097

18. WHERE NECESSARY, DUE TO REDESIGN AND REWORK, THE NEX
MAY BE USED IN LIEU OF EXISTING FASTENER, PROVIDING A
OF 1 1/2 FASTENER DIA IS MAINTAINED. ALSO, EXTRANEOUS HO
AS REQD. (NAS1097 OR MS20470 RIVETS PERMISSIBLE) AS LON
OF 3 DIAMETER EXISTS BETWEEN PLUG AND NEAREST FAST
GT835M8 TAPE MAY BE USED FOR HOLES UP TO 7/16 IN DIA

19. WHERE NECESSARY, THE FOLLOWING NUT PLATES MAY BE R
ANOTHER WITHIN THE GROUPS NOTED BELOW, PROVIDING THERE
OF SCREW:

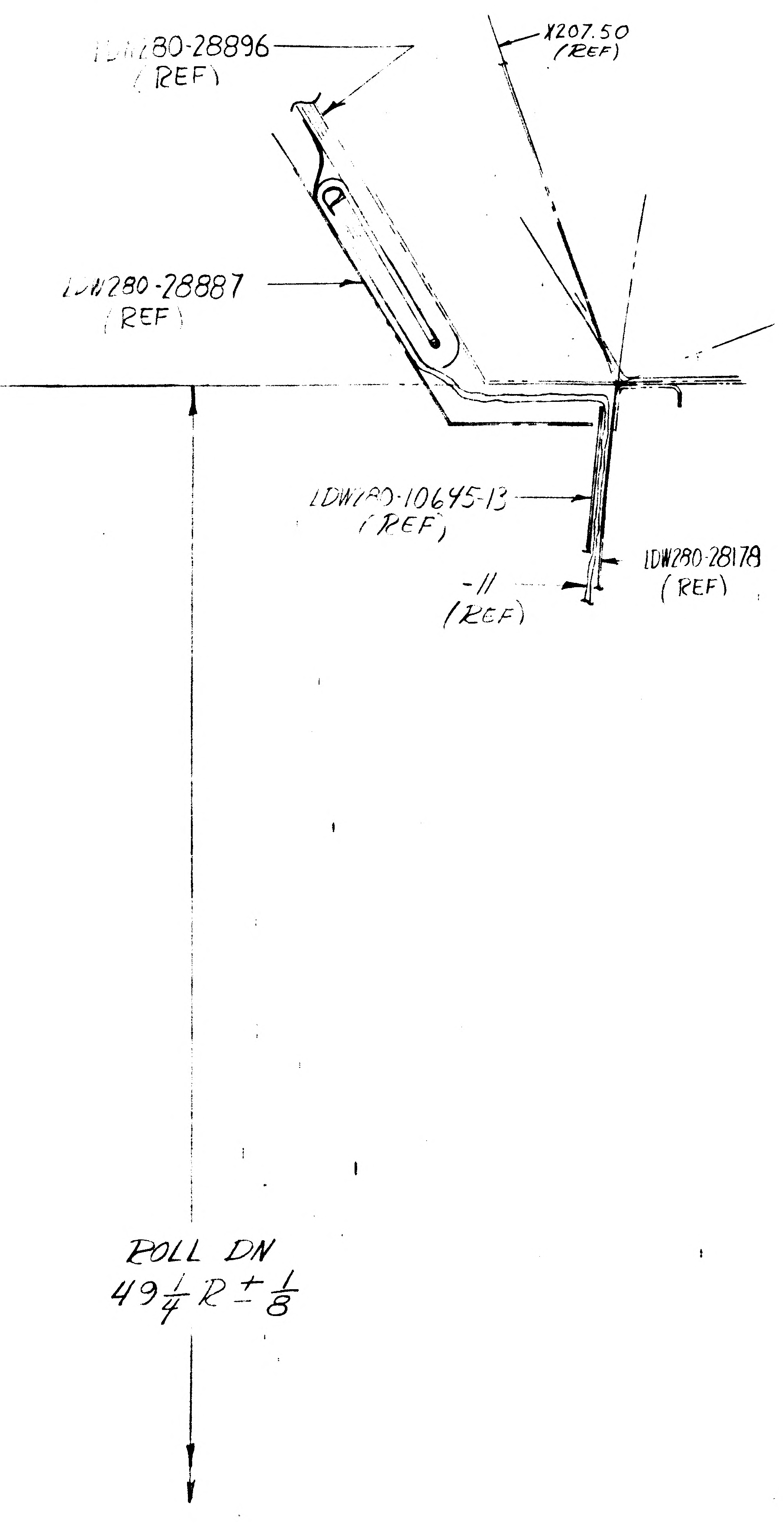
GROUP A: NAS680, NAS682, NAS684, NAS686, NA
GROUP B: NAS681 NAS683 & NAS685

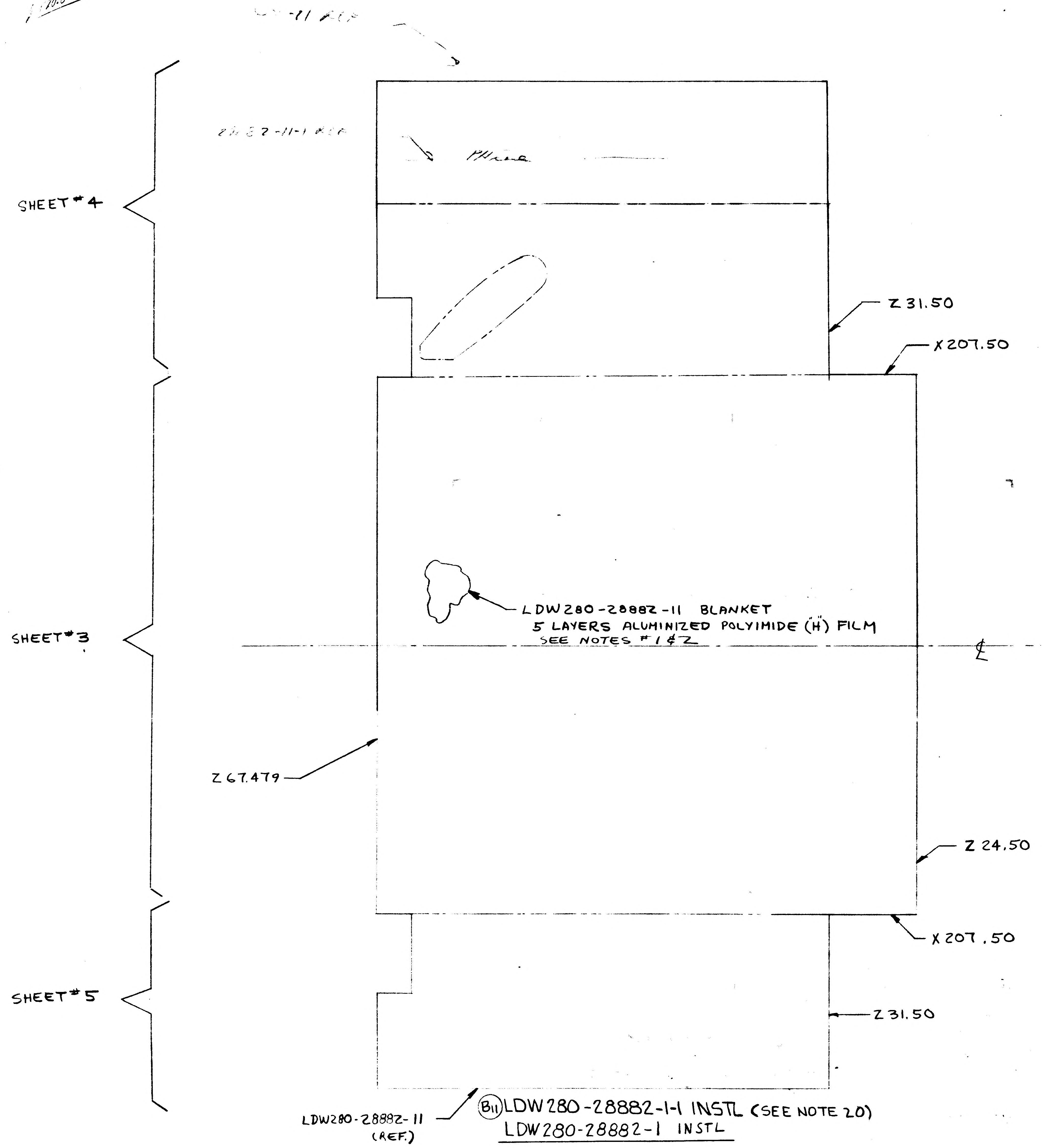
IF THE INTERCHANGEABLE ANCHOR NUTS ARE USED. THERMAL
MAY BE DIMPLED OR CSK AS REQ'D (SEE NOTE 17 ABOVE)

20. LDW280-28882-1-1 INSTALLATION IS CREATED
LDW280-28882-1 AS FOLLOWS
  a) REMOVING LDW280-10630-15 & -16, LDW280-10631-15
  LDW280-11143-26 -27, -29 & -31, LDW280-10824-17 & -2
  LDW280-28882-11 AS SHOWN IN SECTION VIEW 'B
  ALL HARDWARE REQD BY REWORK.
  (b) REPLACING LDW280-10827-23(2), LDW280-11617-13, 15 & 17
  (c) ADDING LDW280-10630-15-1 & -16-1, LDW280-10631-15-1, LDW2
  11143-26-1, -27-1, -29-1 AND ALL REQ'D HARDWARE FOR

21. -1 INSTL IS TO BE USED FOR LTA-8/LM-3 THERMAL TES
OF LTA-8/LM-3 TEST -1 INSTL IS TO BE REPLACED
LTA-8/LM-5 THERMAL TEST.

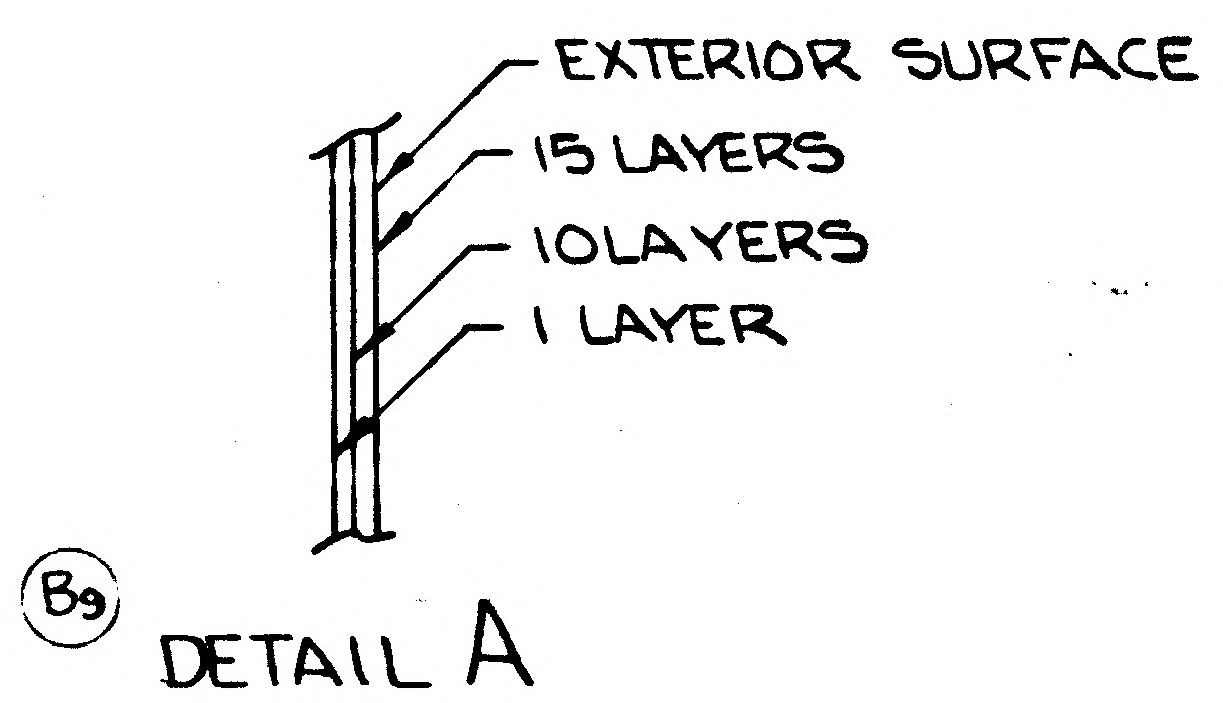
	GRUMM
	SIZE J
LEM	
MODEL OR END ITEM	SCALE FU





(B11) LDW280-28882-1-1 INSTL (SEE NOTE 20)
LDW280-28882-1 INSTL

VIEW LOOKING UP



(B9) DETAIL A
SCALE: NONE

NOTES:

1. BLANKETS TO BE LAID UP PER LPC 280-1.
2. ALUMINIZED MYLAR FILM & ALUMINIZED POLYIMIDE FILM MAY BE PURCHASED FROM Mc CORDI CORP., MAMARONECK, N.Y., CODE IDENT 24761.
3. ALL SEAMS PER LPC 280-3.
4. SUPER INSULATION SHALL BE HANDLED WITH LINT FREE NYLON GLOVES.
5. INSPECTION ON END ITEM ONLY. HOLES MAY BE PUNCHED ON ASSEMBLY.
6. TAPE B-GT835P-8 TO BE USED ON EXTERNAL SIDE OF BLANKETS BUT INSIDE OF HARD SHIELDING.
7. BLANKETS TO BE PRE-FITTED ON LSK280-10922, 103% SCALE MODEL.
8. RIVNUT LOCATION TOLERANCE $\pm \frac{1}{2}$.
9. DWG MAY BE SCALED FOR DIMENSIONS NOT SHOWN.
10. CUTTING & PATCHING PROCEDURE FOR LM THERMAL SHIELDING INSULATION BLANKETS PER LPC 280-6.
11. REPAIR PROCEDURE FOR LM THERMAL SHIELDING INSULATION BLANKETS PER LPC 280-8.
12. MATERIAL FINISHES HANDLING & PERMISSIBLE DEVIATIONS OF LM ASCENT STAGE THERMAL SHIELD SKINS PER LPC 280-16.
13. PERMISSIBLE DEVIATIONS & REPAIR PROCEDURE FOR LM THERMAL INSULATION BLANKETS PER LPC 280-20.
14. FINAL CONFIGURATION OF THERMAL BLANKETS SHALL BE DETERMINED FROM ENGINEERING APPROVED MASTER TEMPLATES.
15. A 1/2 INCH GAP IS PERMISSIBLE BETWEEN ADJACENT THERMAL SKIN PANELS. GT835P8 TAPE MAY BE USED TO HELP REDUCE THESE GAPS.
16. DURING -1 INSTL (OR ASSY OF THERMAL SHIELD SUB-ASSY'S OR DETAILS FOR LTA-8 ONLY) PARTS MAY BE TRIMMED OR SHIMMED AS NOTED TO INSURE PROPER FIT TO MATING PART OR ADJACENT STRUCTURE:
    A. MAX PERMISSIBLE TRIM TO BE 1/16, PROVIDING A MIN. FASTENER EDGE DISTANCE IS HELD AFTER TRIMMING (1 1/2 FASTENER DIA.)
    B. MAX PERMISSIBLE SHIM TO BE .063 THICK, AND, IF TAPERED NOT TO EXCEED 5 INCHES IN LENGTH. SHIM STOCK TO BE 2024-T3 AL ALLOY, QQ-A-250/4, FINISH 76, WIDTH AS REQD.
17. WHERE NECESSARY, ON THERMAL SHIELD SUB-STRUCTURE, IT IS PERMISSIBLE TO FLUSH RIVETS TO INSURE PROPER FIT OF MATING PARTS, PROVIDING MATERIAL TO BE CSK IS THICK ENOUGH TO PREVENT "FEATHER EDGED" HOLES. NAS1097 OR MS20426 RIVETS MAY BE USED.
18. WHERE NECESSARY, DUE TO REDESIGN AND REWORK, THE NEXT LARGER SIZE FASTENER MAY BE USED IN LIEU OF EXISTING FASTENER, PROVIDING A MINIMUM EDGE DISTANCE OF 1 1/2 FASTENER DIA IS MAINTAINED. ALSO, EXTRANEOUS HOLES MAY BE PLUGGED AS REQD. (NAS1097 OR MS 20470 RIVETS PERMISSIBLE) AS LONG AS A MINIMUM SPACING OF 3 DIAMETER EXISTS BETWEEN PLUG AND NEAREST FASTENER. (A 1 INCH SQUARE OF GT835M8 TAPE MAY BE USED FOR HOLES UP TO 7/16 IN DIA IN THERMAL SKINS)
19. WHERE NECESSARY, THE FOLLOWING NUT PLATES MAY BE REPLACEMENTS FOR ONE ANOTHER WITHIN THE GROUPS NOTED BELOW, PROVIDING THERE IS NO CHANGE IN DIAMETER OF SCREW:
    GROUP A: NAS680, NAS682, NAS684, NAS686, NAS697, NAS698, NAS1067 & NAS1068
    GROUP B: NAS681 NAS683 & NAS685
    IF THE INTERCHANGEABLE ANCHOR NUTS ARE USED. THERMAL SKINS OR SUB-STRUCTURE MAY BE DIMPLED OR CSK AS REQD (SEE NOTE 17 ABOVE)
20. LDW280-28882-1-1 INSTALLATION IS CREATED BY REWORKING LDW280-28882-1 AS FOLLOWS
    a) REMOVING LDW280-10630-15 & -16, LDW280-10631-15, LDW280-10827-21 (4), LDW280-11143-26 -27, -29 & -31, LDW280-10824-17 & -23, BY TRIMMING LDW280-28882-11 AS SHOWN IN SECTION VIEW 'B' & BY REMOVING ALL HARDWARE REQD BY REWORK.
    (b) REPLACING LDW280-10827-23(2), LDW280-11617-13, -15 & -17 (1 EA) & -19 (4) WITH NEW PARTS
    (c) ADDING LDW280-10630-15-1 & -16-1, LDW280-10631-15-1, LDW280-10824-17-1, LDW280-11143-26-1, -27-1, -29-1 AND ALL REQ'D HARDWARE FOR INSTL.
21. -1 INSTL IS TO BE USED FOR LTA-8/LM-3 THERMAL TEST. UPON COMPLETION OF LTA-8/LM-3 TEST -1 INSTL IS TO BE REPLACED BY -1-1 INSTL FOR LTA-8/LM-5 THERMAL TEST.

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

LDW280-28882 B

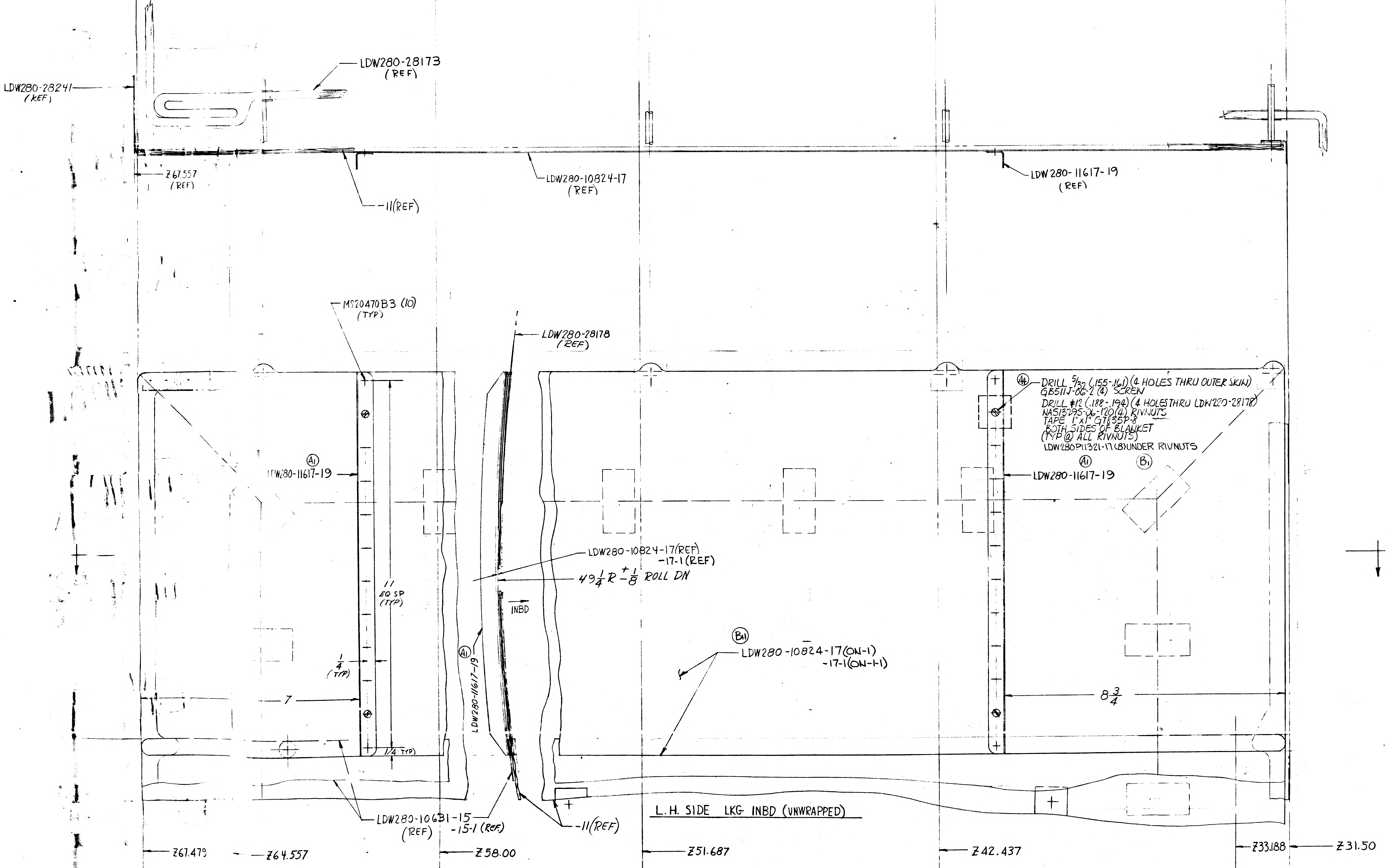
LDW280-28882 B

03/03

NAS 9-1100

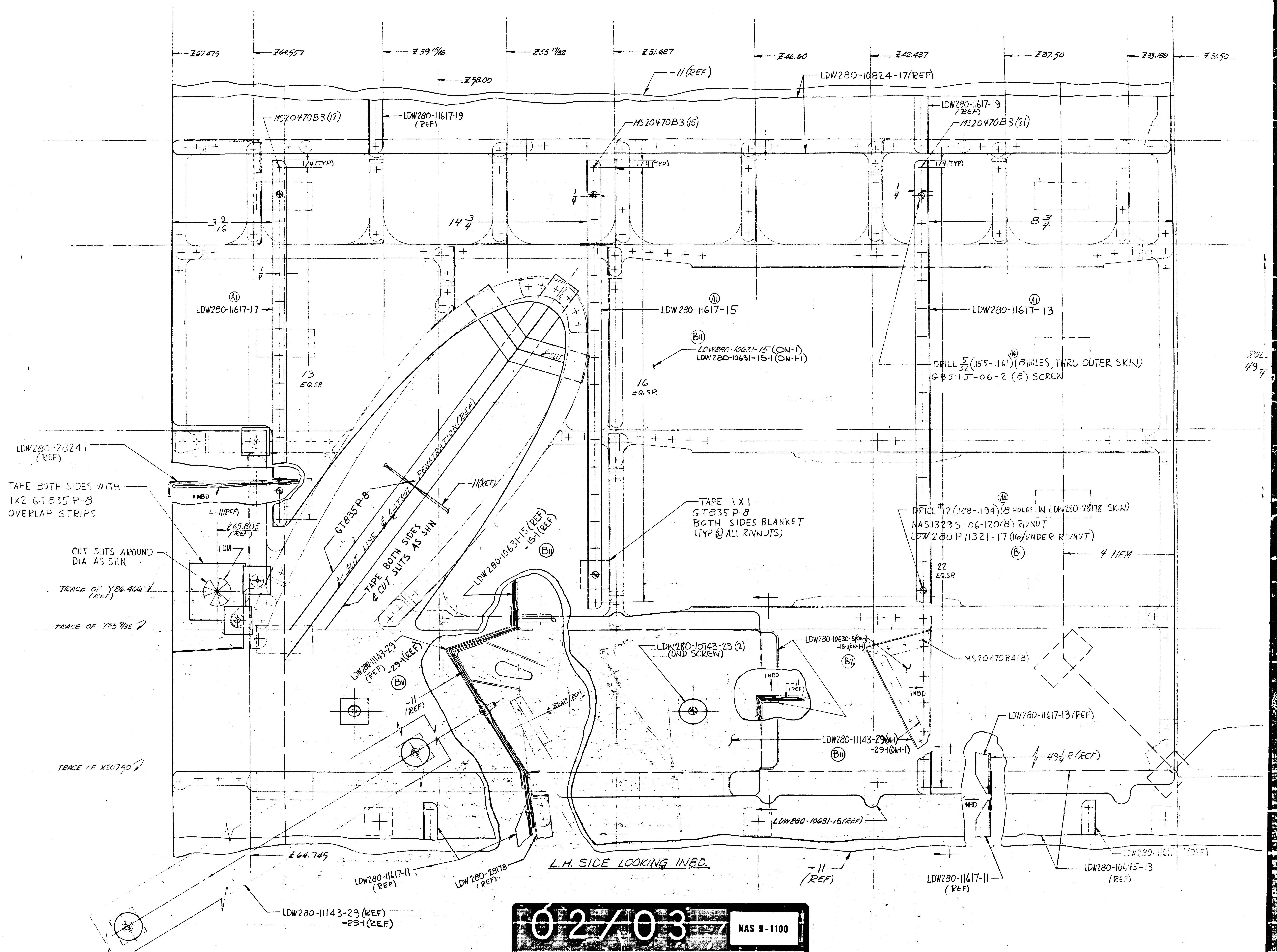
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

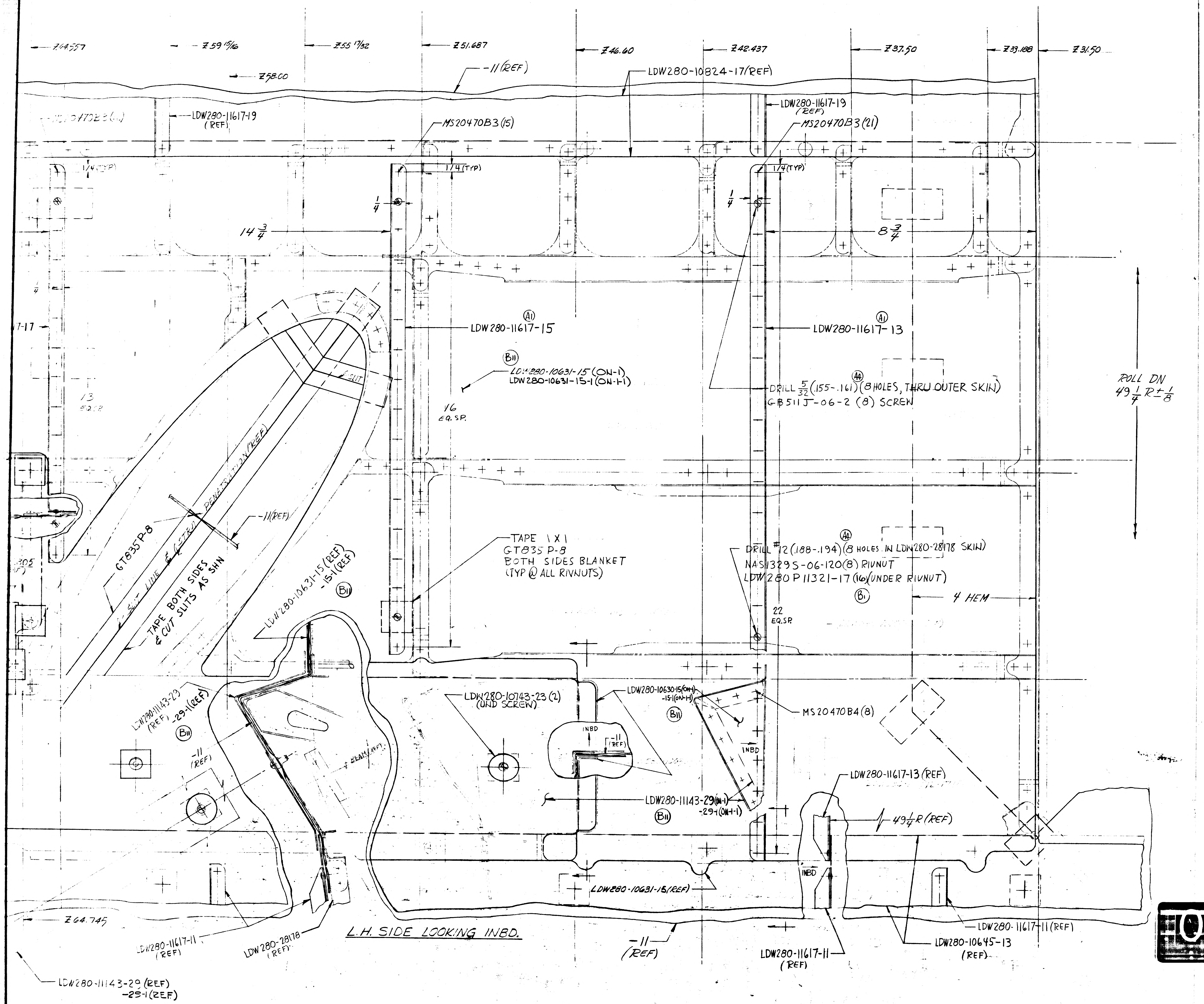
	SIZE	CODE IDENT NO.		
LEM	J	26512	LDW280-28882	B
MODEL OR END ITEM	SCALE FULL		SHEET 3.00	


LDW280-28241 (REF)
LDW280-28173 (REF)
Z67.557 (REF)
-11(REF)
LDW280-10824-17 (REF)
LDW280-11617-19 (REF)
MS20470B3 (10) (TYP)
LDW280-28178 (REF)
DRILL 5/32 (.155-.161) (4 HOLES THRU OUTER SKIN)
GB511J-06-2 (4) SCREW
DRILL #12 (.188-.194) (4 HOLES THRU LDW280-28178)
NAS1329S-06-120 (4) RIVNUTS
TAPE 1"x1" GT835P-8
BOTH SIDES OF BLANKET
(TYP @ ALL RIVNUTS)
LDW280P11321-17 (8) UNDER RIVNUTS
A4
A1
B1
LDW280-11617-19
A1
LDW280-11617-19
LDW280-10824-17(REF)
-17-1 (REF)
49 1/4 R +1/-8 ROLL DN
INBD
11 EQ SP (TYP)
1/4 (TYP)
7
1/4 TYP
A1
LDW280-11617-19
B1
LDW280-10824-17(ON-1)
-17-1(ON-1-1)
8 3/4
LDW280-10631-15 (REF)
-15-1 (REF)
-11(REF)
L. H. SIDE LKG INBD (UNWRAPPED)
Z61.479
Z64.557
Z58.00
Z51.687
Z42.437
Z33.188
Z31.50

01/03

NAS 9-1100


Z67.479
Z64.557
Z59 15/16
Z58.00
Z55 17/32
Z51.687
Z46.60
Z42.437
Z37.50
Z33.188
Z31.50
-11 (REF)
LDW280-10824-17 (REF)
MS20470B3 (12)
LDW280-11617-19 (REF)
MS20470B3 (15)
LDW280-11617-19 (REF)
MS20470B3 (21)
1/4 (TYP)
1/4 (TYP)
1/4 (TYP)
1/4
1/4
1/4
3 9/16
14 3/4
8 3/4
A1
LDW280-11617-17
A1
LDW280-11617-15
A1
LDW280-11617-13
13 EQ.SP.
16 EQ.SP.
22 EQ.SP.
B11
LDW280-10631-15 (ON-1)
LDW280-10631-15-1 (ON-1-1)
DRILL 5/32 (.155-.161) A4 (8 HOLES, THRU OUTER SKIN)
GB511J-06-2 (8) SCREW
SLIT
PENETRATION (REF)
℄ STRUT
GT835P-8
℄ SLIT LINE
TAPE BOTH SIDES & CUT SLITS AS SHN
-11 (REF)
LDW280-28241 (REF)
INBD
TAPE BOTH SIDES WITH 1x2 GT835P-8 OVERLAP STRIPS
L-11 (REF)
Z65.805 (REF)
1 DIA
CUT SLITS AROUND DIA AS SHN
TRACE OF Y26.406 (REF)
TRACE OF Y25 9/32
TRACE OF X2075.0
LDW280-10631-15 (REF) -15-1 (REF)
B11
TAPE 1x1 GT835P-8 BOTH SIDES BLANKET (TYP @ ALL RIVNUTS)
A4
DRILL #12 (.188-.194) (8 HOLES IN LDW280-28178 SKIN)
NAS1329S-06-120 (8) RIVNUT
LDW280P11321-17 (16) (UNDER RIVNUT)
B1
4 HEM
ROL. 49 1/4
LDW280-11143-29 (REF) -29-1 (REF)
B11
-11 (REF)
℄ BEAM (REF)
LDW280-10743-23 (2) (UND SCREW)
INBD
-11 (REF)
LDW280-10630-15 (ON-1) -15-1 (ON-1-1)
B11
MS20470B4 (8)
INBD
LDW280-11143-29 (ON-1) -29-1 (ON-1-1)
B11
LDW280-11617-13 (REF)
49 1/4 R (REF)
INBD
LDW280-10631-15 (REF)
Z64.745
LDW280-11617-11 (REF)
LDW280-28178 (REF)
L.H. SIDE LOOKING INBD.
-11 (REF)
LDW280-11617-11 (REF)
LDW280-11617 (REF)
LDW280-10645-13 (REF)
LDW280-11143-29 (REF) -29-1 (REF)
1.50


Z 64.557
Z 59 15/16
Z 58.00
Z 55 17/32
Z 51.687
Z 46.60
Z 42.437
Z 37.50
Z 33.188
Z 31.50
-11 (REF)
LDW280-10824-17 (REF)
LDW280-11617-19 (REF)
LDW280-11617-19 (REF)
MS20470B3 (15)
MS20470B3 (21)
1/4 (TYP)
1/4 (TYP)
1/4 (TYP)
1/4
1/4
14 3/4
8 3/4
Ⓐ1 LDW280-11617-15
Ⓐ1 LDW280-11617-13
Ⓑ11 LDW280-10631-15 (ON-1)
LDW280-10631-15-1 (ON-1-1)
16 EQ. SP.
Ⓐ4 DRILL 5/32 (.155-.161) (8 HOLES, THRU OUTER SKIN)
GB511J-06-2 (8) SCREW
ROLL DN 49 1/4 R ± 1/8
13 EQ. SP.
GT835P-8
SLIT LINE ℄ (STRUT PENETRATION (REF)
TAPE BOTH SIDES & CUT SLITS AS SHN
-11 (REF)
.305 (REF)
LDW280-10631-15 (REF)
-15-1 (REF)
Ⓑ11
TAPE 1 X 1
GT835 P-8
BOTH SIDES BLANKET
(TYP @ ALL RIVNUTS)
Ⓐ4 DRILL #12 (.188-.194) (8 HOLES IN LDW280-28178 SKIN)
NAS1329S-06-120 (8) RIVNUT
LDW280P11321-17 (16) (UNDER RIVNUT)
Ⓑ1
22 EQ. SP.
4 HEM
LDW280-11143-29 (REF)
-29-1 (REF)
Ⓑ11
-11 (REF)
℄ BEAM (REF)
LDW280-10743-23 (2) (UND SCREW)
LDW280-10630-15 (ON-1)
-15-1 (ON-1-1)
Ⓑ11
INBD
-11 (REF)
MS20470B4 (8)
INBD
LDW280-11143-29 (ON-1)
-29-1 (ON-1-1)
Ⓑ11
LDW280-11617-13 (REF)
49 1/4 R (REF)
INBD
LDW280-10631-15 (REF)
Z 64.745
LDW280-11617-11 (REF)
LDW280-28178 (REF)
L.H. SIDE LOOKING INBD.
-11 (REF)
LDW280-11617-11 (REF)
LDW280-11617-11 (REF)
LDW280-10645-13 (REF)
LDW280-11143-29 (REF)
-29-1 (REF)

MANUFACTURING OPERATIONS

UNLESS OTHERWISE SPECIFIED
NOTES CHECKED √ APPLY TO THIS DWG.

PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY

FULL SIZE SHEET AREA (36 X) = SQ. FT.

1/2 SIZE SHEET AREA (1/4 OF FULL) = SQ. FT.

PRINT TRIM LINE

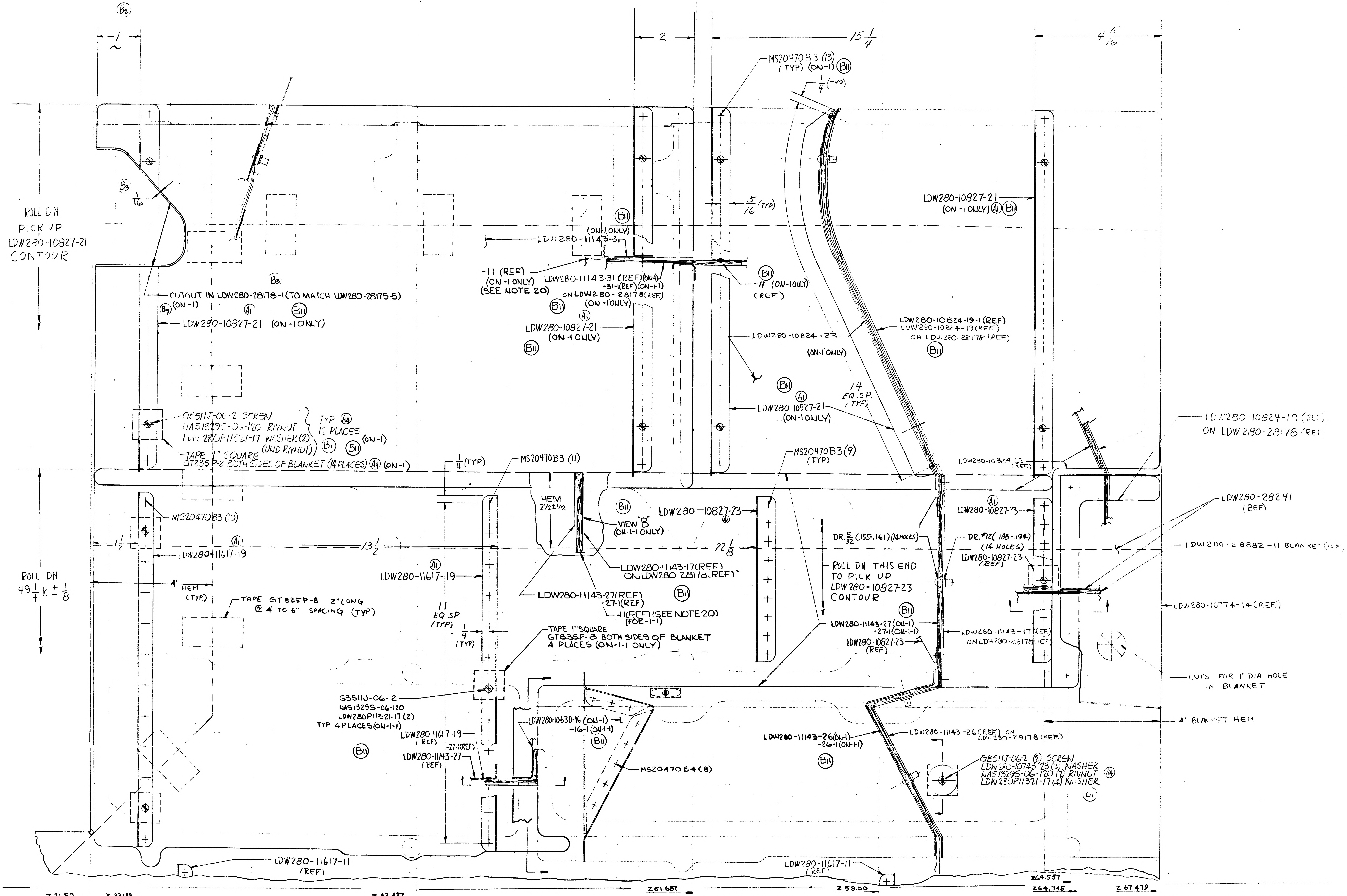
LDW280-28882 B

03703

NAS 9-1100

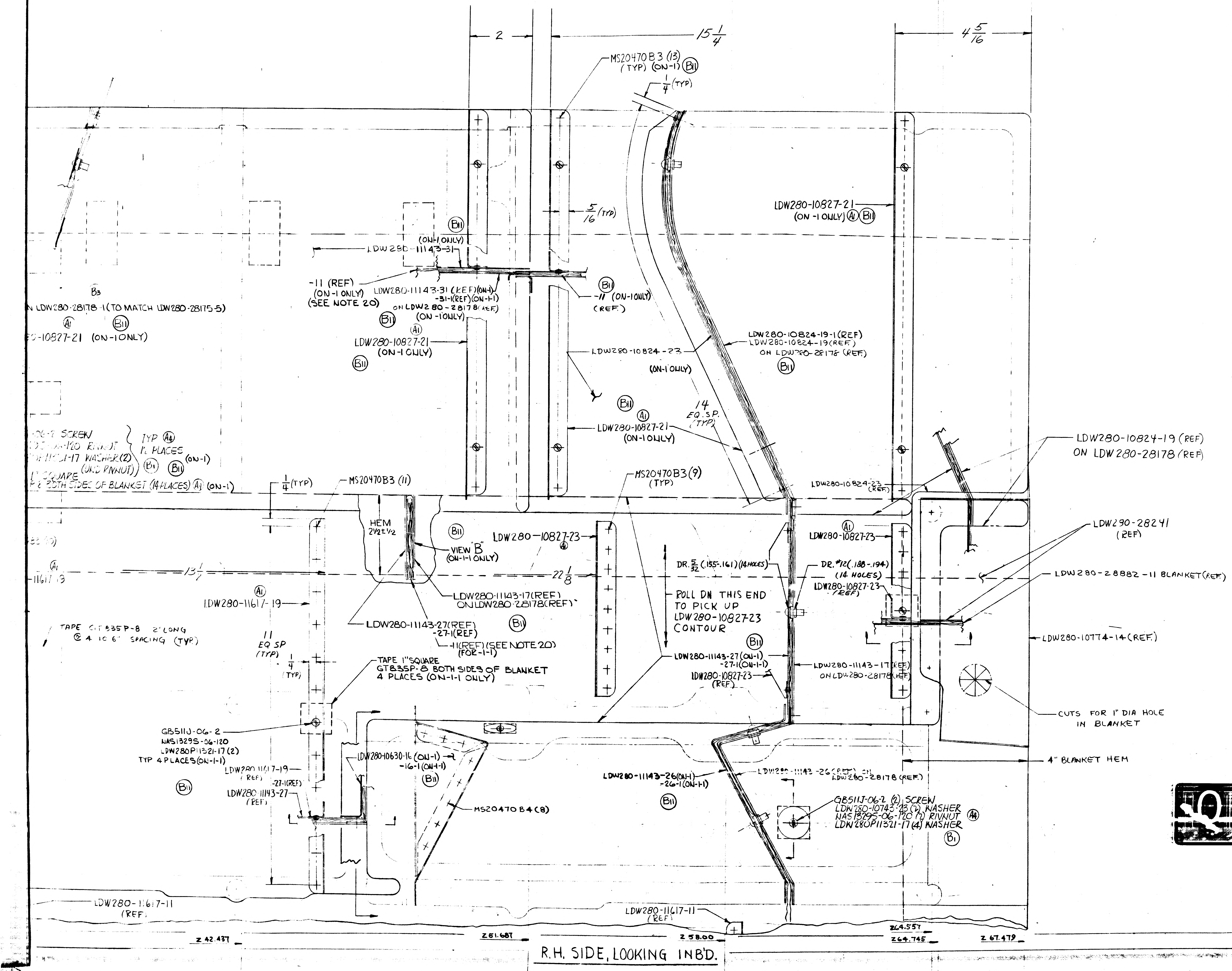
	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28882	B
MODEL OR END ITEM	SCALE FULL		SHEET 4.00	

01/02 **NAS 9-1100**



B2
1
~
B3
1/16
ROLL DN
PICK UP
LDW280-10827-21
CONTOUR
B3
CUTOUT IN LDW280-28178-1 (TO MATCH LDW280-28175-5)
B9 (ON-1)
A1
B11
LDW280-10827-21 (ON-1 ONLY)
GB511J-06-2 SCREW
NAS13295-06-120 RIVNUT
LDW 280P11321-17 WASHER (2)
(UND RIVNUT)
TYP A4
12 PLACES
B1
B11
(ON-1)
TAPE 1" SQUARE
GT835P-8 BOTH SIDES OF BLANKET (14 PLACES) A4 (ON-1)
2
15 1/4
4 5/16
MS20470B3 (13)
(TYP) (ON-1) B11
1/4 (TYP)
5/16 (TYP)
B11
(ON-1 ONLY)
LDW280-11143-31
-11 (REF)
(ON-1 ONLY)
(SEE NOTE 20)
LDW280-11143-31 (REF) (ON-1)
-31-1 (REF) (ON-1-1)
ON LDW280-28178 (REF)
(ON-1 ONLY)
B11
-11 (ON-1 ONLY)
(REF.)
B11
A1
LDW280-10827-21
(ON-1 ONLY)
B11
LDW280-10824-23
(ON-1 ONLY)
LDW280-10824-19-1 (REF)
LDW280-10824-19 (REF)
ON LDW280-28178 (REF)
B11
B11
A1
LDW280-10827-21
(ON-1 ONLY)
14
EQ. SP.
(TYP)
LDW280-10827-21
(ON-1 ONLY) A1 B11
LDW280-10824-19 (REF)
ON LDW 280-28178 (REF)
MS20470B3 (9)
(TYP)
LDW280-10824-23
(REF)
MS20470B3 (10)
A1
1/2
LDW280-11617-19
ROLL DN
49 1/4 R ± 1/8
4" HEM
(TYP)
TAPE GT835P-8 2" LONG
@ 4 TO 6" SPACING (TYP.)
1/4 (TYP)
MS20470B3 (11)
HEM
2 1/2 ± 1/2
13 1/2
A1
LDW280-11617-19
11
EQ SP
(TYP)
1/4
(TYP)
B11
VIEW "B"
(ON-1-1 ONLY)
LDW280-10827-23
A4
22 1/8
LDW280-11143-17 (REF)
ON LDW280-28178 (REF)
LDW280-11143-27 (REF)
-27-1 (REF)
-11 (REF) (SEE NOTE 20)
(FOR-1-1)
B11
TAPE 1" SQUARE
GT835P-8 BOTH SIDES OF BLANKET
4 PLACES (ON-1-1 ONLY)
GB511J-06-2
NAS1329S-06-120
LDW280P11321-17 (2)
TYP 4 PLACES (ON-1-1)
LDW280-11617-19
(REF)
-27-1 (REF)
LDW280-11143-27
(REF)
B11
LDW280-10630-16 (ON-1)
-16-1 (ON-1-1)
B11
MS20470B4 (8)
DR. 5/32 (.155-.161) (14 HOLES)
ROLL DN THIS END
TO PICK UP
LDW280-10827-23
CONTOUR
B11
LDW280-11143-27 (ON-1)
-27-1 (ON-1-1)
LDW280-10827-23
(REF)
A1
LDW280-10827-23
DR. #12 (.188-.194)
(14 HOLES)
LDW280-10827-23
(REF)
LDW280-11143-17 (REF)
ON LDW280-28178 (REF)
LDW280-28241
(REF)
LDW280-28882-11 BLANKET (REF)
LDW280-10774-14 (REF.)
CUTS FOR 1" DIA HOLE
IN BLANKET
4" BLANKET HEM
LDW280-11143-26 (ON-1)
-26-1 (ON-1-1)
LDW280-11143-26 (REF) ON LDW280-28178 (REF)
B11
GB511J-06-2 (2) SCREW
LDW280-10743-23 (2) WASHER
NAS13295-06-120 (2) RIVNUT
LDW280P11321-17 (4) WASHER
A4
D1
LDW280-11617-11
(REF)
LDW280-11617-11
(REF)
Z 31.50
Z 33.188
Z 42.437
Z 51.687
Z 58.00
Z 64.557
Z 64.745
Z 67.479

R.H. SIDE, LOOKING INB'D.


2
15 1/4
4 5/16
MS20470B3 (13) (TYP) (ON-1) B11
1/4 (TYP)
5/16 (TYP)
LDW280-10827-21 (ON -1 ONLY) A1 B11
(ON-1 ONLY)
LDW280-11143-31
-11 (REF) (ON-1 ONLY) (SEE NOTE 20)
LDW280-11143-31 (REF)(ON-1) -31-1(REF)(ON-1-1)
ON LDW280-28178(REF) (ON-1 ONLY)
B11 -11 (ON-1 ONLY) (REF)
B3
LDW280-28178-1 (TO MATCH LDW280-28175-5)
A1 B11
-10827-21 (ON-1 ONLY)
LDW280-10827-21 (ON-1 ONLY) A1 B11
LDW280-10824-23 (ON-1 ONLY)
LDW280-10824-19-1 (REF)
LDW280-10824-19 (REF) ON LDW280-28178 (REF) B11
14 EQ.SP. (TYP)
B11 A1
LDW280-10827-21 (ON-1 ONLY)
SCREW
RIVNUT
-17 WASHER (2)
(OR RIVNUT)
TYP A4 4 PLACES B1 B11 (ON-1)
SQUARE
BOTH SIDES OF BLANKET (14 PLACES) A1 (ON-1)
1/4 (TYP)
MS20470B3 (11)
MS20470B3 (9) (TYP)
LDW280-10824-23 (REF)
LDW280-10824-19 (REF) ON LDW280-28178 (REF)
HEM 2 1/2 2 1/2
B11
LDW280-10827-23 A1
VIEW "B" (ON-1-1 ONLY)
22 1/8
13 1/2
-11617-13
A1
LDW280-11617-19
DR. 5/32 (.155-.161) (14 HOLES)
DR. #12 (.188-.194) (14 HOLES)
A1 LDW280-10827-23
LDW280-10827-23 (REF)
LDW290-28241 (REF)
LDW280-28882-11 BLANKET (REF)
ROLL DN THIS END TO PICK UP LDW280-10827-23 CONTOUR
LDW280-11143-17 (REF) ON LDW280-28178 (REF)
LDW280-11143-27 (REF) -27-1 (REF)
-11 (REF) (SEE NOTE 20) (FOR -1-1)
B11
TAPE GT835P-8 2" LONG @ 4 TO 6" SPACING (TYP)
11 EQ SP (TYP)
1/4 (TYP)
TAPE 1" SQUARE GT835P-8 BOTH SIDES OF BLANKET 4 PLACES (ON-1-1 ONLY)
LDW280-11143-27 (ON-1) -27-1 (ON-1-1) B11
LDW280-10827-23 (REF)
LDW280-11143-17 (REF) ON LDW280-28178 (REF)
LDW280-10774-14 (REF)
CUTS FOR 1" DIA HOLE IN BLANKET
4" BLANKET HEM
GB511J-06-2
NAS1329S-06-120
LDW280P11321-17 (2)
TYP 4 PLACES (ON-1-1)
LDW280-11617-19 (REF) -27-1 (REF)
LDW280-11143-27 (REF)
B11
LDW280-10630-16 (ON-1) -16-1 (ON-1-1) B11
MS20470B4 (8)
LDW280-11143-26 (ON-1) -26-1 (ON-1-1) B11
LDW280-11143-26 (REF) ON LDW280-28178 (REF)
GB511J-06-2 (2) SCREW
LDW280-10743-23 (2) WASHER
NAS1329S-06-120 (2) RIVNUT
LDW280P11321-17 (4) WASHER A4 B1
LDW280-11617-11 (REF)
LDW280-11617-11 (REF)
Z 42.437
Z 61.687
Z 58.00
Z 64.557
Z 64.745
Z 67.479

R.H. SIDE, LOOKING INB'D.

Q2/Q2

NAS 9-1100

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ⊠ USE BOTH SIDES IF NECESSARY.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X) = SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = SQ. FT.

PRINT TRIM LINE

LDW280-28882 B

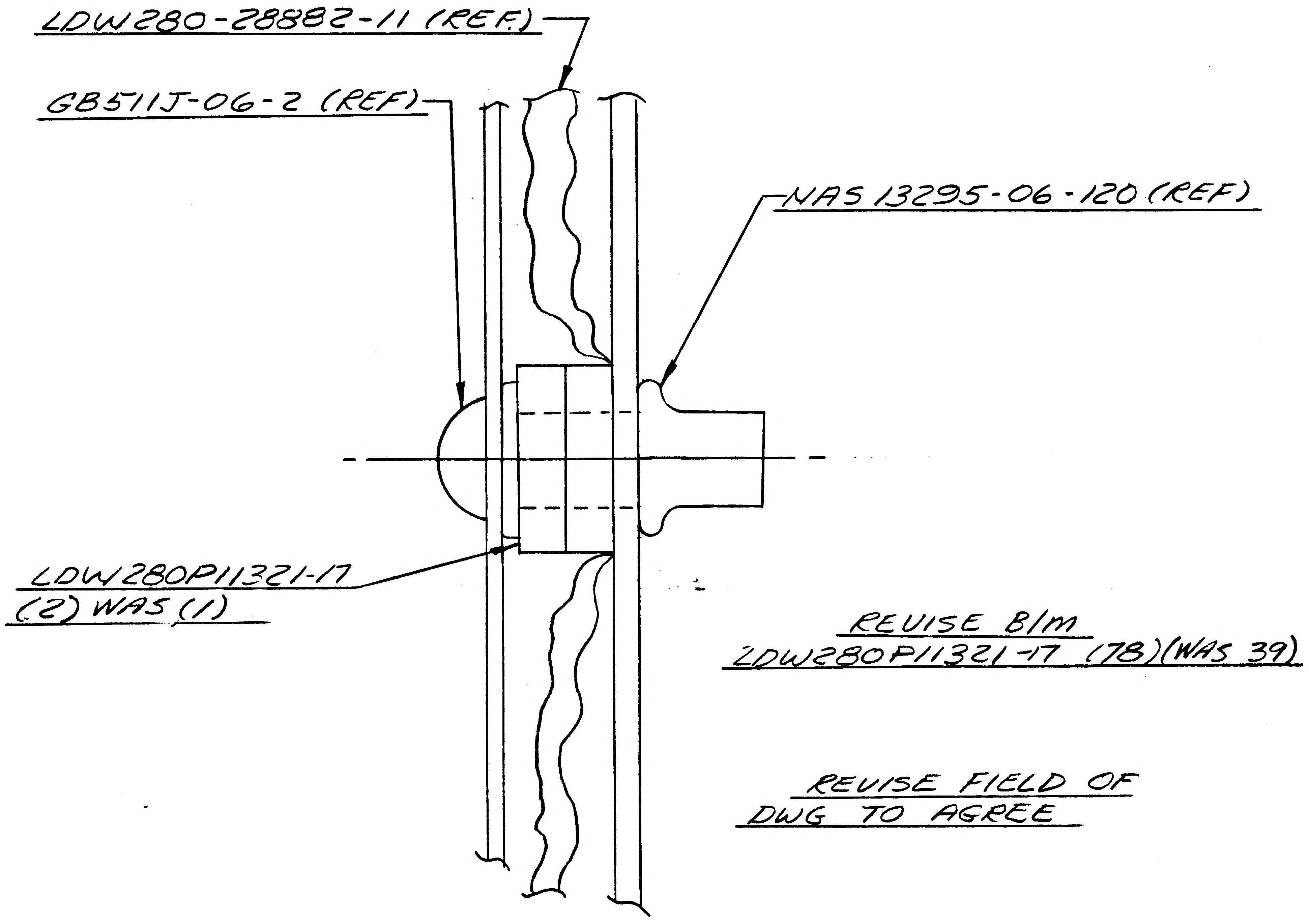
LDW280-28882 B

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LEM	SIZE J	CODE IDENT NO. 26512	LDW280-28882	B
MODEL OR END ITEM	SCALE FULL		SHEET 5.03	

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LDW280-28882 | EO NO. B1
CONTROL INFO NO. LDW280A-4002



REVISE B/M
LDW280P11321-17 (78)(WAS 39)

REVISE FIELD OF
DWG TO AGREE

TYP. RIVNUT INSTL.
39 PLACES.

3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	Pre Therm Shield

REASON FOR EO: PROVIDE GREATER CLEARANCE FOR THERMAL BLANKET

DESCRIPTION OF EO: ADD ADDITIONAL WASHER. LDW280P11321-17 (78 WAS 39)

GAEC EO RELEASE: C FR 12/6/6

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP

APPROVED BY		A3		RVP EJ				
DATE	12/6/66	12/6/66		12-6-66	12/6		12/6/66	12/6/66
5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOFF~~

PRIORITY: C
DRAWING TITLE: SHIELD & BLANKET INSTL. A/S CABIN-FITH SKIN - THERMAL
DRAWING NO.: LDW280-28882
EO NO.: B1

ISSUED BY R.P. OBERNDORFER X1156 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

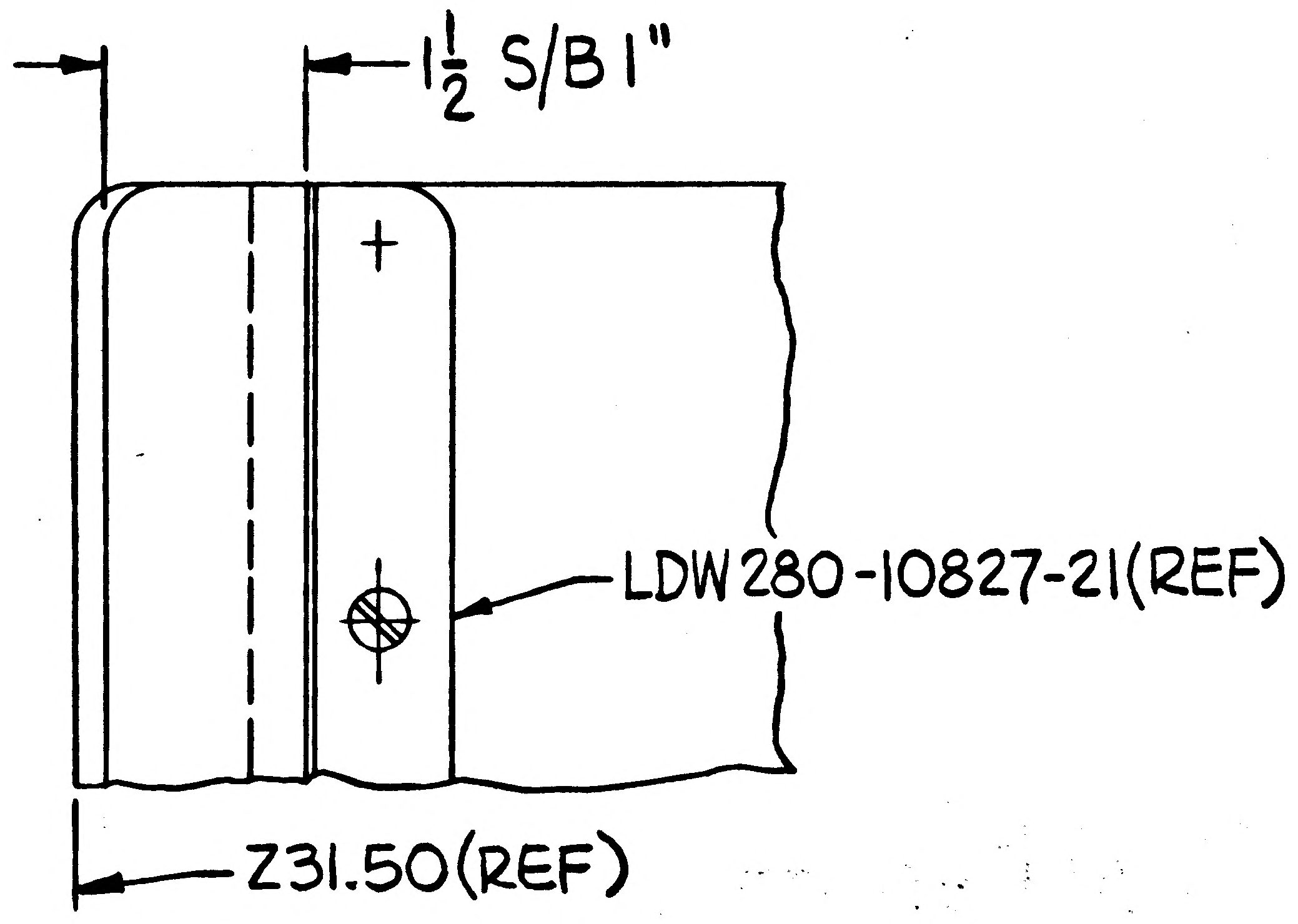
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28882 | EO NO. B2
CONTROL INFO NO. LM-5-11413

ON SH 5.00 REVISE LOCATING DIMENSION AS SHOWN:

RELEASED BY LIAISON



DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: TO PROVIDE REMOVABILITY OF DOOR, COULD NOT BE INSTALLED WITH GIVEN DIM.

DESCRIPTION OF EO: FOR -1 INSTL: LOCATING DIM. FOR LDW280-10827-21 1" WAS 1½

5

GAEC EO RELEASE: ⓦ C

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS	
✓ REVISE DWG	RECORD EO	✓ REWORK	SCRAP

APPROVED BY	WT			~	WB	CH	RME ⓦ	
DATE	12/14/66			~	12/14/66	12-14	12-20-66	12-14-66
1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD & BLANKET INSTL A/S CABIN-FITH SKIN-THERMAL	LDW280-28882	B2

ISSUED BY LIAISON F.STEINMETZ/CCA X6454 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

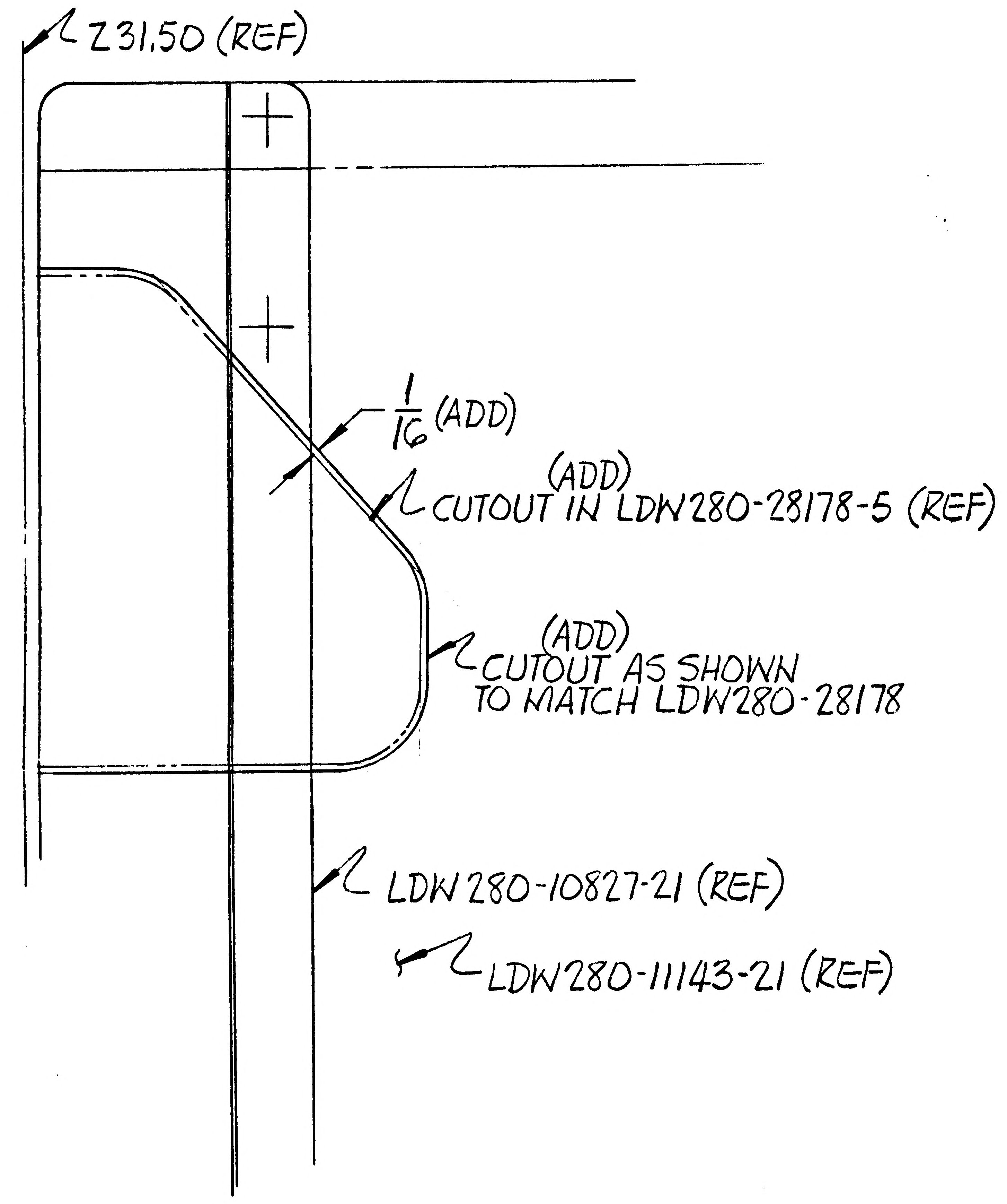
D

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28882
EO NO. B3
CONTROL INFO NO. LDW280A5520

REVISE F/D @ "R.H. SIDE LOOKING INBOARD" SHT. 5


Z31.50 (REF)
1/16 (ADD)
(ADD) CUTOUT IN LDW280-28178-5 (REF)
(ADD) CUTOUT AS SHOWN TO MATCH LDW280-28178
LDW280-10827-21 (REF)
LDW280-11143-21 (REF)

3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		LCR #923

REASON FOR EO: TO FACILITATE DEADFACE CONNECTOR REMOVAL

DESCRIPTION OF EO: ADDED CUTOUT TO -1 INSTL.

GAEC EO RELEASE: 2/15/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-8 (19)		

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY	Jap	V.D.		F.DR					
DATE	2/13/67	2/14		2/13/67	2/14		2/14	2-15-67	
3	VDI	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~	

PRIORITY: C
DRAWING TITLE: SHIELD & BLANKET INSTL A/S CABIN-FITH SKIN-THERMAL
DRAWING NO. LDW280-28882
EO NO. B3

ISSUED BY SALVADOR X1153
SECTION VDI
GROUP NO. 335
PL 35

01
NAS 9-1100

B

ENG 32.2 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 | EO NO. 490
CONTROL INFO NO. LDW280A5591

TO THE FOLLOWING DRAWINGS ADD THE APPLICABLE NOTES AS INDICATED BELOW, USING THE NEXT AVAILABLE NUMBERS :

DWG. NO. ¢ TITLE	CHG. NO.	APPLICABLE NOTES *	EFF
LDW280-28294 BLANKET INSTL A/S UPPER DOCKING WINDOW	B2	⊕ ☆ ⌓ ● ⊠	LTA 8, LM 1 THRU LM 15
LDW280-28875 SHIELD INSTL A/S~CABIN-DRAG STRUT	B5	⊕ △ ☆ ⌓ ● ⊠	LTA 8, LM 1 ¢ 2
LDW280-28882 EXTERNAL SHIELD ¢ BLANKET INSTL. A/S~CABIN~FITH	B4	✱✱ ⊕ △ ☆ ⌓	LTA 8
LDW280-53173 THERMAL SHIELD INSTL A/S~CABIN	A6	⊕ △ ☆	LM 3 THRU LM 15
LDW280-53875 SHIELD INSTL A/S~CABIN~DRAG STRUT	A1	⊕ △ ☆ ⌓ ⊠	LM 3 THRU LM 15

NOTES:

✱✱ - "CUTTING ¢ PATCHING PROCEDURE FOR LM THERMAL SHIELDING INSULATION BLANKETS PER LPC 280-6".

⊕ - "REPAIR PROCEDURE FOR LM THERMAL SHIELDING INSULATION BLANKETS PER LPC 280-8".

△ - "MATERIAL, FINISHES, HANDLING ¢ PERMISSIBLE DEVIATIONS OF LM ASCENT STAGE THERMAL SHIELD SKINS PER LPC 280-16".

☆ - "PERMISSIBLE DEVIATIONS ¢ REPAIR PROCEDURE FOR LM THERMAL INSULATION BLANKETS PER LPC 280-20".

⌓ - "FINAL CONFIGURATION OF THERMAL BLANKETS SHALL BE DETERMINED FROM ENGINEERING APPROVED MASTER TEMPLATES".

● - "SUPER INSULATION SHALL BE HANDLED WITH LINT FREE NYLON GLOVES".

⊠ - "HOLES IN BLANKETS MAY BE PUNCHED OR SLIT ON INSTL".

DETAIL SPEC REQ ✓ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☐ 3

REASON FOR EO: LPC'S OMITTED ON DWG

DESCRIPTION OF EO: ADDED NOTES * (R)

GAEC C EO RELEASE: JK 3/3/7

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
		NOTED	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK ✓ | SCRAP

				RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY		V.J.J.			ZNR				
DATE	2/20/67	2/23/67			2/20/67	2/27		2/28	3/2/67
/	VDI	~~SUPPORT~~							

PRIORITY: C

DRAWING TITLE: NOTED ABOVE

DRAWING NO.: LEO 280

EO NO.: 490

ISSUED BY D. KLINGENER X1392 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-28882
EO NO. B5
CONTROL INFO NO. LM-5-13351

ADD NOTE ••• (USE NEXT AVAILABLE NO.)
A 1/2" GAP IS PERMISSIBLE BETWEEN ADJACENT THERMAL SKIN PANELS. G7835P8 TAPE MAY BE USED TO HELP REDUCE THESE GAPS.

RELEASED BY LIAISON

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
INSPECTION REQUIREMENT	ADDED NOTE •••	C JK —

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

APPROVED BY	WJT			~	JF	EUB	DAM (E)	
DATE	5/10/67			~	5-11-67	5/10/67	5-12-67	5/11/67
1	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD & BLANKET INSTL. A/S CABIN FITH SKIN THERMAL	LDW280-28882	B5

ISSUED BY F. STEINMETZ X6510 SECTION VD1 GROUP NO. 335 PL 5

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG LEO 280 | EO NO. 593
CONTR. INFO NO. LMS-13352

TO THE DWGS LISTED BELOW, ADD NOTE * AS SHOWN
(* = NEXT AVAILABLE NOTE NUMBER)

DWG NO.	▲ INSTL	EFF.	CHG NO.	TITLE
LDW280-28153	-1	LTA-8(18)	C6	SEE DWG
28154	-1		B5	
28160	-1		A9	
28161	-1		B2	
28163	-1 & -2		A6	
28851	-5		A9	
28852	-1		A7	
28861	-1		A7	
28096	-3 & -4		D6	
28174	-3		C5	
28175	-3		C6	
28176	-3		D1	
28875	-3		B7	
28178	-3 & -4		J7	
28392	-1 & -2		A10	
28241	-3 & -4		D2	
28242	-1 & -2		C1	
28243	-3 & -4		C7	
28244	-3 & -4		B[illegible]	
28279	-3		D10	
28347	-1 & -2		D7	
28882	-1		B6	
28499	-3 & -4		B1	
28179	-3 & -4		A4	
28495	-1 & -2		B3	
LDW280-28453	-3	LTA-8(18)	B7	SEE DWG

* DURING ▲ INSTL (OR ASSY OF THERMAL SHIELD SUB-ASSY'S OR DETAILS FOR LTA-8 ONLY), PARTS MAY BE TRIMMED OR SHIMMED AS NOTED TO INSURE PROPER FIT TO MATING PART OR ADJACENT STRUCTURE:

a. MAX. PERMISSIBLE TRIM TO BE 1/16, PROVIDING A MIN. FASTENER EDGE DISTANCE IS HELD AFTER TRIMMING (1 1/2 FASTENER DIA).
b. MAX PERMISSIBLE SHIM TO BE .063 THICK, AND IF TAPERED, NOT TO EXCEED 5 INCHES IN LENGTH. SHIM STOCK TO BE 2024-T3 AL ALLOY QQ-A-250/4 FINISH 76, WIDTH AS REQD.

* A. WHERE NECESSARY, ON THERMAL SHIELD SUB-STRUCTURE IT IS PERMISSIBLE TO FLUSH RIVETS TO INSURE PROPER FIT OF MATING PARTS, PROVIDING MATERIAL TO BE CSK IS THICK ENOUGH TO PREVENT "FEATHER EDGED" HOLES. (NAS1097 OR MS20426 RIVETS MAY BE USED.)

* B. WHERE NECESSARY, DUE TO REDESIGN AND REWORK, THE NEXT LARGER SIZE FASTENER MAY BE USED IN LIEU OF EXISTING FASTENER, PROVIDING A MINIMUM EDGE DISTANCE OF 1 1/2 FASTENER DIA IS MAINTAINED. ALSO, EXTRANEOUS HOLES MAY BE PLUGGED AS REQD (NAS1097 OR MS20470 RIVETS PERMISSIBLE) AS LONG AS A MINIMUM SPACING OF 3 DIAMETERS EXISTS BETWEEN PLUG AND NEAREST FASTENER. (A 1 INCH SQUARE OF GT835MB TAPE MAY BE USED FOR HOLES UP TO 7/16 IN DIA IN THERMAL SKINS.)

* C. WHERE NECESSARY, THE FOLLOWING NUT PLATES MAY BE REPLACEMENTS FOR ONE ANOTHER WITHIN THE GROUPS NOTED BELOW, PROVIDING THERE IS NO CHANGE IN DIAMETER OF SCREW:

GROUP A: NAS680, NAS682, NAS684, NAS686, NAS687, NAS696, NAS697, NAS698, NAS1067 & NAS1068

GROUP B: NAS681, NAS683 & NAS685

IF THE INTERCHANGEABLE ANCHOR NUTS ARE USED, THERMAL SKINS OR SUB-STRUCTURE MAY BE DIMPLED OR CSK AS REQD. (SEE NOTE * A. ABOVE.)

RELEASED BY LIAISON

RELEASED BY LIAISON

SERIAL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐

REASON FOR EO: TO INSURE PROPER FIT WITH MATING PARTS
DESCRIPTION OF EO: ADDED NOTE *
GAEC EO RELEASE: C
EFFECTIVITY: MODEL LM | PROCURING ACTIVITY NO. | GAEC UNIT NO. LTA-8(18) | SUB CONTR UNIT NO.
DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO
DISPOSITION OF PARTS: REWORK ✓ | SCRAP
APPROVED BY: ALW | DATE: 5/11 | 1 | VD1
SUPPORT | RELIAB. GROUP | GROUP LEADER | STRESS GROUP 5-11-67 | LIAISON ENGRG | PROJ ENGRG DAM 5-16-67
PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO: LEO 280
EO NO. 593
ISSUED BY ART WILSON X6510 SECTION VD1 GROUP NO. 335 PL 5

01

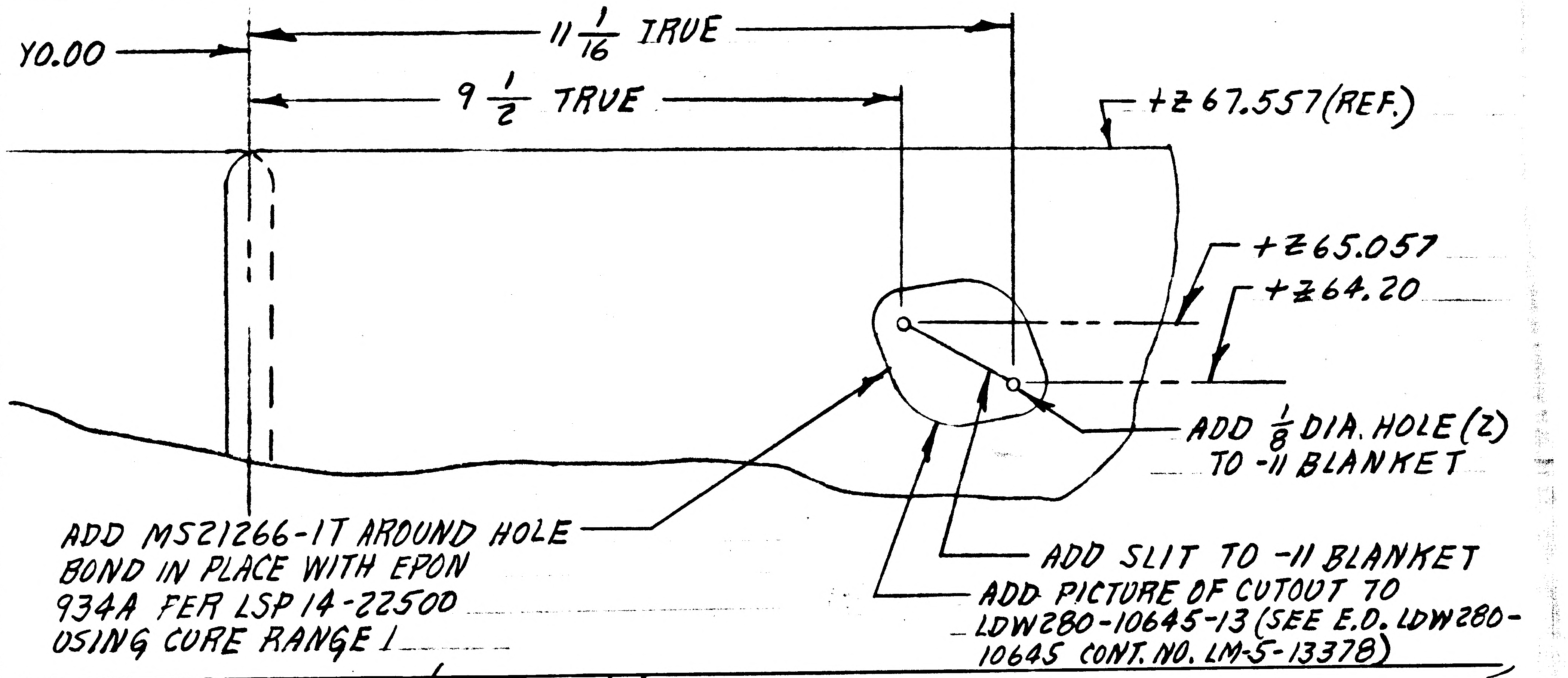
NAS 9-1100

ENG 32.1 REV 3-

RELEASED BY LIAISON

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28882
EO NO. B7
CONTROL INFO NO. LM-5-13386


Y0.00
11 1/16 TRUE
9 1/2 TRUE
+Z 67.557(REF.)
+Z65.057
+Z64.20
ADD 1/8 DIA. HOLE (2) TO -11 BLANKET
ADD MS21266-1T AROUND HOLE BOND IN PLACE WITH EPON 934A PER LSP 14-22500 USING CURE RANGE I
ADD SLIT TO -11 BLANKET
ADD PICTURE OF CUTOUT TO LDW280-10645-13 (SEE E.O. LDW280-10645 CONT. NO. LM-5-13378)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

5

REASON FOR EO: TO ALLOW PROPER LG. OF FITH CABLE TO EXTEND FROM VEHICLE

DESCRIPTION OF EO: TO -11, ADDED SLIT & 1/8 DIA. HOLES (2). TO -1, ADDED PICTURE OF CUTOUT IN LDW280-10645-13 & MS21266-1T

GAEC EO RELEASE C
VC
—

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	WT			~	DV	DV	DAM	ICP
DATE	5/15/67			~	5/15	5/15	5-18-67	5/15/67
1	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	DEPT

PRIORITY: C
DRAWING TITLE: EXTERNAL BLANKET INSTALLATION ASCENT STAGE CABIN FITH
DRAWING NO.: LDW280-28882
EO NO.: B7

ISSUED BY F. STEINMETZ X6510
SECTION VD1
GROUP NO. 335
PL 5

01
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
*
ENGINEERING ORDER

DWG. NO. LDW280-28882
EO NO. B8
CONTROL INFO NO. LM-5-15503

THIS EO CANCELS EO B7

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☒	CL I ENGRG CHG	☐

REASON FOR EO: WORK ALREADY ACCOMPLISHED BY ANOTHER EO

DESCRIPTION OF EO: CANCELLED EO B7

GAEC EO RELEASE: JL

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS									
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
✓		NOT	REQD	APPROVED BY				~			
				DATE	7/6/67			~	6-28-67	6-28-67	7/6/67

GAEC EO RELEASE DATE: 6/29/67

PRIORITY: C
DRAWING TITLE: EXTERNAL BLANKET INSTL. A/S CABIN FITH
DRAWING NO. LDW280-28882
EO NO. B8

ISSUED BY LIAISON - J. Mc GILL X-6276 SECTION VDI GROUP NO. ____ PL 25

01

NAS 9-1100

LDW280-28883A

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54851	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11 (41)	1
		LM-10 (40)	1
		LM-9 (39)	1
		LM-8 (38)	1
		LM-7(37)	1
LM		LM-6(36)	1
LFM 140		LM-5(35)	1
LFM 140	LDW280-54851	LM-4(34)	1
LM	LDW280-53851	LM-3(33)	1

PART NO. LDW280-28883-5 | GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LTM280-26884	PA-1(47)	1
LM	LDW280-51851	LM-2	1
LM	LDW280-51851	LM-1	1
LM	LDW280-28851	LTA-8	1

PART NO. LDW280-28883-1 | GAEC SCH NO. 30

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	2.00	3.00	1.10					
REV	A	A	A	A					
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED: D

LAST DASH NO. USED: -5

GRUMMAN REL INFO A

PRIM NO. 215 | K(001) ME-16A 3/13/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS — ANGLES
± 1/32 .010 ± 1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM No. 1
DOCUMENTATION TYPE II

DRAWN BY		
LAYOUT BY	C. PAEZ	9-12-66
CHECKED BY		
GR. LEADER		9/13
V.D.I.		9/13
STRUCTURES		9/26
STRUCTURES		9/26
WEIGHTS		9-30

PROJ ENGR
REL GROUP
RELEASE 10/21/66

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

COVER INSTL. A/S-M/S.
THERMAL SHIELD R.H. TANK
UMBILICAL.

SIZE B | CODE IDENT NO. 26512 | LDW280-28883 A

SCALE. NONE | SHEET 1.00 OF 4

①

CDE 9-15-66

ENG 77.1 12-65

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ________

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
		3.00							RETRACED SH3.00NC-LAST REV. NO CHG P. BURTON 2-4-69						
A	1	1.00,1.10							INC. LEO 280-382 ADDED SH 1.10	LM-3 THRU LM-15			P. BURTON 2-4-69 ECG		
	2	2.00,3.00	A7 A4						INC. E.O. A2	LTA-8, LM-1 THRU LM-15					
	3	1.00							INC. LEO 280-514	PA-1 (47)					
	4	3.00	2D						INC. E.O. A4	LTA-8, PA-1, LM-1, LM-2					
	5	3.00	2D						INC. E.O. A5	NOT REQD					
	6	1.00,2.00, 3.00	7A 4A						INC. E.O. A6	LM-3 THRU LM-15					
	7	1.00,2.00, 3.00	4A	O					INC. E.O. A7	LM-3 THRU LM-15					
	8	1.00,1.10		LFM 140					INC. E.O. A8	LM-4 THRU LM-15		N.D.	J. AVILES 2-4-69		
	9	1.00					✓		REF EO A4: EFF LM-1, LM-2, LTA-8 & PA-1 S/B LM-1 THRU LM-15, LTA-8 & PA-1 D.F. J Kaufman A9	LM-1 THRU LM-15, LTA-8, PA-1	NOT	REQD	P. MERTEN 2-4-69	[illegible] 2-4-69	

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCT	STRUCT	WEIGHTS	THERMO				
A	2/19/69			2/21/69		MR 2/20/69				

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28883	A
SCALE NONE		SHEET 1.10	

ENG 77.16 3-66

Q1

NAS 9-1100

QTY PER ASSEMBLY -5	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
1			AN960-D6	E	WASHER	STD PART						
1			MS21042L06	E	NUT	STD PART						
2			GN512H08	E	NUT	GRUMMAN-STD						
1			GB511J-06-2	E	BOLT	GRUMMAN-STD						
2			GB511K-08-2	E	BOLT	GRUMMAN STD						
	8		NAS1132V1	E	BOLT PAN HEAD	STD. PART						
	2		GR11B-1	E	RETAINER	STD. PART						
	8		NAS680-A08	E	NUT PLATE	STD. PART						
16	16		NAS1097B3	E	RIVET	STD PART						
	10		AN960-D8L	E	WASHER	STD. PART						
	2		NAS1132V3	E	BOLT, PAN HEAD	STD. PART						
1			LDW280P11536-17	E	COVER	SEE DWG						5A
1			LDW280P11536-15	E	COVER	SEE DWG						6A
	1		LDW280P11536-13	E	COVER	SEE DW'G						5A
	1		LDW280P11536-11	E	COVER	SEE DW'G						6A
			LDW280-28883-5	E	COVER INSTL					NONE	NONE	
			LDW280-28883-1	E	COVER INSTL.					NONE	NONE	

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

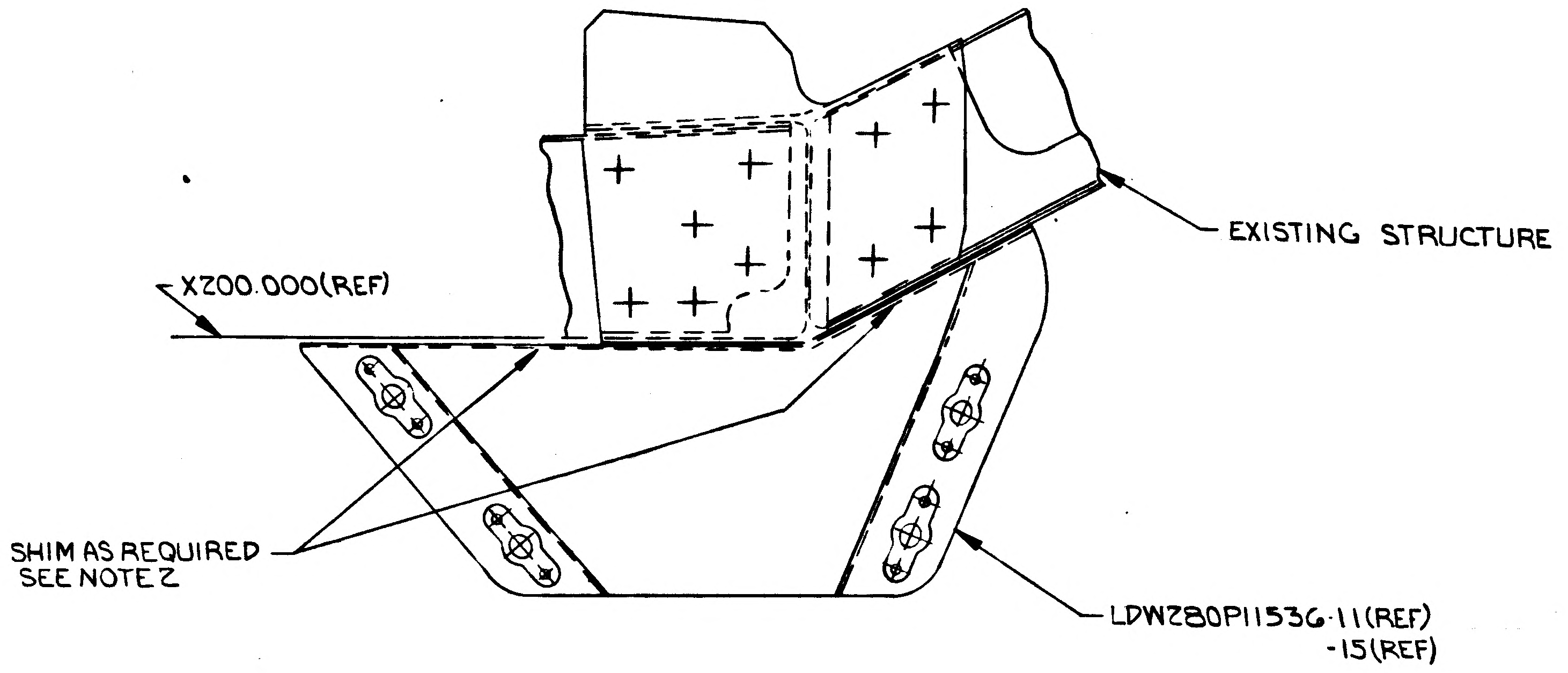
SIZE	CODE IDENT NO.		
B	26512	LDW280-28883	A

SCALE NONE LINE ITEM No. 1 SHEET 2.00

ENG 77.2 7-65

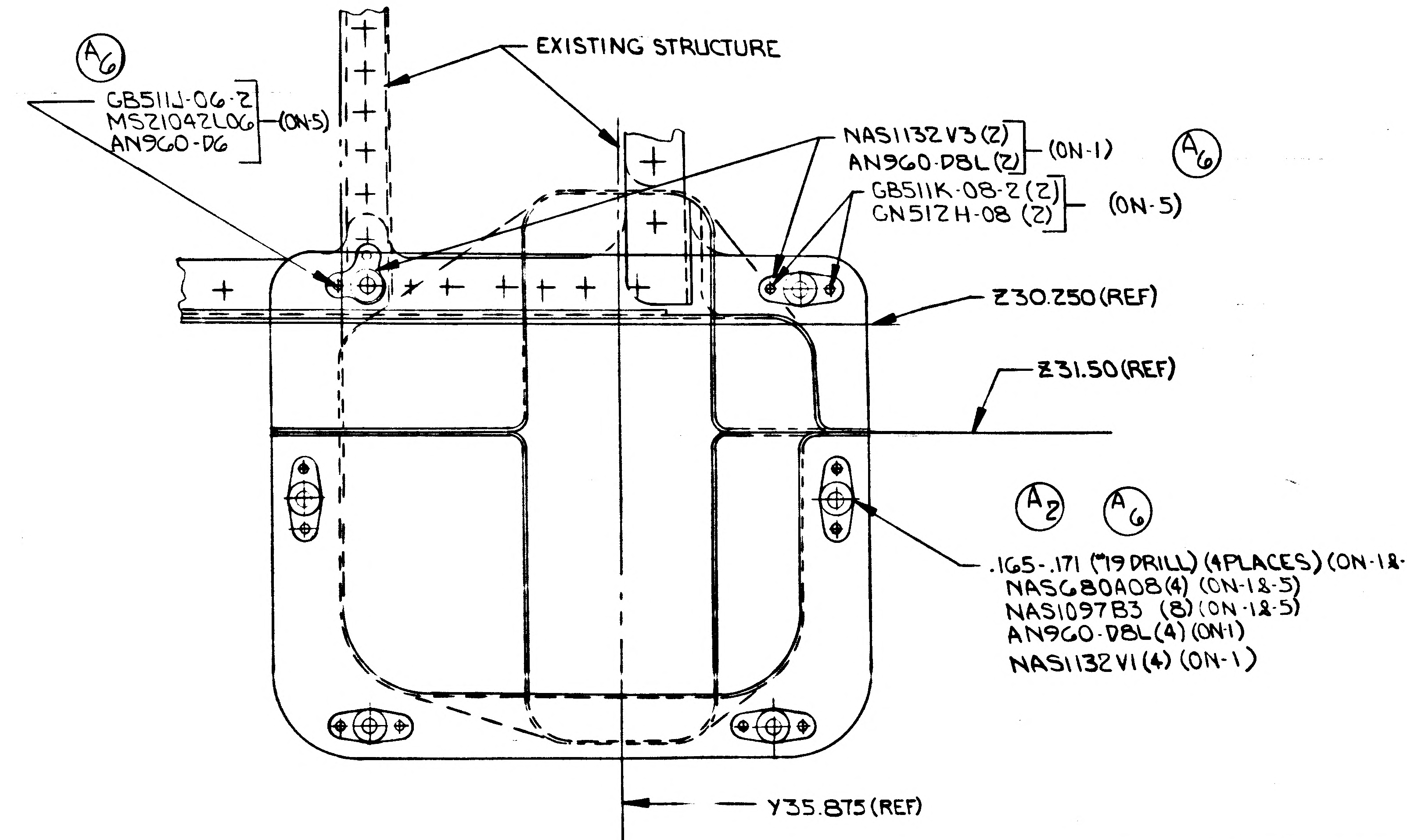
01

NAS 9-1100



EXISTING STRUCTURE
X200.000(REF)
SHIM AS REQUIRED
SEE NOTE 2
LDW280P11536-11(REF)
-15(REF)

SECTION B-B (ZONE 6A)

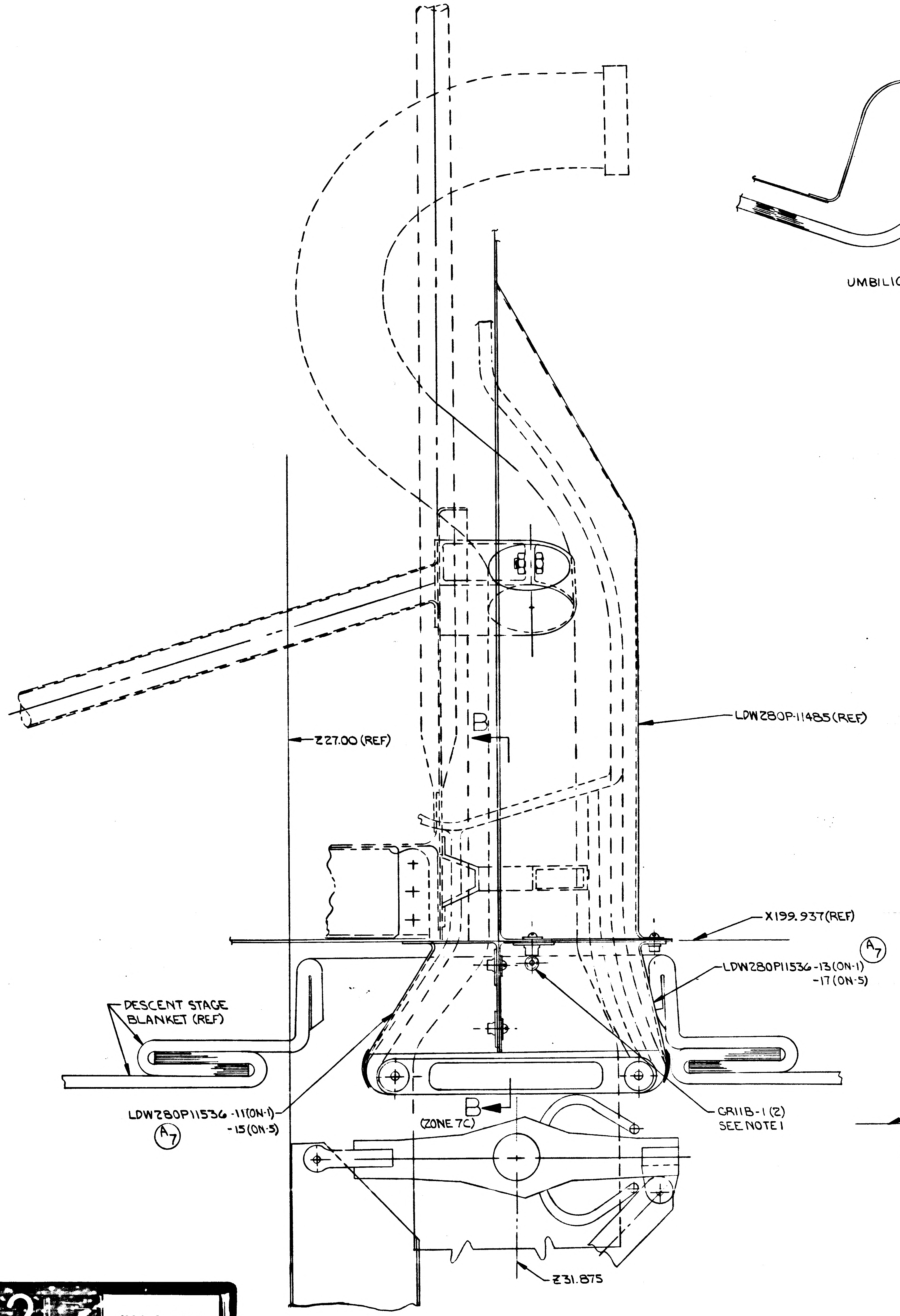


A6
GB511J-06-2
MS21042L06
AN960-D6
(ON-5)
EXISTING STRUCTURE
NAS1132V3(2)
AN960-D8L(2)
(ON-1)
A6
GB511K-08-2(2)
GN512H-08 (2)
(ON-5)
Z30.250(REF)
Z31.50(REF)
A2
A6
.165-.171 (#19 DRILL) (4PLACES) (ON-1&-5)
NAS680A08(4) (ON-1&-5)
NAS1097B3 (8) (ON-1&-5)
AN960-D8L(4) (ON-1)
NAS1132V1(4) (ON-1)
Y35.875(REF)

SECTION A-A (ZONE 4C)
(SCALE FULL)
CLAMP CABLE & SHIELDING
NOT SHOWN FOR CLARITY

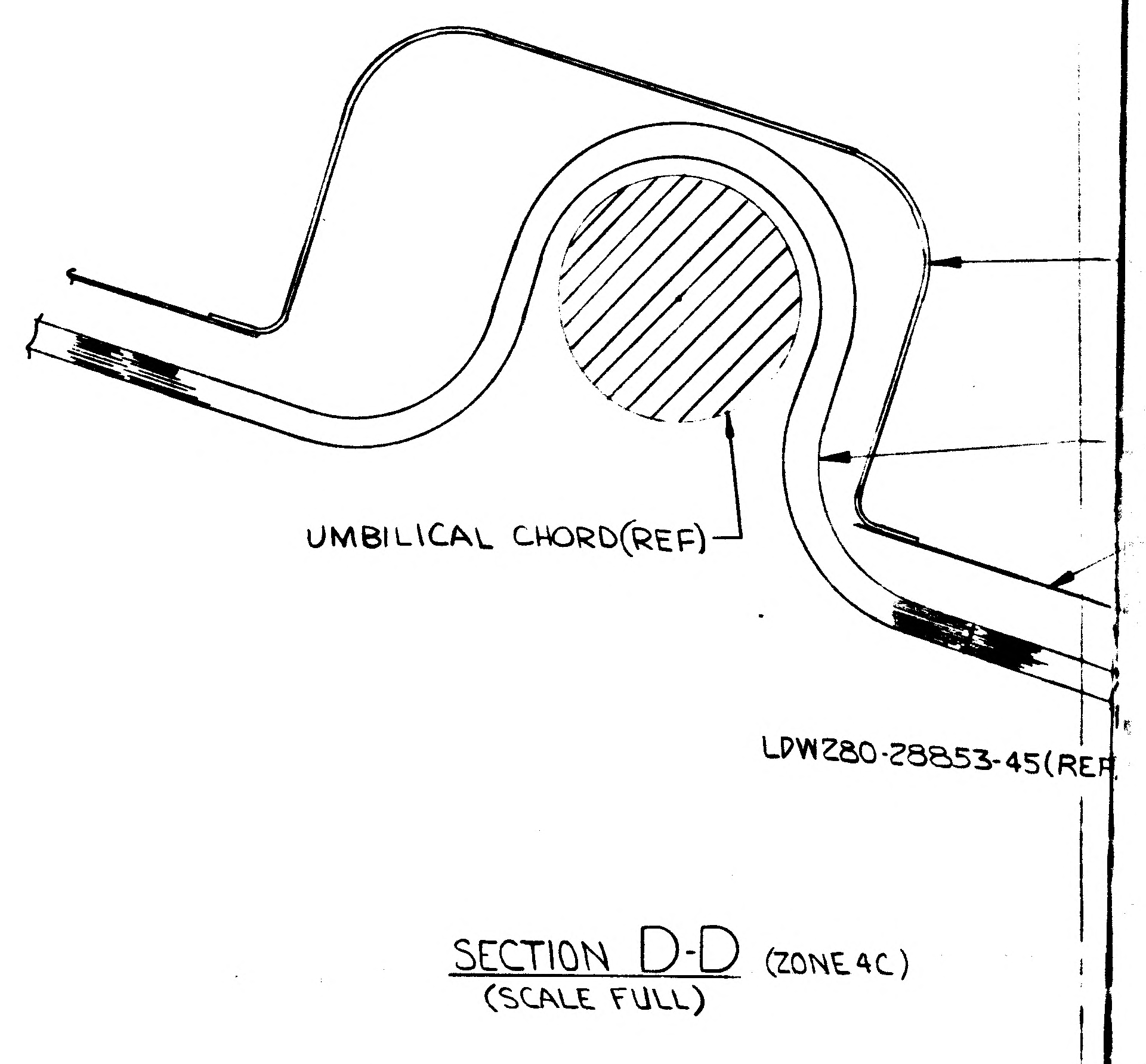
01/02

NAS 9-1100



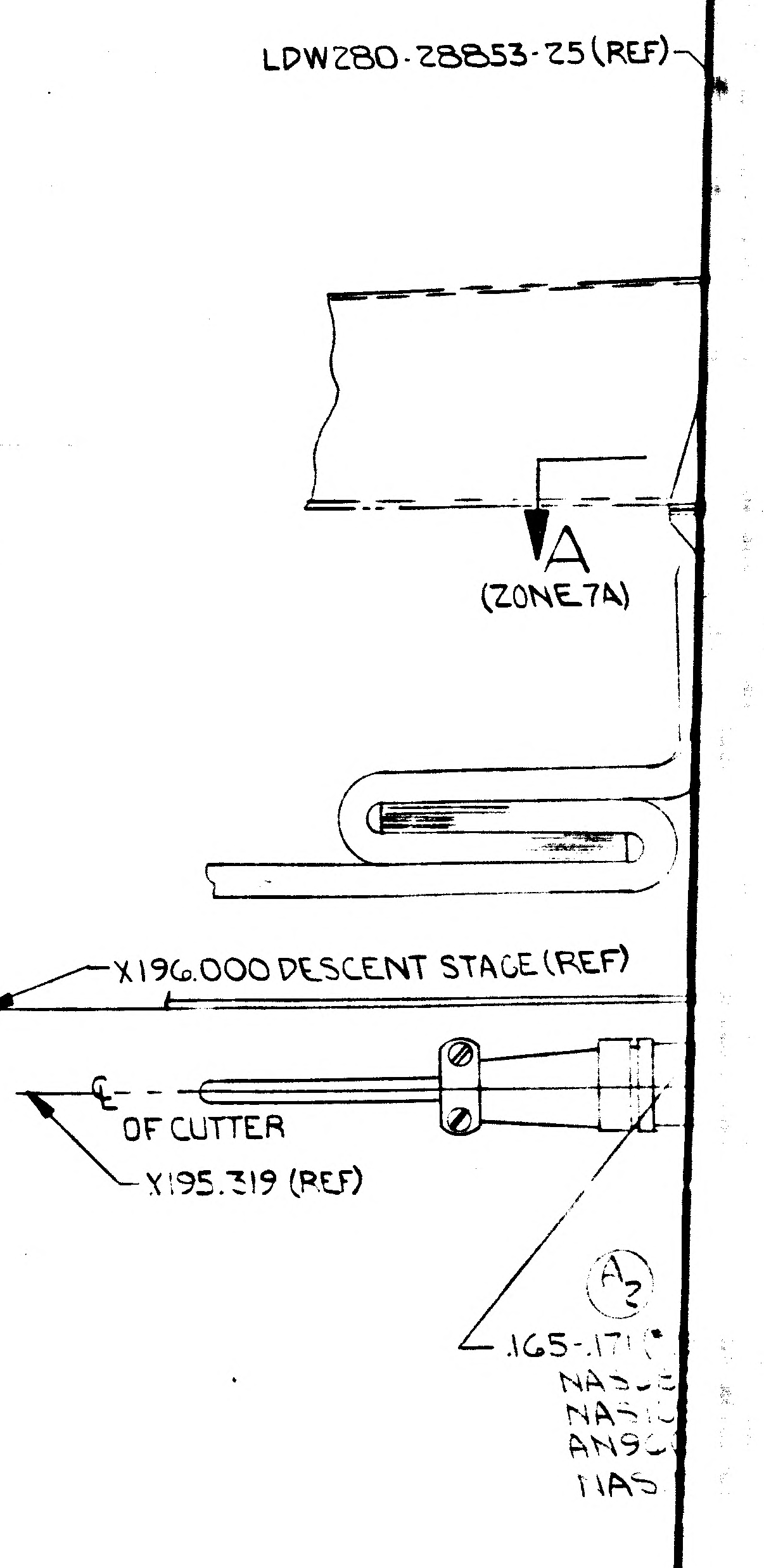
LDW280P-11485(REF)
Z27.00 (REF)
B
X199.937(REF)
A7
LDW280P11536-13(ON-1)
-17(ON-5)
DESCENT STAGE
BLANKET (REF)
LDW280P11536-11(ON-1)
-15(ON-5)
A7
B
(ZONE 7C)
GR11B-1 (2)
SEE NOTE 1
Z31.875

R H SIDE VIEW LOOKING INBOARD



UMBILICAL CHORD(REF)
LDW280-28853-45(REF

SECTION D-D (ZONE 4C)
(SCALE FULL)



LDW280-28853-25(REF)
A
(ZONE 7A)
X196.000 DESCENT STAGE (REF)
℄ OF CUTTER
X195.319 (REF)
A2
.165-.171
NAS
NAS
AN9
NAS

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-28883	3.00

FRAME 1 FRAME 2

NOTES:

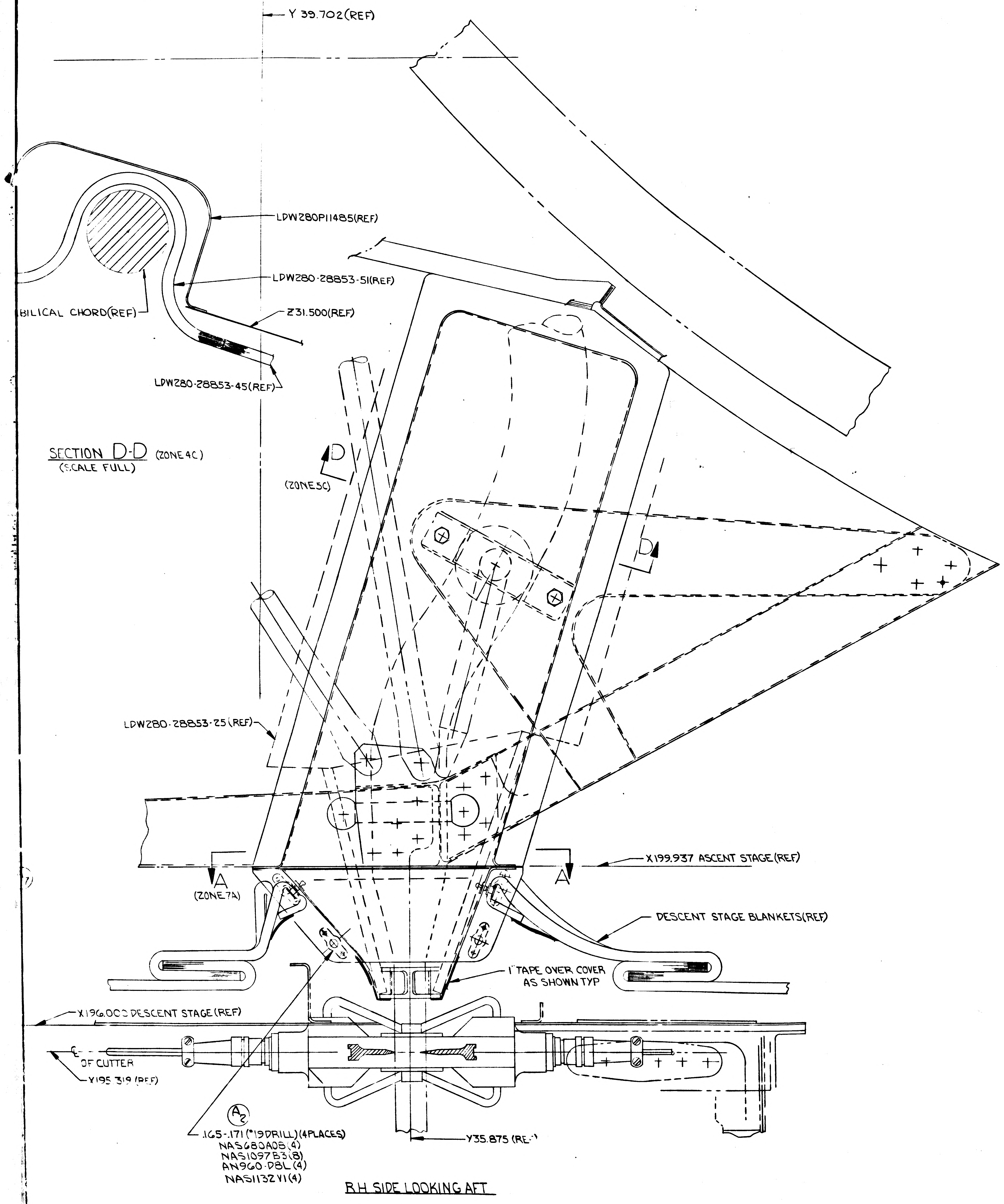
1 BOND GR11B-1 TO LDW280P11536-13 IN ACCORDANCE WITH LSP14-22500 EMPLOYING EPON 934, CURE RANGE I.

2. SHIM USING AL. ALLOY SH. QQ-A-250/5 ALCLAD 2024-T3 FINISH #76 TACK RIVET SHIM TO FIBERGLASS PART. USE MS20470-B3 RIVETS (ON-1 ONLY)

DWG 771.2

SUPPLEMENTARY DATA UNLESS OTHERWISE SPECIFIED NOTES CHECKED ✓ APPLY TO THIS DWG.	
MARK PART NUMBER IN ACCORDANCE WITH MIL-STD-130.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ☒ USE BOTH SIDES IF NECESSARY.	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	✓
INSTALL RIVETS IN ACCORDANCE WITH -4-15302	✓

DWG SIZE 34 x 96
PRINT TRIM LINE
PRINTING INFO ONLY
FULL SIZE SHEET AREA (34 x 96) = 24 SQ FT
¼ SIZE SHEET AREA (¼ OF FULL) = 6 SQ FT


Y 39.702 (REF)
LDW280P11485 (REF)
LDW280-28853-51 (REF)
BILICAL CHORD (REF)
Z31.500 (REF)
LDW280-28853-45 (REF)
SECTION D-D (ZONE 4C)
(SCALE FULL)
D
(ZONE 5C)
D
LDW280-28853-25 (REF)
X199.937 ASCENT STAGE (REF)
A
(ZONE 7A)
A
DESCENT STAGE BLANKETS (REF)
1" TAPE OVER COVER AS SHOWN TYP
X196.000 DESCENT STAGE (REF)
℄ OF CUTTER
Y195.319 (REF)
A2
.165-.171 (#19 DRILL) (4 PLACES)
NAS680A08 (4)
NAS1097B3 (8)
AN960-D8L (4)
NAS1132Y1 (4)
Y35.875 (RE

R.H SIDE LOOKING AFT

LDW280-28883-1 INSTL (A6) (A7)
-5 INSTL (IDENTICAL TO -1 EXCEPT AS NOTED)

02/021 NAS 9-1100

80-28883 SHEET 3.00
FRAME 1 FRAME 2

LDW280-28883A

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK
SIZE J CODE IDENT NO. 26512 LDW280-28883 A
LM
MODEL OR END ITEM
SCALE FULL SHEET 3.00
SUPERSEDES LDW280-28883 NC 10-21-66

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 382
CONTROL INFO NO. LDW280A-3492

IN MODEL BLOCK: ADD VEHICLE REQUIREMENTS TO THE FOLLOWING DASH NO'S & NEXT ASSEMBLIES AS SHN:

DWG NO	DASH NO*	CHANGE NO.	EFF ~ ADDED	N/A	REQ'D/MOD
LDW280-11616 ✓	-11	A1	LM-3(33) THRU LM-15(45)	LDW280-53861	1
LDW280P11485 ✓	-3	A2		LDW280-53851	1
LDW280P11536 ✓	-11			LDW280-28883	1
LDW280P11536 ✓	-13	A1		LDW280-28883	1
LDW280P11518 ✓	-1	A2		LDW280-53851	1
LDW280-28883 ✓	-1	A1		LDW280-53851	1
LDW280P11607	-11	A1		LDW280-28845	1
LDW280-11673	-11	A1		LDW280-28845	1
LDW280-28845	-1	A1		LDW280-53160	1
LDW280P11517	-11	A1		LDW280-53161	1
			LM-3(33) THRU LM-15(45)		

3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: TO UPDATE EFFECTIVITY & NEXT ASSEMBLY

DESCRIPTION OF EO: ADDED LM-3(33) THRU LM-15(45) REQ'TS FOR *

GAEC C EO RELEASE: FR 12/1/66

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33)	
		TO	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT REQ'D	

		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY								
DATE	11/18			11/18	11/18		12-1-66	12-2-66
#6	VD1							

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SEE DRAWING	LEO 280	382

ISSUED BY M. SHAPIRO X1153
SECTION VD1
GROUP NO. 335
PL 35

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512

ENGINEERING ORDER

DWG. NO. LDW280-28883
EO NO. A2
CONTROL INFO NO. LM-3-4404

REVISE FIELD, VIEW LOOKING AFT (1 PLACE) & SECT A-A (1 PLACE), & B/M AS SHN BELOW:

DRILL #19 (.165-.171) WAS .198-.204 HOLE
4 PLACES
NAS 680A08(4)
NAS1097B3(8) WAS MS20470-B3(8)
AN960-D8L (4)
NAS 1132 V1(4) WAS V3(4)

* PARTS CONFORM TO THIS E.O.

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☐ 3

REASON FOR EO: TO PROVIDE PROPER HARDWARE

DESCRIPTION OF EO: IN FIELD, 2 PLCS & B/M FOR -1 DRILL #19 (.165-.171) WAS .198-.204 HOLE. NAS1097B3 (8) WAS MS20470-B3(8). NAS1132 V1(4) WAS V3 (4).

GAEC EO RELEASE: FR

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
		LM-1(31) - THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK * SCRAP

APPROVED BY		V.J.D.				BM			
DATE	12/15/66	12/16			12/14	12-5-66	12-6-66	12-7-66	12-6-66
1	VDI	THERMAL	RELIAB. GROUP		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: A/S M/S THERMAL COVER INSTL SHIELD R.H. TANK UMBILICAL
DRAWING NO.: LDW280-28883
EO NO.: A2

ISSUED BY LIAISON/TARTAMELLA (X2151) SECTION VDI GROUP NO. 335 PL 35

01

NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LED 280
EO NO. 514
CONTROL INFO NO. LDW280A-5724

TO THE FOLLOWING DWG'S LISTED BELOW, ADD PA-1 (WS) EFFECTIVITY

DWG Nº	DASH Nº *	REQ'D/VEH	DWG TITLE	N/A	CHG Nº
LDW280-10690	-19	1	SEE DWG	LTM280-26902	A6
10893	-11, -12 -21, -23	3 EA 2 EA			B4
10894	-15 -17, -18, -19, -20	2 1 EA			C2
11254	-11, -13	1 EA			A2
11255	-13, -14, -21, -22, -23	1 EA			A1
11279	-11, -13, -15, -17	1 EA			A1
11659	-11, -13	1 EA			A1
M11168	-1, -2	1 EA			A3
M11149	-3	4			B5
P11494	-3	2			A3
11766	-17	2		LTM280-26902	B4
51199	-3	1		LTM280-26875	B3
M10626	-3	3		LDW280-51199	B3
M10895	-1	1		LDW280-51199	B6
28200	-5	1		LDW280-51199	B3
10677	-11 -13	8 4		LDW280-28200	B3
10678	-11, -15 -13	1 EA 2		LDW280-28200	C3
16005	-13	1		LTM280-25503	B3
11534	-13, -15	1 EA		LTM280-25504	A4
LDW280-11259	-11	8		LTM280-26903-3	A4
-11259	-13, -15	2 EA			
-11259	-15-1, -15-2	1 EA			
-11259	-17, -19	1 EA			
LDW280-11260	-11	2		LTM280-26903-3	A1
LDW280M11205	-13	6		LTM280-26903-1	A2
LDW280M11038	-11	3		LTM280-26903-1	A1
LDW280-53202	-3	2		LTM280-26903-1	A5
LDW280-16007	-17, -19	2 EA		LDW280-53202-3	B3
11635	-13, -15	1 EA		LTM280-26880	A3
11637	-11, -13	1 EA		LTM280-26880	A3
11638	-19	1		LTM280-26880	A5
11625	-11	1		LTM280-26884	A4
11626	-1, -13, -17	1 EA			A4
11627	-13, -15	1 EA			A3
11628	-11, -17	1 EA			A5
P11485	-3	1			A4
28883	-1	1			A3
LDW 280-14344	-1 -7 -7	48 33 33		LTM280-26884 LTM280-26880 LTM280-26881	D2

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	LCR 19-1124

5

REASON FOR EO: UPDATE DWG REQ'TS FOR PA-1 (WS)

DESCRIPTION OF EO: ON * ADDED PA-1 (WS) REQ'TS

GAEC EO RELEASE: JK 3/13/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		PA-1 (WS)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D REWORK SCRAP

APPROVED BY								
DATE	3/9/67			3/9/67	3/10		3-10-67	3-13-67
#5.	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	[illegible] GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: NOTED ABOVE

DRAWING NO.: LED 280

EO NO.: 514

ISSUED BY M. SHAPIRO X1153 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28883
EO NO. A4
CONTROL INFO NO. LM-5-12806

IN NOTE 2, "FINISH 76 & 10" S/B "FINISH 76"

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	✓	CL I ENGRG CHG	☐	5

REASON FOR EO: FINISH 10 NOT REQ'D ON SHIMS

DESCRIPTION OF EO: -1 INSTL, IN NOTE 2, "FINISH 76" WAS "FINISH 76 & 10".

GAEC C EO RELEASE: JK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	~~SUB CONTR UNIT NO.~~
LM		LM-1(31)	PA-1(47)
		LM-2(32)	
		LTA-8(18)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQ'D

APPROVED BY							
				JFJ	JFJ	RWC Ⓔ	
DATE				4-19-67	4-19-67	4-17-67	4/14/67
1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~[illegible]~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COVER INSTL - A/S - M/S THERMAL SHIELD R.H. TANK UMBILICAL	LDW280-28883	A4

ISSUED BY LIAISON - J. McGILL X-6226 SECTION VDI GROUP NO.____ PL 25

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28883
EO NO. A5
CONTROL INFO NO. LM-5-12839

IN NOTE 1, LDW280P11536-11 S/B LDW280P11536-13

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

5

REASON FOR EO: INCORRECT PART CALLED OUT IN NOTE 1

DESCRIPTION OF EO: -1 INSTL, IN NOTE 1, LDW280P11536-13 WAS LDW280P11536-11.

GAEC EO RELEASE: C JK —

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NOT REQ'D	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		NOT	REQ'D

APPROVED BY ZHP
DATE 4-7-67
6
VDI

SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
			4-20-67	CH 4/19/67	DAM 5-2-67	4-20-67

PRIORITY: E
DRAWING TITLE: COVER INSTL.-A/S-M/S-THERMAL SHIELD R.H. TANK UMBILICAL
DRAWING NO.: LDW280-28883
EO NO.: A5

ISSUED BY LIAISON -J. Mc GILL X-6226 SECTION VDI GROUP NO.____ PL 25

01 NAS 9-1100

B/O

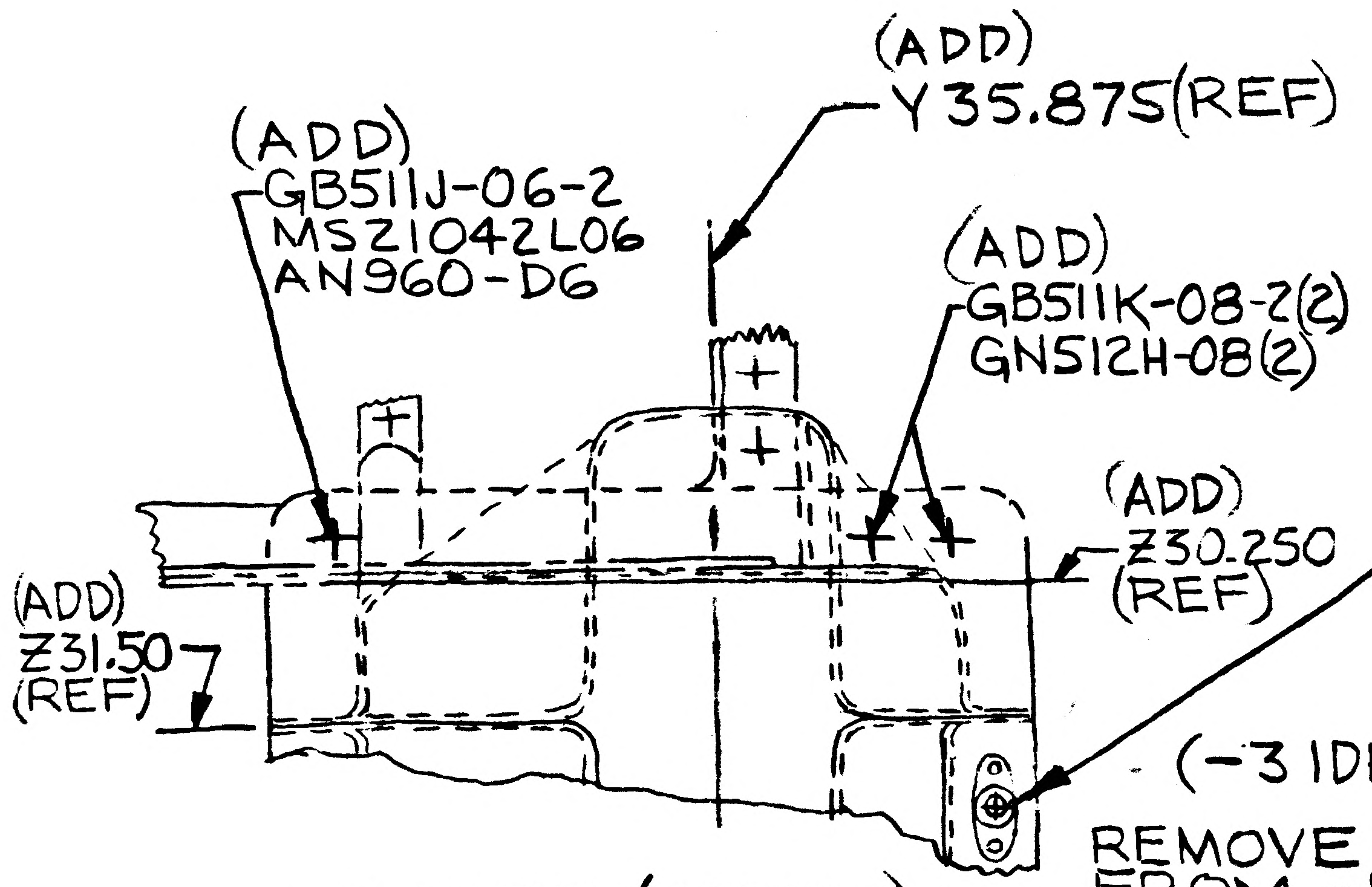
ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280 28883
EO NO. A6
CONTROL INFO NO. LM-2-4299

F/D, M/B, B/M

NOTE 2:
SHIM USING AL ALLOY SH
QQ-A-250/5 ALCLAD
2024-T3, FINISH 76 & 10.
TACK RIVET SHIM TO
FIBERGLASS PART, USE
MS 20470 B3 RIVETS
(ON -1 ONLY) ← ADD


(ADD)
Y35.875 (REF)
(ADD)
GB511J-06-2
MS21042L06
AN960-D6
(ADD)
GB511K-08-2(2)
GN512H-08(2)
(ADD)
Z30.250
(REF)
(ADD)
Z31.50
(REF)
.198-.204 HOLE 4 PLCS (REF)
NAS680-A08 (4) (REF)
MS20470-B3 (8) (REF)
AN960-D8L(4) (REMOVE)
NAS1132V3(4) (REMOVE)

(-3 IDENTICAL TO -1 EXCEPT AS SHOWN)

REMOVE LM-3(33) THRU LM-15(45)
FROM -1 INSTL

-3 INSTL (CREATE)

DETAIL SPEC REQ		CL II ENGRG CHG	✓	CL I ENGRG CHG	

REASON FOR EO
INSTL HARDWARE REVISED FOR IMPROVED MOUNTING OF PART

DESCRIPTION OF EO
IN F/D, B/M, M/B
CREATED -3 EFF LM-3(33) THRU LM-15(45); DELETED FROM -1 INSTL: LM-3(33) THRU LM-15(45); ADDED (ON-1 ONLY) TO NOTE 2; FROM .198-.204 CALLOUT REMOVED: AN960-D8L(4), NAS1132V3(4)

GAEC EO RELEASE ②

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		✓		DATE	12/30/67				12/14/67	12/14/67	12/30/67	12-26-67
REVISE DWG	RECORD EO	REWORK	SCRAP	12/20/67	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GSPT~~

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3(33) THRU LM-15(45)	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COVER INSTL - A/S - M/S THERMAL SHIELD R.H. TANK UMBILICAL	LDW280-28883	A6

ISSUED BY LIAISON T. WALSH X3604 SECTION VDI GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28883	EO NO. A7
CONTROL INFO NO. LDW280B09/9	

IN FID, LM, & MB. REMOVE -3 INSTL FOR LM-3(33) thru LM-15(45).
CREATE -5 INSTL FOR LM-3(33) thru LM-15(45), -5 SAME AS -3
EXCEPT -LDW280P11536-15 & -17 REPLACES LDW280P11536-11 & -13 RESPECTIVELY.

REWORK INFO:- -5 MAY BE MADE BY REWORKING -3.

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2360

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO PROVIDE ADDITIONAL PLUME THERMAL PROTECTION	ADDED -5 INSTL. REMOVED LM3 THRU LM15 FROM -3.	JK 1/16/8

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LM-15(45)	
↕		thru	
LM		LM-3(33)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		✓	

	APPROVED BY							
DATE	1/4/68			1-3-68	1/4/68		1/4/68	
U	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COVER INSTL. AIS, -M/S THERMAL SHIELD R.H. TANK UMBILICAL	LDW280-28883	A7

1/8
ISSUED BY P FRANZESE x1392 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28883
EO NO. A8
CONTROL INFO NO. LDW280B4320

IN M/B FOR -5, N/A LDW280-54851 REPLACES LDW280-53851 FOR LM-4(34) THRU LM-15(45).

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	✓	LCD 2360 PKG. 29 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
PLUME HEATING PROTECTION	IN M/B FOR -5 N/A LDW280-54851 REPLACED LDW280-53851 FOR LM-4 THRU LM-15	JK 7/18/8

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM	LFM 140	LM-4(34) & LM-5(35)	
LM		LM-6(36) THRU LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		NOT	REQD.

APPROVED BY								
DATE	7/11/68	7/12/68		7/11/68			7/16/68	7-19-68
	VDI	~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COVER INSTL. A/S M/S THERMAL SHIELD R.H. TANK UMBILICAL	LDW280-28883	A8

7-15-68
ISSUED BY F. SHANLEY 7033
SECTION VEH. DESIGN INT.
GROUP NO. 335
PL 25

01

NAS 9-1100

4

THIS IS AN
ORIGINAL EO

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280 EO NO. 1509
CONTROL INFO NO. LDW280B8275

FOR THE FOLLOWING DWGS (✱) AND DASH NOS. (✱✱).
REMOVE LM-15(45).

	DWG. NO. (✱)	DASH NO. (✱✱)		TITLE	NEXT ASSEMBLY	CHANGE NO.
✓	LDW280-54965	-7 & -29		SEE DWG.	LDW280-54851	B2
✓	↑ -54966	-31-1, -35 & -39		↑	↑ ↑	B1
✓	-54967	-31 & -33				B5
✓	-54968	-43 & -47				B5
✓	-54969	-21				B4
✓	-54970	-1				A1
✓	-11304	-25 & -27				C5
✓	-11980	-11-1, -13-1, -15-1, -17-1 & -19-1				D1
✓	↓ -11981	-11-1, -13-1, -15-1, -17-1 & -21-1		↓	↓ ↓	C3
✓	LDW280-28883	-5		SEE DWG.	LDW280-54851	B1

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ✓ LCD 3587 PKG. 19 PG 2 & 3 (5)

REASON FOR EO: CONFIGURATION CHANGE TO LM-15

DESCRIPTION OF: FOR PARTS (✱-✱✱), REMOVE LM-15(45)

GAEC EO RELEASE: LR 7-24-69; JK 7/31/69

MODEL	EFFECTIVITY PROCURING ACTIVITY NO	GAEC UNIT NO	SUB CONTR UNIT NO
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY				FDR/90				Bauman
DATE	7/17/69			7/16/69	7/16/69		7/22/69	7/30/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ. ENGRG	~~GOVT~~

PRIORITY: C DRAWING TITLE: SEE DRAWING DRAWING NO: LEO 280 EO NO: 1509

8-20-69
ISSUED BY F. SHANLEY 7033 SECTION VEH. DESIGN INT. GROUP NO. 335 PL 25

LDW280-28884 C

LFM

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW 280-54150	LM-15(45)	1
		LM-14(44)	1
		LM-13(43)	1
		LM-12(42)	1
		LM-11(41)	1
		LM-10(40)	1
		LM-9(39)	1
		LM-8(38)	1
		LM-7(37)	1
		LM-6(36)	1
LM LFM140	LDW280-54150	LM-5(35)	1

PART NO. LDW280-28884-41-1

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51150	LM-2(32)	1

PART NO. LDW280-28884-5 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-54150	SEE NOTE 3	1
LM	LDW280-54150	SEE NOTE 3	1
LM	LDW280-53150	SEE NOTE 3	1

PART NO. LDW280-28884-37

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51150	LM-1 (31)	1

PART NO. LDW280-28884-1-2 — GAEC SCH NO.

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM 107	LDW280-54150	LM-4(34)	1

PART NO. LDW280-28884-41

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM256	LTM280-26980	PA-1(47)	1

PART NO. LDW280-28884-45

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LFM107	LDW280-53150	LM-3(33)	1

PART NO. LDW280-28884-39

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-28150	LTA-8(18)	1

PART NO. LDW280-28884-1 — GAEC SCH NO. 30

(5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	2.00	3.00
REV	C	C	C	C
SHEET		1.11	2.01	4.00
REV		C	C	C
SHEET				
REV				

LAST SECT LTR USED	A	GRUMMAN REL INFO C	
LAST DASH NO. USED	-45	PRIM NO. 215	K(001) ME-16 C-3/11/9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED
FRACTIONS - DECIMALS - ANGLES
± 1/32 ±.020 ± 1/2°

ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100 LINE ITEM #1 DOCUMENTATION TYPE II

DRAWN BY		RELIABILITY	
LAYOUT BY	R. WOOD	THERMO	V.J. IACONA 10/20
CHECKED BY			
GR LEADER	P. HENTON 9/17		
VEH DES INT	W. BISCHOFF 9/20		
STRUCTURES	FEB 9-22	PROJ ENGR	R.M. CARBEE 9/24
STRUCTURES	HILDERMAN 9/23	REL GROUP	
WEIGHTS	ROBESCH 10-5		

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

COVER INSTL
ASCENT STAGE ~ MID SECTION
THERMAL SHIELD ~ RH TANK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28884	C
SCALE	NONE	SHEET 1.00 OF 7	

ENG 77.1 12-65

SUPERSEDES LDW280-28884 NC 10-21-66

01

NAS 9-1100

REVISIONS

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
A	1	1.00 1.10 2.00 3.00							RETRACED NO CHG LAST REV NO CHG. ADDED SH 1.10 LOFTED DWG WAS DIMENSIONED DWG J.GRIECO 10-21-66	EG					
B	1	2.00,3.00 1.10	2C					E.O.B1	ON-1 ADDED, NAS697A08, NAS1097B3, AN960D8L, GB511J-08-1 DRILL#19. ON-3 #19 DRILL, NAS697A08, AN960D8L, GB511J-08-1 (4) WAS (5), NAS1097B3 (8) WAS (10)	LTA-8 LM-1 LM-2	✓		J. GEIER 12-12-67		
	2	1.00					✓	LEO 280-379	ADDED LM-3(33) THRU LM-15(45) REQMNT TO DWG LDW280-28884-1	LM-3 THRU LM-15	NOT	REQD			
	3	3.00	5B 6A				✓	E.O.B3	IN FLD, ADD (2) #I (.271-.278) HOLES	LTA-8, LM-1 LM-2	✓				
	4	3.00					✓	E.O.B4 LCD 878	ADDED E.O. TO RECORD E.O. BLOCK	NOTED	NOTED				
	5	3.00					✓	E.O.B5	FOR-1 ADDED EO TO RECORD BLOCK FOR LTA-8						
	6	3.00,2.00 1.00	5A 4A			✓		E.O.B6 LCD 10774	ADDED-1-1, REMOVED-1;	LM-1	✓				
	7	2.00,3.00	5C,B 4A			✓		E.O.B7 LCD 2316	CREATE -1-2 & -3-1 REMOVE LM-1 EFFECTIVITY FROM -1-1						
	8	3.00,2.00 1.00	5A,B,C 2C	R		✓		E.O.B8 LCD 2316	ON-1 INSTL. REMOVED FOR EFF. LM-2 (32) ONLY, ADD-3 INSTL FOR LM-2 (32) ONLY, REPLACING LDW280P11537-3,-23,-19 & -15 WITH LDW280P11537-5,-25,-27 & -29	LM-2					
	9	3.00,2.00 1.00	5A,B,C 2C	R		✓		E.O.B9 LCD 2316	REF: EOB8. CREATED -5 INSTL & -7ASSY AND REMOVED -1 INSTL FOR LM-2(32)				H.D.		
	10	1.00,2.00 3.00	3A 5B			✓		EO B10 LCD2360	IN FLD, LM & MB CREATED -9 ASSY & -37 INSTL & REMOVED -7 ASSY & -1 INSTL FOR LM-3 (33) THRU LM-15(45)	LM-3 THRU LM-15		✓	J.CHUPAS 1-5-68 H.D.		
	11	2.00,3.00	5A			✓		LCD 10774	REF EO B6: ADDED NOTE 2.	LM-1	✓				
	12	3.00 2.00	5C			✓		LCD 2316	REF EO B7: IN FIELD OF EO LDW 280P11537-17-1 REPLACES LDW 280P11537-17" S/B LDW 280P11537-19-1 REPLACES LDW 280P11537-19.						
C	1	1.00,2.00 2.01,3.00 4.00	9A	LFM107 E		✓			INC. EO C1: ADDED SH. 2.01 & 4.00	LM-3 THRU LM-15		H.D.	G.D. 12-2-68		

CHG APPROVED LTR	GROUP LDR	VDI	STRUCT	STRUCT	WEIGHTS	RELIABILITY					
C											

FOR CONTINUATION OF REVISIONS SEE SHEET 1.11

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28884	C
SCALE NONE			SHEET 1.10

ENG 77.3 5-65

01

NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
C	2	2.01, 3.00 4.00	12D 11D	LFM 107					INC. EO C2 ADDED SH. 1.11.	LM-3 THRU LM-15			G. DUMITRESKU. 1-24-69		
	3	2.01, 4.00	11A	LFM 107					INC. EO C3.						
	4	3.00, 4.00	11A 11B						INC. EO C4.	NOT REQ'D					
	5	1.00		LFM 256					INC. LEO 280-1160.	PA-1					
	6	1.00		LFM 107					INC. EO C6.	LM-3 THRU LM-15					
	7	1.00		LFM 256					INC. EO C7.	PA-1		H.D.	J.V.		
	8	3.00 4.00	4B 3B	LFM 140					INC EO C8	LM-4 THRU LM-15			H.SCHWETER 1-27-69		3-11-69
	9	1.00 2.00 2.01 3.00 4.00	9A 10A	LFM 140					INC EO C9	LM-5 THRU LM-15					
	10	3.00 4.00	11A 11B					Ⓡ	REF EO C4; ON-37 S/B ON-39	NOT REQD		H.D.		3/11/69	

CHG APPROVED

LTR	GROUP LDR	V.D.I.	STRUCT.
C	FDR 3/6/69	3/6/69	3/7/69

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28884	C
SCALE NONE			SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100

QTY PER ASSEMBLY																								
	-41-1	-45	-43	-41	-39	-37	-9	-7	-5	-3-1	-3	-1-2	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
		1													LDW280P11537-41	E	COVER	SEE DWG						10D
			1												-39		COVER							10D
		1	1												-37		COVER							11C
							1								-35		COVER							5B
								1							-29		COVER							5B
		1	1				1	1							-27		PLATE							3B
							1	1							-25		COVER							5C
										1					-19-1		PLATE							3B
											1				-19		PLATE							3B
										1	1				-17		COVER							5C
										1					-15-1		COVER							5B
											1				-15		COVER							5B
		1	1				1	1		1	1				-12		TUBE HALF							2B
		1	1				1	1							-5		TUBE ASSY							5A
										1	1				-3		TUBE ASSY							5A
		1	1				1	1		1	1				LDW280P11537-1		TUBE ASSY	SEE DWG						2B
															LDW280-28884-41-1		COVER INSTL					NONE	NONE	9A
	1			1											-45		COVER ASSY							9A
					1										-43		COVER ASSY							9A
															-41		COVER INSTL							9A
															-39		COVER INSTL							9A
															-37		COVER INSTL							9A
						1									-9		COVER ASSY							4A
									1						-7		COVER ASSY							4A
															-5		COVER INSTL							4A
												1			-3-1		COVER ASSY							4A
													1		-3		COVER ASSY							4A
															-1-2		COVER INSTL							4A
															LDW280-28884-1	E	COVER INSTL					NONE	NONE	4A

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH : NONE

GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28884	C
SCALE NONE		SHEET 2.00	

ENG 77.2 7-65

01

NAS 9-1100

-41-1	-45	-43	-41	-39	-37	-9	-7	-5	-3-1	-3	-1-2	-1	CODE IDENT	PART NO.	I&T	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
											A/R			SEE NOTE 2	E	ADHESIVE							
														NAS1097B3		RIVET	STD PART						
11	11	11	11	11	3	3	14	3	14	14	3	3		NAS697A08		NUT PLATE	STD PART						
16	16	16	16	16	7	7	18	7	18	18	7	7		AN960-D8L		WASHER	STD PART						
											1			GS13AJ-510		SLEEVE	GRUMMAN STD						
	5	5												GB511J-08-2		BOLT	GRUMMAN STD						
16	10	10	16	16	7	7	18	7	18	18	7	7		GB511J-08-1	E	BOLT	GRUMMAN STD						
1														LDW280-11445-25-1	E	SHIELD	SEE DWG						10A
			1	1										LDW280-11445-25	E	SHIELD	SEE DWG						11A
3			3	3										LDW280-10743-19	E	SHIM	SEE DWG						11D

QTY PER ASSEMBLY

SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS OR FINISH	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH :
NONE

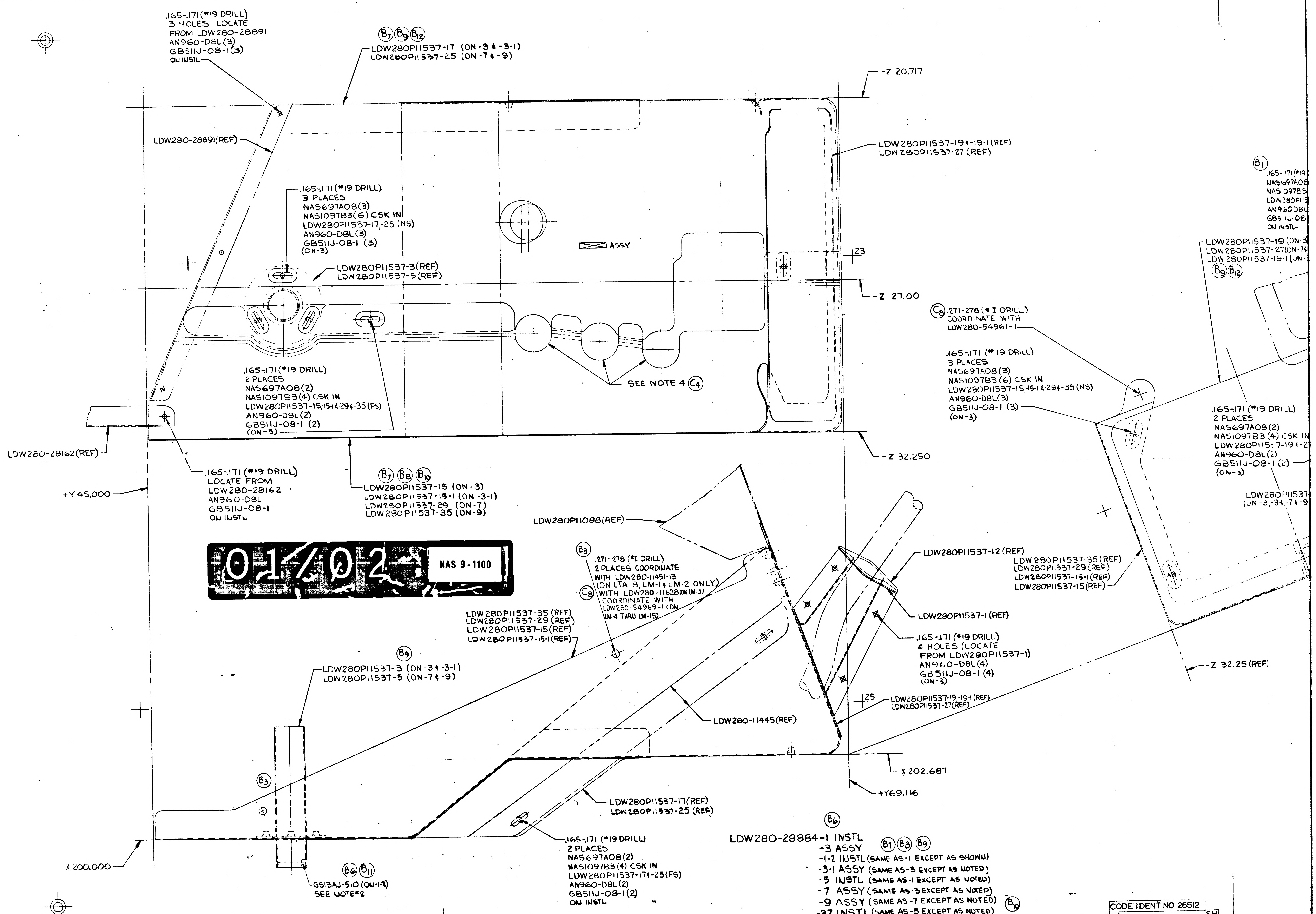
GRUMMAN AIRCRAFT ENGRG CORP, BETHPAGE, L. I., NEW YORK

SIZE B
CODE IDENT NO. 26512
LDW280-28884 C
SCALE NONE
SHEET 2.01

ENG 77.2 7-65

01

NAS 9-1100


6
5
4
3
C
B
A
.165-.171(#19 DRILL)
3 HOLES LOCATE
FROM LDW280-28891
AN960-D8L(3)
GB511J-08-1(3)
ON INSTL
B7 B9 B12
LDW280P11537-17 (ON-3 & -3-1)
LDW280P11537-25 (ON-7 & -9)
-Z 20.717
LDW280-28891(REF)
LDW280P11537-19 & -19-1 (REF)
LDW280P11537-27 (REF)
.165-.171(#19 DRILL)
3 PLACES
NAS697A08(3)
NAS1097B3(6) CSK IN
LDW280P11537-17,-25 (NS)
AN960-D8L(3)
GB511J-08-1 (3)
(ON-3)
ASSY
23
LDW280P11537-3(REF)
LDW280P11537-5(REF)
-Z 27.00
C9 .271-.278 (#1 DRILL)
COORDINATE WITH
LDW280-54961-1
.165-.171 (#19 DRILL)
3 PLACES
NAS697A08(3)
NAS1097B3(6) CSK IN
LDW280P11537-15,-15-1 & -29 & -35 (NS)
AN960-D8L(3)
GB511J-08-1 (3)
(ON-3)
.165-.171(#19 DRILL)
2 PLACES
NAS697A08(2)
NAS1097B3(4) CSK IN
LDW280P11537-15,-15-1 & -29 & -35(FS)
AN960-D8L(2)
GB511J-08-1 (2)
(ON-3)
SEE NOTE 4 C4
LDW280-28162(REF)
.165-.171 (#19 DRILL)
LOCATE FROM
LDW280-28162
AN960-D8L
GB511J-08-1
ON INSTL
-Z 32.250
+Y 45.000
B7 B8 B10
LDW280P11537-15 (ON-3)
LDW280P11537-15-1 (ON -3-1)
LDW280P11537-29 (ON-7)
LDW280P11537-35 (ON-9)
B1
.165-.171(#19
NAS697A08
NAS 1097B3
LDW 280P115
AN960D8L
GB511J-08
ON INSTL-
LDW280P11537-19 (ON-3
LDW280P11537-27(ON-7 &
LDW280P11537-19-1 (ON-
B9 B12
.165-.171 (#19 DRILL)
2 PLACES
NAS697A08(2)
NAS1097B3 (4) CSK IN
LDW280P115?7-19 & -2
AN960-D8L(2)
GB511J-08-1 (2)
(ON-3)
LDW280P11537
(ON -3, -3-1, -7 & -9
LDW280P11088(REF)
B3
.271-.278 (#1 DRILL)
2 PLACES COORDINATE
WITH LDW280-11451-13
(ON LTA-8, LM-1 & LM-2 ONLY)
C8 WITH LDW280-11628(ON LM-3)
COORDINATE WITH
LDW280-54969-1 (ON
LM-4 THRU LM-15)
LDW280P11537-12(REF)
LDW280P11537-35(REF)
LDW280P11537-29(REF)
LDW280P11537-15-1(REF)
LDW280P11537-15(REF)
LDW280P11537-35 (REF)
LDW280P11537-29 (REF)
LDW280P11537-15(REF)
LDW280P11537-15-1(REF)
LDW280P11537-1(REF)
.165-.171 (#19 DRILL)
4 HOLES (LOCATE
FROM LDW280P11537-1)
AN960-D8L(4)
GB511J-08-1 (4)
(ON-3)
-Z 32.25 (REF)
B9
LDW280P11537-3 (ON-3 & -3-1)
LDW280P11537-5 (ON-7 & -9)
LDW280-11445(REF)
25
LDW280P11537-19,-19-1 (REF)
LDW280P11537-27(REF)
X 202.687
+Y69.116
B3
LDW280P11537-17(REF)
LDW280P11537-25 (REF)
X 200.000
B6 B11
GS13AJ-510 (ON-1-2)
SEE NOTE 2
.165-.171 (#19 DRILL)
2 PLACES
NAS697A08(2)
NAS1097B3(4) CSK IN
LDW280P11537-17 & -25(FS)
AN960-D8L(2)
GB511J-08-1(2)
ON INSTL

01/02 NAS 9-1100

B6

LDW280-28884-1 INSTL
-3 ASSY B7 B8 B9
-1-2 INSTL (SAME AS -1 EXCEPT AS SHOWN)
-3-1 ASSY (SAME AS -3 EXCEPT AS NOTED)
-5 INSTL (SAME AS -1 EXCEPT AS NOTED)
-7 ASSY (SAME AS -3 EXCEPT AS NOTED)
-9 ASSY (SAME AS -7 EXCEPT AS NOTED) B10
-37 INSTL (SAME AS -5 EXCEPT AS NOTED)

CODE IDENT NO 26512	SH
LDW280-28884	3

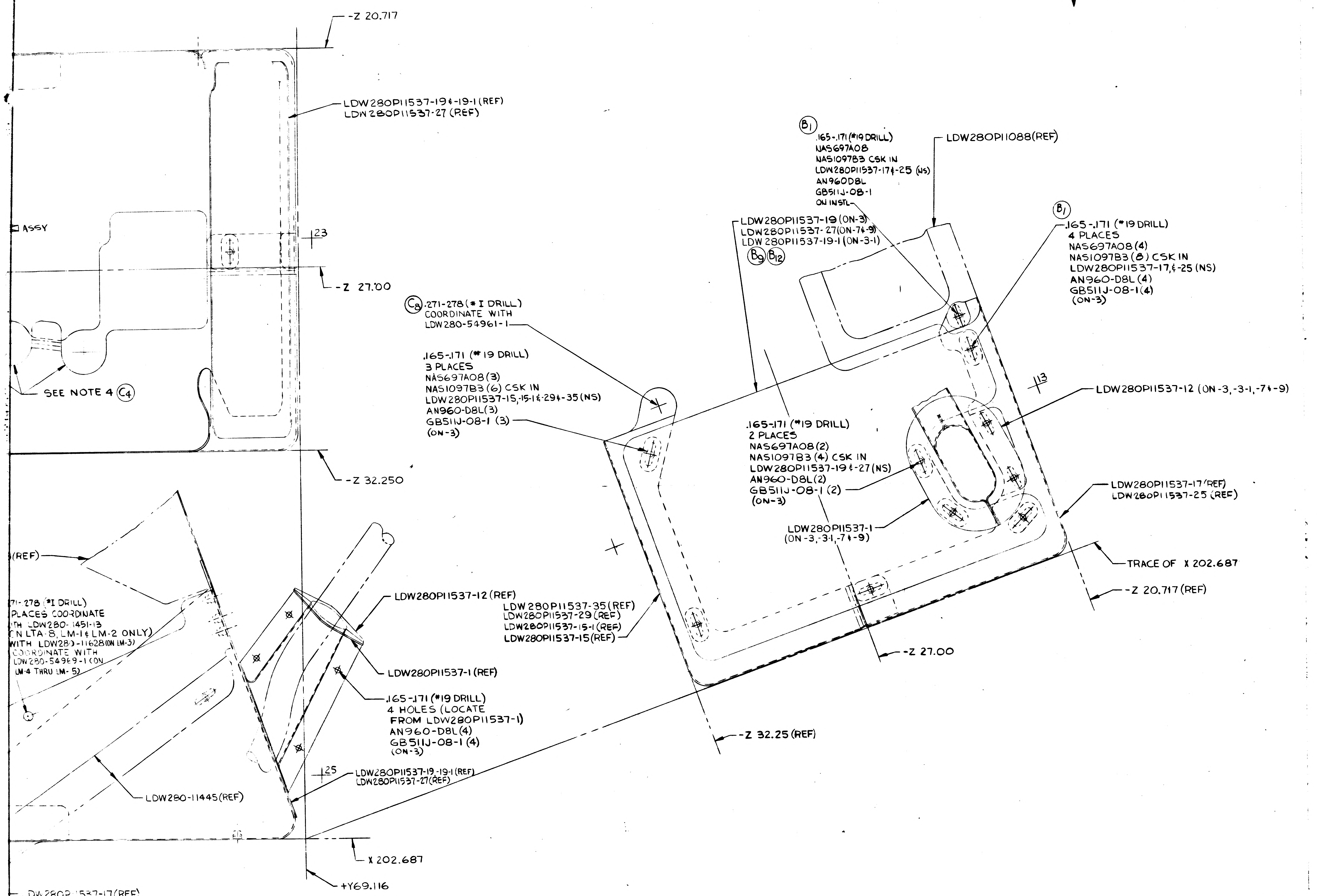
RECORD DATA		
MODEL	E.O NOS.	EFFECTIVITY
LM	E.O B4	LTA8 (18)
LM	E.O B5	LTA8 (18)

NOTE
1 INSTALL FASTENERS PER LSP-14-15302
2. BOND GS13AJ-510 TO LDW280P11537-3 USING EPON 934 IN ACCORDANCE WITH LSP14-22500 CURE RANGE II FILL IN ALL GAPS TO PROVID SMOOTH SURFACE ALL AROUND TUBE.
3. -9 & -37 ARE TO BE RETAINED FOR LM-3, LM-4 & LM-5 UNTIL INCORPORATION OF LFM 107.
4. ON -37 INSTL, HOLES MAY BE ENLARGED TO 1 5/8 DIA MAX., IF REQD.

MANUFACTURING OPERATIONS
UNLESS OTHERWISE SPECIFIED
NOTES CHECKED ✓ APPLY TO THIS DWG.

RUBBER STAMP PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ ~~USE BOTH SIDES IF NECESSARY~~.	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN. TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 √ SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 √ FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 10
PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X 72) = 18 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 4.5 SQ. FT.
PRINT TRIM LINE



-Z 20.717
LDW280P11537-19 & -19-1 (REF)
LDW280P11537-27 (REF)
ASSY
23
-Z 27.00
SEE NOTE 4 (C4)
-Z 32.250
(B1)
.165-.171 (#19 DRILL)
NAS697A08
NAS1097B3 CSK IN
LDW280P11537-17 & -25 (NS)
AN960D8L
GB511J-08-1
ON INSTL
LDW280P11088 (REF)
LDW280P11537-19 (ON-3)
LDW280P11537-27 (ON-7 & -9)
LDW280P11537-19-1 (ON-3-1)
(B9) (B12)
(B1)
.165-.171 (#19 DRILL)
4 PLACES
NAS697A08 (4)
NAS1097B3 (8) CSK IN
LDW280P11537-17 & -25 (NS)
AN960-D8L (4)
GB511J-08-1 (4)
(ON-3)
(C8) .271-.278 (#1 DRILL)
COORDINATE WITH
LDW280-54961-1
.165-.171 (#19 DRILL)
3 PLACES
NAS697A08 (3)
NAS1097B3 (6) CSK IN
LDW280P11537-15, -15-1 & -29 & -35 (NS)
AN960-D8L (3)
GB511J-08-1 (3)
(ON-3)
13
LDW280P11537-12 (ON -3, -3-1, -7 & -9)
.165-.171 (#19 DRILL)
2 PLACES
NAS697A08 (2)
NAS1097B3 (4) CSK IN
LDW280P11537-19 & -27 (NS)
AN960-D8L (2)
GB511J-08-1 (2)
(ON-3)
LDW280P11537-17 (REF)
LDW280P11537-25 (REF)
LDW280P11537-1
(ON -3, -3-1, -7 & -9)
TRACE OF X 202.687
-Z 20.717 (REF)
(REF)
.271-.278 (#1 DRILL)
PLACES COORDINATE
WITH LDW280-11451-13
(ON LTA-8, LM-1 & LM-2 ONLY)
WITH LDW280-11628 (ON LM-3)
COORDINATE WITH
LDW280-54969-1 (ON
LM-4 THRU LM-5)
LDW280P11537-12 (REF)
LDW280P11537-35 (REF)
LDW280P11537-29 (REF)
LDW280P11537-15-1 (REF)
LDW280P11537-15 (REF)
-Z 27.00
LDW280P11537-1 (REF)
.165-.171 (#19 DRILL)
4 HOLES (LOCATE
FROM LDW280P11537-1)
AN960-D8L (4)
GB511J-08-1 (4)
(ON-3)
-Z 32.25 (REF)
25
LDW280P11537-19-19-1 (REF)
LDW280P11537-27 (REF)
LDW280-11445 (REF)
X 202.687
+Y69.116
LDW280P11537-17 (REF)
LDW280P11537-25 (REF)
(#19 DRILL)
S
A08 (2)
B3 (4) CSK IN
P11537-17 & -25 (FS)
D8L (2)
-08-1 (2)
L

(B6)

LDW280-28884-1 INSTL
-3 ASSY (B7) (B8) (B9)
-1-2 INSTL (SAME AS-1 EXCEPT AS SHOWN)
-3-1 ASSY (SAME AS-3 EXCEPT AS NOTED)
-5 INSTL (SAME AS-1 EXCEPT AS NOTED)
-7 ASSY (SAME AS-3 EXCEPT AS NOTED)
-9 ASSY (SAME AS-7 EXCEPT AS NOTED) (B10)
-37 INSTL (SAME AS-5 EXCEPT AS NOTED)

CODE IDENT NO 26512
LDW280-28884 SH 3

02702

NAS 9-1100

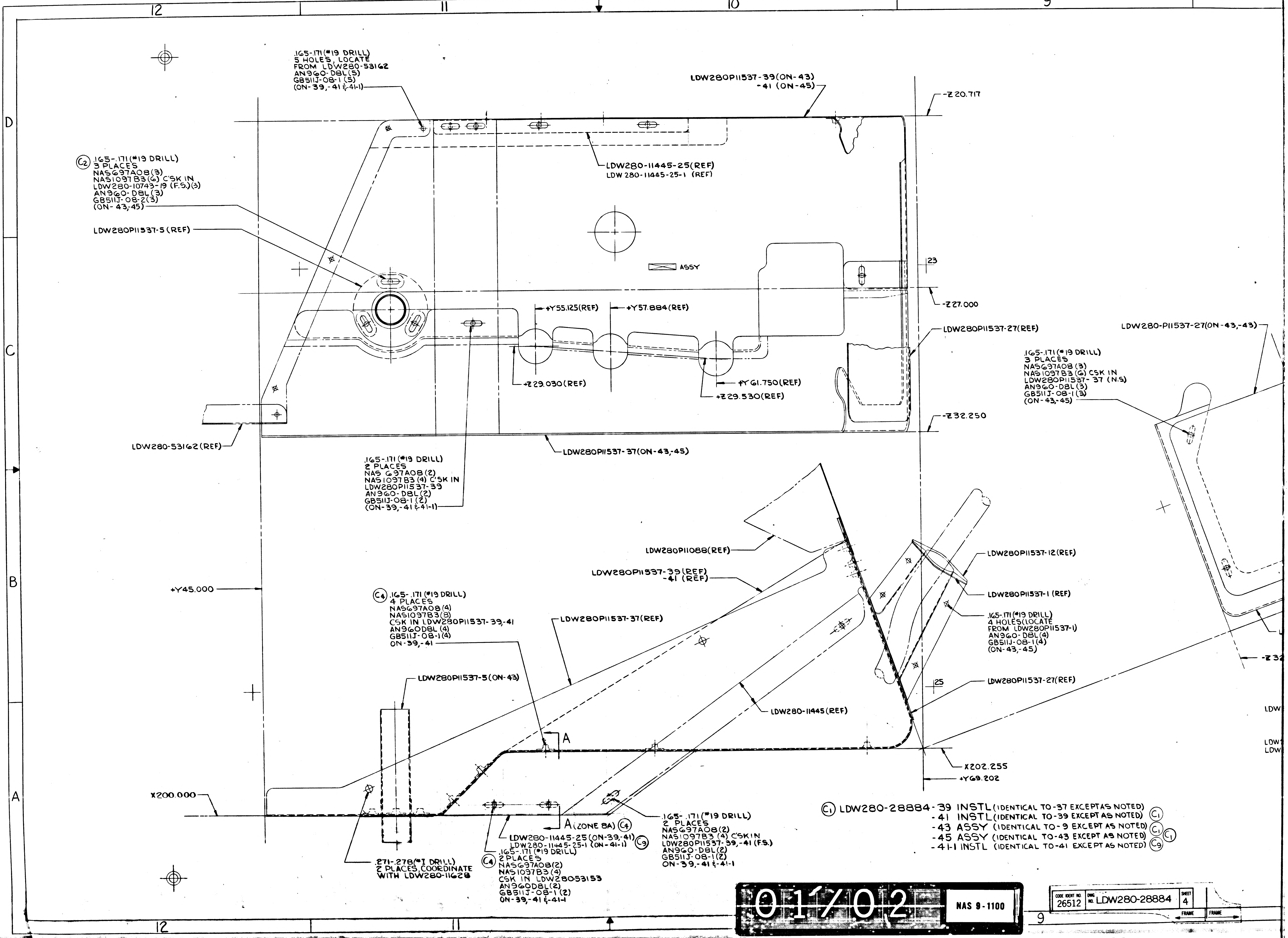
GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

MODEL OR END ITEM	SIZE	CODE IDENT NO.		
LM	J	26512	LDW280-28884	C
	SCALE FULL		SHEET 3.00	

K1

SUPERSEDES LDW280-28884 NC 10-21-66 2FR

FOR PHOTO REPRODUCTION


12
11
10
9
D
C
B
A
.165-.171(#19 DRILL)
5 HOLES, LOCATE
FROM LDW280-53162
AN960-D8L(5)
GB511J-08-1 (5)
(ON-39,-41 & 41-1)
LDW280P11537-39(ON-43)
-41 (ON-45)
-Z20.717
Ⓒ2 .165-.171(#19 DRILL)
3 PLACES
NAS697A08(3)
NAS1097B3(6) C'SK IN
LDW280-10743-19 (F.S.)(3)
AN960-D8L(3)
GB511J-08-2(3)
(ON-43,-45)
LDW280-11445-25(REF)
LDW 280-11445-25-1 (REF)
LDW280P11537-5(REF)
ASSY
23
-Z27.000
+Y55.125(REF)
+Y57.884(REF)
LDW280P11537-27(REF)
LDW280-P11537-27(ON-43,-43)
+Z29.030(REF)
+Y61.750(REF)
+Z29.530(REF)
.165-.171(#19 DRILL)
3 PLACES
NAS697A08 (3)
NAS1097B3 (6) CSK IN
LDW280P11537- 37 (N.S)
AN960-D8L (3)
GB511J-08-1(3)
(ON-43,-45)
-Z32.250
LDW280-53162(REF)
LDW280P11537-37(ON-43,-45)
.165-.171 (#19 DRILL)
2 PLACES
NAS 697A08(2)
NAS1097B3 (4) C'SK IN
LDW280P11537-39
AN960-D8L(2)
GB511J-08-1 (2)
(ON-39,-41 & 41-1)
LDW280P11088(REF)
LDW280P11537-39(REF)
-41 (REF)
LDW280P11537-12(REF)
+Y45.000
Ⓒ4 .165-.171 (#19 DRILL)
4 PLACES
NAS697A08(4)
NAS1097B3(8)
CSK IN LDW280P11537-39,-41
AN960D8L (4)
GB511J-08-1(4)
ON-39,-41
LDW280P11537-37(REF)
LDW280P11537-1 (REF)
.165-.171(#19 DRILL)
4 HOLES(LOCATE
FROM LDW280P11537-1)
AN960-D8L(4)
GB511J-08-1(4)
(ON-43,-45)
LDW280P11537-5(ON-43)
25
LDW280P11537-27(REF)
LDW280-11445(REF)
A
-Z32
LDW
LDW
LDW
X202.255
+Y69.202
X200.000
A(ZONE 8A) Ⓒ4
LDW280-11445-25(ON-39,-41)
LDW280-11445-25-1 (ON-41-1) Ⓒ9
.271-.278(#I DRILL)
2 PLACES, COORDINATE
WITH LDW280-11628
Ⓒ4 .165-.171 (#19 DRILL)
2PLACES
NAS697A08(2)
NAS1097B3 (4)
CSK IN LDW28053153
AN960D8L(2)
GB511J-08-1 (2)
ON-39,-41 & -41-1
.165-.171(#19 DRILL)
2 PLACES
NAS697A08(2)
NAS1097B3 (4) C'SKIN
LDW280P11537-39,-41 (F.S.)
AN960-D8L(2)
GB511J-08-1(2)
ON-39,-41 & -41-1

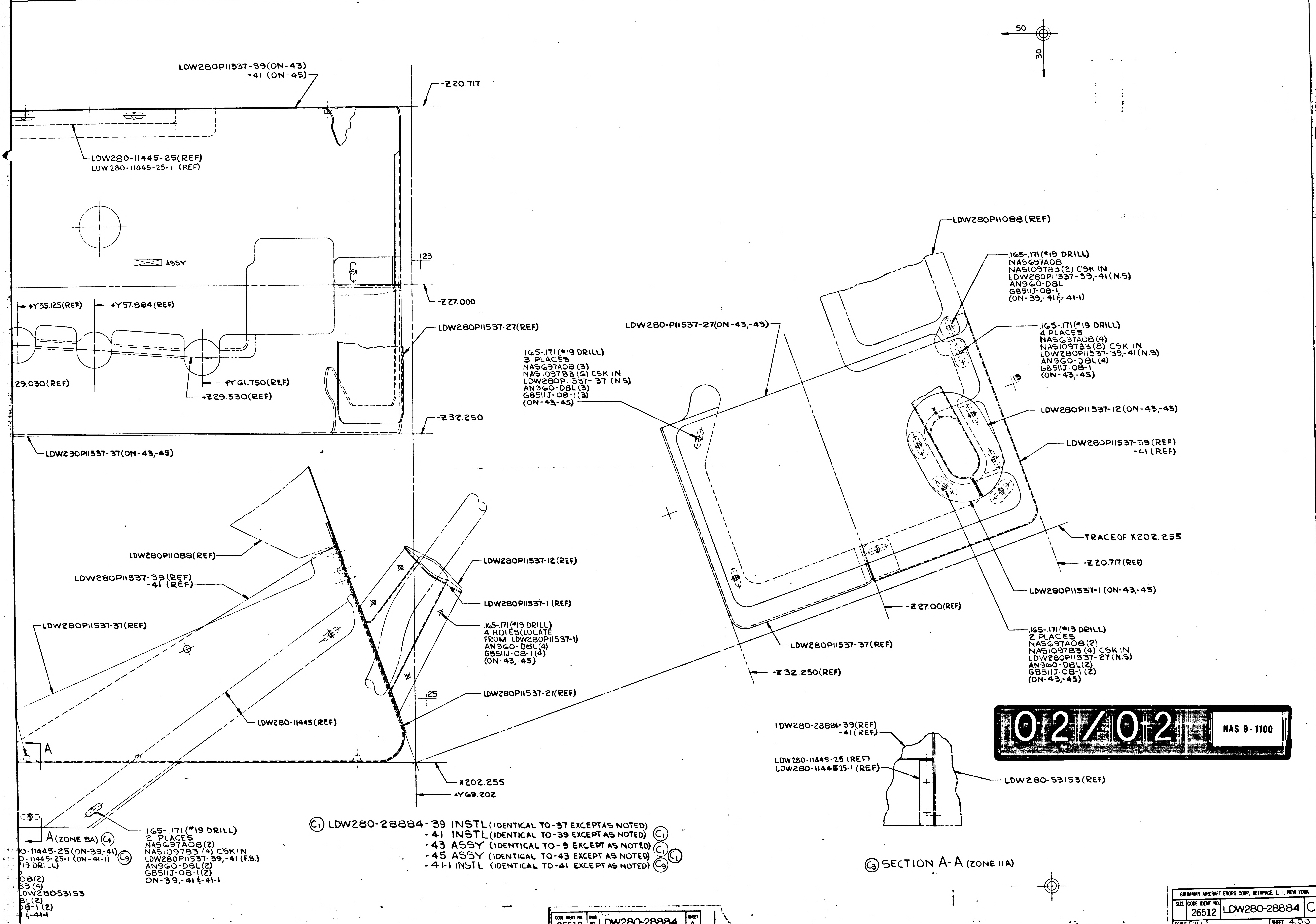
Ⓒ1 LDW280-28884-39 INSTL (IDENTICAL TO -37 EXCEPT AS NOTED)
-41 INSTL (IDENTICAL TO -39 EXCEPT AS NOTED) Ⓒ1
-43 ASSY (IDENTICAL TO -9 EXCEPT AS NOTED) Ⓒ1
-45 ASSY (IDENTICAL TO -43 EXCEPT AS NOTED) Ⓒ1
-41-1 INSTL (IDENTICAL TO -41 EXCEPT AS NOTED) Ⓒ9

01/02

NAS 9-1100

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-28884	4

FRAME ← | → FRAME


10
9
8
7
50
30
LDW280P11537-39(ON-43)
-41 (ON-45)
-Z 20.717
LDW280-11445-25(REF)
LDW 280-11445-25-1 (REF)
ASSY
23
-Z 27.000
+Y55.125(REF)
+Y57.884(REF)
LDW280P11537-27(REF)
29.030(REF)
+Y61.750(REF)
+Z29.530(REF)
-Z32.250
LDW230P11537-37(ON-43,-45)
LDW280P11088(REF)
LDW280P11537-39(REF)
-41 (REF)
LDW280P11537-37(REF)
LDW280P11537-12(REF)
LDW280P11537-1 (REF)
.165-.171(#19 DRILL)
4 HOLES(LOCATE
FROM LDW280P11537-1)
AN960-D8L(4)
GB511J-08-1(4)
(ON-43,-45)
25
LDW280P11537-27(REF)
LDW280-11445(REF)
A
X202.255
+Y69.202
A(ZONE 8A) C4
0-11445-25(ON-39,-41)
0-11445-25-1 (ON-41-1) C9
#19 DR‥L)
08(2)
B3(4)
LDW28053153
8L(2)
08-1(2)
&-41-1
.165-.171(#19 DRILL)
2 PLACES
NAS697A08(2)
NAS1097B3 (4) C'SKIN
LDW280P11537-39,-41 (F.S.)
AN960-D8L(2)
GB511J-08-1(2)
ON-39,-41 &-41-1
LDW280P11088(REF)
.165-.171(#19 DRILL)
NAS697A08
NAS1097B3(2) C'SK IN
LDW280P11537-39,-41(N.S)
AN960-D8L
GB511J-08-1,
(ON-39,-41&-41-1)
LDW280-P11537-27(ON-43,-43)
.165-.171(#19 DRILL)
4 PLACES
NAS697A08(4)
NAS1097B3(8) CSK IN
LDW280P11537-39,-41(N.S)
AN960-D8L(4)
GB511J-08-1
(ON-43,-45)
.165-.171(#19 DRILL)
3 PLACES
NAS697A08(3)
NAS1097B3(6) CSK IN
LDW280P11537- 37 (N.S)
AN960-D8L(3)
GB511J-08-1(3)
(ON-43,-45)
13
LDW280P11537-12(ON-43,-45)
LDW280P11537-39(REF)
-41 (REF)
TRACE OF X202.255
-Z 20.717(REF)
LDW280P11537-1 (ON-43,-45)
-Z 27.00(REF)
LDW280P11537-37(REF)
.165-.171(#19 DRILL)
2 PLACES
NAS697A08(2)
NAS1097B3 (4) CSK IN
LDW280P11537- 27 (N.S)
AN960-D8L(2)
GB511J-08-1 (2)
(ON-43,-45)
-Z 32.250(REF)
LDW280-28884-39(REF)
-41(REF)
LDW280-11445-25 (REF)
LDW280-11445-25-1 (REF)
LDW280-53153(REF)

C3 SECTION A-A (ZONE 11A)

C1 LDW280-28884-39 INSTL(IDENTICAL TO-37 EXCEPTAS NOTED)
-41 INSTL(IDENTICAL TO-39 EXCEPT AS NOTED) C1
-43 ASSY (IDENTICAL TO-9 EXCEPT AS NOTED) C1
-45 ASSY (IDENTICAL TO-43 EXCEPT AS NOTED) C1
-41-1 INSTL (IDENTICAL TO-41 EXCEPT AS NOTED) C9

02/02 NAS 9-1100

CODE IDENT NO.	DWG NO.	SHEET
26512	LDW280-28884	4

D
C
B LDW280-28884 C
A LDW280-28884 C

GRUMMAN AIRCRAFT ENGRG CORP. BETHPAGE, L. I., NEW YORK			
SIZE	CODE IDENT NO. 26512	LDW280-28884	C
SCALE FULL		SHEET 4.00	

K2

FOR PHOTO 7 REPRODUCTION 2FR

LEM RELEASED BY LIAISON

ENG 32.2 REV 3-65

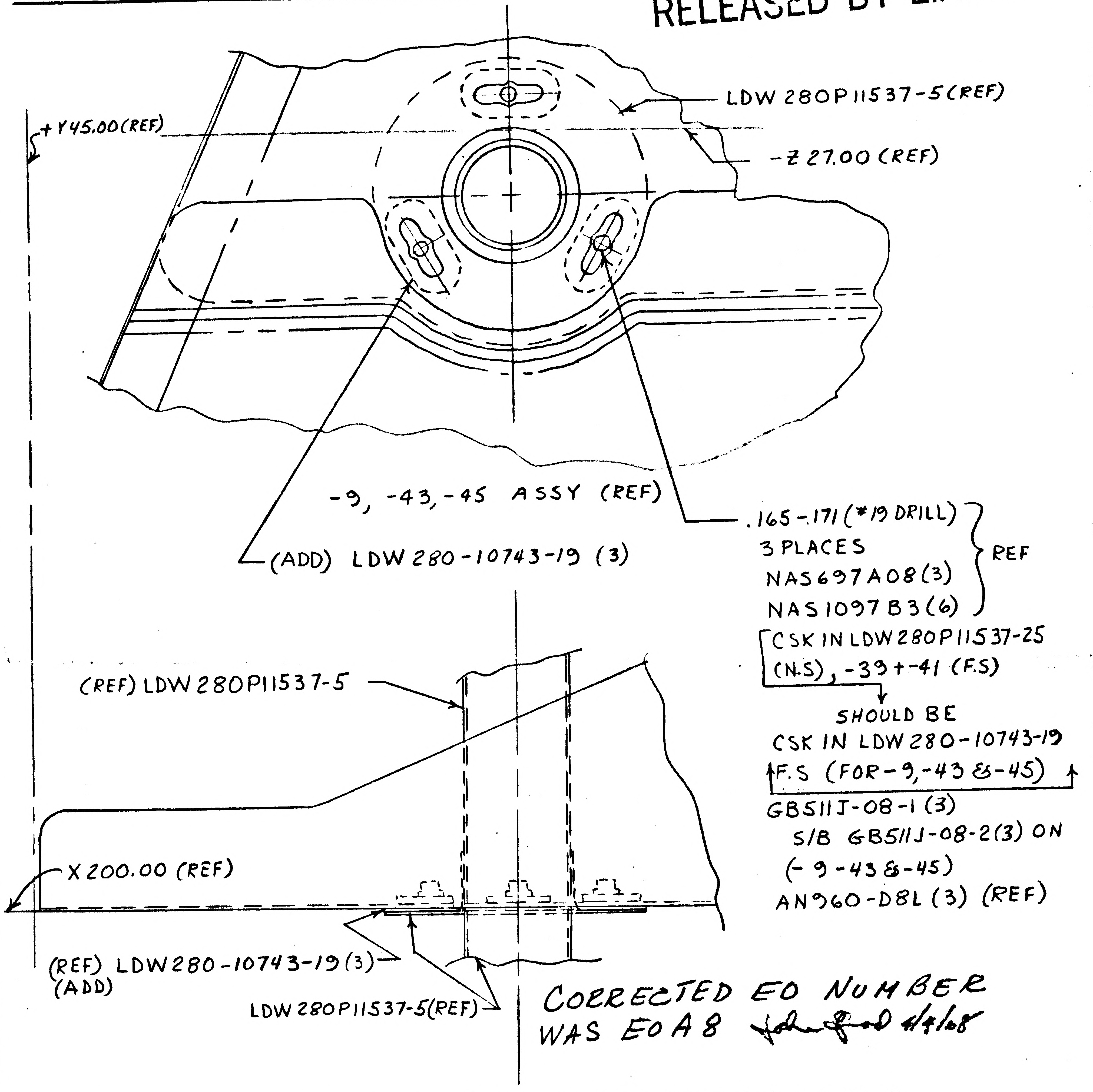
GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO.	LDW280-28884	EC NO.	C2
CONTROL INFO NO.	LM5-19460		

ON-37, 39 & -41 INSTL F/D+B/M ADD LDW280-10743-19, CORRECT VIEWS AND ADD NOTE ✱ AS SHOWN

THIS IS A REVISION OF EOCI

RELEASED BY LIAISON



LDW 280P11537-5(REF)
+Y45.00(REF)
-Z 27.00 (REF)
-9, -43, -45 ASSY (REF)
(ADD) LDW 280-10743-19 (3)
.165-.171 (#19 DRILL)
3 PLACES
NAS697A08(3)
NAS1097B3(6)
REF
CSK IN LDW280P11537-25
(N.S), -39+-41 (F.S)
SHOULD BE
CSK IN LDW280-10743-19
F.S (FOR-9,-43 & -45)
GB511J-08-1 (3)
S/B GB511J-08-2(3) ON
(-9-43 & -45)
AN960-D8L (3) (REF)
(REF) LDW280P11537-5
X200.00 (REF)
(REF) LDW280-10743-19(3)
(ADD)
LDW280P11537-5(REF)

CORRECTED EO NUMBER
WAS EOA8

NOTE ✱ -9 & -37 ARE TO BE RETAINED FOR LM-3, LM-4 & LM-5
UNTIL INCORPORATION OF LFM #107

ON EOCI DISPOSITION OF PARTS SCRAP $\frac{-9}{-37}$ SHOULD BE SCRAP $\frac{-9}{-37}$ (SEE NOTE✱)

REWORK INFO. CSK. HOLES MAY BE LEFT AS IS.

DESCR CONT. GB511J-08-2 (3) ON(-9-43 & -45)
WAS GB511J-08-1(3)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 2567 PKG #3 (5)

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
RIVETS PULLING THRU COVER. -9 & -37 HAVE TO BE RETAINED FOR LM-3-4-5 TO PROVIDE ACCESS TO ECS QUICK DISCONNECTS	REF EOCI -37, -39, & -41 ON EOCI DISPOSITION OF PARTS SCRAP -9 & -37 (SEE NOTE✱) WAS SCRAP -9 & -37. ADDED NOTE✱ & LDW280-10743-19(3). CSK IN LDW 280-10743-19 F.S (FOR-9 -43 & -45) WAS CSK IN LDW280P11537-25 (N.S.), -39+-41(F.S).	C

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	REVISE DWG	RECORD EO	REWORK	SCRAP
LM	LFM #107	LM-3 (33) THRU	LM-5 (35)	✓		✓	-9 -37 (SEE NOTE ✱)
		LM-6 (36) THRU	LM-15 (45)				

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG
DATE 3-23-68	VDI 4/20			Z	4-2-68	3-29-68	4/20

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COVER INSTL - A/S MID SECT THERMAL SHIELD R.H. TANK	LDW280-28884	C2

ISSUED BY LIAISON J. GRASSIANO X86755 SECTION V.D.I GROUP NO. 335 PL.

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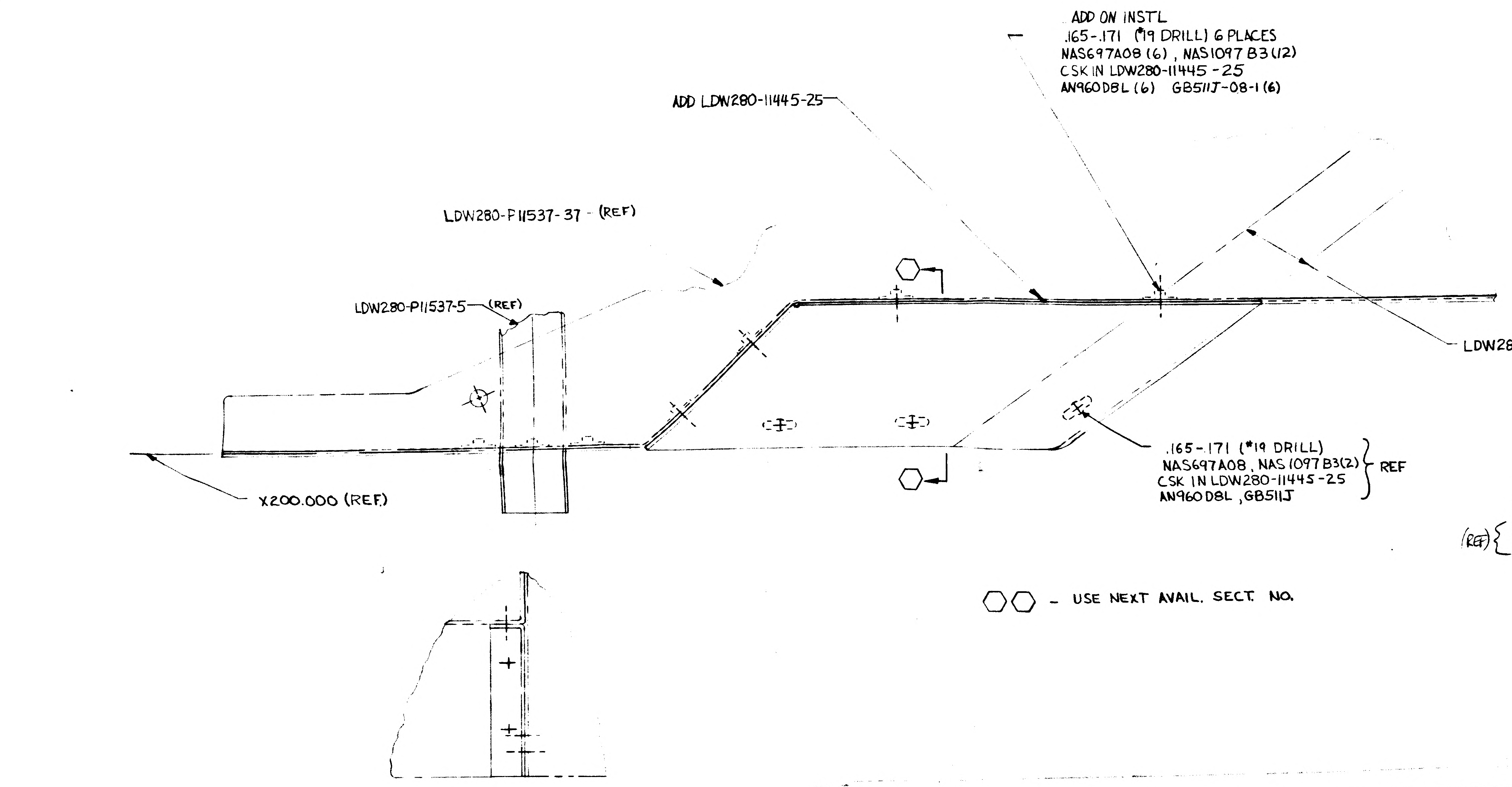
NAS 9-1100

PRINT INFO
FULL SIZE DWG = (20 x 30) = 4.2 SQ FT
1/2 SIZE DWG = 1 SQ FT


ADD ON INSTL
.165-.171 (#19 DRILL) 6 PLACES
NAS697A08 (6) , NAS1097 B3 (12)
CSK IN LDW280-11445 -25
AN960D8L (6) GB511J-08-1 (6)
ADD LDW280-11445-25
LDW280-P11537-37 (REF)
LDW280-P11537-5 (REF)
LDW280-11445 (REF)
.165-171 (#19 DRILL)
NAS697A08, NAS1097B3(2)
CSK IN LDW280-11445-25
AN960D8L ,GB511J
REF
X200.000 (REF)

IN F/D & L/M ADD LDW280-11445-25
AS SHOWN TO -39 INSTL.(LM-3) & -41 INSTL (LM-4-LM-15)
EFF. LM-3(33) THRU LM-15(45)
(REF) N/A LDW280-53150 FOR LM-3(33)
(REF) N/A LDW280-54150 FOR LM-4(34 THRU LM-15 (45)

⬡⬡ - USE NEXT AVAIL. SECT. NO.

SECT-⬡ ⬡

LFM

(5)

DETAIL SPEC REQD		CLASS II ENGRG CHG		CLASS I ENGRG CHG	✓ LCD 2567 PKG 3

CONTROL INFO NO. LDW280B4886

REASON FOR EO: TO PROVIDE ACCESS TO ECS QUICK DISCONECTS

DESCRIPTION OF EO: ADDED LDW280-11445-25, NAS697A08(6) AN960D8L(6) GB511J-08-1(6) NAS1097B3(12), DR#19 ETC TO-39 (LM-3) & -41 LM4-LM15 IN F/D ADDED SECT ⬡-⬡

GRUMMAN EO RELEASE: JK 8/5/8

MODEL	EI ~~PROCURING AGT NO.~~	EFFECTIVITY GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM-107	LM-3(33) THRU	LM-5(35)
LM		LM-6(36) THRU	LM-15(45)

DRAWING REVISION REQD		DISPOSITION OF PARTS		
REVISE DWG	RECORD EO	REWORK	SCRAP	
✓		✓		

BY				C.L.	ESG PROG		
DATE	7/1/68	7/25/68		7/24/68	7-26-68	ESC 8-6-68	7/26/68	8-6-68
	VDI	~~SUPPORT~~ THERMO	RELIAB GROUP	GROUP LEADER	STRESS GROUP	ENGRG	PROJ ENGR

PRIORITY: C

DRAWING TITLE: COVER INSTL. ASCENT STAGE MID SECTION THERMAL SHIELD R.H. TANK

ENGINEERING ORDER
DRAWING NO. LDW280-28884
EO NO. C3

CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

8-1-68
ISSUED BY H. TREFFEISEN SECTION VDI x7033 GROUP NO. 335 PL 25

ENG 32.3 REV 3-65

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NAS 9-1100

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NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LEO 280		EO NO. 1160	
CONTROL INFO NO. LDW280B 5819			

FOR THE FOLLOWING DWGS. ADD PA-1(47) EFFECTIVITY.

PART No. *	CHG. LTR.	TITLE	NEXT ASSY	QTY REQD
LDW280P11537-1, -3, -27, -37 & -41	B3 ✓	SEE DWG	LDW280-28884	1 EA.
LDW280-11445-25	C3 ✓		LTM280-26980	1 EA.
LDW280P11609-1	A2 ✓			1 EA.
LDW280-28884-41	C5 ✓			1 EA.
LDW280P11088-11	B1			1 EA.
LDW280-11610-11 & -13	A3			2 EA.
LDW280-11658 -11	A2			2 EA.
LDW280P11517-11	B2		LTM280-26980	1 EA.
LDW280-54967-1 & -31	B2		LTM280-26978	1 EA
LDW280-54963-1 & -43	B1	SEE DWG	LTM280-26978	1 EA

LFM

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑ LCD 3421 PKG1 SHT. 2									(5)
REASON FOR EO					DESCRIPTION OF EO									Ⓡ GAEC EO RELEASE C
TO UPDATE PA-1 SHIELDING FOR FITH TESTS					ADDED PA-1(47) EFFECTIVITY TO *									JK 10/17/68
MODEL	EFFECTIVITY				DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY					
	~~PROCURING ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.		✓ REVISE DWGS	RECORD EO	NOT REWORK	REQD SCRAP	DATE	10/17/68 VDI	10/17/68 THERMO	RELIAB. GROUP	10/17/68 GROUP LEADER	10/17/68 CW STRESS GROUP
LM	LFM256	PA-1										LIAISON ENGRG	10/16/68 PROJ ENGRG	10/17-68 ~~GOVT~~
					PRIORITY C	DRAWING TITLE NOTED						DRAWING NO. LEO 280		EO NO. 1160

10/17/68
ISSUED BY P. FRDNZESE x2033 SECTION VDI GROUP NO. 335 PL 25

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28884
EO NO. C7
CONTROL INFO NO. LDW280B-6091

FOR -41, DELETE PA-1 (47) EFF.

FOR -45, ADD PA-1 (47) EFF.
1 REQ/MOD. N/A LTM 280-26980

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓ LCD 3421 PKG. 1 SH. 3 (5)

REASON FOR EO: TO UPDATE PA-1 SHIELDING FOR FITH TESTS

DESCRIPTION OF EO: FOR -41, DELETED PA-1 (47) EFF. FOR-45, ADDED PA-1 (47) EFF.

GAEC RELEASE: 11/4

MODEL	EFFECTIVITY: ~~PROCURING ACTIVITY NO.~~ EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 256	PA-1 (47)	

DRAWING CHANGE REQD: REVISE DWG ✓ | RECORD EO

DISPOSITION OF PARTS: REWORK | SCRAP ✓ -41

APPROVED BY		SUPPORT		GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE	11/1/68		11/1/68	10/31/68	11/2/68		11/2/68	11-4-68
	VD1		THERMO					

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COVER INSTL - ASCENT STAGE MID-SECT. - THERMAL SHIELD. RH. TANK	LDW280-28884	C7

11/12/68
ISSUED BY R. SMALL x 86048 SECTION VD1 GROUP NO. 335 PL 25

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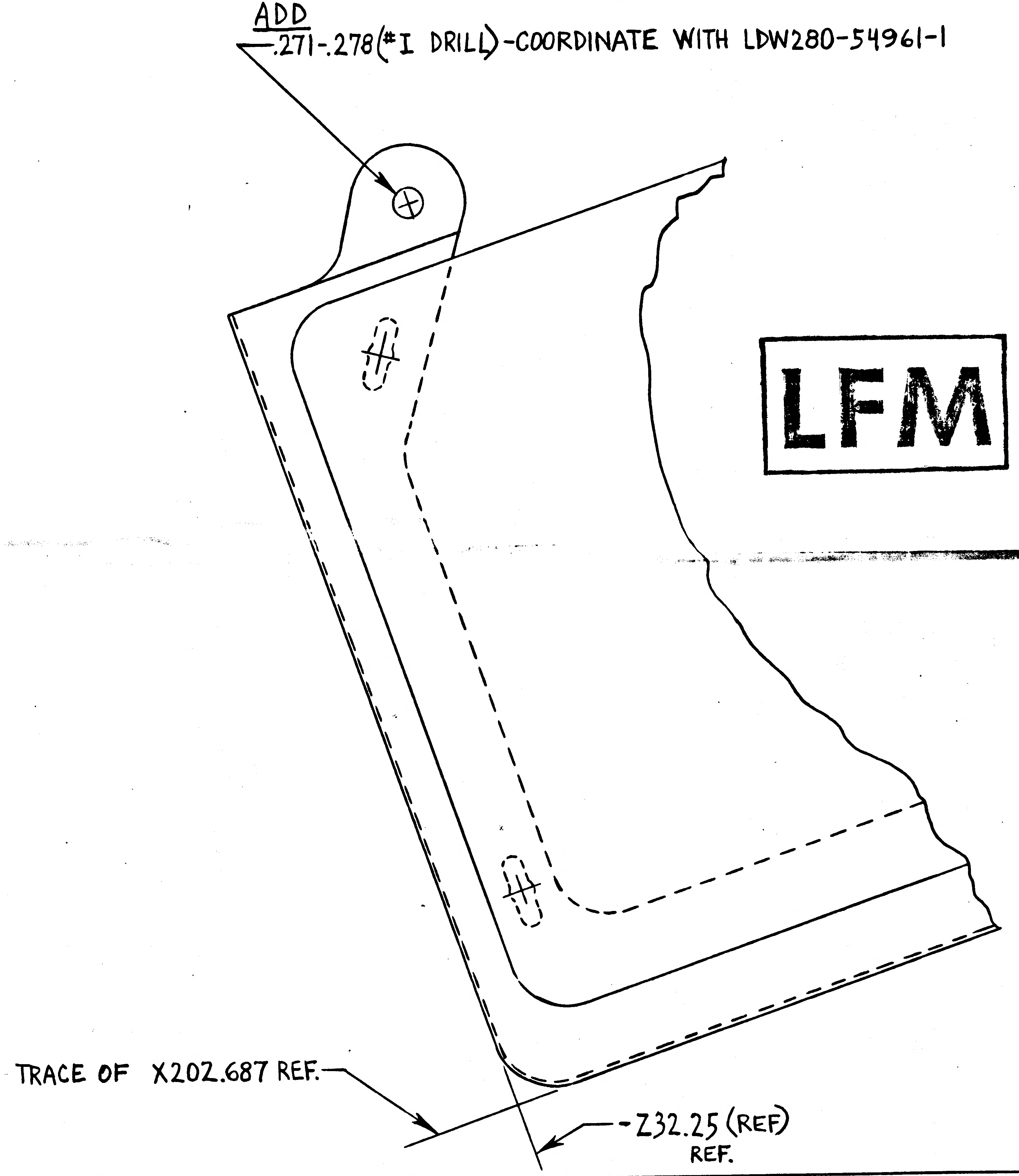
NAS 9-1100

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

ENG 32.2 REV 3-65

DWG. NO. LDW280-28884	EO NO. C8		
CONTROL INFO NO. LDW280B6221			

IN F/D, ZONE 4B, TO CALLOUT ".271-.278(#I DRILL)-2 PLACES
COORDINATE WITH LDW280-11451-13(ON LTA-8, LM-1 & LM-2 ONLY) WITH LDW280-11628 (ON LM-3),
ADD
COORDINATE WITH LDW280-54969-1(ON LM-4 THRU LM-15)



(5)

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2360 PKG. 32 SH. 22 ECP # X-002R, ECP A078

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
DRAFTING ERROR CORRECTION	IN F/D, TO CALLOUT ".271-.278(#I DRILL-----"ADDED "COORDINATE WITH LDW280-54969-1(ON LM-4 THRU LM-15)" IN F/D ADDED CALLOUT ".271-.278(#I DRILL)-COORDINATE WITH LDW280-54961-1."	

MODEL	EI	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 140	LM-4(34) & LM-5(35)	
LM		LM-6(36) THRU LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY								
✓		NOT	REQD.	DATE	11/12/68	11/15/68		11/12/68	11/19/68		11/20/68	11-26-68
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	COVER INST. ASCENT STAGE - MID SECTION THERMAL SHIELD - R H TANK	LDW280-28884	C8

11-26-68
ISSUED BY F. SHANLEY 7033 SECTION VEH. DESIGN INT. GROUP NO. 335 PL 25
L.C.

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28884 EO NO. C9
CONTROL INFO NO. LDW280B6481

IN F/D & B/M ADD -41-1 INSTL., SAME AS -41 EXCEPT LDW280-11445-25-1 REPLACES LDW280-11445-25.

IN M/B FOR -41-1 ADD: N/A LDW280-54150, LM-5(35) THRU LM-15(45), 1 REQD/MOD.

RESTRICT -41 TO LM-4 EFFECTIVITY [WAS LM-4 THRU LM-15]

LFM

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 2360 PKG 32 ECP X002R 5

REASON FOR EO: TO RELOCATE HOLE FOR SCREW TO PICK UP SUB-STRUCTURE
LM-5

DESCRIPTION OF EO: RESTRICTED EFFECTIVITY OF -41 TO LM-4 BY REMOVING LM-5 THRU LM-15 EFF. IN F/D, B/M & M/B ADDED -41-1

GAEC EO RELEASE: JK 12/21/8

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 140	LM-5(35)	
LM		LM-6(36) THRU LM-15(45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓		✓		APPROVED BY		MR		FDR	CL			
				DATE	12/11/68	12/13/68		12/11/68	12/17/68		12/18/68	
REVISE DWG	RECORD EO	REWORK	SCRAP		VDI	~~SUPPORT~~ THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: COVER INSTL. ASCENT STAGE - MID SECTION R H TANK THERMAL SHIELD
DRAWING NO. LDW280-28884
EO NO. C9

12-16-68
ISSUED BY F. SHANLEY 7033
SECTION VEH. DESIGN INT.
GROUP NO. 335
PL 25

01

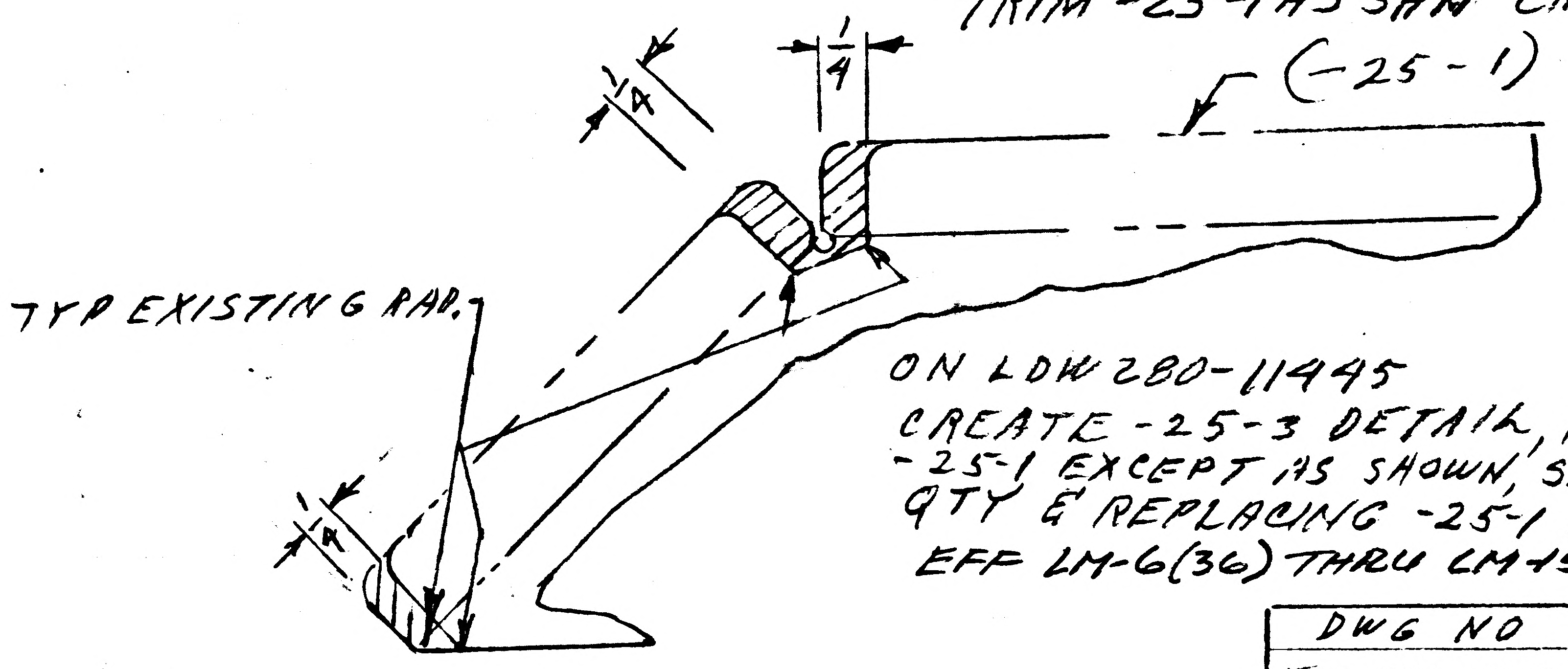
NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. NOTED		EO NO.
CONTROL INFO NO. LM 5-21576		

TRIM -25-1 AS SH'N CREATING 25-3



ON LDW280-11445
CREATE -25-3 DETAIL, IDENTICAL TO -25-1 EXCEPT AS SHOWN, SAME N/A & QTY & REPLACING -25-1 AS NOTED.
EFF LM-6(36) THRU LM-15(45)

DWG NO	EO NO
✓ LDW280-11445	C6

NHA DESCRIPTION	NHA DWG NO	EO NO
ON -41 LDW280-11445-25-3 REPLACES LDW280-11445-25-1, RESTRICT LDW280-11445-25-1 TO LM5(35) ONLY.	✓ LDW280-28884	D1

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	✓	LCD 3179 PKG 5 CCA1361 (5)

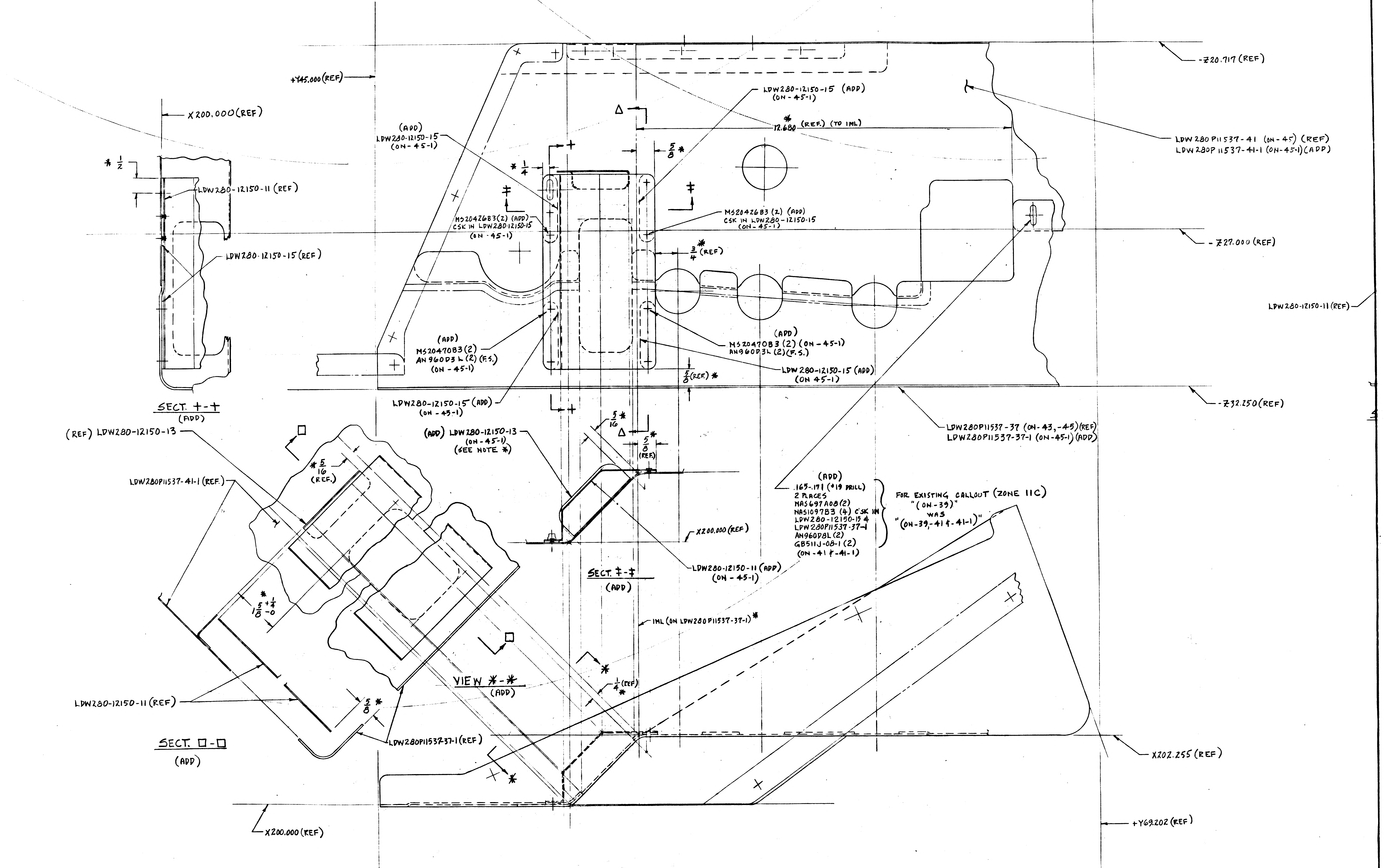
REASON FOR EO	DESCRIPTION OF EO	® EO RELEASE 3/10
INTERFERENCE IN RADIUS OF ADJACENT PART	ADDED -25-3 RESTRICTED -25-1 TO LM-5 (WAS LM-6(36) THRU LM-15(45))	JK

MODEL	EFFECTIVITY M			DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	JMS			FDK	RH	CK	JAP	JFM
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.	✓		✓		DATE	3/1/69			3/1/69	3-1-69	3-1-69	3/10/69	3/11/69
LM		LM6 (36)		REVISE DWG	RECORD EO	REWORK	SCRAP	2-27-69	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
		THRU		PRIORITY C	SHIELD RH TANK	DRAWING TITLE A/S MID SECT						DRAWING NO. NOTED				EO NO.
		LM15(45)														

ISSUED BY * LIAISON J. PAULSEN X96755 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

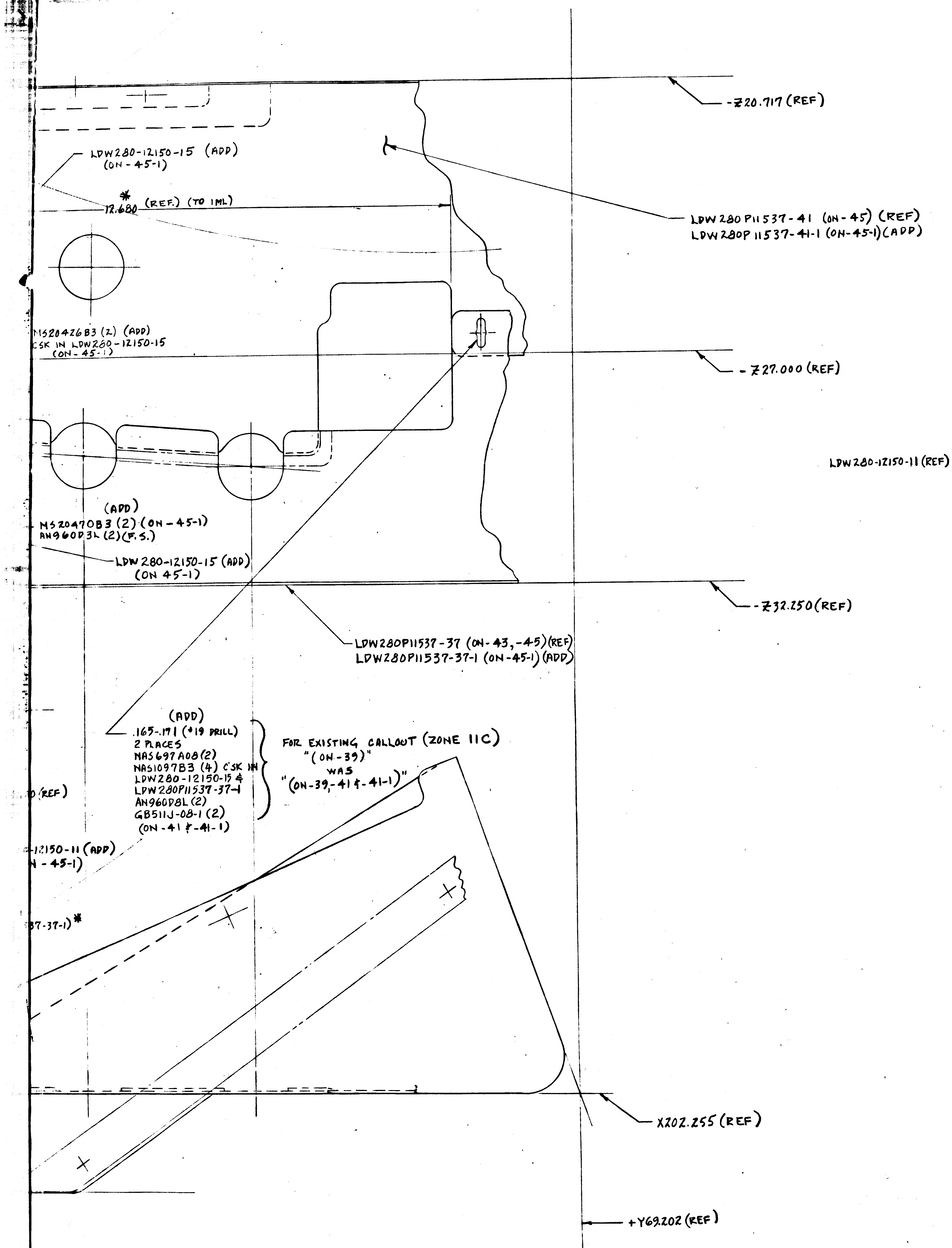


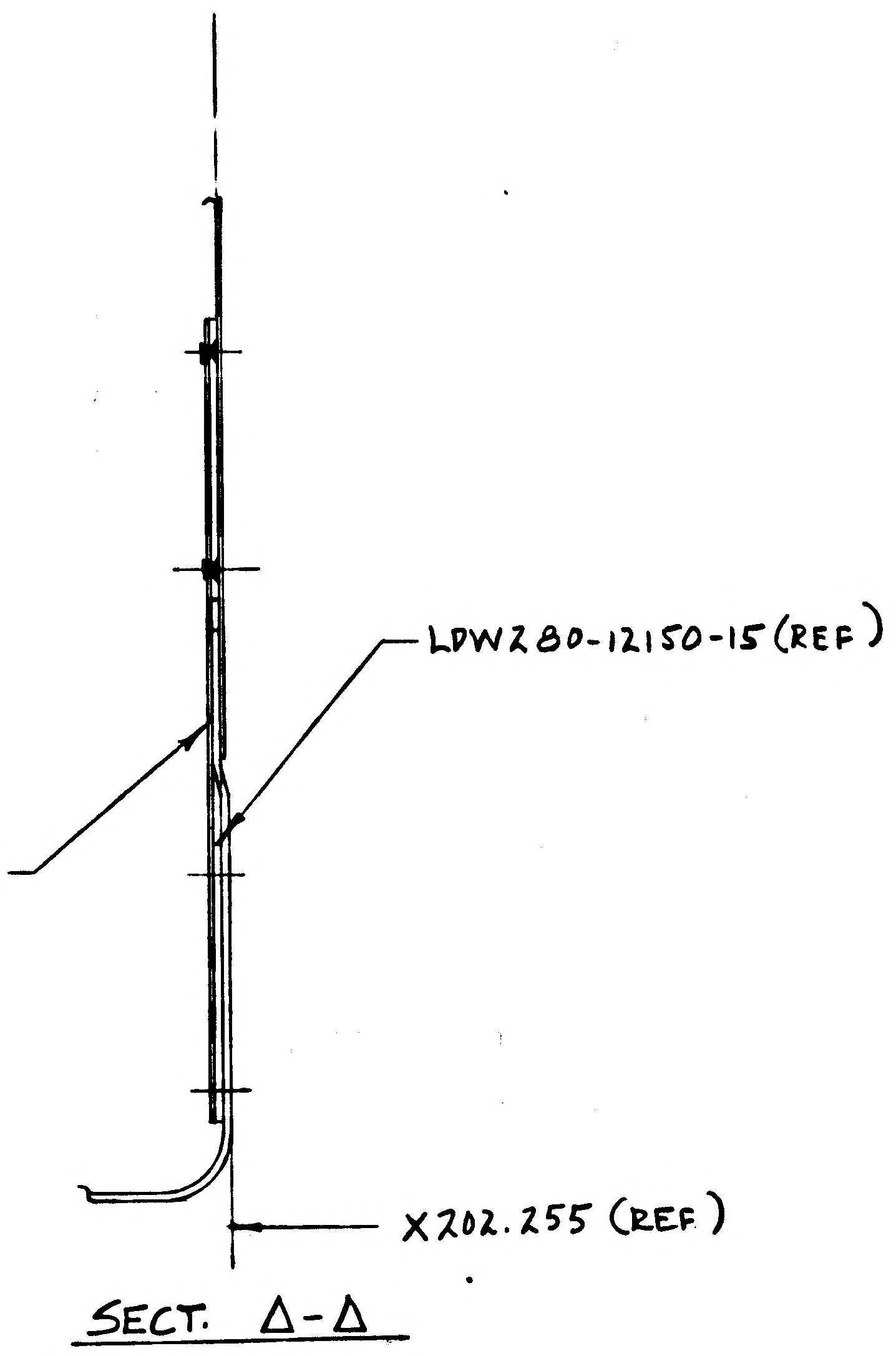
+Y45.000 (REF)
X200.000 (REF)
* 1/2
LDW280-12150-11 (REF)
LDW280-12150-15 (REF)
SECT. ⊹-⊹
(ADD)
(ADD)
LDW280-12150-15
(ON-45-1)
* 1/4
⊹
MS20426B3(2) (ADD)
CSK IN LDW280-12150-15
(ON-45-1)
Δ
LDW280-12150-15 (ADD)
(ON-45-1)
* 12.680 (REF.) (TO IML)
5/8 *
⊹
MS20426B3 (2) (ADD)
CSK IN LDW280-12150-15
(ON-45-1)
3/4 * (REF)
-Z20.717 (REF)
LDW280P11537-41 (ON-45) (REF)
LDW280P11537-41-1 (ON-45-1) (ADD)
-Z27.000 (REF)
LDW280-12150-11 (REF)
(ADD)
MS20470B3(2)
AN960D3L (2) (F.S.)
(ON-45-1)
(ADD)
MS20470B3 (2) (ON-45-1)
AN960D3L (2) (F.S.)
LDW280-12150-15 (ADD)
(ON 45-1)
5/8 (REF) *
-Z32.250 (REF)
LDW280-12150-15 (ADD)
(ON-45-1)
LDW280P11537-37 (ON-43, -45) (REF)
LDW280P11537-37-1 (ON-45-1) (ADD)
(REF) LDW280-12150-13
LDW280P11537-41-1 (REF.)
* 5/16 (REF.)
(ADD) LDW280-12150-13
(ON-45-1)
(SEE NOTE *)
5/16 *
Δ
5/8 * (REF)
(ADD)
.165-.171 (#19 DRILL)
2 PLACES
NAS697A08 (2)
NAS1097B3 (4) C'SK IN
LDW280-12150-15 &
LDW280P11537-37-1
AN960D8L (2)
GB511J-08-1 (2)
(ON-41 & -41-1)
FOR EXISTING CALLOUT (ZONE 11C)
"(ON-39)"
WAS
"(ON-39, -41 & -41-1)"
X200.000 (REF)
LDW280-12150-11 (ADD)
(ON-45-1)
SECT. ⊹-⊹
(ADD)
1 5/8 +1/4 -0 *
IML (ON LDW280P11537-37-1) *
VIEW *-*
(ADD)
1/4 * (REF)
LDW280-12150-11 (REF)
5/8 *
LDW280P11537-37-1 (REF)
SECT. □-□
(ADD)
X202.255 (REF)
X200.000 (REF)
+Y69.202 (REF)
+Y45.000 (REF)

LDW280-28884-41 INSTL (REF)
-41-1 INSTL (REF)
-45-1 ASSY (IDENTICAL TO -45 EXCEPT AS NOTED (ADD)

*, USE
-, □-□, ⊹-⊹, ⊹-⊹, Δ-Δ, USE
LOFT-E

01/02 NAS 9-1100


Z20.717 (REF)
LDW280-12150-15 (ADD)
(ON-45-1)
*
12.680 (REF.) (TO IML)
LDW280P11537-41 (ON-45) (REF)
LDW280P11537-41-1 (ON-45-1) (ADD)
MS20426B3 (2) (ADD)
CSK IN LDW280-12150-15
(ON-45-1)
Z27.000 (REF)
(ADD)
MS20470B3 (2) (ON-45-1)
AN960D3L (2) (F.S.)
LDW280-12150-15 (ADD)
(ON 45-1)
Z32.250 (REF)
LDW280P11537-37 (ON-43,-45) (REF)
LDW280P11537-37-1 (ON-45-1) (ADD)
(ADD)
.165-.171 (#19 DRILL)
2 PLACES
NAS697A08 (2)
NAS1097B3 (4) C'SK IN
LDW280-12150-15 &
LDW280P11537-37-1
AN960D8L (2)
GB511J-08-1 (2)
(ON-41 & -41-1)
FOR EXISTING CALLOUT (ZONE 11C)
"(ON-39)"
WAS
"(ON-39,-41 & -41-1)"
(REF)
-12150-11 (ADD)
-45-1)
37-37-1)*
X202.255 (REF)
+Y69.202 (REF)


LDW280-12150-15 (REF)
LDW280-12150-11 (REF)
X202.255 (REF)

SECT. Δ-Δ
(ADD)

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 × 75) = 19.00 SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL) = 4.75 SQ. FT.

IN F/D ADD NOTE *, VIEW *-*, SECT. □-□, SECT. +-+, SECT. ‡-‡ & SECT. Δ-Δ. (FOR -41 & -41-1)
NOTE *: BOND LDW280-12150-13 TO LDW280P11537-41-1
USING EPON 934 IN ACCORDANCE WITH LSP14-22500
CURE RANGE I - ROOM TEMPERATURE CURE PERMITTED.
DO NOT DISTURB PART FOR 24 HOURS MIN.

IN F/D FOR -41 & -41-1 ADDED CALLOUT "------- CSK IN LDW280P11537-37-1 & LDW280-12150-15 -------" (WAS) "----- CSK IN LDW280P11537-39 ---- (ON -39, -41 & -41-1)"

IN F/D & B/M FOR -41 & -41-1 REMOVED -45 & ADDED -45-1 ASSY.
-45-1 SAME AS -45 EXCEPT ADDED LDW280-12150-11, LDW280-12150-13, LDW280-12150-15 (4), MS20470B3 (4), AN960D3L (4), MS20426B3 (4), LDW280P11537-41-1 (WAS) -41 & LDW280P11537-37-1 (WAS) -37.

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28884 -41 INSTL (REF)
-41-1 INSTL (REF)
-45-1 ASSY (IDENTICAL TO -45 EXCEPT AS NOTED (ADD)

NOTE

*, USE NEXT AVAILABLE NOTE NO. FOR NOTE ADDED.
-, □-□, +-+, ‡-‡, Δ-Δ, USE NEXT AVAILABLE LETTERS FOR SECTIONS & VIEW ADDED. LOFTED DWG - DO NOT ADD DIMS. NOTED WITH * TO DWG.

LFM

(5)

DETAIL SPEC REQD ☐ CLASS II ENGRG CHG ☐ CLASS I ENGRG CHG ✓ LCD 3796 PKG. 10 AGE I ECP D120

CONTROL INFO NO. LDW280 7322

REASON FOR EO: ELIMINATE INTERFERENCE WITH D/S THERMAL SHIELDING

DESCRIPTION OF EO: IN F/D FOR -41 & -41-1, ADDED NOTE *, VIEW *-*, SECT. □-□, SECT. +-+, SECT. ‡-‡, SECT. Δ-Δ, CALLOUT "...... CSK IN LDW280P11537-37-1 & LDW280-12150-15 ----" (WAS) "----- CSK IN LDW280P11537-39 ---- (FOR -39, -41 & -41-1)". IN F/D FOR -41 & -41-1 REMOVED -45 & ADDED -45-1.

GRUMMAN EO RELEASE: C 3/29/69

MODEL	PROCURING ACT. NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LFM 363	LM-4(34) THRU	
		LM-6(36),	
LM		LM-7(37) THRU	
		LM-15(45)	

DRAWING REVISION REQD: ✓ REVISE DWG ☐ RECORD EO
DISPOSITION OF PARTS: ✓ REWORK ☐ SCRAP

BY	MIR				ETL		
DATE 3/20/69	3/20/69		3/19/69	3-19	KSC	3/22/69	3-29-69
VDI	THERMO	RELIAB GROUP	GROUP LEADER	STRESS GROUP	ENGRG	PROJ ENGR	GOVT

PRIORITY: C

DRAWING TITLE: COVER INSTL - ASCENT STAGE MID SECTION - THERMAL SHIELD R.H. TANK

ENGINEERING ORDER
DRAWING NO. LDW280-28884
EO NO. D2

3-25-69
ISSUED BY L. CHAZEY SECTION VDI GROUP NO. 335 PL 25
CODE IDENT NO. 26512

GRUMMAN AIRCRAFT ENGINEERING CORP
BETHPAGE, L. I., N. Y.

ENG 38.3 REV 3-65

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 1503
CONTROL INFO NO. LDW280B8272

FOR THE FOLLOWING DWGS (✱) AND DASH NOS. (✱✱).
REMOVE LM-15(45).

DWG. NO. (✱)	DASH NO. (✱✱)		TITLE	NEXT ASSEMBLY	CHANGE NO.
✓ LDW280-54150	-1-2		SEE DWG.	LDW280-54001	C8
✓ -54852	-1, -3 & -35			54150	B5
✓ -54861	-9-1				B5
✓ -54160	-7				B5
✓ -54161	-5				B1
✓ -54163	-1 & -5-1				C5
✓ -28398	-1 & -3				A4
✓ -28884	-41-1				D3
-28895	-35-1				D2
LDW280-53155	-1-1		SEE DWG.	LDW280-54150	B8

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☐ CL I ENGRG CHG ☑ LCD 3587 PKG. 19 PG 1 (5)

REASON FOR EO: CONFIGURATION CHANGE TO LM-15

DESCRIPTION OF EO: FOR PARTS (✱-✱✱), REMOVE LM-15(45)

GAEC EO RELEASE: 7-24-69
JK 7/23/9

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK SCRAP ✓

APPROVED BY								
DATE	7/17/69			7-16-69			7/29/69	Bauman 7/29/69
	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C
DRAWING TITLE: SEE DRAWING
DRAWING NO.: LEO 280
EO NO.: 1503

8-20-69
ISSUED BY F. SHANLEY 7033
SECTION VEH. DESIGN INT. GROUP NO. 335 PL 25

01 NAS 9-1100

REVISIONS FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	APPD
									RETRACED NO CHANGED LAST REV N.C.-J. BIANCHINO 1-19-67 ADDED SHEET 1.10, SHEET 1 OF 5 WAS 1 OF 4						
A	1	2.00 3.00						A1	REMOVED NOTE 10 ADDED NOTE 11. ON-1, -13 (2) REQD WAS (1) REQD, ADDED -17 (3) REQD, ADDED NOTE 12, 13. DELETED -14	LTA-8 (18) LM-1 (31) LM-2 (32)		✓	J. BIANCHINO 1-19-67 GB 2-A.		
	2	3.00						A2	REVISED NOTE 5 WAS "_ _ _ LPC 280-13, FOR LTA-8, _ _ _	LTA-8 (18) LM-1 (31) LM-2 (32)	NOT	REQD			
	3	2.00 3.00						A3	DELETED -9, -5 (2) REQD WAS (1) REQD, REMOVE -6	LTA-8 (18) LM-1 (31) LM-2 (32)	✓	-9			
	4	1.00						LE0280-430	ADDED LM-3 (33) THRU LM-15 (45) REQ'TS FOR -1	LM-3 (33) THRU LM-15 (45)	NOT	REQD			
	5	3.00						A5	ON-1 INSTL REVISED NOTE #8 BY ADDING -" ROOM TEMP. CURE PERMITTED"	LTA-8 (18) LM-1 (31) THRU LM-15 (45	NOT	REQD			
	6	3.00							DELETED VIEW "B-B" & SECT. "I-I", ADDED SECT "J-J, IN VIEW "D-D" & "F-F" RELOCATED VELCRO TAPE, IN MAIN VIEW ADDED VELCRO TAPE, REVISED VIEW "A-A", "F-F" & SECTION "C-C" TO AGREE, DELETED NOTES 4 & 7, ADDED NOTES *14 & *15, REMOVED HEM FROM -5, ADDED DETAIL PARTS -31, -33, -35, -37, -39, -41 & -43 TO ASSYS -3, -5, -7, -11, -13, -15 & -17 RESPECTIVELY, ADDED GR11B-1 & GW10H-3, REVISED NOTE 3 BLANKET DETAILS, LDW280-28885-31, -33 & -35 WAS BLANKET ASSY -3, -5 & -7 RESPECTIVELY, REVISED NOTE 11 LDW280-28885-37, -39 & -41 WAS -11, -13 & -15 RESPECTIVELY, AND ADDED .00015/LAYER. ON NOTE 12 LDW280-28885-43 WAS -17 & ADDED .00015/LAYER	LTA-8 (18) LM-1 (31) THRU LM-15 (45)	-5			2-9-67	2/10/67

CHG APPROVED	LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO				
	A	1/6	1/6									

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28885	A
SCALE NONE			SHEET 1.10

ENG 77.16 3-66

01

NAS 9-1100

LDW280-28885 B

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
PART NO.		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-51150	LM-1(31)	1
PART NO. LDW280-28885-47		GAEC SCH NO.	

MODEL OR END ITEM	NEXT ASSY	MODULE OR SER NO.	REQD PER MODULE OR END ITEM
LM	LDW280-53150	LM-3 (33)	1
LM	LDW280-51150	LM-2 (32)	1
LM	LDW280-28150	LTA-8(18)	1
PART NO. LDW280-28885-1		GAEC SCH NO. 30	

WORK PKG FUNCTION NO. 110 (5)

SH REV STATUS: FOR DESCRIPTION OF REV SEE SUBQ SH

SHEET	1.00	1.10	1.11	2.00	2.01		3.00		
REV	B	A	B	B	B		B		
SHEET									
REV									
SHEET									
REV									

LAST SECT LTR USED K

LAST DASH NO. USED -47

GRUMMAN REL INFO B

PRIM NO. 215 IX(001) MP-163 3/6/67

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.
TOLERANCE UNLESS SPECIFIED FRACTIONS - DECIMALS – ANGLES
±1/64 ±.010 ±1/2°
ORIG DWG AUTH
DETAIL SPEC REQUIREMENT
CLASS II ENGRG CHANGE
CLASS I ENGRG CHANGE

CONTRACT NO. NAS9-1100
LINE ITEM
DOCUMENTATION TYPE II

DRAWN BY	E.E.PABST 10/19	RELIABILITY	
LAYOUT BY		THERMO	IACONA 10/20
CHECKED BY			
GP LEADER	P. HENTON 10/20		
VEH DES INT	J.P. NR. BISCHOFF 10/20		
STRUCTURES	AJP	PROJ ENGR	K.M. CARBEE 10/21
STRUCTURES	HILDERMAN 10/21	REL GROUP	J. PAGLIAVIO 10/22
WEIGHTS			

GRUMMAN AIRCRAFT ENGRG CORP
BETHPAGE, L. I., NEW YORK

SHIELD INSTALLATION-
ASCENT STAGE-MID SECTION-
S-BAND STEERABLE ANTENNA

SIZE B | CODE IDENT NO. 26512 | LDW280-28885 | B (3)

SCALE NONE | SHEET 1.00 OF 6

ENG 77.1 12-65

SUPERSEDES LDW280-28885 NC 10-22-61

01

NAS 9-1100

REVISIONS

FOR CONTINUATION OF REVISIONS SEE SHEET ______

CHANGE LTR	ITEM NO.	SHEET NO.	ZONE	GRUMMAN INFO ONLY	DET SPEC	CLASS I	CLASS II	ENGRG ORDER	DESCRIPTION	EFFECTIVITY	DISPOSITION OF EXISTING PARTS REWORK	DISPOSITION OF EXISTING PARTS SCRAP	CHANGED BY AND DATE	ENGRG APPD	GOVT APPD
B	1	1.00, 1.11 2.00, 2.01 & 3.00	5A					EO B1	ADDED DETAIL K ADDED PICTURE OF -17 ASSY INSTL. ADDED -47 BLANKET INSTL & NOTE 16, PORTION OF TUBES EXTERNAL TO THERMAL SHIELDING ARE TO BE WRAPPED WITH GT835P-8 TAPE (TYP 3 PLACES) (ADDED SHEET 1.11)	LTA-8, & LM-1 THRU LM-15	✓		M. MARKARIAN 1-12-68		
	2	3.00			✓			EO B2	ADDED NOTES 17, 18, 19, 20 & 21. REMOVED NOTE #1			✓			
	3	3.00					✓	EO B3	IN FLD REVISED NOTE NO. 5, IN B/M ADDED LDW280-11790-11 AS REQD, N/A -1 INSTL.						
	4	3.00					✓	EO B4	THIS IS A REVISION OF EO B3, REVISED EFFECTIVITY IN NOTE 5, LTA-8, LM-2 THRU LM-15 WAS LTA-8, LM-1 THRU LM-15		✓				
	5	2.01 & 3.00	7C				✓	EO B5	REVISED FLD & B/M, AS FOLLOWS: ON -15 BLANKET ASSY REMOVED GT535L-HA TAPE HOOK & GT535L-LA TAPE LOOP. ADDED GT835E8 TAPE AS REQD ON INSTL						
	6	1.11 & 2.01					✓	EO B6	REF EO B3: ON -1 REMOVED " IN B/M ADD LDW280-11790-11 AS REQD, N/A -1 INSTL						
	7	2.01 & 3.00					✓	EO B7	ON FLD & B/M FOR -1, RESTRICTED LDW280P11600-11 & -15 TO LTA-8 AND LM-1. ADDED LDW280P11600-20 & -22 FOR LM-2 THRU LM-15 EFFECTIVITY (ADDED NOTE NO. 22)	LM-2 THRU LM-15					
	8	1.00		C		✓		EO B8 LCD1809 CCA632	REMOVED LM-4 THRU LM-15 EFF FROM -1	LM-4 THRU LM-15	NOT	REQD			
	9	2.01 & 3.00					✓	LEO280-819	IN FLD & B/M ADDED GS577A-4 STAPLES (ADDED NOTE 23)	NOT REQD			RMS		
	10								REF E.O. B1: FOR -47, N/A LDW280-28150 S/B N/A LDW280-51150. REMOVED LM-1(31) EFF. FROM -1 INSTL. TO NOTE NO. 16 ADDED "SPIRAL DIRECTION OPTIONAL".	LTA-8, & LM-2 THRU LM-15	✓		T. LEONG SEPT 5, 1968	9/12/68	
	11						✓		REF EO B4: EFF LTA-8 & LM-1 THRU LM-15 S/B EFF LTA-8 & LM-2 THRU LM-15.						
	12						✓		REF EO B6: EFF, LTA-8 & LM-1 THRU LM-15 S/B EFF LM-2 THRU LM-15.	LM-2 THRU LM-15		9-16-68			

CHG APPROVED LTR	GROUP LDR	VEH DES INT	STRUCTURES	STRUCTURES	WEIGHTS	RELIABILITY	THERMO
B	FNR 9/6	JAP 9/7/68		9/11/68			AB 9/11/68

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28885	B
SCALE NONE			SHEET 1.11

ENG 77.16 3-66

01

NAS 9-1100

	-47	-17	-15	-13	-11	-7	-5	-3	-1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
	1								1	LDW280P11600-18	E		FRAME	SEE DWG						6A
	1								1	-17										6A
	1								1	-16										7A
	1								1	-15					(SEE NOTE 22)					7A
	1								1	-14										6A
	1								1	-13										6A
	1								1	-12										7A
	1								1	LDW280P11600-11					(SEE NOTE 22)					7A
	1								1	LDW280P11599-19										2C
	1								1	-18										3C
	1								1	-17										3C
	1								1	-15										3C
	1								1	-13										4C
	1								1	-12										8D
	1								1	LDW280P11599-11			FRAME	SEE DWG						8C
	1	1								LDW280-28885-43			BLANKET	SEE NOTE 12						4B
	1		1							-41				SEE NOTE 11						7C
	1			1						-39				SEE NOTE 11						4A
	1				1					-37				SEE NOTE 11						3D
						1				-35				SEE NOTE 3						6D
							1			-33				SEE NOTE 3						6C
								1		LDW280-28885-31			BLANKET	SEE NOTE 3						4D
										LDW280-28885-47			BLANKET INSTALLATION	SEE NOTE 16				NONE	NONE	5A
	3								3	LDW280-28885-17			BLANKET ASSEMBLY					NONE	NONE	5A
	1								1	-15										5A
	2								2	-13										5A
	1								1	-11										5A
									1	-7										5A
									2	-5										5A
									1	-3			BLANKET ASSEMBLY							5A
										LDW280-28885-1	E		SHIELD INSTALLATION					NONE	NONE	5A

QTY PER ASSEMBLY

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

SIZE	CODE IDENT NO.		
B	26512	LDW280-28885	B
SCALE NONE		SHEET 2.00	

ENG 77.2 5-64

01

NAS 9-1100

-47	-17	-15	-13	-11	-7	-5	-3	-1	PART NO.	I&T	CODE IDENT	NOMENCLATURE OR DESCRIPTION	MATERIAL	GOVT SPEC	COML SPEC	STOCK SIZE	PROCESS SYM	FINISH NO.	ZONE
								1	LDW280P11600-22	E		FRAME	SEE DWG	(SEE NOTE 22)					8A
								1	LDW280P11600-20	E		FRAME	SEE DWG	(SEE NOTE 22)					8A
	A/R	A/R	A/R	A/R	A/R	A/R	A/R		GS577A-4	E		STAPLE	GRUMMAN STD	(SEE NOTE 23)					
								A/R	GT835E-8	E		TAPE - POLYMIDE	GRUMMAN STD						
	A/R	A/R	A/R	A/R	A/R	A/R	A/R		GT835P-8	E		TAPE - POLYMIDE	GRUMMAN STD	SEE NOTE 14					
	A/R	A/R	A/R	A/R	A/R	A/R	A/R		GT835M-8			TAPE - MYLAR							
	A/R		A/R	A/R	A/R	A/R	A/R		GT535L-LA-0130			TAPE - LOOP							
	A/R		A/R	A/R	A/R	A/R	A/R		GT535L-HA-0130			TAPE - HOOK							
	A/R	A/R	A/R	A/R	A/R	A/R	A/R		GS577A-1			STAPLE		SEE NOTE 14					
	A/R	A/R	A/R	A/R	A/R	A/R	A/R		GW10H-3			WASHER							
	A/R	A/R	A/R	A/R	A/R	A/R	A/R		GR11B-1			RIVET	GRUMMAN STD						
4								4	NAS680A08			NUT - PLATE	STD PART						
13								13	NAS680A06			NUT - PLATE							
									MS20426B3			RIVET							
4								4	AN525-832-10			SCREW							
13								13	AN515-6R6	E		SCREW	STD PART						

QTY PER ASSEMBLY

SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC	SYM OR NO.	PROCESS SYM OR FINISH NO.	GRUMMAN SPEC OR MILITARY SPEC

I & T: IDENTIFICATION AND TRACEABILITY IN ACCORDANCE WITH NONE

GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK

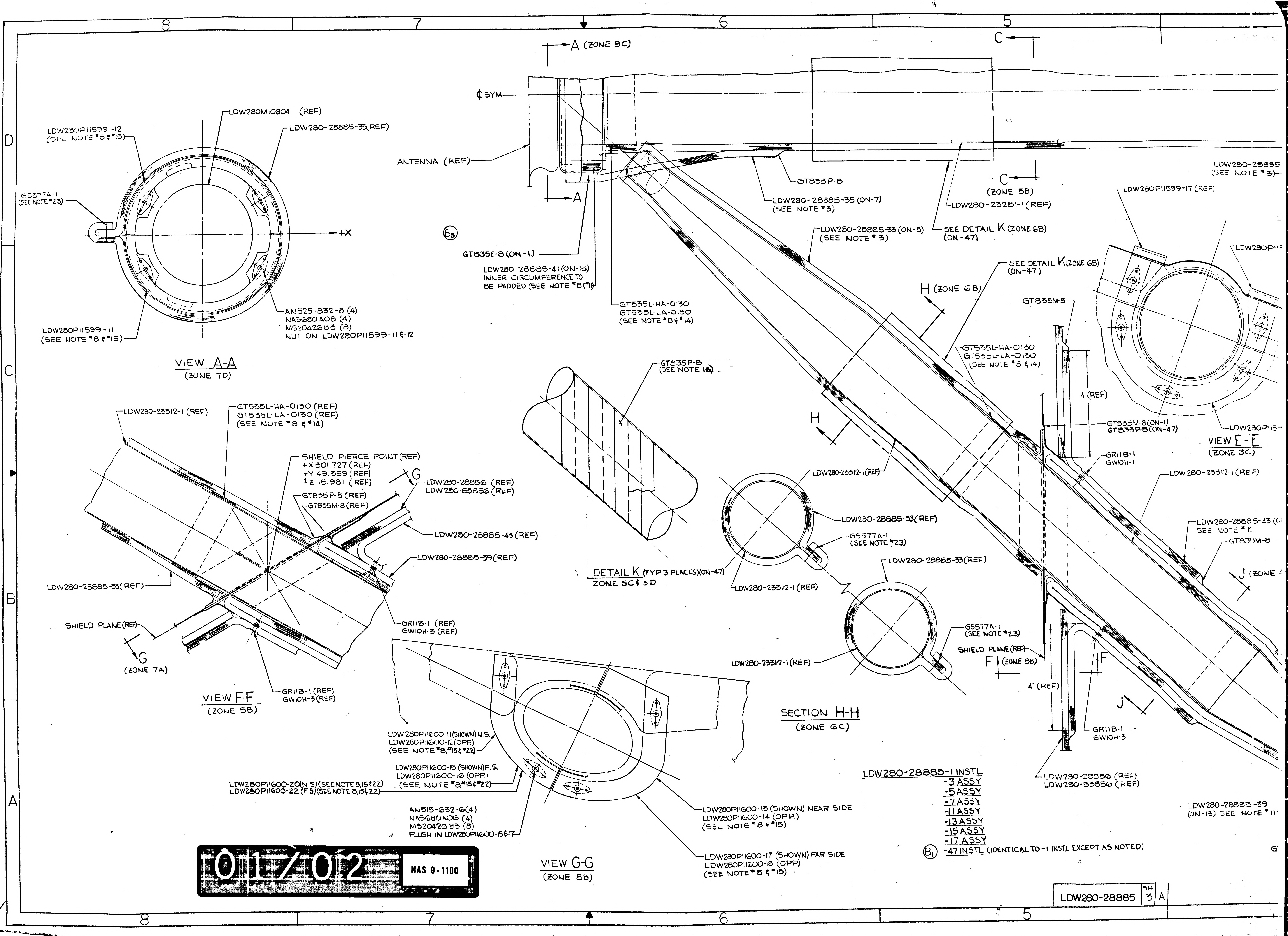
SIZE B | CODE IDENT NO. 26512 | LDW280-28885 | B

SCALE NONE | SHEET 2.01

ENG 77.2 5-64

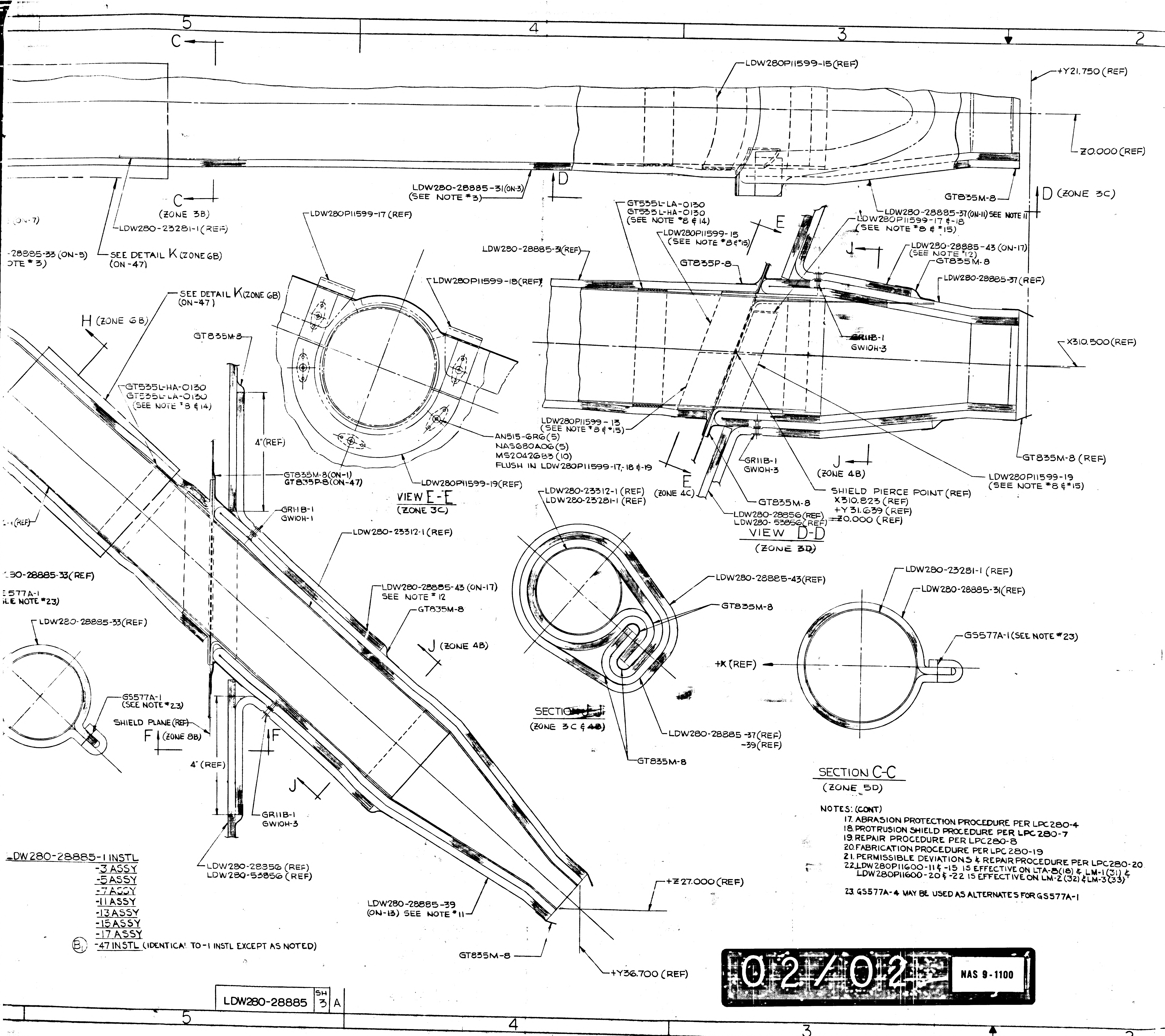
01

NAS 9-1100


8
7
6
5
D
C
B
A
A (ZONE 8C)
C
¢ SYM
ANTENNA (REF)
A
GT835P-8
LDW280-28885-35 (ON-7)
(SEE NOTE *3)
C
(ZONE 3B)
LDW280-23281-1 (REF)
SEE DETAIL K (ZONE 6B)
(ON-47)
LDW280-28885-33 (ON-5)
(SEE NOTE *3)
B3
GT835E-8 (ON-1)
LDW280-28885-41 (ON-15)
INNER CIRCUMFERENCE TO
BE PADDED (SEE NOTE *8 & *11)
GT535L-HA-0130
GT535L-LA-0130
(SEE NOTE *8 & *14)
SEE DETAIL K (ZONE 6B)
(ON-47)
H (ZONE 6B)
GT835M-8
GT535L-HA-0130
GT535L-LA-0130
(SEE NOTE *8 & 14)
4" (REF)
GT835M-8 (ON-1)
GT835P-8 (ON-47)
GR11B-1
GW10H-1
LDW280-28885
(SEE NOTE *3)
LDW280P11599-17 (REF)
LDW280P115
LDW280P115
VIEW E-E
(ZONE 3C)
LDW280-23312-1 (REF)
LDW280-28885-43
SEE NOTE *
GT835M-8
J (ZONE
LDW280M10804 (REF)
LDW280P11599-12
(SEE NOTE *8 & *15)
LDW280-28885-35 (REF)
GS577A-1
(SEE NOTE *23)
+X
AN525-832-8 (4)
NAS680A08 (4)
MS20426B3 (8)
NUT ON LDW280P11599-11 & -12
LDW280P11599-11
(SEE NOTE *8 & *15)
VIEW A-A
(ZONE 7D)
GT835P-8
(SEE NOTE 16)
DETAIL K (TYP 3 PLACES) (ON-47)
ZONE 5C & 5D
H
LDW280-23312-1 (REF)
LDW280-28885-33 (REF)
GS577A-1
(SEE NOTE *23)
LDW280-23312-1 (REF)
LDW280-28885-33 (REF)
GS577A-1
(SEE NOTE *23)
LDW280-23312-1 (REF)
SECTION H-H
(ZONE 6C)
SHIELD PLANE (REF)
F (ZONE 8B)
F
4" (REF)
J
GR11B-1
GW10H-3
LDW280-28856 (REF)
LDW280-53856 (REF)
LDW280-23312-1 (REF)
GT535L-HA-0130 (REF)
GT535L-LA-0130 (REF)
(SEE NOTE *8 & *14)
SHIELD PIERCE POINT (REF)
+X 301.727 (REF)
+Y 49.359 (REF)
±Z 15.981 (REF)
G
LDW280-28856 (REF)
LDW280-53856 (REF)
GT835P-8 (REF)
GT835M-8 (REF)
LDW280-28885-43 (REF)
LDW280-28885-39 (REF)
LDW280-28885-33 (REF)
SHIELD PLANE (REF)
GR11B-1 (REF)
GW10H-3 (REF)
G
(ZONE 7A)
VIEW F-F
(ZONE 5B)
GR11B-1 (REF)
GW10H-3 (REF)
LDW280P11600-11 (SHOWN) N.S.
LDW280P11600-12 (OPP)
(SEE NOTE *8, *15 & *22)
LDW280P11600-15 (SHOWN) F.S.
LDW280P11600-16 (OPP)
(SEE NOTE *8, *15 & *22)
LDW280P11600-20 (N S) (SEE NOTE 8,15 & 22)
LDW280P11600-22 (F S) (SEE NOTE 8,15 & 22)
AN515-632-6 (4)
NAS680A06 (4)
MS20426B3 (8)
FLUSH IN LDW280P11600-15 & -17
LDW280P11600-13 (SHOWN) NEAR SIDE
LDW280P11600-14 (OPP.)
(SEE NOTE *8 & *15)
LDW280P11600-17 (SHOWN) FAR SIDE
LDW280P11600-18 (OPP)
(SEE NOTE *8 & *15)
VIEW G-G
(ZONE 8B)
LDW280-28885-39
(ON-13) SEE NOTE *11
LDW280-28885-1 INSTL
-3 ASSY
-5 ASSY
-7 ASSY
-11 ASSY
-13 ASSY
-15 ASSY
-17 ASSY
B1
-47 INSTL (IDENTICAL TO -1 INSTL EXCEPT AS NOTED)
8
7
6
5

01/02 NAS 9-1100

LDW280-28885	SH 3	A


5
4
3
2
C
LDW280P11599-15(REF)
+Y21.750(REF)
Z0.000(REF)
LDW280-28885-31(ON-3)
(SEE NOTE *3)
D
C
(ZONE 3B)
LDW280-23281-1(REF)
-28885-33(ON-5)
OTE *3)
SEE DETAIL K (ZONE 6B)
(ON-47)
GT835M-8
D (ZONE 3C)
LDW280-28885-37(ON-11) SEE NOTE 11
LDW280P11599-17 & -18
(SEE NOTE *8 & *15)
GT535L-LA-0130
GT535L-HA-0130
(SEE NOTE *8 & 14)
LDW280P11599-15
(SEE NOTE *8 & *15)
E
LDW280-28885-31(REF)
LDW280P11599-17(REF)
LDW280P11599-18(REF)
GT835P-8
J
LDW280-28885-43 (ON-17)
(SEE NOTE *12)
GT835M-8
LDW280-28885-37(REF)
GR11B-1
GW10H-3
X310.500(REF)
SEE DETAIL K(ZONE 6B)
(ON-47)
H (ZONE 6B)
GT835M-8
GT535L-HA-0130
GT535L-LA-0130
(SEE NOTE *8 & 14)
AN515-6RG(5)
NAS680A06(5)
MS20426B3(10)
FLUSH IN LDW280P11599-17,-18 & -19
LDW280P11599-13
(SEE NOTE *8 & *15)
4"(REF)
GT835M-8(ON-1)
GT835P-8(ON-47)
LDW280P11599-19(REF)
VIEW E-E
(ZONE 3C)
GR11B-1
GW10H-3
GR11B-1
GW10H-1
E
(ZONE 4C)
J
(ZONE 4B)
SHIELD PIERCE POINT(REF)
X310.823 (REF)
+Y31.639 (REF)
Z0.000 (REF)
LDW280P11599-19
(SEE NOTE *8 & *15)
GT835M-8 (REF)
GT835M-8
LDW280-28856(REF)
LDW280-53856(REF)
VIEW D-D
(ZONE 3D)
LDW280-23312-1 (REF)
LDW280-23281-1 (REF)
LDW280-23312-1 (REF)
-1(REF)
280-28885-33(REF)
S577A-1
LE NOTE *23)
LDW280-28885-33(REF)
LDW280-28885-43 (ON-17)
SEE NOTE *12
GT835M-8
J (ZONE 4B)
LDW280-28885-43(REF)
GT835M-8
+X (REF)
LDW280-23281-1 (REF)
LDW280-28885-31(REF)
GS577A-1(SEE NOTE *23)
GS577A-1
(SEE NOTE *23)
SHIELD PLANE(REF)
F (ZONE 8B)
F
4" (REF)
SECTION J-J
(ZONE 3C & 4B)
LDW280-28885-37(REF)
-39(REF)
GT835M-8
J
GR11B-1
GW10H-3
LDW280-28856 (REF)
LDW280-53856 (REF)
+Z27.000 (REF)
LDW280-28885-39
(ON-13) SEE NOTE *11
GT835M-8
+Y36.700 (REF)
02/02
NAS 9-1100

LDW280-28885-1 INSTL
-3 ASSY
-5 ASSY
-7 ASSY
-11 ASSY
-13 ASSY
-15 ASSY
-17 ASSY
Ⓑ -47 INSTL (IDENTICAL TO -1 INSTL EXCEPT AS NOTED)

SECTION C-C
(ZONE 5D)

NOTES: (CONT)

17. ABRASION PROTECTION PROCEDURE PER LPC280-4
18. PROTRUSION SHIELD PROCEDURE PER LPC280-7
19. REPAIR PROCEDURE PER LPC280-8
20. FABRICATION PROCEDURE PER LPC280-19
21. PERMISSIBLE DEVIATIONS & REPAIR PROCEDURE PER LPC280-20
22. LDW280P11600-11 & -15 IS EFFECTIVE ON LTA-8(18) & LM-1(31) & LDW280P11600-20 & -22 IS EFFECTIVE ON LM-2(32) & LM-3(33)

23. GS577A-4 MAY BE USED AS ALTERNATES FOR GS577A-1

MANUFACTURING OPERATIONS UNLESS OTHERWISE SPECIFIED NOTES CHECKED √ APPLY TO THIS DWG.	
PART NUMBER AND ALL OTHER MARKINGS IN REGION MARKED ▭ USE BOTH SIDES IF NECESSARY	
FILLET AND INSIDE CORNER RADII TOLERANCES .016R TO .062R ± .010 .063R TO .250R ± .015 OVER .250R ± .030	
DEPTH SHOWN FOR TAPPED HOLES IS FULL THDS. 2-3 IMP THDS. BEYOND PERMISSIBLE.	
EXTERNAL THREAD LENGTH SHOWN INCLUDES 2 IMPERFECT THREADS MAX.	
DO NOT CADMIUM PLATE & PAINT HOLES OR SURFACES MARKED WITH DOUBLE ASTERISK.	
MISMATCH STEP OF ± .005 PERMISSIBLE DUE TO CHANGE OF CUTTERS AT INSIDE INTERSECTING SURFACES.	
DIAMETERS MARKED MUST BE CONCENTRIC WITHIN FULL INDICATOR READING	
HOLES MUST BE KEPT FREE OF CHROME PLATING SOLUTION.	
ALL DIMENSIONS SHOWN TO BE MET AFTER CADMIUM PLATING. THICKNESS OF PLATE .0003 MIN TO .0005 MAX. MIN. THICKNESS TO BE .0002 ON THREADED AREAS. NO ALLOWANCE FOR PLATING IN HOLES	
125 SURFACE ROUGHNESS INCLUDING REAMED HOLES PER MIL-STD-10	
200 FOR ALL DRILLED HOLES	
REMOVE ALL BURRS. BREAK ALL EDGES .015-.031	
INSPECTION INFORMATION MINIMUM PERMISSIBLE AVERAGE EDGE DISTANCE MARKED IS	
SYMBOL √ DENOTES SURFACE TO BE MACHINED	
UNLESS OTHERWISE SPECIFIED TOLERANCE ON FLANGES IS ± 1/32	
LENGTHS OF AN, NAS & MS AL ALY RIVETS SHORTER THAN 1 INCH ARE NOT SPECIFIED.	
TOLERANCE ON LOFTED DELINEATIONS IS	

DWG SIZE 34 X 52

PRINTING INFO ONLY
FULL SIZE SHEET AREA (36 X)= SQ. FT.
1/2 SIZE SHEET AREA (1/4 OF FULL)= SQ. FT.

PRINT TRIM LINE

NOTES:

1. ~~THE ASSEMBLY OF INSULATING BLANKETS SHALL BE MADE UNDER CONDITIONS THAT CONFORM TO LSP14-0011, LEVEL "C".~~
2. THE FINAL WRAP, TEMPLATES, & STOCK SIZES OF BLANKET ASSYS SHALL BE DETERMINED ON MANNEQUIN.
3. BLANKET DETAILS, LDW280-28885-31,-33 & -35 SHALL CONSIST OF THE FOLLOWING LAY UP, AND IN THE ORDER INDICATED:

OUTER LAYER: 1 LAYER OF COATED NICKEL (SEE NOTE *5)
2 LAYERS OF INCONEL MESH & NICKEL (SEE NOTE *6
9 LAYERS OF KAPTON (H-FILM) .00015 / LAYER
INNER LAYER: 20 LAYERS OF NRC-2 (.00015/LAYER)

4. ~~BLANKET ASSYS LDW280-28885-13, 14 & 15 SHALL CONSIST OF 25 LAYERS OF NRC-2 & SHALL BE FABRICATED PER LPC280-1~~
5. THE OUTER LAYER OF BLANKET ASSYS SHALL BE .0005 BRIGHT ROLL NICKEL FOIL, COMMERCIALLY PURE IN ANNEALED CONDITION, COATED WITH *1019 EPOXY BLACK, APPLICATION IN ACCORDANCE WITH LPC280-13 AND SURFACE PREPARATION IN ACCORDANCE WITH LPC280-5 FOR LTA-8. USE LDW280-11790-11 FOR LM-2 (32) THRU LM-15 (45).
6. THE LAYERS, OF INCONEL MESH & NICKEL, SHALL CONSIST OF .0005 BRIGHT ROLL NICKEL FOIL, COMMERCIALLY PURE IN ANL. CONDITION WITH KNIT PATTERN SQUARE TYPE WIRE CLOTH SLEEVING, 5 TO 7 SQUARES PER LINEAL INCH, WIRE INCONEL 600 (.0035/.0040) DIA. SEAM WELD EDGE
7. ~~BLANKET ASSYS SHALL BE INSTALLED WITH VELCRO ZIPPERS (GT535L-HA, HOOK & GT535L-LA, PILE) STAPLES (GS577A-1), TAPE "A" (GT835M-3, MYLAR) OR TAPE "B" (GT535P-3, POLYAMIDE FILM). FINAL ATTACHING ARRANGEMENTS TO BE DETERMINED ON MANNEQUIN~~
8. BONDING W/EPON 934 SHALL BE IN ACCORD. W/LSP14-22500. ROOM TEMPERATURE PERMITTED
9. INSPECTION OF END ITEM ONLY TO INSURE FULL STRUCTURE COVERAGE
10. ~~BLANKET ASSY LDW280-28885-11 SHALL CONSIST OF 4 LAYERS OF KAPTON H-FILM & 25 LAYERS OF NRC-2 FABRICATED PER LPC280-1, H-FILM EXPOSED~~
11. LDW280-28885-37,-39 & -41 TO CONSIST OF 13 LAYERS OF ALUMINIZED MYLAR, FABRICATE PER LPC280-1 (.00015/LAYER)
12. LDW280-28885-43 TO CONSIST OF 25 LAYERS OF ALUMINIZED MYLAR, FABRICATED PER LPC 280-1 (.00015/LAYER)
13. FINAL SIZE (WITH FOLD & SEAM LOCATION) OF BLANKET ASSYS SHALL BE DETERMINED FROM APPROVED MASTER TEMPLATES (AND/OR FULL SIZE MOCKUPS)
14. BLANKET ASSY SHALL BE INSTALLED WITH VELCRO TAPE (GT535L-LA, LOOP TO BE STAPLED TO BLANKET ASSY, GT535L-HA, HOOK TO BE BONDED TO SUPPORT TUBE WITH EPON 934), STAPLES (GS577A-1), TAPE (GT835M-8 & GT835P-8) FINAL ATTACHING ARRANGEMENT TO BE DETERMINED ON MANNEQUIN.
15. LDW280P11599-11,-12,-13,-15,-17,-18 & -19, & LDW280P11600-11,-12,-13,-14,-15,-16,-17,-18,-20 & -22 TO BE BONDED TO SUPPORT TUBE WITH EPON 934 (SEE NOTE *8
16. ON -47 INSTL, PORTION OF TUBE EXTERNAL TO THE THERMAL SHIELDING IS TO BE WRAPPED WITH GT835P-8 TAPE (TYP 3 PLACES) (SPIRAL DIRECTION OPTIONAL)
(NOTES CONT)

LDW280-28885 B

	GRUMMAN AIRCRAFT ENGRG CORP., BETHPAGE, L. I., NEW YORK			
LM	SIZE J	CODE IDENT NO. 26512	LDW280-28885	B
MODEL OR END ITEM	SCALE FULL		SHEET 3	

③

LDW280-28885	SH 3	A

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28885
EO NO. A1
CONTROL INFO NO. LDW280A-3419

A) REMOVE NOTE #10 ADD NOTE * TO READ: LDW 280-28885 -11 -13 -15 TO CONSIST OF 13 LAYERS OF ALUMINIZED MYLAR, FABRICATED PER LPC 280-1.
B) IN B/M, ON -1, -13 (2) REQD WAS (1) REQD.
C) IN B/M, ON -1, ADD -17, (3) REQD.
D) ON F/D & B/M DELETE -14.
E) ADD ** TO READ: -17 TO CONSIST OF 25 LAYERS OF MYLAR, FABRICATED PER LPC 280-1.
F) ADD NOTE *** TO READ FINAL SIZE (WITH FOLD & SEAM LOCATION) OF BLANKET ASSEMBLIES SHALL BE DETERMINED FROM APPROVED MASTER TEMPLATES (AND/OR FULL SIZE MOCKUPS).

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐	3

REASON FOR EO: NEW INSULATING INFO. REQD.

DESCRIPTION OF EO: REMOVED NOTE 10 ADDED NOTE *. ON -1, -13 (2) REQD WAS (1) REQD, ADDED -17 (3) REQD, ADDED NOTE **, ***. DELETED -14.

GAEC EO RELEASE: FR 12/3/6

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
LM		LM-1 (31) LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	✓

	VDI	THERMO	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT
APPROVED BY	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]
DATE	12/2/66	12/2/66		12/2	12/2		12-2-66	12-2-66

#5

PRIORITY: C
DRAWING TITLE: SHIELD INSTL A/S. M/S "S" BAND STEERABLE ANT.
DRAWING NO. LDW280-28885
EO NO. A1

ISSUED BY V. PADDEN X7033 SECTION STRUCT. SYS. GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LDW280-28885 EO NO. A2
CONTROL INFO NO. LM-3-4524

REVISE NOTE 5

"--- LPC 280-13, EXCEPT PREPARE BY OXIDIZING PER LPC 280-5A FOR LTA-8, ----"

WAS

"--- LPC 280-13, FOR LTA-8, ----"

3

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG	

REASON FOR EO: PROVIDE PREPARATION NEEDED TO ACCEPT PAINT SYSTEM.

DESCRIPTION OF EO: REVISED NOTE 5 WAS "--- LPC 280-13, FOR LTA-8, ---"

GAEC EO RELEASE: LE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (31)	
		LM-2 (32)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: REWORK ✓ SCRAP

APPROVED BY		SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
DATE					12-13-66	12-14-66	12-16-66	4/66
1					BM		RMC	

PRIORITY: C
DRAWING TITLE: SHIELD A.S.-M.S.-S BAND-ANTENNA
DRAWING NO. LDW280-28885
EO NO. A2

ISSUED BY LIAISON/ VIC BOLLO X2151 SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28885
EO NO. A3
CONTROL INFO NO. LDW280A-4326

IN B/M, ON-1, DELETE -9. -5(2) REQD WAS (1) REQD, REMOVE -6.

*E.O INFO ONLY

-6 MAY BE REIDENTIFIED AS -5.

3

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: PARTS NOT USED, DWG. CORRECTION

DESCRIPTION OF EO: DELETED -9, -5 (2) REQD WAS (1) REQD, REMOVE -6.

GAEC EO RELEASE: 12/17

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8(18)	
LM		LM-1(31) LM-2(32)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: REWORK ✓ SCRAP -9

APPROVED BY									
DATE	12/15/66	12/16		12/14	11		12/16	12/17/66
#1	VDI	THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY: C

DRAWING TITLE: SHLD INSTL A/S ~ M/S S-BAND STEERABLE ANTENNA

DRAWING NO. LDW280-28885

EO NO. A3

ISSUED BY V. PADDEN X 7033 SECTION STRUCT. SYS. GROUP NO. 335 PL 35

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NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LEO 280
EO NO. 430
CONTROL INFO NO. LDW280A-404

IN MODEL BLOCK: ADD VEHICLE REQUIREMENTS TO THE FOLLOWING DASH NUMBERS AND NEXT ASSEMBLIES AS SHOWN-

DWG NO	DASH # *	CHANGE *	EFF-ADDED	N/A	REQ'D/MOD
LDW280P11599 ✓	-11,-12,-13,-15,-17,18,-19	A1	LM-3(33) THRU LM-15(45)	LDW280-28885	1 EA
LDW280P11600 ✓	-11 TO -18	A1		LDW280-28885	1 EA
LDW280P11561 ✓	-11, -13, -15	A1		LDW280-28895	1 EA
LDW280P11560	-11,-13,-15,-16,-17,-19	A2		LDW280-28895	1 EA
LDW280P11574	-11,-13,-15,-17,-19,-21	A2		LDW280-28895	1 EA
LDW280-11559	-11, -13	A1		LDW280-28895	2 EA
LDW280-11573	-41,-43,-45,-47,-49,-51,-53 -55,-57	A4	LM-3(33) THRU LM-15(45)	LDW280-28895	1 EA
LDW280-28885	-1	A4	LM-3(33) LM-4(34) THRU LM-15(45)	LDW280-53150 LDW280-54150	1 1
LDW280-28895	-1	A9	LM-3(33) LM-4(34) THRU LM-15(45)	LDW280-53150 LDW280-54150	1 1
LDW280P14391	-1, -3	C3	LM-3(33) LM-4(34) THRU LM-15(45)	LDW280-53896 LDW280-54896	4 EA

27

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☑ CL I ENGRG CHG ☐

REASON FOR EO: UPDATE DRAWING REQ'TS

DESCRIPTION OF EO: ADDED LM-3(33) THRU LM-15(45) REQ'TS FOR *

GAEC C EO RELEASE: 1/3/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM-3 (33)	
		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D (REWORK / SCRAP)

APPROVED BY									
DATE	12/9			12/9	12/22		12/27		
#6	VDI	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG		

PRIORITY: C
DRAWING TITLE: NOTED
DRAWING NO.: LED 280
EO NO.: 430

ISSUED BY M. SHAPIRO X1153 SECTION VD1 GROUP NO. 335 PL35

01

NAS 9-1100

B

ENG 32.1 REV 3-68

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER EMF A

DWG. NO. LDW280-28885	EO NO. A5
CONTROL INFO NO. LDW280-A-4732	

DESCRIPTION OF E.O.

ON -1 INSTL.

REVISED NOTE #8 BY ADDING-"ROOM TEMP. CURE PERMITTED."

MFG REQUEST
THERMAL SHLD

DETAIL SPEC REQ		CL II ENGRG CHG		CL I ENGRG CHG		3

REASON FOR EO: TO SIMPLIFY CURING OPERATION MANUFACTURING ENG'G. REQUEST

DESCRIPTION OF EO: NOTED

GAEC C EO RELEASE: FR 1/7

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	EFFECTIVITY: GAEC UNIT NO.	EFFECTIVITY: SUB CONTR UNIT NO.
LM		LTA-8(18)	
LM		LM-1(31) THRU	LM-15(45)

DRAWING CHANGE REQD: REVISE DWG	DRAWING CHANGE REQD: RECORD EO	DISPOSITION OF PARTS: REWORK	DISPOSITION OF PARTS: SCRAP
✓		NOT REQ'D	

APPROVED BY		V.D.						
DATE	1/6/67	1/6			1/6.	1/6		1/6/67
#3.		VDI	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL., A/S~M/S S-BAND STEERABLE ANTENNA	LDW280-28885	A5

ISSUED BY G.T. HALL JR X1441 SECTION VDI GROUP NO. 335 PL 35

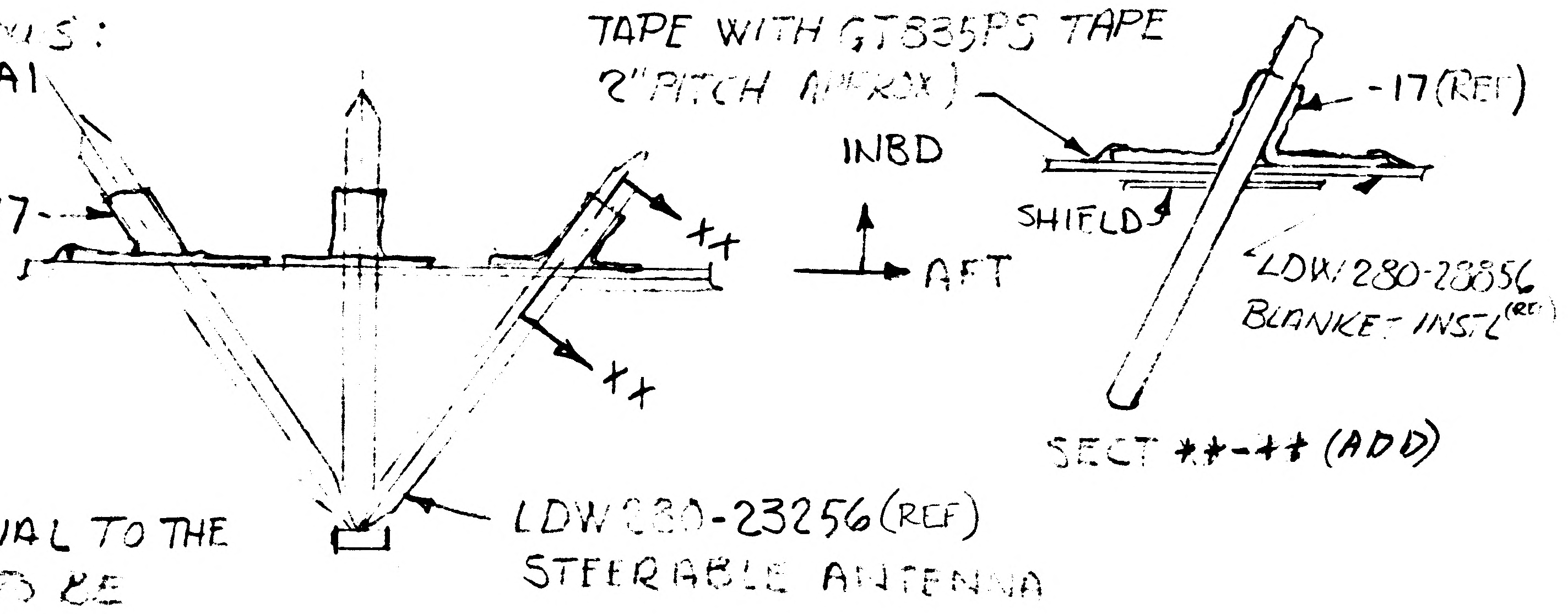
01 NAS 9-1100

ENG 32.1 REV 3-65 A

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW 280-28885		EO NO B1	
CONTROL INFO NO. LM 5-1180			

REVISE B/M & F/D AS FOLLOWS:
-17 ASSY WAS CREATED BY EO A1
(ADD PICT. OF)



LDW 280-28885-17
BLANKET ASSY
(3 PLACES
TAPE WITH GT835PS TAPE
2" PITCH APPROX)
-17 (REF)
INBD
AFT
SHIELD
LDW 280-28856
BLANKET INSTL (REF)
XX
XX
SECT **-** (ADD)
LDW 280-23256 (REF)
STEERABLE ANTENNA

ADD NOTE *
ON -47 INSTL.,
PORTION OF TUBE EXTERNAL TO THE THERMAL SHIELDING IS TO BE WRAPPED WITH GT835P8 TAPE.
(TYP 3 PLACES)

PLAN VIEW
RH SIDE

RELEASED BY LIAISON

IN B/M ADD -47 BLANKET INSTL SAME AS -1 EXCEPT -3, -5, -7 & ATTACHING VELCRO WILL BE OMITTED
-47 INSTL EFF LM 1 (31) N/A LDW 280-28150
* DENOTES NEXT AVAILABLE NOTE NO.
** DENOTES NEXT AVAILABLE SECT. LETTER

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☐

REASON FOR EO: TO UPDATE F/D & B/M

DESCRIPTION OF EO: ADDED SECT. **-** ADDED PICTURE OF -17 ASSY INSTLD. ADDED -47 BLANKET INSTL. & NOTE * PORTION OF TUBES EXTERNAL TO THERMAL SHIELDING ARE TO BE WRAPPED WITH GT835P8 TAPE (TYP 3 PLACES)

GAEC EO RELEASE: ✓ 5 GE

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	
LM		LM 1 (31) THRU	
		LM 15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS		APPROVED BY	WT ALW				CL	JH	RM	
✓		✓		DATE	2/2/67				2-2-67	2-2-67	2-9-67	2-6-67
REVISE DWG	RECORD EO	REWORK	SCRAP	1	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	NO.
C	BLANKET INSTL STEERABLE ANTENNA	LDW 280-28885	B1

ISSUED BY P. KEISER 6510 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

ENG 22.1 REV 3-66 3

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28885 | EO NO. B2
CONTROL INFO NO. LDW280A-5756

(ADD) NOTE:
△1 ABRASION PROTECTION PROCEDURE PER LPC280-4.
△2 PROTRUSION SHIELD PROCEDURE PER LPC280-7.
△3 REPAIR PROCEDURE PER LPC280-8.
△4 FABRICATION PROCEDURE PER LPC280-19.
△5 PERMISSIBLE DEVIATIONS & REPAIR PROCEDURE PER LPC280-20.

REMOVE NOTE #1.

△1 TO △5 USE NEXT AVAILABLE NO.

DETAIL SPEC REQ ✓ | CL II ENGRG CHG ☐ | CL I ENGRG CHG ☐ | 3 C

REASON FOR EO: LPC'S OMITTED ON DWG

DESCRIPTION OF EO: ADDED NOTE △1 TO △5
REMOVED NOTE #1

GAEC EO RELEASE: JK 3/10/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA-8 (18)	
		LM-1 (31) THRU	LM-15 (45)

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

		SUPPORT THERMO	RELIAB GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~
APPROVED BY	JAP			JHR			Lam	JCF
DATE	3/2/67			3/2/67	3/6		3/7/67	3/10/67
1	JVL							

PRIORITY: C
DRAWING TITLE: SHLD INSTL A/S-M/S-"S" BAND ANTENNA
DRAWING NO.: LDW280-28885
EO NO.: B2

ISSUED BY JOHN K LEE SECTION VDI GROUP NO. 335 PL 35

01 NAS 9-1100

B

ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO.	LDW280-28885	EO NO.	B3
CONTROL INFO NO.	LM5-13276		

IN F/D

REVISE NOTE #5. TO READ :

THE OUTER LAYER OF BLANKET ASSYS. SHALL BE .0005 BRIGHT ROLL NICKEL FOIL COMMERCIALLY PURE IN ANNEALED CONDITION COATED WITH #10'19 EPOXY BLACK, APPLICATION IN ACCORDANCE WITH LPC 280-13 AND SURFACE PREPARATION IN ACCORDANCE WITH LPC 280-5 FOR LTA-8. USE LDW280-11790-11 FOR LM-1(31) THRU LM-15(45)

WAS

THE OUTER LAYER OF BLANKET ASSYS, SHALL BE .0005 BRIGHT ROLL NICKEL FOIL, COMMERCIALLY PURE IN ANNEALED CONDITION COATED WITH # 1019 APOXY BLACK IN ACCORDANCE WITH LPC280-13, EXCEPT PREPARE BY OXIDIZING PER LPC280-5A FOR LTA-8 & COATED WITH PYROMARK PAINT (WHITE) IN ACCORDANCE WITH LPC280-5A FOR LM-1(31) & LM-2(32)

IN B/M ADD LDW280-11790-11 AS REQ'D N/A -1 INSTL.

RELEASED BY LIAISON

5

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TO CORRECT BLANKET CALLOUT	IN F/D REVISED NOTE No. 5 IN B/M ADDED LDW280-11790-11 AS REQ'D N/A -1 INSTL.	JK

MODEL	EFFECTIVITY		
	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM	LTA-8(18)	LM-1 (31)	
LM		THRU	
LM		LM-15 (45)	

DRAWING CHANGE REQD		DISPOSITION OF PARTS										
✓			✓	APPROVED BY	WT				F	EVB	DAM	
				DATE	5/2/67				5-2-67	5/2/67	5-5-67	5/8/67
REVISE DWG	RECORD EO	REWORK	SCRAP	#5	VDI	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL.-A/S-M/S-S-BAND STEERABLE ANTENNA	LDW280-28885	B3

ISSUED BY W. TRAUT x6510 SECTION V.D.I. GROUP NO. 335 PL 25

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NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28885	EO NO. B4
CONTROL INFO NO. LM5-13342	

THIS IS A REVISION OF E.O. B3

REVISED EFFECTIVITY IN NOTE 5, LTA8, LM2 THRU LM 15
(WAS LTA8, LM1, THRU LM15)

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	X	CL I ENGRG CHG		3

REASON FOR EO: PROPER OUTER LAYER FOR LM-1 CALLED OUT ON DWG.

DESCRIPTION OF EO: NOTED ABOVE

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8 (18)	
		LM1 (31)	
		THRU LM15 (45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	W.T.	V.J.D.			JFJ	EWB	DAM	
DATE	5/10/67	5/9/67			5-11-67	5/10/67	5-12-67	5-11-67
1	VDI	THERMO ~~SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~CONT~~

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTL A/S-M/S, S-BAND STEERABLE ANTENNA	LDW280-28885	B4

ISSUED BY P KEISER x 4709 SECTION VDI GROUP NO. 335 PL 5

01

NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28885		EO NO. B5
CONTROL INFO NO. LM5-13348		

REVISED F/D & B/M AS FOLLOWS:

ON - 15 BLANKET ASSY REMOVED GT535L-HA TAPE-HOOK & GT535L-LA TAPE-LOOP
ADDED GT835E8 TAPE AS REQD ON INSTL.

RELEASED BY LIAISON

DETAIL SPEC REQ		CL II ENGRG CHG	X	CL I ENGRG CHG		5

REASON FOR EO	DESCRIPTION OF EO	GAEC EO RELEASE
TAPE...IMPROVEMENT.	AS NOTED ABOVE	JK —

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA8(18)	
LM		LM1(31) THRU	
LM		LM15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	WT	VJD			JPJ	EWB	DAM (EW)	
DATE	5/10/67	5/10/67			5-11-67	5/10/67	5-12-67	5-11-67
1	YD1	TAPE... SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	GOVT

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
C	SHIELD INSTALLATION ASCENT STAGE MID SEC, S-BAND STEERABLE	LDW280-28885	B5

ISSUED BY P KEISER X 4709 SECTION VD1 GROUP NO. 335 PL 5

01

NAS 9-1100

B

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280-28835
EO NO. B6
CONTROL INFO NO. LM5-13398

THIS IS A REVISION OF E.O. B3

REMOVED THE FOLLOWING FROM THE FIELD OF THE E.O.
"IN B/M ADD LDW280-11790-11 AS REQD. N/A -1 INSTL"

RELEASED BY LIAISON

5

DETAIL SPEC REQ ☐ CL II ENGRG CHG ☒ CL I ENGRG CHG ☐

REASON FOR EO: LDW280-11790-11 IS ADDED TO BLANKET ASSYS. NOT ON INSTL.

DESCRIPTION OF EO: REF E.O. B3
ON -1 REMOVED "IN B/M ADD LDW280-11790-11 AS REQ'D N/A -1 INSTL"

GAEC C EO RELEASE: JK —

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LTA 8(18)	
	LM-1(31)	LM 2 (32)	
		THRU LM15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP
✓		✓	

APPROVED BY	WT	VJ		~	JF	EVB	DAM
DATE	5/17/67	5/17		~	5-23	5/23/67	5-25-67
5	VDI	~~THERMO SUPPORT~~	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG

PRIORITY: C
DRAWING TITLE: SHIELD INSTL A/S-M/S S BAND STEERABLE ANTENNA.
DRAWING NO. LDW280-28885
EO NO. B6

ISSUED BY P KEISER X6609 5/16/67 SECTION VDI GROUP NO. 335 PL 5

01 NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

*

DWG. NO. LDW280 28885
EO NO. B7
CONTROL INFO NO. LM-5-16088

ON F/D & B/M -1 INSTL

EFFECTIVITY LM-2 THRU-15 { LDW280P11600-11 S/B -20
LDW280P11600-15 S/B -22

RESTRICT LDW280P11600-11 & -15 TO LTA-8(18) & LM-1(31)

RELEASED BY LIAISON

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☑	CL I ENGRG CHG	☐

REASON FOR EO: TO AGREE WITH DETAIL CHANGE EO LM-5-16085

DESCRIPTION OF EO: ON F/D & B/M-1 RESTRICTED LDW280P11600-11 & -15 TO LTA-8 AND LM-1. ADDED LDW280P11600-20 & -22 FOR LM-2 THRU LM-15 EFFECTIVITY.

GAEC EO RELEASE: JK

MODEL	EFFECTIVITY: PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
		LM-2(32)	
LM		THRU	
		LM-15(45)	

DRAWING CHANGE REQD: REVISE DWG	RECORD EO	DISPOSITION OF PARTS: REWORK	SCRAP	APPROVED BY	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	
✓		✓					—				
				DATE 8/24/67 9/11/67			—	8/29/67	8-26-67	9/14/67	9/8/67

PRIORITY: C
DRAWING TITLE: SHIELD INSTL,-A/S-M/S-"S" BAND STEERABLE ANTENNA
DRAWING NO.: LDW280-28885
EO NO.: B7

ISSUED BY LIAISON J. GRASSIANO /TFW SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100

ENG 32.1 REV 3-65

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG. NO. LDW280-28885
EO NO. B8
CONTROL INFO NO. LDW280A9291

REVISED M/B AS FOLLOWS:

REMOVE -1 FOR N/A LDW280-54150 EFF. LM-4(34) THRU LM-15(45)

DETAIL SPEC REQ	☐	CL II ENGRG CHG	☐	CL I ENGRG CHG	☑	LCR. 1809, CCA 632 3

REASON FOR EO: 45° ROTATION OF "S" SBAND STEERABLE ANTENNA.

DESCRIPTION OF EO: REMOVED LM-4 THRU LM-15 EFF FROM -1

GAEC EO RELEASE: V 10/9/67

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		LM4(34)	
		THRU	
		LM15(45)	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO

DISPOSITION OF PARTS: NOT REQ'D. REWORK SCRAP

APPROVED BY	JAS			FDR			MRB	
DATE	10/4/67			10/4/67	10/5/67		10/4/67	10/7/67
C	VDI	~~SUPPORT~~ THERM	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	~~GOVT~~

PRIORITY: C

DRAWING TITLE: THERMAL BLANKET INSTL. S" BAND STEERABLE ANTENNA

DRAWING NO. LDW280-28885

EO NO. B8

10-6
ISSUED BY P. KEISER 10/4/67 X7033 SECTION VDI GROUP NO. 335 PL 25

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NAS 9-1100

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ENG 32.1 REV 3-66

GRUMMAN AIRCRAFT ENGINEERING CORP.
CODE IDENT NO. 26512
ENGINEERING ORDER

DWG NO. LEO 280
EO NO. 819
CONTROL INFO NO. LM 29-1125

ON DWGS LISTED BELOW IN F/D & B/M ADD 6S577A-4 (A/R) STAPLES IN ADDITION TO 6S577A-1 & 6S577A-2 STAPLES AS APPLICABLE. SOURCE IS SAME AS 6S577A-1 & -2.

DWG NO.	TITLE	CH.NO.
LDW280-28885-3;-5;-7, -11;-13;-15 & -17 ✓	SEE DWG	B9
LDW280-52897-73 -75 -77 -79 -74 -76 -78 -80		C6
LDW280-52180-63 -65 -67 -69 -64 -66 -68 -70	SEE DWG	C2

DETAIL SPEC REQ ☐ CL II ENGRG CNG ☑ CL I ENGRG CNG ☐ (29)

REASON FOR EO: TO ALLOW FOR GREATER AVAILABILTY & VARIATION OF LENGTHS.

DESCRIPTION OF EO: IN F/D & B/M ADDED 6S577A-4 STAPLES

GAEC EO RELEASE: VK

MODEL	PROCURING ACTIVITY NO.	GAEC UNIT NO.	SUB CONTR UNIT NO.
LM		NONE	

DRAWING CHANGE REQD: REVISE DWG ✓ RECORD EO
DISPOSITION OF PARTS: NOT REQD (REWORK / SCRAP)

APPROVED BY	JMS			—	DV	W.J.	JeP	B.H.
DATE	12/20/67			—	12/20	12-20-67	12/20/67	12-20-67
	VD1	SUPPORT	RELIAB. GROUP	GROUP LEADER	STRESS GROUP	LIAISON ENGRG	PROJ ENGRG	COMP

PRIORITY	DRAWING TITLE	DRAWING NO.	EO NO.
E29	NOTED ABOVE	LEO 280	819

ISSUED BY LIAISON C.J. MONTEBELLO X7930 SECTION VD1 GROUP NO. 335 PL 25

01

NAS 9-1100